Trust and the Legacy of the Transatlantic Slave Trade in Nigeria

This research note examines whether the Atlantic slave trade had lasting effects on trust in Nigeria. It replicates Nunn and Wantchekon's (2011) approach, using more recent data. I combine Nunn and Wantchekon's estimates for the number of enslaved people at the ethnic group level with survey data from modern-day Nigeria (Afrobarometer, 2022) to examine the relationship between the Transatlantic slave trade and two measures of social trust.

My first measure of trust is the extent to which respondents to the Afrobarometer survey trust their "elected local government council". This is a direct replication of one of the dependent variables in Nunn and Wantchekon's (2011) original study. My second measure of trust aims to operationalise "generalised trust", that is trust at its most abstract level, when the trustor and trustee are not clearly specified (Scheilk, Reimann and Cook, 2021).

I use OLS regressions with similar control variables to Nunn and Wantchekon. The dependent variable is Afrobarometer respondents' answers to questions about trust in local government and generalised trust. The independent variable is Nunn and Wantchekon's original operationalisation of the impact of the slave trade at the level of ethnic groups. I also supplement these linear regressions with non-linear-probability models to demonstrate that my findings are robust to different estimation methods.

The benefit of replicating Nunn and Wantchekon's study with more recent data is that it can provide evidence as to whether the impact of the Transatlantic slave trade on trust in Nigeria has changed overtime. This is relevant to broader questions in African political economy, particularly whether African countries can overcome historical determinants of poor economic development resulting from European violence. The benefit of replicating Nunn and Wantchekon's analysis with a different measure of trust is to highlight whether their findings can be extended to broader definitions of trust, beyond specific political institutions.

I find that there is a negative, statistically significant relationship between individuals' trust in local government and the extent to which their ethnic group was impacted by the slave trade. However, this relationship is not observed for generalised trust.

My results suggest that the relationship between the Transatlantic slave trade and trust in Nigeria is more complicated than Nunn and Wantchekon originally argued. There is a significant relationship between the Transatlantic Slave Trade and trust in particular institutions, but this does not extend to broader definitions of trust. As a result, a more detailed study of how the relationship between the Transatlantic Slave Trade and more specific kinds of trust could lead to a more informed understanding of how trust and social capital in Nigeria have been negatively impacted by the violence of slavery.

Literature review:

Africa experienced four different slave trades between 1400 and 1900 (Nunn, 2008, pp 140). The area that is now Nigeria was affected by the Transatlantic slave trade which lasted from

the 15th century to the mid-19th century and took the form of raids, kidnappings and other forms of violence towards the local population (Odeigha, 2017).

Nunn (2008) argues that the violence of the Transatlantic slave trade, and the other three slave trades, impacted the economic development of contemporary countries by weakening political structures and strengthening ethnic divides within Africa. He estimates the number of enslaved people kidnapped from different African counties and uses OLS regressions, with GDP per capita as the dependent variable, to find a statistically significant relationship between the impact of the four slave trades and GDP per capita.

Nunn and Wantchekon's (2011) research provides evidence for the causal mechanisms by which the slave trades impacted economic development. The authors use data from the 2005 round of the Afrobarometer survey to find a statistically significant relationship between the number of people taken in all four slave trades and trust across 17 countries in Africa.

Indeed, trust is a key component of social capital, a concept which captures peoples' expectations that other people will cooperate and work collectively to solve problems (Boix and Posner, 1998). Through its impact on social capital, trust is therefore a causal mechanism by which the four slave trades hindered economic development in Africa. People from ethnic groups that were most impacted by the slave trades are less trusting and are therefore less willing to partake in the kinds of collective action that will lead to economic growth (Nunn and Wantchekon, 2011, pp 3222).

Trust as a concept has a variety of applications and definitions in social research, the most common categorisation of trust is "generalised trust" and "particularised trust" (Schilke, Reimann and Cook, 2021). "Generalised trust" refers to an agent placing trust regardless of who is being trusted or the nature of the situation. "Particularised trust" is trust given by agent to a specific individual or organisation.

Data and methods:

I operationalise trust using data from the 8th round of the Afrobarometer survey in Nigeria (Afrobarometer, 2022). Data collection was conducted in 2021 and the data was published in 2022. Afrobarometer is a probability-based panel survey conducted across 35 countries to conduct face to face interviews. Using a probability sample means that the Afrobarometer is more representative of the population in each country than using other kinds of randomised samples (Cornesse et al, 2020). For Nigeria, there were 1,598 respondents in the 8th round of the survey.

I use two questions to get two different measures of trust that act as dependent variables in my analysis.

Firstly, I have an ordinal variable which aims to operationalise particularised trust towards local government. This directly replicates one of the dependent variables in Nunn and Wantchekon's original analysis (Nunn and Wantchekon, 2011, pp 3234). Afrobarometer

respondents were asked *"How much do you trust each of the following, or haven't you heard enough about them to say: Your local government council".* Respondents could give four possible responses *"not at all"*, *"just a little"*, *"somewhat"*, *"a lot"* or *"don't know/haven't heard"*. In my analysis, I remove respondents who stated "don't know/haven't heard" and rank the other responses from 1 to 4, to create an ordinal variable.

Secondly, I have a categorical variable to operationalise generalised trust. Afrobarometer respondents were asked *"Generally speaking, would you say that most people can be trusted or that you must be very"*, to which they could respond *"must be very careful"* (which is coded as 0) or "*most people can be trusted"* (which is coded as 1).

It is important to include this additional variable because the questionnaire for Afrobarometer changed between 2005 and 2022, which means that I cannot directly replicate all of Nunn and Wantchekon's results with later data. Therefore, including a measurement of a broader kind of trust, will provide an indication of how the Transatlantic slave trade impacted different kinds of trust in Nigeria, beyond trust in local government.

The independent variable in my analysis is taken from Nunn's data on the number of enslaved people between 1400-1900, broken down into different ethnic groups (Nunn, 2011). Nunn constructed this dataset using data from Trans-Atlantic Slave Trade Database, which collects data from registered ships carrying enslaved people that docked at European ports between 1514 and 1866 and data from Elbl (1997) for data from the 15th century. Nunn also uses the records of sales of enslaved people, registers, court records and church records to identify the ethnic identity of enslaved people (Nunn, 2008). In total, Nunn's dataset includes 80,656 enslaved people from the Transatlantic slave trade, with 229 distinct ethnic identities (Nunn, 2011, pp 3229).

Nunn's data for the later period of the Transatlantic slave trade (1514-1866) is the most reliable, it includes data from approximately 82% of all transatlantic slaving journeys attempted (Nunn, 2008). Data is less readily available for the 15th century, which means that Nunn's data is less reliable for the earlier period of the trans-Atlantic slave trade (Elbl, 1997, pp 31). However, given that the 15th century accounts for a small share of the Transatlantic slave trade, it will not have a large impact on my results.

I combine Nunn's data on the number of enslaved people taken from each ethnic group with the Afrobarometer survey by matching the ethnic group names in Nunn's dataset to the ethnic groups in the Afrobarometer data (respondents were asked their ethnic identity in question 81 of the survey).

Like Nunn and Wantchekon (2011), I operationalise the impact of the Trans-Atlantic slave trade on ethnic groups by taking the natural log of one plus the number of enslaved people from each ethnicity divided by the size of the land area that each group lived in the 19th century; Log(1+(enslaved people/area)).

A more accurate measure would be to divide the number of enslaved people taken from each ethnicity by the population size of each ethnicity in the 19th century. However, data on the population data of ethnic groups is not available for this period, so I use land area as an approximation as do Nunn and Wantchekon (2011, pp 3233). It is also important to take the natural log of this value, to avoid ethnic groups that are particularly large biasing my results.

Figure 1 shows a table of my independent variable for each of the ethnic groups which were included in both the Afrobarometer survey and Nunn and Wantchekon's (2011) dataset, and the number of Afrobarometer respondents in each group.

Figure 1: log(1+enslaved people/area) and number of observations for each ethnic group

Ethnic Group	Log(1+enslaved people/area) 2.d.p.	Number of respondents in 2022 Afrobarometer survey
Birom	0.019	9
Edo	0.62	14
Hausa	0.68	417
Ibibo	1.93	18
Ibo	2.5	221
Igala	0	4
Ijaw	1.01	31
Isoko	0.07	4
Jukun	0.01	6
Kanuri	0.045	42
Karekare	0.01	16
Nupe	1.20	16
Tiv	0.02	24
Yoruba	2.70	287

I have excluded four ethnic groups from my analysis that were in the Afrobarometer survey but not included in Nunn and Wantchekon's (2011) data. These were recorded as "Efik", "Ebira", "Fulani" and "Urhobo". The combined number of respondents from these ethnicities is 129.

With this data I have two hypotheses:

H1: Individuals from ethnic groups that were most impacted by the Transatlantic slave trade are less trusting of local government.

H2: Individuals from ethnic groups that were most impacted by the Transatlantic slave trade are less trusting of other people in general.

To test H1 and H2 I use two ordinary least squares (OLS) regressions with trust in the local government council and my generalised trust variable as the dependent variables, log(1+enslaved people/area) is the independent variable in both models. I use an OLS regression because this is the same approach as Nunn and Wantchekon (2011).

However, using an ordinal variable and a categorical variable as the dependent variables in OLS regressions can cause heteroskedasticity. As a result, I also conduct an ordered logit regression with trust in the council as the independent variable and a logit regression with generalised trust to test H1 and H2.

This is not an ideal solution to the problem of heteroskedasticity. Non-linear-probability-models (like logit regressions) are difficult to interpret, and the magnitudes of the coefficients cannot be compared between models (Breen et al, 2018). However, given that my hypotheses are about the direction of the relationship between the Trans-Atlantic Slave Trade and trust, not the magnitude, supplementing the results of a linear model with those of an ordered logit regression is justified. As a result, I make no attempt to interpret the intercepts, log-odds or predicted probabilities for my non-linear-probability models. I only aim to demonstrate that the direction of the coefficient for my independent variable is the same across linear and non-linear models.

I include the same control variables in each model. The control variables are at the level of the individual respondent to the Afrobarometer survey and are almost all the same as those used by Nunn and Wantchekon (2011). The specification for my OLS models are given below:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_2^2 + \beta_4 X_3 + \beta_5 X_4 + \beta_6 X_5 + \beta_7 X_6 + \beta_8 X_7 + \beta_9 X_8 + \beta_{10} X_9 + \beta_{11} X_{10} + \varepsilon$$

X_1 is the independent variable (log(1+enslaved people/area).) X_2 to X_9 are control variables from the Afrobarometer survey: age (and age squared), gender, 5 living condition fixed effects, 10 education fixed effects, 25 religion fixed effects, 25 occupation fixed effects and an indicator of whether the respondent lives in an urban or rural area. Some of these variables could be included as continuous variables, such as living conditions, but I have included them as fixed effects to be as close as possible to Nunn and Wantchekon's original model (2011, pp 3234).

One difference between my models and Nunn and Wantchekon's is that I also include fixed effects for the region of Nigeria that each respond lived in at the time of the 2021 Afrobarometer survey (X_{10}). I do this to approximate Nunn and Wantchekon's inclusion of ethnic fractionalisation in the district where survey respondents lived. Nunn and Wantchekon do not document their process for calculating ethnic fractionalisation, so I have not been able to replicate this. Nonetheless, controlling for the region that respondents lived in is important for studying Nigeria, given that regional identity is important in Nigerian politics and regional political parties have historically been some of the most powerful (Osaghae, 1998 pp 36-37).

It is also important to note that there is a risk of autocorrelation in my models, given that the data is clustered within ethnic groups and geographic regions in Nigeria. Nunn and Wantchekon adjust the standard errors of their regression models to account for this (2011, pp 3234). I have not done this, and my results should therefore be interpreted with caution, as autocorrelation can reduce the reliability of the p-values in OLS models.

Summary and discussion of findings:

The results of my two OLS regressions are presented in figure 2. To make the tables easier to read, I do not present the coefficients of my control variables for individuals' characteristics (X_2 to X_9) or the coefficients for the regional fixed effects (X_{10}), but I do include these in the appendix for reference.

There is a negative relationship between the exposure of ethnic groups to the Transatlantic slave trade and individuals' trust in local government in 2021. This relationship is statistically significant at the 5% level. This means that we can reject the null-hypothesis for H1 (that there is no relationship between the slave trade and trust in local government) with 95% confidence.

However, there is no statistically significant relationship between the exposure of different ethnic groups to the Transatlantic Slave Trade and individuals' generalised trust in 2021. This means that we cannot reject the null hypothesis for H2.

Figure 2: OLS models for trust in local government/council and generalised trust

	Trust in council	Generalised trust
	(1)	(2)
log(1+enslaved people/land area)	-0.149*	-0.0005
	(0.066)	(0.021)
Individual controls	yes	yes
Regional fixed effects	yes	yes
Observations	1,108	1,108
R^2	0.287	0.109
Adjusted R^2	0.235	0.043
Residual Std. Error (df = 1031)	0.840	0.263
F Statistic (df = 76; 1031)	5.467***	1.652***
Note:		*p<0.05, **p<0.01, ***p<0.001

I also observe results that are qualitatively similar in the non-linear-probability models (see appendix). There is a negative relationship between the exposure of ethnic groups to the Transatlantic slave trade and respondents' trust in local government, which is statistically

significant 5% level, in my ordered logit regression. However, there is no statistically significant relationship between the Transatlantic Slave Trade and generalised trust in my non-linear-probability models.

Moreover, the magnitude of my OLS coefficient for the impact of the Transatlantic slave trade on trust in local government is similar to that which Nunn and Wantchekon observed with Afrobarometer data from 2005. Nunn and Wantchekon's coefficient for 17 countries using 2005 Afrobarometer data was -0.111 (2011, pp3234), while my coefficient for Nigieria, using 2021 data, is -0.149. This suggests that the relative importance of the slave trade did not change significantly in the 16 years between 2005 and 2021.

These results suggest that Nunn and Wantchekon's (2011) findings are still applicable to Nigeria, 16 years after their original data was collected and that legacy of the Transatlantic slave trade still has an impact on Nigerian political economy, in such a way that hinders the development of social capital and ultimately economic development.

However, the fact that I find no relationship between the Transatlantic Slave Trade and my measure of generalised trust suggests that Nunn and Wantchekon's findings are not applicable to all forms of trust. Trust is a complicated concept to measure, and its meaning can vary depending on the agents and context involved (Schilke, Reimann and Cook, 2021). It is therefore possible that the Transatlantic slave trade did not have the same impact on trust between individuals, as it did on trust towards specific institutions.

Further analysis of how the slave trade impacted different kinds of trust is possible with the 2021 Afrobarometer data, but there is not enough space to include such a discussion here. Respondents were asked about their trust in different institutions, such as the national parliament, the police and courts of law (Afrobarometer, 2022). These could provide possible variables for further study.

Indeed, this has important policy implications because other research has found the government policies can impact trust towards national political institutions (such as the presidency and ruling political parties) but have no impact on trust towards local government or opposition parties (Chukwuma et al, 2019). More research on the historical determinants of specific kinds of trust in Nigeria could help inform policy that aims to improve social capital.

Conclusion:

The above analysis emphasizes the importance of the legacy of Transatlantic slavery for social capital and economic development in Nigeria. It provides evidence that Nunn and Wantchekon's original findings are still valid over a decade later. Moreover, it shows that the same relationship between the impact of the Transatlantic slave trade at the ethnic group level on trust in local government at the individual level can be observed within specific countries (Nigeria), as well as across the entire continent of Africa.

However, Nunn and Wantchekon's findings cannot be applied to all measures of trust. I found no relationship between the Transatlantic slave trade and my measurement of generalised trust, which is the broadest measurement of trust included in my analysis.

The implications of these findings for policy are significant. They suggest that the social capital in Nigeria is still hindered by the legacy of historical violence from the Transatlantic slave trade, but there are areas where this legacy is less impactful. As a result, further research should focus on more detailed study on the relationship between the Transatlantic slave trade and different kinds of trust. This could help governments develop policies to overcome the violent legacy of slavery and promote economic development.

Please see the bottom of the appendix for my R code.

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Appendix:

Figure 3: Ordered logit for trust in local government/council and generalised trust

	ordered logistic	*logistic*
	Trust in council	Generalised trust
	(1)	(2)
log(1+enslaved people/land area)	-0.357*	0.174
	(0.157)	(0.392)
Individual controls	yes	yes
Regional fixed effects	yes	yes
Observations	1,108	1,108
Log Likelihood		-235.116
Akaike Inf. Crit.		624.231
Note:		*p<0.05,**p<0.01***p<0.001

Figure 4: OLS regressions with all control variables listed

	Trust in council and generalised trust	
	Trust in council	generalised trust
	(1)	(2)

log(1+enslaved people/land area)	-0.149*	-0.0005
	(0.066)	(0.021)
as.factor(OCC)1	0.245	-0.002
	(0.205)	(0.064)
as.factor(OCC)2	0.240	0.060
	(0.205)	(0.064)
as.factor(OCC)3	0.250	0.030
	(0.196)	(0.061)
as.factor(OCC)4	0.133	0.043
	(0.199)	(0.062)
as.factor(OCC)5	0.257	-0.021
	(0.208)	(0.065)
as.factor(OCC)6	-0.126	-0.021
	(0.228)	(0.072)
as.factor(OCC)7	0.148	0.031
	(0.196)	(0.061)
as.factor(OCC)8	0.317	-0.074
	(0.317)	(0.099)
as.factor(OCC)9	0.418	-0.056
	(0.309)	(0.097)
as.factor(OCC)10	0.234	-0.004
	(0.316)	(0.099)
as.factor(OCC)11	0.411	-0.009
	(0.220)	(0.069)

as.factor(OCC)12	0.359	-0.037
	(0.285)	(0.089)
as.factor(OCC)9995	0.257	-0.039
	(0.320)	(0.100)
as.factor(RELIGION)2	-0.262	0.017
	(0.195)	(0.061)
as.factor(RELIGION)5	-0.355	0.040
	(0.393)	(0.123)
as.factor(RELIGION)9	0.460	-0.046
	(0.881)	(0.276)
as.factor(RELIGION)13	0.303	-0.118
	(0.496)	(0.156)
as.factor(RELIGION)18	-0.077	0.025
	(0.097)	(0.030)
as.factor(RELIGION)19	-0.557	0.085
	(0.901)	(0.282)
as.factor(RELIGION)22	0.091	-0.006
	(0.332)	(0.104)
as.factor(RELIGION)23	0.478	0.194
	(0.377)	(0.118)
as.factor(RELIGION)24	1.138	-0.195
	(0.858)	(0.269)
as.factor(RELIGION)25	-0.740	-0.084
	(0.859)	(0.269)

as.factor(URBAN)1	0.025	-0.059**
	(0.066)	(0.021)
as.factor(LC)2	0.189*	-0.042
	(0.081)	(0.025)
as.factor(LC)3	0.240**	-0.018
	(0.090)	(0.028)
as.factor(LC)4	0.256**	-0.014
	(0.080)	(0.025)
as.factor(LC)5	0.459***	-0.046
	(0.094)	(0.029)
AGE	0.001	-0.001
	(0.002)	(0.001)
as.factor(EDU)1	0.294*	0.098*
	(0.134)	(0.042)
as.factor(EDU)2	0.161	0.108*
	(0.147)	(0.046)
as.factor(EDU)3	0.018	0.035
	(0.114)	(0.036)
as.factor(EDU)4	-0.132	0.074
	(0.131)	(0.041)
as.factor(EDU)5	-0.017	0.042
	(0.111)	(0.035)
as.factor(EDU)6	-0.074	0.060
	(0.129)	(0.041)

as.factor(EDU)7	0.045	0.051
	(0.157)	(0.049)
as.factor(EDU)8	-0.128	0.166**
	(0.160)	(0.050)
as.factor(EDU)9	-0.271	0.242*
	(0.379)	(0.119)
as.factor(SEX)female	-0.042	0.006
	(0.062)	(0.020)
as.factor(REGION_recode)EDO	-0.586	-0.134
	(0.302)	(0.095)
as.factor(REGION_recode)LAGOS	-0.173	-0.172*
	(0.275)	(0.086)
as.factor(REGION_recode)NIGER	-0.056	-0.178*
	(0.267)	(0.084)
as.factor(REGION_recode)BAUCHI	0.167	-0.065
	(0.273)	(0.086)
as.factor(REGION_recode)NASARAWA	-0.276	-0.147
	(0.477)	(0.150)
as.factor(REGION_recode)SOKOTO	0.269	-0.069
	(0.256)	(0.080)
as.factor(REGION_recode)KADUNA	0.413	-0.195*
	(0.269)	(0.084)
as.factor(REGION_recode)KANO	0.536*	-0.175*
	(0.238)	(0.075)

as.factor(REGION_recode)KATSINA	0.506*	-0.021
	(0.250)	(0.078)
as.factor(REGION_recode)JIGAWA	0.708**	-0.172*
	(0.255)	(0.080)
as.factor(REGION_recode)KEBBI	0.541*	-0.215*
	(0.270)	(0.085)
as.factor(REGION_recode)ZAMFARA	0.118	-0.187*
	(0.267)	(0.084)
as.factor(REGION_recode)FCT ABUJA	0.200	-0.232*
	(0.322)	(0.101)
as.factor(REGION_recode)GOMBE	0.309	-0.217*
	(0.322)	(0.101)
as.factor(REGION_recode)ADAMAWA	0.076	-0.231
	(0.536)	(0.168)
as.factor(REGION_recode)YOBE	0.370	-0.157
	(0.286)	(0.090)
as.factor(REGION_recode)ONDO	0.033	-0.076
	(0.301)	(0.094)
as.factor(REGION_recode)BORNO	0.098	-0.195*
	(0.255)	(0.080)
as.factor(REGION_recode)AKWA IBOM	-0.222	-0.222*
	(0.332)	(0.104)
as.factor(REGION_recode)RIVERS	-0.221	-0.103
	(0.303)	(0.095)

as.factor(REGION_recode)IMO	-0.141	-0.231*
	(0.289)	(0.091)
as.factor(REGION_recode)ANAMBRA	0.210	-0.020
	(0.294)	(0.092)
as.factor(REGION_recode)ENUGU	-0.080	-0.176
	(0.296)	(0.093)
as.factor(REGION_recode)ABIA	-0.290	-0.172
	(0.293)	(0.092)
as.factor(REGION_recode)DELTA	-0.348	-0.233*
	(0.322)	(0.101)
as.factor(REGION_recode)TARABA	-0.139	-0.174
	(0.386)	(0.121)
as.factor(REGION_recode)BAYELSA	-0.312	-0.216*
	(0.292)	(0.091)
as.factor(REGION_recode)OGUN	0.064	-0.130
	(0.293)	(0.092)
as.factor(REGION_recode)EBONYI	-0.286	-0.172
	(0.336)	(0.105)
as.factor(REGION_recode)BENUE	-0.382	-0.217*
	(0.280)	(0.088)
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	(0.287)	(0.090)
as.factor(REGION_recode)KWARA	0.119	-0.202
	(0.329)	(0.103)

as.factor(REGION_recode)CROSS RIVER	-1.167	-0.116
	(0.926)	(0.290)
as.factor(REGION_recode)KOGI	-0.578	-0.080
	(0.424)	(0.133)
as.factor(REGION_recode)EKITI	-0.207	-0.210*
	(0.326)	(0.102)
as.factor(REGION_recode)OSUN	0.293	-0.191*
	(0.305)	(0.096)
Constant	1.734***	0.208*
	(0.314)	(0.098)
Observations	1,108	1,108
R^2	0.287	0.109
Adjusted R^2	0.235	0.043
Residual Std. Error (df = 1031)	0.840	0.263
F Statistic (df = 76; 1031)	5.467***	1.652***
Note:		*p<0.05,**p<0.01,***p<0.001

R-code:

```
rm(list=ls())

setwd("C:/Users/XXXXX/OneDrive/Documents/Masters/Advanced topics in quantitative social research/Project/Drafts/R code")

library(haven)

library(tidyr)

library(lattice)

library(lme4)

library(lmerTest)

ABR8 <- read_spss("afrobarometer_release-dataset_merge-34ctry_r8_en_2023-03-01 (2).sav") #Afrobarometer data from round 8.

st_data <- read_dta("tribe_level_slave_exports_Atlantic_Indian.dta") # Nunn's estimates for enslaved people taken in the Indian Ocean and Atlantic Ocean slave trades by ethnic group.


#####Selecting relevant survey variables#####

ABR8_sel <- ABR8 |>

  dplyr::select(Q1,Q83,Q81,Q4B,Q95C, Q97, Q98A, Q101, Q41A,Q41B, Q41C, Q41D, Q41E, Q41F, Q41G, Q41H, Q41J, Q41K, Q41L, URBRUR,COUNTRY, REGION)|> #The variables are: age, "generalised trust", ethnicity, self-reported living standards, occupation, whehter the respondent lives in an urban/rural area, and country.

  unique()


####Getting data just for Nigeria####


ABR8_NIGERIA <- ABR8_sel |> dplyr::filter(COUNTRY==26) |> unique()
```

```
ABR8_NIGERIA$Ethnicity <- ifelse(ABR8_NIGERIA$Q81<9990,ABR8_NIGERIA$Q81,NA) # removing NAs from ethinicity response.

ABR8_NIGERIA$murdock_name <- ifelse(ABR8_NIGERIA$Ethnicity==620,"HAUSA",ifelse(ABR8_NIGERIA$Ethnicity==621,"IBO",if
else(ABR8_NIGERIA$Ethnicity==622,"YORUBA",
ifelse(ABR8_NIGERIA$Ethnicity==626,"ISOKO",
ifelse(ABR8_NIGERIA$Ethnicity==627,"IBIBIO",
ifelse(ABR8_NIGERIA$Ethnicity==628,"KANURI",
ifelse(ABR8_NIGERIA$Ethnicity==629,"TIV",ifelse(ABR8_NIGERIA$Ethnicity==630,"NUPE",ifel
se(ABR8_NIGERIA$Ethnicity==631,"IJAW",ifelse(ABR8_NIGERIA$Ethnicity==632,"EDO",
ifelse(ABR8_NIGERIA$Ethnicity==633,"IGALA",
ifelse(ABR8_NIGERIA$Ethnicity==634,"URHOBO",
ifelse(ABR8_NIGERIA$Ethnicity==641,"BIROM",ifelse(ABR8_NIGERIA$Ethnicity==643,"JUKU
N",ifelse(ABR8_NIGERIA$Ethnicity==645,"KAREKARE",ifelse(ABR8_NIGERIA$Ethnicity==646,
"AGATU", ifelse(ABR8_NIGERIA$Ethnicity==647,"Buju",NA)))))))))))))))

# The above long line of code assigns the name from Nunn's dataset to the ethnic groups in the afrobarometer survey.


####Removing "don't knows" and "non-responses" from my control variables####


# Age control variable, remove non-responses

ABR8_NIGERIA$AGE <- ifelse(ABR8_NIGERIA$Q1==-
1,NA,ifelse(ABR8_NIGERIA$Q1==998,NA,ifelse(ABR8_NIGERIA$Q1==999,NA,ABR8_NIGERIA
$Q1)))


# Adding labels to gender variable

ABR8_NIGERIA$SEX <- factor(ABR8_NIGERIA$Q101,

                           levels = c(1,2),

                           labels = c("male","female"))


#Urban/rural/suburban, change to a categorical variable where 1=respondent lives in an urban location

ABR8_NIGERIA$URBAN <- ifelse(ABR8_NIGERIA$URBRUR==1,1,0)
```

```
#Living standards, remove non-responses and "don't knows"

ABR8_NIGERIA$LC <- ifelse(ABR8_NIGERIA$Q4B==-1,NA,ifelse(ABR8_NIGERIA$Q4B==8,NA,ifelse(ABR8_NIGERIA$Q4B==9,NA,ABR8_NIGERIA$Q4B)))


#occupation, remove non-responses

ABR8_NIGERIA$OCC <- ifelse(ABR8_NIGERIA$Q95C==-1,NA,ifelse(ABR8_NIGERIA$Q95C==9998,NA,ifelse(ABR8_NIGERIA$Q95C==9999,NA,ABR8_NIGERIA$Q95C)))


#Getting the variable for respondents' education level

ABR8_NIGERIA$EDU <- ifelse(ABR8_NIGERIA$Q97==-1,NA,ifelse(ABR8_NIGERIA$Q97>10,NA,ABR8_NIGERIA$Q97))


# Getting variable for respondents' religions

ABR8_NIGERIA$RELIGION <- ifelse(ABR8_NIGERIA$Q98A==-1,NA,ifelse(ABR8_NIGERIA$Q98A>25,NA,ABR8_NIGERIA$Q98A))


#Region, adding region labels for regional fixed effects

ABR8_NIGERIA$REGION_recode <- factor(ABR8_NIGERIA$REGION,

        levels = c(651, 631, 644, 646, 624, 645, 653, 638, 639, 640, 637, 641, 656, 634, 635, 621, 655, 648, 627, 622, 652, 636, 623, 633, 620, 629, 654, 625, 647, 630, 626, 650, 643, 628, 642, 632, 649),

        labels = c("plateau","EDO","LAGOS","NIGER","BAUCHI","NASARAWA","SOKOTO","KADUNA","KANO","KATSINA","JIGAWA","KEBBI","ZAMFARA","FCT ABUJA","GOMBE","ADAMAWA","YOBE","ONDO","BORNO","AKWA IBOM","RIVERS","IMO","ANAMBRA","ENUGU","ABIA","DELTA","TARABA","BAYELSA","OGUN","EBONYI","BENUE","OYO","KWARA","CROSS RIVER","KOGI","EKITI","OSUN"))
```

```
#This bit of code removes non-responses and "don't knows" from the generalised trust question by assigning them as NAs.

ABR8_NIGERIA$gtrust <- ifelse(ABR8_NIGERIA$Q83==1,1,ifelse(ABR8_NIGERIA$Q83==0,0,NA))


#Getting variables for trust in local council.

ABR8_NIGERIA$trust_council <- ifelse(ABR8_NIGERIA$Q41D==0, 1, ifelse(ABR8_NIGERIA$Q41D==1,2,ifelse(ABR8_NIGERIA$Q41D==2,3,ifelse(ABR8_NIGERIA$Q41D==3,4,NA))))


####Selecting variables from Nunn's replication file####

st_sel <- st_data |>

 dplyr::select(murdock_name,land_area,atlantic_all_years,indian_all_years)|>

 unique()

#Creating indpendent variable: log(1+enslavedpeople/area)

st_sel$log_enslavedppl <- log(1+(st_sel$atlantic_all_years+st_sel$indian_all_years)/st_sel$land_area) # Recreating the dependent variable from Nunn's paper.


#####Merging data####


dta_all <- merge(ABR8_NIGERIA, st_sel, by="murdock_name")|>

 unique() |>

 drop_na() # Merging ABR8 data and st data for Nigeria.

names(dta_all)


#Getting a table to show the "log_enslavedppl" variable by ethnic group.

library(dplyr)

library(tidyr)

Log_enslaved_grouped <- group_by(dta_all, murdock_name)
```

```
summarize(Log_enslaved_grouped,log_enslavedppl = unique(log_enslavedppl))

table(dta_all$murdock_name)


#####Models#####


#Generalised trust logit

gtrust_logit <- glm(gtrust~log_enslavedppl+as.factor(OCC)+as.factor(RELIGION)+as.factor(URBAN)+as.factor(LC)+AGE+AGE*AGE+as.factor(EDU)+as.factor(SEX)+as.factor(REGION_recode), data=dta_all, family=binomial)

summary(gtrust_logit)


#Generalised trust OLS

gtrust_OLS <- lm(gtrust~log_enslavedppl+as.factor(OCC)+as.factor(RELIGION)+as.factor(URBAN)+as.factor(LC)+AGE+AGE*AGE+as.factor(EDU)+as.factor(SEX)+as.factor(REGION_recode), data=dta_all)


#####Trust in the council OLS#####

council_OLS <- lm(trust_council~log_enslavedppl+as.factor(OCC)+as.factor(RELIGION)+as.factor(URBAN)+as.factor(LC)+AGE+AGE*AGE+as.factor(EDU)+as.factor(SEX)+as.factor(REGION_recode), data=dta_all)

summary(council_OLS)


#Adding value labels for the trust in council ordinal logit model#

library(MASS)

dta_all$trust_council_recode <- factor(dta_all$trust_council,

                levels = c(1,2,3,4),

                labels = c("not at all", "just a little", "somewhat", "a lot"))
```

```
# Running the ordered logit model

council_ordlogit <- polr(trust_council_recode~log_enslavedppl+as.factor(OCC)+as.factor(RELIGION)+as.factor(URBAN)+as.factor(LC)+AGE+AGE*AGE+as.factor(EDU)+as.factor(SEX)+as.factor(REGION_recode),data=dta_all, Hess=TRUE )

summary(council_ordlogit)


#####Variable descriptive plots####

nrow(dta_all)

table(dta_all$trust_council_recode)

table(dta_all$gtrust)


#####Presenting models#####

library(stargazer)


#OLS models in figure 2

stargazer(list(council_OLS, gtrust_OLS),

        keep="log_enslavedppl",

        dep.var.caption = "Trust in council and generalised trust",

        column.labels = c("Trust in council", "generalised trust"),

        covariate.labels = c("log(1+enslaved people/land area)"),

        add.lines = list(c("Individual controls","yes", "yes"), c("Regional fixed effects", "yes", "yes")),

        type = "html",

        digits = 3,

        no.space = T,

        intercept.bottom = TRUE,

        star.cutoffs = c(0.05, 0.01, 0.001),

        out="OLS models.html")
```

```
#Non-linear_probability models in figure 3
stargazer(list(council_ordlogit, gtrust_logit),
        keep="log_enslavedppl",
        dep.var.caption = "Trust in council and generalised trust",
        column.labels = c("Trust in council", "generalised trust"),
        covariate.labels = c("log(1+enslaved people/land area)"),
        add.lines = list(c("Individual controls","yes", "yes"), c("Regional fixed effects", "yes", "yes")),
        type = "html",
        digits = 3,
        no.space = T,
        intercept.bottom = TRUE,
        star.cutoffs = c(0.05, 0.01, 0.001),
        out="NLP models.html")

#OLS models with all control variables in figure 4
stargazer(list(council_OLS, gtrust_OLS),
        dep.var.caption = "Trust in council and generalised trust",
        column.labels = c("Trust in council", "generalised trust"),
        covariate.labels = c("log(1+enslaved people/land area)"),
        digits = 3,
        no.space = T,
        intercept.bottom = TRUE,
        star.cutoffs = c(0.05, 0.01, 0.001),
        out="OLS models all variables.html")
```