Things Fall Apart:
Missions, Institutions, and Trust

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Abstract

Economists are becoming increasingly aware of the importance of trust for economic performance, but relatively little is known regarding why levels of trust differ across societies. In this paper, we study the long-term effects of institutional changes arising from missionary activities in 19th century Nigeria on current levels of trust. We construct a dataset of the location of Christian mission stations in 1928 Nigeria and show that members of ethnic groups exposed to greater historical missionary activity express significantly less trust today. This result is robust to a variety of specifications and controls, including measures of the intensity of the trans-Atlantic slave trade. We also use the geographic variation in missionary activity to show that the negative effect of missions on trust is robust to ethnic group fixed effects. From studies of colonial and missionary records, we find substantial evidence that traditional institutions fell apart because of missionary tactics that assumed these institutions were incompatible with Christianity. The falling apart of traditional institution led to documented increases in uncooperative behaviour. Thus we argue that the empirical result can be explained by the resulting decline in trust being transmitted across generations. Results do not support the view that conversion to Christianity made individuals inherently less trusting or trustworthy, because the result also holds when the sample is restricted to Muslims.

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1   Introduction

Social scientists have become increasingly aware of the economic and social benefits of a cohesive society.[1] Arrow (1972) identifies trust between economic agents in a society—a key component of social cohesion—as an important lubricant for economic transactions taking place over time, without which some markets may not exist. Recent studies have documented the empirical importance of trust in economic growth and development. Trust is positively related to economic performance because of its role in financial markets, the innovation process, organization of firms, labour market performance, and institutional quality (Algan and Cahuc, 2013).[2]

Given the importance of trust and cooperative behaviour in economic performance, a natural question arises regarding the sources of differences in trust across societies even within a country? At the individual level, trust is found to be positively correlated with income, age, education, living conditions, and traumatic past experiences (Alesina and La Ferrara, 2002; Helliwell and Putnam, 1999). However, Algan and Cahuc (2013) find individual characteristics explain very little of the cross-society variation in trust, and suggest that the origins differences in trust must lie in society-specific circumstances. Compared to the economic effects of trust, society-specific origins of trust have remained largely unexplored, especially for developing societies. Current explanations range from the role of geography and climate (Durante, 2010; Zylberberg, 2010), to the importance of historical circumstances (Aghion et al., 2010; Becker et al., 2011; Guiso et al., 2008; Tabellini, 2007). On African societies, Nunn and Wantchekon (2011) find that some of the differences in trust between African societies can be traced back to exposure to the trans-Atlantic slave trade.

This paper contributes to the literature on the historical determinants of trust across societies. We construct a dataset on the location of mission stations in colonial Nigeria as at 1928, and use the historical variation in missionary activity to study the effects of institutional changes on trust. Early missionaries recognized that the success of their work rested on institutional change in African societies, or as one missionary put it, "the substitution of a civilized authority for the accursed despotism of Pagan and Mohammedan powers" (Ayandele, 1966, p. 5). Thus, missionary tactics directly encouraged institutional transformation through British military expeditions, and indirectly, through the expansion of mission schools and the use of mission houses as sanctuaries. The immediate effects of these changes are captured in the words of a British colonial officer who noted, in 1925, that the new Christians appeared "freer, but leaderless" (Anene, 1966, p.324).

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[1]Important pioneering works are those of Coleman (1994) and Putnam (2000). Empirical studies in this field are too numerous to mention, but see Osberg (2003), Durlauf and Fafchamps (2005), and the references therein, for the perspective of different economists on the implications of social cohesion on economic performance, health, volunteering, and children's well-being.

[2]See the surveys by Bowles and Polania-Reyes (2012) and Guiso et al. (2010) for more on the importance of cooperative behaviour on economic performance. The positive cross-country relationship between trust and economic performance is documented in Knack and Keefer (1997), and Algan and Cahuc (2010) show the relationship is robust to identification problems related to reverse causality and omitted variables. Tabellini (2010) provides extensive evidence on the relationship between trust and economic performance across regions of Europe, and Guiso et al. (2008) provide evidence on trust and economic performance across Italian regions.

We study the long-term effects of these institutional transformations by examining the relationship between the intensity of an ethnic group's exposure to historical missionary activity and levels of trust reported by members of that ethnic group today. Our primary result is that individuals from ethnic groups exposed to greater missionary activity express significantly less trust in relatives, neighbours, and other individuals, as measured in the *Afrobarometer* survey (ICSPR, 2005). This result is robust to a variety of econometric specifications, as well as the inclusion of individual, geographic, and location-specific controls found to be correlated with trust in the literature.

From the history of missionary activity in Nigeria, we argue that the location of mission stations within ethnic homelands was exogenous to initial levels of trust, but instead rested on two important factors: The first is the colonial administration's policy of indirect rule that actively discouraged missionaries from the Northern parts of the country. A second important factor is historical exposure to the trans-Atlantic slave trade, and this makes missionary activity econometrically endogenous.[3] We find that that the effect of missionary activity on trust is robust to inclusion of measures of historical exposure to the slave trade from Nunn and Wantchekon (2011). Compared to the slave trade, the effect of missionary activity is stronger for trust in neighbours and relatives, but weaker for trust in other members of one's ethnic group and other people.[4]

To strengthen the causal interpretation of the relationship we find, we exploit the fact that since the establishment of the mission stations in our dataset, ethnic homelands in Nigeria have been divided into various states for political reasons (Aghalino and Danmole, 1995; Vande, 2012). The division of ethnic homelands generates an additional variation in missionary activity between communities within an ethnic group, and allows us to estimate a model with ethnic group fixed effects. Using the variation in missionary activity across states, and including ethnicity fixed effects, we find that the effect of missionary activity on trust remains negative and statistically significant. Furthermore, the model with ethnic group fixed effects delivers estimates similar to that using the cross-ethnic group variation in missionary activity but controlling for intensity of the slave trade.

To explain the results, we cite several examples, from colonial and missionary reports, showing an increase in uncooperative behaviour in the 19th and early 20th centuries as a result of weakened traditional institutions. We then argue that the decline in trust emanating from increased uncooperative behaviour have been passed down from earlier generations, as in the models of Tabellini (2008) and Bidner and Francois (2011). This inter-generational transmission is possible because traditional institutions have not been adequately replaced by a weak Nigerian state (Lewis, 2006).

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[3]As we explain later, exposure to the trans-Atlantic slave trade is correlated with missionary activity for two reasons: The high mortality rate of early European missionaries in Nigeria (and West Africa) meant that African missionaries were needed in missionary work. These African missionaries primarily came from resettled slaves in Sierra Leone who often preferred to take the message to their own people (Sundkler and Steed, 2000, Part III:5). Secondly, resettled Africans in various parts of the New World, and Sierra Leone, also pressured missionary societies into sending missionaries to their homelands (Tasie, 1978, Chapter 1).

[4]We find that the result is also robust to measures of intensity of the slave trade including the trans-Saharan trade. We only report the results using the trans-atlantic slave trade to save space, and also because of its relevance to missionary activities.

We do not find strong evidence that missionary activity has led to less trusting individuals because of the negative effects of Christianity. We divide our sample into Christians and Muslims and find that the negative effects of missionary activity on trust holds for both groups. The missionary impact on trust in is found to be even stronger for Muslims, especially for trust of others. We also use the *World Values Survey* (WVS, v.20090901, 2009) to show that there is no strong evidence that Christians are inherently less trusting than Muslims, especially with country fixed-effects included in the regressions. We only find Christians to be less trusting than Muslims in the case of African Christians and Muslims.

Other Related Literature: The results contribute to the literature on how institutions may affect levels of trust. Examples of studies in this vein include Tabellini (2007) who finds that American immigrants from European regions with despotic leaders in the past have less trust today. Gambetta (1996) argues that the Mafia in Sicily arose to fill the power vacuum created by the abolishment of feudalism in a weak state. Becker et al. (2011) find that European regions which lay within the Habsburg Empire still have greater trust in institutions, and Aghion et al. (2010) provide evidence that trust fell during the dissolution of the Soviet Union. In line with these studies, we also find that the breakdown in some Nigerian institutions with missionary contact is reflected in lower levels of trust today.

Our paper also adds to the literature on how European contact has influenced the comparative development of African economies. Previous studies have focused on the effects of colonial governments at the national level (Acemoglu et al., 2001), and the effects of the slave trade (Nunn, 2008; Nunn and Wantchekon, 2011). Our paper focuses the relatively understudied role of missionaries whose works have also greatly transformed various African societies.[5] Recent studies on the missionary impact on Africa find that missions have had large positive effects on schooling attainment and democratic attitudes (Gallego and Woodberry, 2010; Woodberry, 2012; Wantchekon et al., 2013; Nunn, 2014; Okoye et al., 2014).

The results here add a different dimension to our understanding of historical missionary work in Africa. In addition to the missionary impact on human capital, missionaries also influenced institutions and social capital in the areas where they operated. While we find levels of trust to be lower in areas with greater missionary activities, the aforementioned positive effects of missions on schooling means that the total missionary impact on development would involve a complete analysis of the impact on human capital, culture, institutions, and incomes.

In the next section we present the data used in the study, which is followed by a discussion of the sources of variation in the intensity of mission stations across ethnic groups. The fourth section presents the empirical analysis and results, and in the fifth section we build on a simple model of institutions and trust to present evidence on transmission mechanisms. The final section concludes.

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[5]Nunn (2010) shows that the work of missionaries have had long-lasting impacts across African. In Nigeria, missions have made remarkable gains. Christians only made up 21% of the Nigerian population in 1952, but now account for over 50% of the population (Ostien, 2012; NBS, 2013).

2 Data

We primarily use individual data from round 3 of the *Afrobarometer Survey* conducted in Nigeria (ICSPR, 2005). The survey is designed as a nationwide survey that would help our understanding of changes in the social and political atmosphere in several African countries. Importantly for our purposes, the survey ask questions regarding how much individuals trust their relatives, their neighbours, members of their ethnic groups, and other individuals. Individuals respond by indicating whether they do not trust at all, trust just a little, trust somewhat, or trust a lot, and the responses are coded from 0–3 respectively.

Data on the location of mission stations in Nigeria come from two sources. The first source is a map published by Roome (1925) showing the location of emphprincipal mission stations (Protestant and Catholic) in Africa in 1924. The map is highly regarded as accurate and is also used in Nunn (2014).[6] The information from Roome (1925) is combined with another map from Ayandele (1966), shown in Figure 1, containing mission stations in Southern and Northern Nigeria as at 1928. Information from both maps were cross-checked manually, and in order to avoid double-counting mission stations, we add a station from ayandele if it is not located in the same local government area in modern Nigeria (a county in the U.S.), as the mission station in Roome (1925). There is significant overlap in both maps, but the map from Ayandele (1966) provides information on about 30 additional mission locations (out of 159) in Nigeria, and gives a more comprehensive view of missionary activity in Nigeria at this time period.

We construct three different measures of historic exposure to missionary activity for robustness: two are related to the individual's ethnicity, and the third is related to the individual's current state of residence. Differences in the distribution of missions across different states would allow us to identify the effect of missions within an ethnic group. These states were created by successive military governments for primarily political reasons, and their numbers have risen from 2 in 1914, to 36 states and 1 Federal Capital Territory as at 2014 (Aghalino and Danmole, 1995).

For the ethnicity based measure, we combine the maps of mission stations with information on the land area historically inhabited by different ethnic groups provided on a map in Murdock (1959). Using the map from Murdock (1959), we compute the number of mission stations per 1000 km^2 of the individual's ethnic homeland. The ethnic groups included in the study, their homelands, and the mission stations located within them are shown in Figure 2. However, given that all communities within an ethnic group may not have been equally affected by the mission stations,[7] we also compute the number of mission stations within 25 and 50 kilometre radii of the

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[6]Gallego and Woodberry (2010) and Nunn (2014) make the distinction between Catholic and Protestant missions, but this distinction is not particularly relevant for our purpose, especially not in Nigeria where both mission types actively competed for converts and adopted similar tactics to get a foothold in any particular area (Okwu, 2010, p.111–113)

[7]For example, among the Hausa ethnic group, the mission stations were located on the outskirts of their homeland (in Kano, Zaria). As will be made clearer later on, this was in response to colonial policy which prevented missionaries from proselytizing among the Hausas. While located in Hausaland, these stations

geometric centre of the individual's homeland, as shown in Figure 3.

The different measures of missionary activity turn out to be highly correlated, with Spearman rank correlation coefficients above above .82 for the centroid-based and area-based measures, and a rank coefficient of .95 for both centroid-based measures. We use similar methods to compute the number of mission stations per 1000 km^2 of the individual's current state of residence. The Spearman rank correlation coefficient between the measure based on ethnic homeland and current state of resident is .8, and a Pearson correlation coefficient of .76, which is evidence that individuals tend to live in states within ethnic homelands. While there are over 250 identifiable ethnolinguistic groups in Nigeria, we are able to match 32 ethnic groups from the Afrobarometer survey to mission stations, and historical land areas from Murdock (1959). The ethnic groups in our study make up over 95% of Nigeria's population (NBS, 2013).
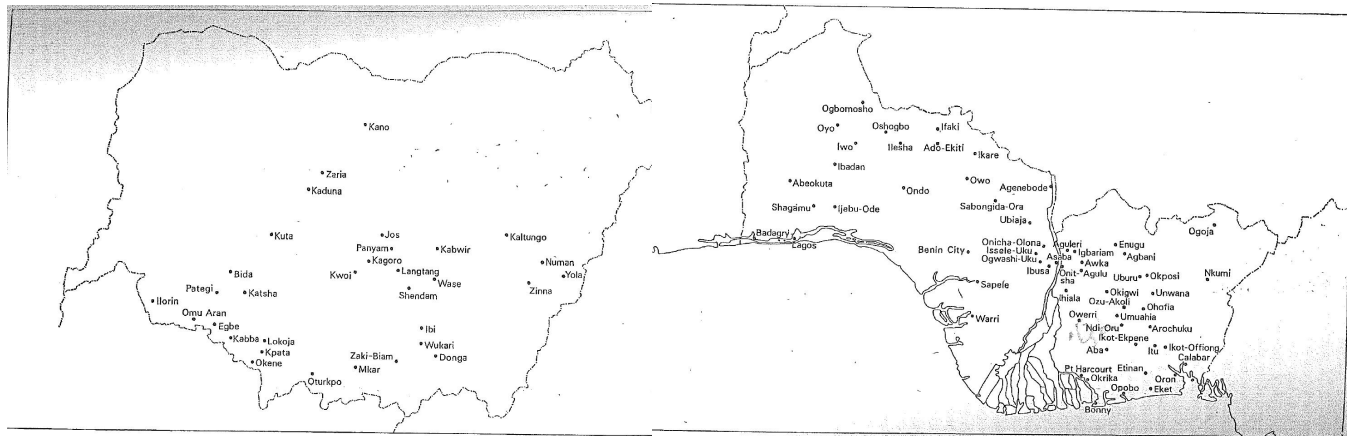

Figure 1: Maps showing mission stations in Northern and Southern Nigeria (Not to Scale)

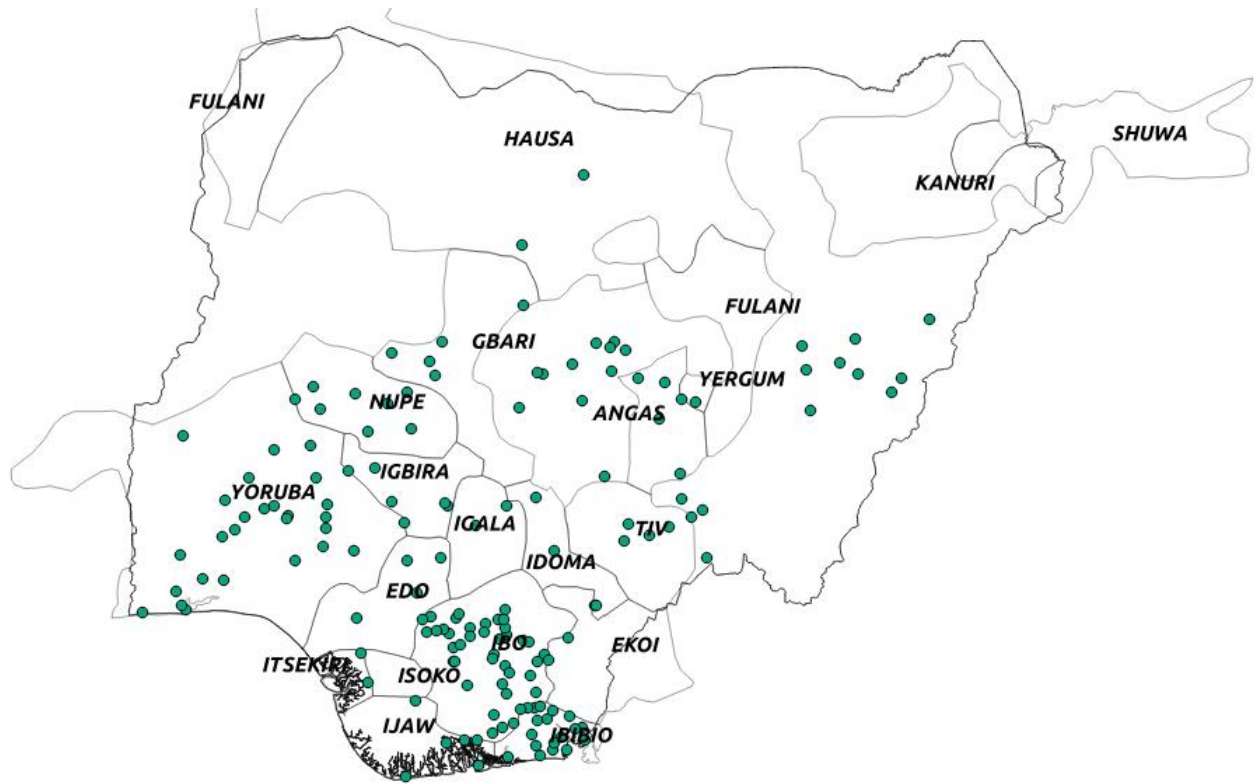effectively served early Christian converts who had migrated from the South (Barnes, 1995; Ayandele, 1966).

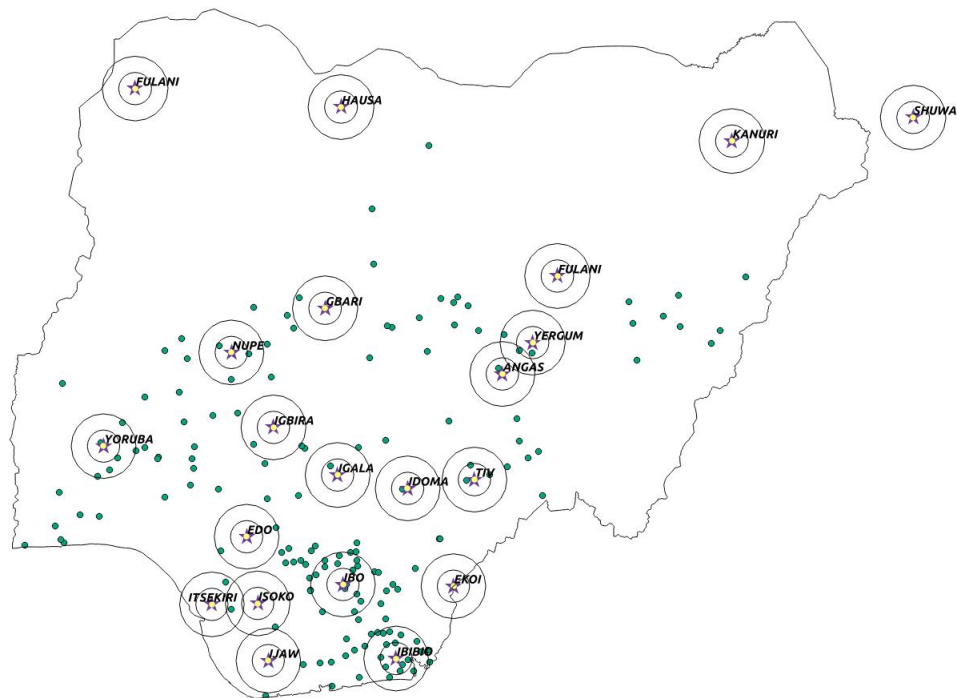**Figure 2:** Mission stations within ethnic homelands (as dots)

Figure 3: Mission stations within 25 and 50 km radii of centroid of ethnic homeland
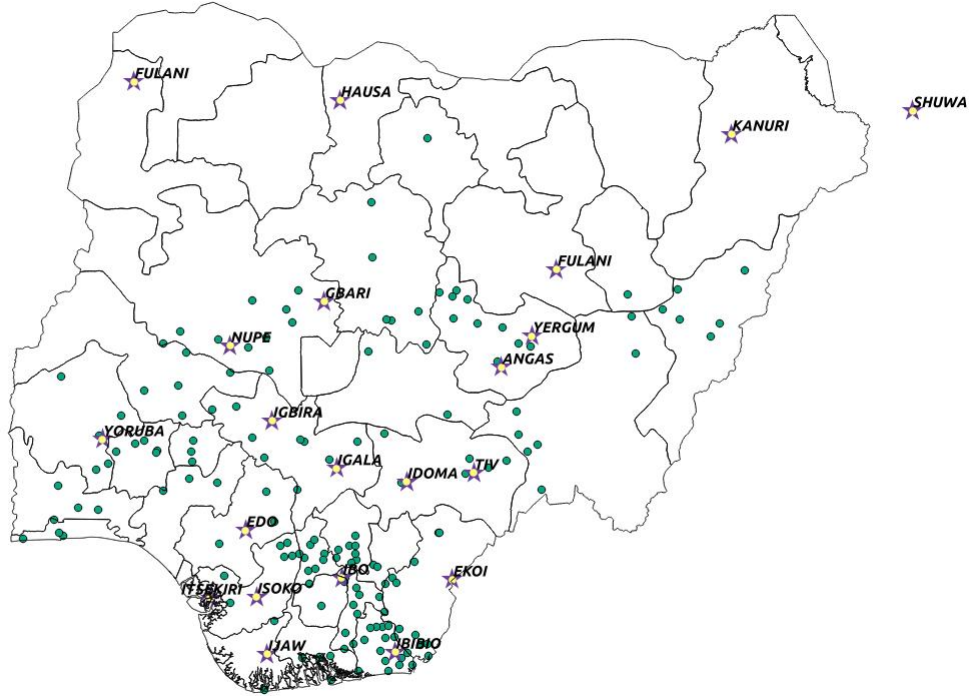
Figure 4: Mission stations within states of Nigeria

Individual-specific control variables are taken from the Afrobarometer survey, and these include: age, age-squared, occupation (in 29 groups), sex, type of residence (urban or rural), level of education completed (in 10 categories), and a categorical variable indicating the individual's living condition (5 categories).[8] Using the survey, we also compute an ethnic fractionalization index for each district and state of residence following the method described in Alesina et al. (2003). The only ethnicity level control variable we use, because of its central importance in the history of Nigerian ethnic groups, is a measure of the number of slaves exported per square km of the individual's ethnic homeland taken from Nunn and Wantchekon (2011). We directly estimate a model with ethnic group fixed effects using cross-state variation in missionary activity, and avoid the difficulties of controlling for historical variables that may influence trust across ethnic groups.[9]

The last set of information we use is data on the agricultural suitability of land and climate in states within Nigeria. These variables serve as proxies for wealth, climate, and geography, which have all been shown to influence trust Algan and Cahuc (2013). Data on the suitability of land for agriculture is obtained from the geographic section of the *2010 General Household Survey*

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[8]We also have information on religion, but find that religion is highly correlated with historical exposure to missionary activity, and so do not include it in our control variables. We present other evidence that religion is not primarily responsible for the relationship between missionary activity and trust.

[9]For example, in order to approximate for wealth, Nunn and Wantchekon (2011) provides a variable indicating the presence of a city within the ethnic group's homeland in the fifteenth century, which shows the presence of a city within the Hausa and Yoruba homelands. However, other historical sources indicate the presence of a city within Edo (Benin City) and Kanuri (Bornu) homelands as well during this time period.

(GHS), published by NBS (2013). We use three measures of land suitability to agriculture in each state: the first is an increasing scale of "workability," which is measured at 10 enumeration areas within each state. We take the population-weighted average of land workability for residents in a state as the state's measure of land workability. The second is a set of indicator variables for the terrain in the state (plain, lowland, plateau, hilly), and the last is a set of indicator variables for the state's agricultural zone (tropic-cool/subhumid, tropic-warm/semiarid, tropic-warm/subhumid, tropic-warm/humid).

From Figures 1, 2 and 3, we see the systematic variation in the number of missions across various ethnic groups, especially between the ethnic groups of Northern Nigeria and those of the Southern parts of the country. Next, we present a brief historical background on the distribution of mission stations across ethnic groups, and focus on the exogeneity of missionary activity to initial levels of trust.

3   Historical Background

In this section, we summarize the historical determinants of missionary activity across ethnic groups in Nigeria. First, we emphasize that missionary activity was driven by the colonial government's policy of indirect rule implemented after 1903, and then, the availability of rescued slaves on the from that specific ethnic group who had become missionaries in Sierra Leone. Then we present evidence that missionary activity could not have been targeted to more trustful (or distrustful) ethnic groups. Missionaries were willing to take the gospel wherever they could go, and were even more eager to reach the parts of the country where they eventually met less success.[10]

Motivations for Missionary Activity

Modern missionary activity in Nigeria did not begin until early in the 19th century as a result of the British abolition of the slave trade in 1808.[11] The British public became concerned with how the now illegal, but ongoing, slave trade could be replaced with trade in legitimate commodities. The publication of T.F. Buxton's *The African slave trade and its remedy* in 1839, and the evangelical revival of John Wesley in Britain, provided the impetus for a missionary solution to the slave trade

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[10]For example, due to concerns about the spread of Islam in Northern Nigeria, Rev. T.J. Bowen of the Southern American Baptist Missions was attempting to establish a station in the Northern town of Ilorin as early as 1855, at the expense of the "pagan" communities of the South (Ayandele, 1966, p.117).

[11]The presence of Roman Catholic missions were noted in Nigeria as early as 1515, when Portuguese priests were invited by the *Oba* (King) of Benin as he prepared for war against Idah. The Oba believed that the Europeans and their military technology would be a great asset in the war. The missionaries had no success in Benin, as the Oba already left for war before their arrival. The first documented conversions came later, in 1570, when the *Olu* of Warri and his family were converted by Portuguese missionaries in a bid to maintain his independence from Benin. However, the new religion was restricted to the royal court in Warri, and the irregular supply of clergymen ensured that Christianity had all but died out by the end of the 18th century (Ajayi, 1965, p.3–4).

problem. These missionaries were convinced that Christianity was a prerequisite to "civilization" and the eventual elimination of the slave trade (Sundkler and Steed, 2000, p.224).

Missionary activities in the area now know as Nigeria arose out of the perceived need to advance (British Christian) "civilization", curb the slave trade, and halt the spread of Islam in West Africa (Ajayi, 1965, p.7-13). Early failures of European missionaries, as a result of the high death rate from malaria, underlined the need for African missionaries who could survive the West African climate. This was important in creating the link between education and missionary activity documented in Nigeria and most of West Africa (Wantchekon et al., 2013; Nunn, 2014; Okoye et al., 2014). Missions were eager to move into different parts of Nigeria, but began work on the coastal areas where British naval protection was also readily available (Anene, 1966, p.310).[12]

Indirect Rule and Missionary Activity

From Figures 1 and 2 we see that, as at 1928, there was minimal missionary activity amongst the major ethnic groups of Northern Nigeria (Hausa, Fulani, Kanuri) who together make up about 70% of the Northern Nigerian population, and 35% of the Nigerian population (NBS, 2013). The mean number of mission stations per $1000km^2$ in our dataset is .7 in the South, but only .07 in the North. The North-South variance in missionary activity explains a bulk (40%) of the variance in missionary activity between ethnic groups in Nigeria (the other major explanatory variable being exposure to the trans-atlantic slave trade). Thus, we devote some time in outlining the historical determinants of this North-South variation, and the rest of the discussion focuses on why pre-existing trust did not play a historically significant role in the distribution of missions.

Missionary work began on the Southern coasts because it was less risky, and missionaries could follow initial trade contacts. While geography explains the timing of missionary arrival, it does not explain why they failed to set up mission stations in Northern Nigeria because the area was readily accessible to Europeans.[13] The primary reason for the absence of missionary activity in Northern Nigeria is the colonial government's policy of "indirect rule," established after 1903. Indirect rule meant that the protectorate of Northern Nigeria would be administered through the Emirs of the Islamic Sokoto Caliphate in the Northwest, and the Borno Emirate in the Northeast. Thus, missionaries who had played a revolutionary role in the South, and worked to suppress traditional authorities, were no longer welcome in a system in which the territories would be governed through traditional powers (Ayandele, 1966, Chapter 4);(Barnes, 1995).

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[12]The most active missions in Nigeria before 1930 included Baptists, Catholics (Irish and French), the Anglican Church Missionary Society (C.M.S.), Presbyterians, and Wesleyan Methodists.

[13]Europeans had made contact with the Northern Emirates as early as 1821 (Sundkler and Steed, 2000, p.254), and attempted to establish a mission station in the Ilorin Emirate as early as 1855. By 1906, the British colonial administration already were already established in Northern Nigeria, and the area became accessible to European traders and missionaries (Ayandele, 1966, p.120–126). By 1911, there was a rail line running from Lagos to Kano in the heart of the North, and by 1926, another line went from Port Harcourt in the Southeast to another major Northern city, Kaduna.

The colonial government's attitude towards missionary activity at the beginning of the twentieth century is summarized by views of the Governor of Northern Nigeria between 1907-1909, Sir Percy Girouard, who notes that: "Personally I should like to see the Missions withdraw entirely from the Northern States, for the best missionary for the present will be the high-minded clean living British Resident" (Ayandele, 1966, p.116). The government was keen on indirect rule for a number of reasons. It was necessary as a result of the loose political grip the government had on the vast areas of Nigeria (Sundkler and Steed, 2000, p. 255), as well as the limited (human) resources available to administer the area (Ayandele, 1966, 145); (Anene, 1966, p.307).

Administrators in Northern Nigeria also defended indirect rule on the grounds that there was a breakdown in law and order among the Southern converts to Christianity. There were complaints regarding the difficulty of managing the new converts, who would neither submit to traditional nor British authority (Barnes, 1995).[14] Colonial officials believed that imposing Christianity on the Emirates would lead to disorder, and amounts to "[replacing] a patriarchal and venerable system of government by a discontented and irresponsible democracy of semi-educated politicians [referring to the African converts of the time]" (Hesketh Bell, quoted in (Ayandele, 1966, p. 149)).

While the rulers of the Emirates in Northern Nigeria were Muslims, there remained large numbers of pagans outside the urban areas (VerEecke, 1994; Swindell, 1986). This meant there were large pagan populations to be proselytized which, in addition to political rivalries between different Emirs and the Caliph in Sokoto, gave Christian missionaries great hope that progress could be made in the region (Ayandele, 1966, p.117–125). However, the policy of indirect rule meant that missionaries could not rely on the support of British military force as they had earlier enjoyed.

The colonial administration not only withdrew support for missionary activity in Northern Nigeria, but actively sought to dismantle pre-existing missionary activities. For example, when the Maguzawa (a pagan Hausa subgroup) requested missionaries, the request was denied on the grounds that it would create disloyalty to the Muslim Emir. Also, a member of the administration in Northern Nigeria, Captain Charles Orr, wished to move the mission station in Zaria outside the city gates, and in Kano he succeeded in moving the mission station so as to ensure missionaries did not preach to natives (pages 146-152 in Ayandele (1966), and Barnes (1995)).[15] In another case, a Resident at Bauchi deposed the traditional ruler for converting to Christianity, because the ruler's traditional authority rested on his position as the leader of the traditional religion. Overall, this policy of indirect rule greatly inhibited missionary activity in Northern Nigeria before 1928.

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[14]Some of the antipathy was of course motivated by the early nationalist sentiments already developing among the educated Southerners, their refusal to submit to forced labour schemes, and other anti-colonial activities (see page 434 in (Barnes, 1995).)

[15]These events could be contrasted to earlier attitudes to missionaries in Southern Nigeria. For example, when the people of Badagry (on the Atlantic coast) decided to expel the missionaries in 1845, the consul responded by sending the cruiser H.M.S. *Albatross* (Ajayi, 1965, p.37). The old town of Calabar was destroyed by the Royal Navy for attempting to impede missionary activities in 1855 (Ayandele, 1966, p.22–24). Lastly, the military expedition against the Ijebus (a Yoruba sub-group) between 1890-1891 was brought about by opposition to missionary activity (and trade disputes) in Yorubaland (Ayandele, 1966, p. 54–68).

The divergent goals of administrators and missionaries, after 1900, meant that missionaries could not depend on the coercive military force of the colonial government. The twinning of Commerce and Christianity had effectively broken down. Even in Southern Nigeria, indirect rule began to be implemented through native courts and warrant chiefs in areas where traditional authority had been completely removed as a result of earlier missionary efforts. In the Yoruba communities, the government attempted to restore some power to the traditional *Obas*, whose powers had also been greatly eroded (Anene, 1966).

Regardless of these changes in administrative strategy, the works of early missions in the mid to late 19th century were consolidated in Southern Nigeria. This was greatly aided by recaptured slaves who had been resettled in Sierra Leone, and the material success of early converts to Christianity. The returnees were instrumental to missionary work as they could speak the local languages and were not susceptible to the malaria endemic to Southern Nigeria ((Tasie, 1978, p.14–17) and (Ajayi, 1965, Chapter 2)). The movement of African missionaries were not under the direct control of the colonial administrators (Barnes, 1995), and in any case, they elicited less hostilities from the natives, because they were seen as one of their own.[16]. Thus ethnic groups such as the Ibos and Ibibios, with the highest historical trans-atlantic slave export numbers in Nigeria (from Nunn and Wantchekon (2011)), also had the largest concentrations of missionary activity as at 1928 (see Figure 1).

Initial Levels of Trust and Missionary Activity

In the preceding discussion, we noted that differences in missionary activities between ethnic groups were primarily driven by the implicit guarantee of British military protection before 1903. Given a secure territory, the availability of African Christians who could speak the native language also played a role. These Africans primarily came from recaptured slaves who were resettled in Sierra Leone following the abolition of the slave trade in 1808. Thus, there is an identification problem induced by the correlation between the trans-atlantic slave trade and current levels of trust between ethnic groups, and the correlation between the trans-atlantic slave trade and missionary activity.[17]

Beyond the statistical correlation noted above, it does not appear that missionary activity was specifically targeted to less (or more) trustful groups, as one might expect from strategic missionaries.[18] This claim is supported by three observations: Missionaries were neither motivated

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[16]For example, during the *ifole* (cleanup) in Yorubaland, and the consequent expulsion of European missionaries, the communities involved did not expel the returnee African Christians as they were seen as one of their own (Ayandele, 1966, p.13–16)

[17]The correlation between number of mission stations per area and slave exports per area is .57. The effects of the slave trade on trust in Africa is empirically documented in Nunn and Wantchekon (2011), and for Nigeria in particular, see the discussion in (Okwu, 2010, Chapter 2). It must be emphasized that while the trans-atlantic slave trade was more prevalent amongst the Southern ethnic groups, slavery as an institution was also prevalent in the area now known as Northern Nigeria. The Fulani Jihads in Northern Nigeria led to the capture of large numbers of domestic slaves to work on the newly captured lands and this practice did not abate until late into the 1920's (VerEecke, 1994).

[18]Missionaries were strategic, but the basic problem they faced was one of whether they should concentrate and consolidate, or spread out as quickly as possible and hope to reap the fruits sometime in the future.

by quick success nor material gain, and did not target any specific ethnic groups as very little was known about these groups in the 19th century. Second, the uniformly dismal record of missionaries without military interventions shows that differences in the initial levels of trust (perhaps as a result of the trade) were not important for success. Lastly, the ease with which the Emirates of Northern Nigeria were brought under British political control shows that the Emirs were just as vulnerable as the Kings and Chiefs of the Southern states. The religious integrity of the Emirates was kept in place by the colonial policy of indirect rule.

First, missionaries did not take the easiest path to conversions and were not motivated by material gain. These missionaries often embarked on dangerous journeys into economically backward and unknown towns (Anene, 1966, p.325). Also, missionaries could not have targeted any specific ethnic group based on initial levels of trust, because little is currently known regarding these ethnic groups, and even much less was known in the nineteenth century. In fact, knowledge regarding ethnic groups in Nigeria during this period actually came from African and European missionaries who lived amongst the people.[19]

Secondly, evidence that missionaries did not target politically vulnerable ethnic groups could also be seen in the dismal conversion record of missionary activity. Lack of progress in Northern Nigeria has already been explained as a result of indirect rule, and here we add that in the absence of military interventions, missionaries did not have a remarkable record in the Southern parts of Nigeria. An ideal case study is provided by the Ibo ethnic group where missionary activity ended up bearing tremendous fruits following the Aro expedition of 1902 (Ayandele, 1966, p.113–115). In that case, we find that progress was dismal before the various military interventions. For example, after about 33 years in Onitsha (1857-1890), there were only about 400 Christians in the town of about 15,000 people, ninety percent of whom were freed slaves and traders from Sierra Leone. In Asaba, between 1874 and the mid-1890's, the C.M.S. only had 200 members in a town of 10,000 people, and again, most of these were freed slaves (Van den Bersselaar, 1997).

Further, for over 50 years between 1857-1899, the work of missionaries was restricted to the communities along the River Niger (Okwu, 2010, p.107). Regarding the slow rate of progress

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Specific ethnicities did not appear to factor into the equation. Looking at the major ethnic groups in Nigeria (Hausa, Yoruba, Ibo) for example, the Methodists in Nigeria, led by Rev. Thomas Freeman, adopted a strategy of establishing several thinly-staffed mission stations in Southwestern coasts of Nigeria (Yorubaland). The Presbyterians, on the other hand, led by Rev. Hope Waddell adopted a strategy of concentration and consolidation among the Efiks (Ibibios) of the Southeast coast, which would be an eventual gateway to the Ibos in the interior. The C.M.S., who had more resources and the backing of the Anglican Church, opened stations on the coasts and along the River Niger, which would serve as a gateway into the Hausas of the Northern Emirates. The American Baptists also adopted the same strategy as the C.M.S. (Ajayi, 1965, p.90–98).

[19]Much of the anthropological and linguistic studies on West African ethnic groups were conducted by missionaries, many of whom were trained at the Fourah Bay College in Sierra Leone. For example, Rev. Samuel Crowther published the grammar and vocabulary of the Yoruba language in 1843, Rev. J.F. Schon did the same for the Ibo and Hausa languages in 1843. In 1854, the Rev. S.W. Koelle published a study of the Kanuri language (Ajayi, 1965, Chapter 5). Traders and explorers in the nineteenth century were prone to wild and farcical claims regarding the peoples they came across.

in Southern Nigeria, Archdeacon Dennis remarked in 1897 that this part of Africa, which would later turn out of to be the hotbed of missionary activity, "will never be evangelized if it is left to the C.M.S. to do it. It will take a thousand years at the present rate of progress and the extent of reinforcements" (as quoted in (Okwu, 2010, p.106)). Similar patterns of slow progress before military interventions is also found among the Efiks (Ibibios) on the Southeastern coast ((Ajayi, 1965, p.101–103) and (Ayandele, 1966, p.16–26)), and the Ijebus (Yoruba subgroup) in the Southwest of Nigeria (Ayandele, 1966, Chapter 2).[20]

Eventually, missionaries often found real and imagined reasons to ask for British military intervention, and removal of the rulers in territories in which they were located. Once these rulers were removed, massive conversions followed and the missions were able to spread to new areas (Ayandele, 1966, p.115). The Emirates of Northern Nigeria also resisted foreign interference, but the Emirates were also no match for the British military; the region was brought under British control in three short years between 1900–1903, and most resistance had been put down by 1906 (Barnes, 1995). The British military advance was also aided by rivalries between different Emirs within the Emirates (Ayandele, 1966, p.132). However, much to the chagrin of missionaries preparing to move into Northern Nigeria en masse, the administration wished to rule through the local leaders for reasons already outlined earlier. This policy of indirect rule, and not the greater social cohesion or resistance by any particular ethnic group, explains why mission stations were not *established* in vast areas of Nigeria.

To summarize, we have argued that mission stations were not systematically established amongst ethnic groups who were less trustful. The historical evidence shows that missionaries did not know much about these ethnic groups, and were primarily looking to preach the gospel wherever they could. Most groups effectively resisted missionary activity. The eventual establishment of mission stations within a community ultimately rested on British military interventions, and then the availability of missionaries who could speak the local language. We proceed to study the statistical effects of historical missionary activity on current levels of trust, keeping in mind the confounding effect of the slave trade through its effect on the availability of missionaries.

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[20]There are a number of reasons why most communities effectively resisted the spiritual message offered by missionaries. Due to the ravages of the slave trade, the people had formed small, closely-knit, communities and were wary of all intruders including missionaries, administrators, and traders (Ayandele, 1966, p.111–112); (Okwu, 2010, p.108–110). While the people welcomed the schooling and political advantages conferred by missionary presence, they also believed that their traditions and customs were best for the conditions, and the leaders were extremely wary of rapid social change. Foreseeing the social upheavals to come, the King of Creek Town in Calabar (Ibibio), Eyo Honesty II, explained to a missionary in 1849 that the customs of Calabar could not be changed abruptly, 'else no man can live in the country' (Ayandele, 1966, p.20). Others did not believe missionary message because there saw no differences between their personal lives and that of the Christian traders and missionaries. For example, people in the Ibo town of Onitsha asked a missionary: "Can this (religion) be true when those who are born, taught, and brought up in the countries where it is said to be generally professed lived so indifferently of its teachings, laws and precepts?" (Okwu, 2010, p.93).

4   Empirical Results

To study the statistical effect of missionary activity on trust, we estimate the equation below by OLS:[21]

$$T_{i,e,d,s} = \alpha_i + \beta M_e + \lambda S_e + \mathbf{X_i \Pi} + \mathbf{X_{i,d} \Gamma} + \mathbf{X_{i,s} \Omega} + \epsilon_{i,e,h,s}. \tag{1}$$

The dependent variable is the level of trust expressed by individual i, who belongs to ethnic group e, lives in district d in state s. The level of expressed trust ranges from 0–3, with the qualitative responses already described earlier. The key variable in the estimation is M_e which measures the exposure of the individual's ethnic group to missionary activity. We measure this variable in three ways: one is the number of mission stations per 1000 km^2 of the ethnic group's ancestral homeland, and the other two are the number of mission stations within 25 and 50 km radii of the centroid of the homeland (all in logs). As discussed earlier, there is no evidence that the number of mission stations is correlated with initial levels of trust, controlling for the quantity of slave exports per area (S_e).

We also include controls for individual characteristics that may influence levels of trust. These controls include the individual's age, age-squared, urban/rural residence, sex, 10 categories for level of education completed, 26 occupation categories, and 5 categories of the individual's living conditions. Missionary activity may have also influenced trust through its effect on education levels, choice of occupation, and current living conditions. The estimate of β is best interpreted as the *direct* effect of missionary activity on trust beyond its indirect impact through education or occupational choices.

Controls are included for the location of the individual. At the district and state levels, we include a measure of the individual's ethnic group living in the district and a district-wide index of ethnic fractionalization. At the state level, we also include measures of the economic potential of the state using measures of land workability, terrain, and agricultural zone in which the state is located.[22] In general, we do not expect missionary activity to be correlated with state characteristics since these states were created decades after the mission stations were established. Furthermore, the states are somewhat arbitrary creations, and are not conterminous with any ethnic boundaries (Aghalino and Danmole, 1995). Finally, all standard errors are adjusted for the possibility of clustering at the district level (about 250 districts).

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[21] We present OLS results because of ease of interpretation, but we also estimated the model as an ordered logistic regression. This does not change the results, and estimates from logistic regressions are available upon request.

[22] The measure of terrain and land workability already captures the effects of living in an oil producing state where the terrain is swampy, and the land unworkable as a result of frequent spillages and pollution.

Missionary Activity and Trust

To begin, we examine the effect of the three measures of missionary activity on the degree of trust individuals place in their neighbours and in others outside of their ethnic groups. As a reminder, all three measures are spatially based, one is the (log of) number of mission stations per area of the ethnic group's homeland, and the other two are the (logs of) the number of mission stations within 25 and 50 kilometer radii of the center of the ethnic group's homeland. We do not used population based measures, because we are interested in the likelihood that an individual's community, within the ethnic homeland, was exposed to missionary activity.

The results are presented in Table 1, and to save space we do not report results for the control variables.[23] In the first row, we report the effect of the number of missions per area on reported trust. All three measures show that increased missionary activity within an individual's ethnic homeland is negatively related to both trust in neighbours and trust in others outside of the individual's ethnic group. For example, the point estimate shows that a doubling of the number of missions per area is associated with a .61 decrease in reported trust in relatives ($.885 \times ln(2)$). This is an economically significant effect, because for the three major ethnic groups, the number of mission stations per area more than doubles from .01 to .234 to 1.11 for Hausa, Yoruba, and Igbo ethnic groups respectively.

Examining the standardized *beta-coefficients*, computed assuming the standard errors are i.i.d., gives us a different interpretation of this point estimate wheich we can compare across variables. The standardized estimates imply that a one-standard deviation increase in the number of mission stations per area is associated with a .28 standard deviation decrease in reported trust in neighbours. The standardized effect of missions stations is remarkably similar across all three measures. A one-standard deviation increase in the number of mission stations within 25 kilometers of the centroid of the individual's ethnic homeland is also associated with a .27 standard deviations decrease in reported trust in neighbours. The standardized effect rises to .35 when we look at the measure using the number of mission stations within a 50 kilometer radius. The same patterns also emerge when we look at the impact of missionary activity on trust of others in column 2. A one-standard deviation increase in the number of missions per area of the individual's ethnic homeland is associated with a .22 standard deviations decrease in trust of others. This standardized effect of mission stations per area is virtually identical with the effect of a one-standard deviation increase in the number of mission stations within a 25-kilometre radius of the ethnic homeland's centroid. The standardized effect increases slightly to .28 of a standard deviation when we use the number of mission stations within a 50 kilometer radius of the centroid of the ethnic homeland as the relevant measure.

Also notice that the effect of missions on the trust of neighbours is always greater than its effect on trust of others. This is consistent with our hypotheses that missionary activity damaged traditional institutions. Given that interactions with neighbours would have been more strongly governed by traditional institutional structures compared to interactions with outsiders, we would

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[23]Full tables are available on request

Table 1: Measures of Missionary Activity and Trust

	Trust Neighbours			Trust Others		
Missions per area	-0.885***			-0.622***		
	[-7.97]			[-6.64]		
Beta-Coefficient	-0.277***			-0.216***		
	(-12.50)			(-9.42)		
Missions (25km)		-0.495***			-0.340***	
		[-7.77]			[-6.09]	
Beta-Coefficient		-0.271***			-0.206***	
		(-12.28)			(-9.04)	
Missions (50km)			-0.320***			-0.232***
			[-10.96]			[-8.76]
Beta-Coefficient			-0.348***			-0.279***
			(-15.62)			(-12.04)
Individual Controls	Yes	Yes	Yes	Yes	Yes	Yes
Location Controls	No	No	No	No	No	No
Observations	2121	2121	2121	2096	2096	2096
Adjusted R-squared	0.128	0.126	0.161	0.078	0.075	0.101

Notes: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. T-statistics from clustered standard errors at the district level in brackets. T-statistics from OLS standard errors are reported in parentheses below the beta-coefficients. Individual controls include age, age-squared, urban/rural residence, sex, 10 categories for level of education completed, 26 occupation categories, and 5 living conditions. Location controls include the individual's state level controls for the workability of land in the state, 4 terrain fixed effects, and fixed effects for the agricultural zone in which the state lies. Location controls also include the fraction of the individual's ethnic group living in the same state and district, as well as indices of ethnic fractionalization at the state and district levels.

expect the effect of the destruction of traditional institutions to be stronger on relationships with those closest to an individual (neighbours and relatives as we would see later).

Henceforth, we report results using the number of missions per area as the baseline measure. Given the similarity of the standardized coefficients, we adopt the area based measure because it better captures the impact of missionary activity in which we are interested. It captures the probability that a community within an ethnic homeland was affected by missionary activity. A centroid-based measure would have been more appropriate if the precolonial settlements of these ethnic groups were centered around a given area, which does not appear to be the case. Nigerian ethnic groups were traditionally semi-autonomous communities that have been classified into ethnic groups based on a common language, and sometimes culture and ancestry (Anene, 1966).

Missionary Activity and Trust Controlling For Effect of Slave Trade

Table 2 continues the analysis in the preceding section, and examines the effect of the number of mission stations per area on different types of trust. In the first row of the table, we control for location characteristics at the state and district level. The point estimates decline slightly when compared to Table 1, most of which is driven by the inclusion of ethnic fractionalization measures and land workability (not shown). However, we still find a large and statistically significant negative impact of the number of mission stations per area of an individual's ethnic homeland on trust. Once again, and consistent with our hypotheses, the point estimates suggest a larger impact of missionary activity on trust towards individuals whose relationships would have been governed by traditional institutions (relatives, neighbours, and intraethnic), compared to its impact on trust for others.

The second row of Table 2 of the table controls for the effect of the slave trade. As discussed earlier, we would expect the impact of missionary activity to be biased upwards if we do not account for the slave trade. This is because historical slave has a negative impact on trust, but a positive impact on the number of mission stations opened within an ethnic group's homeland. We find this to be true in Table 2. For example, the point estimate for the impact of missions per area on trust of relatives falls from -.65 to -.5, and the impact on trust of neighbours falls from -.732 to -.424. In all cases, the impact of the slave trade is negative and statistically significant, with point estimates very similar to those in Nunn and Wantchekon (2011). The bias induced by omitting a measure of the impact of the slave trade is largest for trust of others within the individual's ethnic group, and trust of other people in general, which suggests that the slave trade may have played a stronger role in shaping attitudes towards trust of "outsiders."

In order to properly assess the roles of missions in comparison to the slave trade, we first report standardized coefficients of the estimates from Table 2 in Table 3. We find that the standardized effect of missions are large even when we control for the effects of the slave trade on the ethnic group, as well as location-specific factors, however the standardized effect is generally smaller compared to the effect of the slave trade. The standardized effect of historical missionary activity is larger than that of the slave trade when it comes to trust in relatives (-.16 vs. -.1), and the effect is smaller

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Table 2: Missions per Area and Different Measures of Trust

	Trust Relatives	Trust Neighbours	Trust Others	Trust Intraethnic
Missions per area	-0.651***	-0.732***	-0.509***	-0.640***
	[-5.79]	[-6.20]	[-4.76]	[-5.91]
Observations	2123	2121	2096	2120
Adjusted R-squared	0.116	0.175	0.114	0.194
Missions per area	-0.500***	-0.424***	-0.212*	-0.270*
	[-3.95]	[-3.63]	[-2.06]	[-2.49]
Slave Exports per area	-0.094*	-0.191***	-0.184***	-0.229***
	[-2.32]	[-5.04]	[-4.85]	[-6.34]
Observations	2123	2121	2096	2120
Adjusted R-squared	0.12	0.19	0.13	0.216
Individual Controls	Yes	Yes	Yes	Yes
Location Controls	Yes	Yes	Yes	Yes

Notes: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. T-statistics from clustered standard errors at the district level in brackets. Individual controls include age, age-squared, urban/rural residence, sex, 10 categories for level of education completed, 26 occupation categories, and 5 living conditions. The number of slave exports (trans-atlantic and trans-saharan) is taken from Nunn and Wantchekon (2011) . Location controls include the individual's state level controls for the workability of land in the state, 4 terrain fixed effects, and fixed effects for the agricultural zone in which the state lies. Location controls also include the fraction of the individual's ethnic group living in the same state and district, as well as indices of ethnic fractionalization at the state and district levels.

Table 3: Standardized Effects of Missions and Slave Trade

	Trust Relatives	Trust Neighbours	Trust Others	Trust Intraethnic
Missions per area	-0.155***	-0.133***	-0.074*	-0.086**
Slave Exports per area	-0.097**	-0.199***	-0.212***	-0.241***
Individual Controls	Yes	Yes	Yes	Yes
Location Controls	Yes	Yes	Yes	Yes

Notes: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Table reports standardized coefficients from estimates of Table 2 using OLS standard errors.

when it comes to trust in neighbours (-.13 versus -.2). For trust in others and intraethnic trust, the standardized impact of the slave trade is orders of significantly larger. This result is sensible considering that the traditional institutions eroded by missionary activity were more influential for relationships within the clan and close relatives.

We conclude that controlling for individual and location characteristics, the effect of the slave trade on trust in Nigeria is large, but there remains a large impact of missionary activity on trust especially between relatives and neighbours whose relationships were historically governed by traditional institutions. A one-standard deviation increase in the number of mission stations per area decreases trust of neighbours by .155 standard deviations, and .13 standard deviations for trust in relatives. An important caveat is that the estimate is that of the impact of missionary activity on trust, beyond its impact through changes in individual characteristics (education, employment and living conditions).[24]

The analysis using standardized coefficients assumes that slave exports and missions variable have the same underlying distribution. Another way of assessing the relative importance of the variables would be to perform a standard variance decomposition. This is not feasible in this case because slave exports and missionary activity are not orthogonal, and some of the control variables (occupation, living conditions, education) are also correlated with past missionary activity.[25] Next, we further examine the causal interpretation of the effect of missions we have estimated.

Missions and Trust Controlling For Ethnicity Fixed Effects

While we believe the effects estimated in the bottom row of Table 2 to be causal, we realize that there may be some omitted ethnic group specific factors that may be correlated with missionary activity and trust. In this section we try to account for these unobservables by exploiting the fact that ethnic homelands have been continuously divided into various states since 1928, which generates differences in intensity of missionary activity within an ethnic homeland.

Comparing Figures 2 and 4, we see that states are not conterminous with ethnic homelands, and even worse, there are some sub-communities split into several states (Aghalino and Danmole, 1995). Yorubaland, for example, is split across 6 states and Hausaland across 7 states. All states were created by a series of military promulgations motivated by the need to bolster the support of (and weaken the threats posed by) various groups.[26]

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[24]Including controls for individual and state characteristics is important for this conclusion. Otherwise, we would find the impact of missionary activity to be greater than that of the slave trade in all cases except for its impact on trust in others.

[25]For example, comparing the R^2 from the top and bottom rows of Table 2 would imply that slave exports only explain a tiny fraction of the variance in trust (the R^2 jumps from .116 to .12). This conclusion is obviously incorrect because the explained variation due to missions per area variable includes some of the variation explained by slave exports.

[26]There were 2 in 1914, which were divided into the Southern and Northern Protectorates. In 1938, Southern Nigeria was split into 3 regions and this arrangement was maintained until 1963 when a political crisis led to the creation of the Mid-Western State. In 1967, the number of states was increased to 12 in

For our purposes, it is important to point out that even if missionaries targeted specific ethno-linguistic groups, they could not have targeted specific states because they were created decades after the mission stations in our data were established. The identification strategy works because within an ethnic group, communities living in states with less historical missionary activity would have been less exposed to the socially destabilizing effects of missionary activity. In order to implement the idea, we estimate the equation below by OLS:

$$T_{i,e,d,s} = \alpha_e + \beta M_s + \mathbf{X_i}\mathbf{\Pi} + \mathbf{X_{i,d}}\mathbf{\Gamma} + \mathbf{X_{i,s}}\mathbf{\Omega} + \epsilon_{\mathbf{i,e,h,s}}. \tag{2}$$

Equation (2) above is similar to equation (1), except for the inclusion of an ethnic group fixed effect α_e, and our use of the variation in mission stations across states M_s. All other individual, district, and state level controls ($\mathbf{X_i}$, $\mathbf{X_{i,d}}$, $\mathbf{X_s}$) are the same as in the estimation of equation (1). The results are presented in Table 4 below.

Table 4: Missions and Trust: Ethnic Group Fixed Effects

	Trust Relatives	Trust Neighbours	Trust Others	Trust Intraethnic
Missions per area	-0.571***	-0.296*	-0.366**	-0.333*
	[-4.11]	[-2.17]	[-2.90]	[-2.39]
Individual Controls	Yes	Yes	Yes	Yes
Location Controls	Yes	Yes	Yes	Yes
Ethnic Group Fixed Effect	Yes	Yes	Yes	Yes
Observations	2123	2121	2096	2120
Adjusted R-squared	0.159	0.226	0.175	0.25
Missions per area	-0.839***	-0.782***	-0.629***	-0.718***
	[-7.06]	[-5.68]	[-5.00]	[-5.36]
Individual Controls	Yes	Yes	Yes	Yes
Location Controls	Yes	Yes	Yes	Yes
Ethnic Group Fixed Effect	No	No	No	No
Observations	2123	2121	2096	2120
Adjusted R-squared	0.129	0.176	0.121	0.198

Notes: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. T-statistics from clustered standard errors at the district level in brackets. The regression now includes dummies for 32 ethnic group classifications. Individual controls include age, age-squared, urban/rural residence, sex, 10 categories for level of education completed, 26 occupation categories, and 5 living conditions. Location controls include the individual's state level controls for the workability of land in the state, 4 terrain fixed effects, and fixed effects for the agricultural zone in which the state lies. Location controls also include fractions of the individual's ethnic group living in the same state and district, as well as indices of ethnic fractionalization at the state and district levels.

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order to weaken the secessionist Eastern region. More changes came with successive military regimes in 1976, 1987, 1991, and 1996 to bring the number of states up to the 36 states and 1 Federal Capital Territory we have today.

From the top row of Table 4, we see that the statistical effect of the number of mission stations on current levels of trust remains negative, and statistically significant at the 5% level, for all types of interpersonal trust. The point estimate for the effect of missions continues to be largest for trust of relatives, but is now smaller for trust of neighbours (-.42 in second row of Table 2, to -.3 in Table 4). Compared to previous results, the estimated impact of missionary activity is now relatively larger for reported trust of others, and reported trust in members of own ethnic group. Overall, the estimates in the top row of Table 4 shows that the effect of missionaries on interpersonal trust is robust to ethnic group specific factors.

Also, in accordance with the qualitative historical discussion, we find that the estimates support the conclusion that controlling for the effect of the slave trade, missionary activity is exogenous to initial levels of trust. The estimates with ethnic group fixed effects are quite similar to the between-group estimates controlling for the intensity of the slave trade. For example, the estimates in the top row of Table 4 imply that within an ethnic group, doubling the number of mission per area across states is associated with an average decrease of .4 in reported trust in relatives ($-.571 \times ln(2)$). Compared to the estimate from the bottom row of Table 3, doubling the number of mission stations per area between ethnic groups decreases trust in relatives by .35, on average. These effects are quite similar for other trust measures (except for trust in neighbours), indicating that controlling for the slave trade suitably accounts for the relationship between initial level of trust and missionary activity. The bottom row of Table 4 also shows the relative importance of between ethnic group fixed effects for the point estimate of the impact of missionary activity. Compared to the top row of the table, we find that the ethnic group fixed effects reduce the point estimates by an average of .27 ($.84 - .57$) for trust in relatives, to .47 for trust in neighbours.

Overall, we find that historical exposure to missionary activity in Nigeria is associated with significantly lower levels of trust in relatives, neighbours, and other individuals. Next, we turn to an explanation of the empirical findings above, and emphasize the role missionary activity played in the collapse of pre-colonial institutions in Nigeria. The discussion also reveals that conversion to Christianity did not make individuals inherently less trustworthy.

5   Transmission Mechanism

We define "trust," as measured by the *Afrobarometer* survey, as the belief a partner would cooperate in a transaction with or without legal commitments. The definition is consistent with the widely used definition in Coleman (1994), and with the recent experimental findings of Sapienza et al. (2013).[27] Under this definition, we consider two channels through which historical missionary activity could have influenced current trust: missionaries could have modified *external* institutional

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[27]Sapienza et al. (2013) examine how questions of trust correlate with behaviour in a "Trust" game. They find that a player's expressed level of trust is highly correlated with the player's beliefs about the trustworthiness of the partner. The study is also able to explain why past results, such as those of Glaeser et al. (2000), found that answers to the trust question are not correlated with trusting behaviour.

constraints on behaviour which leads to an increase in uncooperative behaviour, and a decrease in trust transmitted across generations. Alternatively, missionaries could have also changed *internal* behavioural norms.[28]

Guided by the historical and empirical evidence discussed below, we find that missionary activity has primarily influenced current trust by weakening pre-colonial institutional constraints on individual behaviour. The role of institutions on cooperative behaviour is not new, and writing in the 17th century, Thomas Hobbes observes in the *Leviathan* that :

> If a covenant be made wherein neither of the parties perform presently, but trust one another, in the condition of mere nature (which is a condition of war of every man against every man) upon any reasonable suspicion, it is void: but if there be a common power set over them both, with right and force sufficient to compel performance, it is not void. For he that performeth first has no assurance the other will perform after...where there is a Power set up to constrain those that would otherwise violate their faith, that fear is no more reasonable; and for that cause, he which by the covenant is to perform first is obliged so to do. — (Hobbes, 1981, Chapter 14)

To fix ideas, we can consider a version of the trust (or investment) game described in Algan and Cahuc (2013). In the game, two players can choose to undertake an investment, by each contributing an amount $X > 0$. If both players choose to invest, the investment yields $2(Y + X)$, where $Y > 0$, and the yield is split equally for a net payoff of Y if they cooperate. However, as Hobbes described, in the "condition of mere nature" there is no third Power who can verify that each partner delivers on the contract, and there is always an incentive for one of the players to defect and abscond with the investment for a net gain of $2Y + X$. Thus the only sub-game perfect Nash equilibrium involves no investment by the individuals and a lack of cooperation, since individuals believe it is rational for the partner to defect. In the absence of a central effective Power, there is no investment in a socially-beneficial activity because individuals do not trust.[29]

The simple game above illustrates the importance of institutions for cooperative behaviour and trust. The game also mirrors the role of institutional arrangements between Nigerian communities and European merchants in the pre-colonial era. Next, we examine missionary tactics and show that it had an impact on traditional institutions, which led to a documented increase in uncooperative behaviour even in colonial times.

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[28]We recognize the possibility of a third mechanism, which is the co-evolution of institutional and behavioural norms as discussed in Bidner and Francois (2011). While our goal here is to identify the initial forces driving uncooperative behaviour, the co-evolution of institutions and norms would explain why lower levels of trust have been passed down across generations.

[29]This simple model is meant to illustrate the role of institutions as cooperative norms may also be inherent to individuals, and there would be some cooperation even without a central power due to altruism or expectations of reciprocity.

5.1   Missionary Tactics

Most European merchants did not have access to the hinterlands and relied on communities on the coast as middlemen, and these transactions often involved the use of credit, from the Europeans, which the coastal middlemen used to obtain goods at hinterland markets (Lovejoy and Richardson (2004) and (Ajayi, 1965, p.86)). The system was fraught with all sorts of dangers and risks, but as in the merchants studied in Greif (1994) and Dixit (2004), these communities also developed institutions to encourage cooperation and trust in a precarious trading environment.

Some groups, such as the Ijaw in Bonny and most groups in Yorubaland, developed centralized authorities. These authorities enforced trade transactions through the use of religious *juju*, and threat of military expeditions when the threat of *juju* failed to elicit cooperative behaviour.[30] Other groups, such as the Ibos did not develop centralized political authorities, but allegiance to the revered deity of the *Aros* (*Chukwu*), was used to elicit cooperative behaviour. Furthermore, other groups around the Cross-River developed the *ukat* system—a system of peonage in which a person had the right to seize any member of an uncooperative partner's community.[31]

Recognizing that none of these institutions were ideal for "modern" trade, King Eyo Honesty of Calabar noted that changes could not be too fast, "else no man can live in this country."[32] Regardless of the protestations of the traditional authorities, missionary activities contributed to a rapid dismantling of traditional institutions, and subsequently higher rates of recorded uncooperative behaviour. Missionaries did not often see much wisdom in native institutions, and because these institutions were bound up with traditional religions, it had to go for Christianity to take root. Regarding missionary tactics, Herbert Palmer, former British Lieutenant-Governor of Northern Nigeria, remarked in 1920 that:

> In order to secure adherents and converts the ordinary missionary procedure is to divide the communities. As a rule they do not attempt to support the authority of the de facto elders and chiefs, but to withdraw the people from it—in other words they seek to pull down the fabric of native society in order to build on the ruins. — as quoted in Afigbo (1973)

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[30] *Juju* refers to traditional religious practices whereby an individual is believed to have the power of imposing divine punishment in the face of uncooperative behaviour. Unlike modern Western societies, the concepts of justice, law, and politics, were all bound by religion in most pre-colonial West African communities. There was no separation of "church" and state, and neither were there law enforcement agencies beyond individuals empowered by the gods (Anene, 1966, Chapter 1).

[31] See Lovejoy and Richardson (2004) and Northrup (1978) for the role of trade in institutional developments. See (Anene, 1966, Chapter 3) and (Ayandele, 1966, Chapter 2) for the role of juju in trade between coastal ethnic groups and those in the hinterlands. Also, see (Anene, 1966, p.219–235) for the role of the deity of the Aros in trade; for example, Aro agents cast spells on market women threatening them with infertility if they broke the palm nuts meant for exports. The British officials also noted that the communities around the area were more frightened of the Aro deity than British authority (Anene, 1966, p.226).

[32] Recorded in the journals of the Presbyterian missionary Hope Waddell, and quoted in (Ayandele, 1966, p. 20)

Thus, the primary goal of the West African missionary was "the substitution of a civilized authority for the accursed despotism of Pagan and Mohammedan powers." [33] As we illustrate with examples below, the missionary did succeed in weakening "Pagan and Mohammedan powers," however the void has not been filled by the civilized authority—which was supposed to be the Nigerian state (Lewis, 2006).

5.2   Missionary Activity and Institutions: Historical Evidence

We now use historical records to illustrate three ways in which missionary activities led to the destruction of traditional institutions. First, missionaries used the guaranteed protection of the British navy to effect change through the removal of uncooperative traditional rulers, and weakening traditional constraints on behaviour through enforced legal changes. Examples include the dismantling of the *egbo* legal system in Calabar, the removal of various *Obas* and changes to the laws of the *ogboni* societies in Yorubaland between 1842-1900. Several kings were exiled in the Ijaw Kingdoms of the coast between 1850-1889, with the most famous being King Jaja of Opobo who was described as fearing "Christianity like the plague," because of its negative influence on belief in the *juju* which hitherto enhanced trade relationships (Ayandele, 1966, p.100–101). The Ibo territories were opened to missionary activity much later in 1902, following the Aro expedition that destroyed the deity which had served as the final arbiter in all disputes in the area. Along with the expulsion of rulers, various traditional religious practices, such as trial by ordeal, peonage, sworn allegiance and sacrifices to local deities were also outlawed.[34]

Secondly, mission houses provided an alternative to village life and a source of refuge for individuals facing punishment. This greatly reduced the ability of traditional institutions to punish uncooperative behaviour. For example, in Efik territory, when the traditional authorities sought to regain the control they had lost over their subjects in 1856, the mission station was declared the territory of Queen Victoria and a sanctuary for all Efiks who wished to escape tribal obligations (Ayandele, 1966, p.25). When the Egba-Yoruba Chiefs became disenchanted with the interference of new Christians in community affairs, they were hamstrung by the appearance of a British gunboat (Ayandele, 1966, p.53). For a third example, the mission stations around Onitsha in Ibo territory was considered as consisting "a mere handful of men and women who are looked upon as the offscourings of the land" (Okwu, 2010, p.93). These "offscourings" of the land found a new lease of life at the mission houses, and with the increase in British trade activities and colonial rule, became the leaders of the land. Thus expulsion from the community, which used to be regarded

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[33]This is a direct quote from a missionary operating in Yorubaland as quoted in (Ayandele, 1966, p. 5).

[34]In all these expeditions, there is a tendency for subsequent colonial administrators to lay the blame missionaries for the expeditions in order to absolve themselves of any blame in the social upheavals that ensued. While not trying to place missionaries at the center of all the expeditions, there is no doubt that they provided the moral justification for British expeditions into various ethnic homelands. The missionary factor is emphasized in Ayandele (1966), while the trade and colonial factors are emphasized in Anene (1966). Also see Tasie (1978) and Okwu (2010) for more on the effect of missionaries on traditional societies.

as the worst punishment for any individual, became no punishment at all as the mission stations became increasingly prosperous.[35]

Thirdly, with the military defeats suffered by various traditional communities and economic success of early converts, it became increasingly obvious that traditional "gods" and their abilities to punish uncooperative behaviour had been overrated. For example, within two years of missionary activity in 1864, the majority of the people in Bonny disregarded their duties to the the *ikuba* deity (Ayandele, 1966, p.73). By 1881, the King's lack of real authority forced him into resigning his positions (Anene, 1966, p.45). In another case, traders who were sent inland, instead of trading, began preaching on Sundays that "juju was nothing"; and violations of oaths became increasingly common as nothing could bind customers (Tasie, 1978, p.37–38). Low-born traders who converted to Christianity no longer went into juju oaths with customers, as they now believed juju was a primitive superstition meant to tie them down by their masters (Ayandele, 1966, p.87–90). The power of traditional institutions was weakened without the common belief in the power of juju, and Christian converts openly mocked traditional religious festivals Barnes (1995).

Missionary activity, therefore, amounted to the substitution of the traditional religion which played spiritual and legal roles, for Christianity which only played an individualistic religious role. In describing the rapid changes he had observed in Iboland from the turn of the twentieth century to 1930, the Anglican missionary G.T. Basden noted that: "...the heart of native law and custom has been pierced by the impact of British authority, and when the heart ceases to beat, the limbs no longer function" (Basden, 1966).

The effects of these social changes on behaviour was immediately evident: In addition to the violation of trade oaths noted above, the abolition of the *ukat* peonage system by missionaries led to an increase in the uncooperative behaviour of traders. The pioneer Presbyterian missionary, Mary Slessor, writing to the Consul-General notes that the Aros "take money off people to change for better ones and they take people when people are in straitened circumstances and they go to their country and are beyond our reach." This complaint was necessary "as since Consul forbad *Ukat* they have been extra bold" (Afigbo, 1973).

In another case, the Aro were the victims of uncooperative behaviour by local traders who owed them some money. When the Aro attempted to seize the debtors as traditional practice demanded, the traders attacked and looted the Aro in local markets being fully aware of missionary sympaties for their actions (Anene, 1966, p.229). As early as 1925, traders and British colonial administrators were beginning to realize the errors of the destruction of traditional institutions. One administrator remarked that that destruction of the Aro deity had rendered the Ibo and Ibibio groups "freer but leaderless" (Anene, 1966, p.324).

As things fell apart in intercommunal trade relations, missionary activity also led to a breakdown in intracommunal relations. In general, any behaviour that was contrary to traditional customs and

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[35]The evolution of the mission station as an independent state within communities is extensively documented in (Ajayi, 1965, Chapter 4).

authority was looked upon favourably by missionaries, as it provided evidence of a transformation in a convert's outlook. For example, young converts were discouraged from joining traditional civic societies, such as the egbo and the ogboni in Efik and Yoruba territories respectively (Ajayi, 1965, p.108–110). In 1863, the missionaries were encouraged when the grandson of the King of Onitsha, in Iboland, refused to kneel before the King in a mission school procession (Okwu, 2010, p.92).

The emerging negative effects of historical missionary activity on behaviour are documented through the eyes of colonial administrators in Barnes (1995). Comments by the district officer of the Kabba division in Northern Nigeria is illustrative. Writing in 1920, he observes that "the Christianised African in Kabba is presently a difficulty and is rapidly becoming a problem. Today his attitude and his actions make it hard for the Native Administration to govern: tomorrow they may make it impossible." (Barnes, 1995). The district officer continues:

> In almost every case, 90% at least, the chief and elders complain bitterly that all the small boys and young men are turning Xtian, and that directly they do this, they scorn the orders alike of their parents and of the chief. The 'teacher' becomes their leader and protector. They cast off all obedience, duty, reference, respect, responsibility to their own people, and threaten them with the 'teacher.'

In 1912, another resident had attributed the difficulties posed by newly Christianised Nigerians to the possession of a Bible and intimate relationships with missionaries. In addition to these problems posed by Christian converts, they were also guilty of shirking from communal work, especially children who refused to perform chores on Sundays (Ajayi, 1965; Barnes, 1995).

To summarize the effects of missionary activity on social life, we quote the first colonial governor of Nigeria, Frederick Lugard. Writing in 1922, he argues that:[36]

> Educations has brought to such men only discontent, suspicion of others and bitterness...As citizens they are *unfitted to hold posts of trust and responsibility* where integrity and loyalty are essential, or to become leaders of their own community in the path of progress. They have lost touch with their own people."— (Lugard, 1923, p.429, italics mine)

The above examples illustrate the effects of missionary activity on cooperative behaviour as at 1928. Given the well-documented institutional weaknesses of most independent African states, the Nigerian government did not serve as an adequate replacement for these institutions. Persistent effects of missionary activity into the present generation can then be explained by the vertical transmission of beliefs from parents to children, perhaps reinforced by the experiences of the younger generation in an institutionally weak environment (as in Bidner and Francois (2011), for example).

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[36]A caveat to some of the arguments by colonial administrators above is that they were made in defence of the policy of indirect rule enacted in Northern Nigeria, and also justified the denial of political independence to the growing crop of Christianized and educated Nigerians.

5.3 Effect of Missionary Activity on Intrinsic Trust

In this section, we evaluate the possibility that missionary activities transformed *internal* social norms towards cooperation, and has led to less trust between individuals today.[37] Specifically, we want to see if it true that missionary activity led to mass conversions to Christianity, which has led to a transformation of internal norms (from cooperative to uncooperative).[38] This mechanism would be consistent with a world in which Christians are inherently less trustworthy, so that predominantly Christian ethnic groups would exhibit less trust. Below, we show that the internal mechanism is unlikely to explain the effects of missionary activity on trust. The same effects are observed among Muslims exposed to missionary activity, and on a global level we use the *2005 World Values Survey* to provide evidence that Christians are not less trusting than Muslims within any given country.

Estimation on Christians and Muslims

First, we estimate equation (1), but separate the sample into Christians and Muslims. Given the different means and variances of missionary activity between both groups, we report standardized coefficients in order to facilitate the comparison of the size of the effect of missionary activity on trust.[39] The results are shown in Table 5, and for comparison, the effects of slave exports are also reported.

From Table 5, we find that there are some differences in the size of the effects; the effects on "communal" trust (relatives and neighbours) is somewhat larger for Christians, and the effects on "outward" trust larger for Muslims. For example, a one-standard deviation increase in historical exposure to missionary activity reduces trust in relatives by .092 standard deviations for Muslims (insignificant at the 5% level), and a reduction of .12 standard deviations for Christians. The effect of a one-standard deviation increase in missionary activity on trust in neighbours is the similar for both religious groups, with the effect on Muslims being slightly larger (-.141 versus -.12).

Important differences between Christians and Muslims emerge when we examine trust in other individuals and individuals within the same ethnic group. In these case, we find that the effect of missionary activity is actually stronger among Muslims. A one-standard deviation increase in missionary activity decreases trust in others by .239 standard-deviations for Muslims, and only .07 standard deviations for Christians. For comparison, we find the effects of the slave trade on trust to be a lot stronger among Christians for all measures of trust. Thus, for Christians, the impact of the slave trade on trust is somewhat more important than the effect of missionary activities. On

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[37]This is the mechanism modelled in Bisin et al. (2004). Changes in internal norms is also found to be consistent with the effects of the slave trade in Nunn and Wantchekon (2011).

[38]Nunn (2014) provides evidence that Africans whose ancestors were historically exposed to higher levels of missionary activity, are overwhelmingly Christian today. This is the case in Nigeria as well, where the Christian-Muslim division in Nigeria today closely matches the map in Figure 2.

[39]The coefficient of variation in the (log) number of mission stations per $1000km^2$ is about 1.6 for Muslims, and only .7 for Christians.

Table 5: Effect of Missions by Religion

| | Muslims | | | |
	Trust Relatives	Trust Neighbours	Trust Others	Trust Intraethnic
Missions per area	-0.092	-0.141**	-0.239***	-0.202***
(Standardized)	[-1.68]	[-2.70]	[-4.50]	[-3.87]
Slave Exports per area	-0.025	-0.162**	-0.036	-0.110*
	[-0.45]	[-3.04]	[-0.67]	[-2.08]
Observations	881	881	868	880
Adjusted R-squared	0.033	0.12	0.097	0.124
	Christians			
	Trust Relatives	Trust Neighbours	Trust Others	Trust Intraethnic
Missions per area	-0.117***	-0.117***	-0.065	-0.059
(Standardized)	[-3.42]	[-3.43]	[-1.83]	[-1.72]
Slave Exports per area	-0.093*	-0.147***	-0.153***	-0.224***
	[-2.44]	[-3.89]	[-3.93]	[-5.92]
Observations	1195	1193	1181	1193
Adjusted R-squared	0.095	0.109	0.059	0.101
Individual Controls	Yes	Yes	Yes	Yes
Location Controls	Yes	Yes	Yes	Yes

Notes: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Beta-coefficients are reported, and T-statistics from OLS standard errors are reported in parentheses below the beta-coefficients. The regression includes individual controls for age, age-squared, urban/rural residence, sex, 10 categories for level of education completed, 26 occupation categories, and 5 living conditions. The number of slave exports (trans-atlantic and trans-saharan) is taken from Nunn and Wantchekon (2011). Location controls include fractions of the individual's ethnic group living in the same state and district, as well as indices of ethnic fractionalization at the state and district levels. Geographic controls are excluded, because geographic clustering of religions means there is little to be explained by other variables within any given religious category.

the other hand, compared to intensity of the slave trade, missionary activity is more important for levels of trust among Nigerian Muslims.

While evaluating the sources of these differences between Christians and Muslims is beyond the scope of this paper, we conjecture that it might be as a result of the order brought about by the consolidation of power in the Muslim emirates of Northern Nigeria, and subsequent laws against the enslavement of Muslim converts (VerEecke, 1994). Thus, for Muslims, the distrust arising from the slave trade was somewhat reduced by the rise of an overarching religion, but missionary activities led to renewed distrust. For Christians, on the other hand, while missionary activity also lowered trust, the impact of the slave trade remains strong because of the absence of an overarching power. In fact, we find that missionary activities did not have an additionally strong negative effect on trust of others and other members of ones ethnic group. Overall, Table 5 presents shows that inherent Christianity is not driving the decrease in observe trust associated with missionary activity, but we cannot rule out the idea that Muslims living close to missions also acquired similar inherent traits.

Are Christians Inherently Less Trusting?

We use data from the 2005 wave of the *World Values Survey* (WVS, v.20090901, 2009) to examine whether Christians are perhaps inherently less trusting than Muslims within a given country. The WVS has numerous religious categories, which we only whittle down to Christian and Muslim groups. To further aid comparability across cultures, we only compare those who identify as "Roman Catholics," to those who identify as "Muslims." [40] We regress various measures of trust on age, sex, education, occupation, income scales, an Africa dummy, and country dummies.

The model is estimated by OLS and the results are shown in Table 6 for three different trust questions: The first asks if most people can be trusted, and the response is coded as 0 if the response is "need to be very careful," and 1 if the response is "most people can be trusted." The two other measures come from questions asking how much individuals trust their families, and people of other nationalities respectively. The responses are coded from 1–4, depending on whether the individual responded that they have "no trust at all," "not very much," "somewhat," and "trust completely."

From the standard trust question in column 1 of Table 6, we find that non-African Catholics are more trusting compared to non-African Muslims. Being Catholic outside of Africa increases the probability an individual believes most people can be trusted by 5 percentage-points. The point estimate increases slightly to about 8 percentage-points when we include country fixed effects. On the other hand, African Catholics are about 5 percentage-points less likely to believe that most individuals can be trusted compared to African Muslims (-.11+.06), and this effect falls to 3 percentage-points once we control for country fixed effects. Overall, the results from the standard

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[40]This is necessary because several Christian groups in Europe and the Americas may not have the same "values" and "practices" as their counterparts in Africa. Roman Catholic practices are comparably uniform everywhere, which makes comparison easier. Algan and Cahuc (2013) investigate individual sources of trust using complete religious categories from the WVS. Just as we find here, their results show that "trust" does not seem to vary by religion once they control for country fixed effects (see Table 2).

Table 6: Trust By Religion (World Values Survey)

	Can People Be Trusted?		Trust Your Family?		Trust Other Nationalities?	
Catholic	0.0558***	0.0802**	-0.0701***	-0.016	0.233***	-0.179**
	[6.21]	[2.78]	[-8.34]	[-0.51]	[13.00]	[-3.22]
African&Catholic	-0.110***	-0.112***	-0.034	-0.020	-0.448***	0.078
	[-6.31]	[-3.29]	[-1.44]	[-0.47]	[-10.32]	[1.05]
Africa	-0.021		-0.0536**		0.542***	
	[-1.51]		[-3.18]		[16.01]	
Observations	12816	12816	13167	13167	12561	12561
Adjusted R-squared	0.043	0.128	0.026	0.052	0.080	0.175
Individual Controls	Yes	Yes	Yes	Yes	Yes	Yes
Country Dummy	No	Yes	No	Yes	No	Yes

Notes: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. T-statistics from robust standard errors in brackets. The regression compares Roman Catholics to Muslims, as identified in the World Values Survey. African countries are South Africa, Ghana, Burkina Faso, Ethiopia, Mali, Rwanda and Zambia. Individual controls are age, sex, 9 education categories, 4 institution of occupation categories, and dummies for 10 income scales.

trust question do not indicate that Catholics (Christians) are less likely to believe that people can be trusted within countries. Catholics in Africa are a notable exception, and this may be due to the decline in traditional institutions associated with missionary activity already discussed earlier.

The next set of questions on trust indicate that Catholics may be less trusting of family members, but this effect becomes very small and insignificant once we control for country dummies. We conclude that compared to Muslims, there is no tendency for Catholics to trust family members less within the same country. The result for trust of other nationalities appears to show that non-African Catholics are once again significantly more likely to trust (23 percentage-points) compared to non-African Muslims. In Africa, however, we find that Catholics are less likely to trust (21 percentage-points less) compared to Muslims. This result appears unstable, because once we include country fixed effects, we find the only case in which Catholics are less trusting.

The estimates in Table 6 are not conclusive, but when combined with past estimates showing that religion is not a significant predictor of trust within countries (summarized in Algan and Cahuc (2013)), we conclude that changes in internal beliefs as a result of conversions to Christianity are unlikely to have led to decreased trust in areas affected by missionary activity.

6   Conclusion

This paper contributes to our understanding of the origins of differences in trust and cultural values across societies. We construct a dataset of primary mission locations as at 1928, and argue that the intensity of missionary activity across ethnic groups was primarily driven by the colonial

policy of indirect rule and earlier exposure to the transatlantic slave trade. As a result of the great transformations in traditional institutions from missionary activities, the differential intensity of mission locations across space, and ethnic groups, provides a natural experiment with which we can study the link between institutions and trust.

We found that members of ethnic groups exposed to greater missionary activity early in the 20th century express significantly less trust in relatives, neighbours, members of same ethnic group, and other individuals. This result is robust to controlling for the effect of the slave trade and ethnic fixed effects. We argued that the lower levels of trust in areas exposed to missionary activity can be explained by changes in institutional constraints. Specifically, lower levels of trust emerged because of the deterioration of traditional institutions that have not been adequately replaced. In order to support our hypothesis, we cite some examples illustrating how, when confronted by missionary activities, traditional ways of organizing society fell apart and uncooperative behaviour increased. From our estimation results, we do not find any evidence that missions affected trust because Christians are inherently less trusting.

Nevertheless, we recognize that the negative effect of missionary activity on social capital does not provide a complete picture of the missionary impact in Africa. This is because missionaries also positively contributed to human capital accumulation in the areas where they were located. A study of the contribution of missionaries to comparative development would involve a complete understanding of their contributions to human and social capital, and how these are related to current incomes and living standards. While this is a very important topic, it is beyond the scope of this paper and is left for future research. Lastly, it might be of interest to see if the result is robust to the inclusion of newer versions of the Afrobarometer survey in Nigeria, and in other African countries where missionaries adopted similar tactics.

References

Acemoglu, Daron, Simon Johnson, and James A. Robinson, "The Colonial Origins of Comparative Development: An Empirical Investigation," *American Economic Review*, 2001, *91* (5), 1369–1401.

Afigbo, A. E., "The Calabar Mission and the Aro Expedition of 1901-1902," *Journal of Religion in Africa*, 1973, *5* (2), pp. 94–106.

Aghalino, S.O. and H. O. Danmole, "The Military and Creation of States in Nigeria 1967 –1991," in A.E. Davies, H.O. Danmole, and I.O. Taiwo, eds., *Contemporary Issues in Nigerian Affairs*, SUNAD Publishers, 1995. Available at `http://unilorin.edu.ng/publications/aghalinoso/Aghalino%20The%20Military%20and%20Creation%20of%20States.pdf`.

Aghion, Philippe, Yann Algan, Pierre Cahuc, and Andrei Shleifer, "Regulation and Distrust," *The Quarterly Journal of Economics*, 2010, *125* (3), 1015–1049.

Ajayi, J.F.A., *Christian Missions in Nigeria, 1841-1891: The Making of a New Élite* Ibadan history series, Longmans, 1965.

Alesina, Alberto and Eliana La Ferrara, "Who trusts others?," *Journal of Public Economics*, August 2002, *85* (2), 207–234.

Alesina, Alberto F., William Easterly, Arnaud Devleeschauwer, Sergio Kurlat, and Romain Wacziarg, "Fractionalization," *Journal of Economic Growth*, June 2003, *8* (2), 155–94.

Algan, Yann and Pierre Cahuc, "Inherited Trust and Growth," *American Economic Review*, December 2010, *100* (5), 2060–92.

_ **and** _ , "Trust, Growth and Well-being: New Evidence and Policy Implications," IZA Discussion Papers 7464, Institute for the Study of Labor (IZA) June 2013.

Anene, J.C., *Southern Nigeria in Transition, 1885-1906: Theory and Practice in a Colonial Protectorate*, Cambridge U. P., 1966.

Arrow, Kenneth J., "Gifts and Exchanges," *Philosophy and Public Affairs*, 1972, *1* (4), 343–362.

Ayandele, E.A., *The Missionary Impact on Modern Nigeria, 1842-1914: A Political and Social Analysis* Ibadan history series, Longmans, 1966.

Barnes, Andrew E., "'Evangelization Where It Is Not Wanted': Colonial Administrators and Missionaries in Northern Nigeria during the First Third of the Twentieth Century," *Journal of Religion in Africa*, 1995, *25* (4), pp. 412–441.

Basden, G.T., *Niger Ibos: a description of the primitive life, customs, and animistic beliefs, &c., of the Ibo people of Nigeria by one who, for thirty-five years, enjoyed the privilege of their intimate confidence and friendship*, Cass, 1966.

Becker, Sascha O, Katrin Boeckh, Christa Hainz, and Ludger Woessmann, "The Empire Is Dead, Long Live the Empire! Long-Run Persistence of Trust and Corruption in the Bureaucracy," CAGE Online Working Paper Series 40, Competitive Advantage in the Global Economy (CAGE) 2011.

Bidner, Chris and Patrick Francois, "Cultivating Trust: Norms, Institutions and the Implications of Scale," *The Economic Journal*, 2011, *121* (555), 1097–1129.

Bisin, Alberto, Giorgio Topa, and Thierry Verdier, "Cooperation as a Transmitted Cultural Trait," *Rationality and Society*, 2004, *16* (4), 477–507.

Bowles, Samuel and Sandra Polania-Reyes, "Economic Incentives and Social Preferences: Substitutes or Complements?," *Journal of Economic Literature*, 2012, *50* (2), 368–425.

Coleman, J.S., *Foundations of Social Theory* Belknap Series, 2. print ed., Cambridge, Mass.: Belknap Press of Harvard University Press, 1994.

Dixit, A.K., *Lawlessness and Economics: Alternative Modes of Governance* The Gorman Lectures, Princeton University Press, 2004.

Durante, Ruben, "Risk, Cooperation and the Economic origins of social Trust: an empirical Investigation," Sciences Po publications info:hdl:2441/eu4vqp9ompq, Sciences Po Nov 2010.

Durlauf, Steven N. and Marcel Fafchamps, "Social Capital," in Philippe Aghion and Steven Durlauf, eds., *Handbook of Economic Growth*, Vol. 1 of *Handbook of Economic Growth*, Elsevier, 00 2005, chapter 26, pp. 1639–1699.

Gallego, Francisco A. and Robert Woodberry, "Christian Missionaries and Education in Former African Colonies: How Competition Mattered," *Journal of African Economies*, 2010, *19* (3), 294–329.

Gambetta, D., *The Sicilian Mafia: The Business of Private Protection*, Cambridge, Mass.: Harvard University Press, 1996.

Glaeser, Edward L., David I. Laibson, Jos A. Scheinkman, and Christine L. Soutter, "Measuring Trust," *The Quarterly Journal of Economics*, 2000, *115* (3), 811–846.

Greif, Avner, "Cultural Beliefs and the Organization of Society: A Historical and Theoretical Reflection on Collectivist and Individualist Societies," *Journal of Political Economy*, October 1994, *102* (5), 912–50.

Guiso, Luigi, Paola Sapienza, and Luigi Zingales, "Long term persistence," Technical Report, National Bureau of Economic Research 2008.

__ , __ , **and** __ , "Civic Capital as the Missing Link," Economics Working Papers ECO2010/08, European University Institute 2010.

Helliwell, John F. and Robert D. Putnam, "Education and Social Capital," Technical Report 7121, National Bureau of Economic Research May 1999.

Hobbes, T., *Leviathan* number v. 2. In 'Universal-Bibliothek.', Penguin Books, 1981.

ICSPR, "Afrobarometer Data," 2005. Available at `http://www.afrobarometer.org/data/data-by-country-n-z/nigeria`.

Knack, Stephen and Philip Keefer, "Does Social Capital Have an Economic Payoff? A Cross-Country Investigation," *The Quarterly Journal of Economics*, 1997, *112* (4), 1251–1288.

Lewis, Peter, "The dysfunctional state of Nigeria," Center for Global Development 83-116, Short of the Goal: US Policy and Poorly Performing States, Washington DC 2006.

Lovejoy, Paul E. and David Richardson, "'This Horrid Hole: Royal Authority, Commerce, and Credit at Bonny, 1690-1840," *The Journal of African History*, 11 2004, *45*, 363–392.

Lugard, F.J.D.B., *The Dual Mandate in British Tropical Africa*, W. Blackwood and sons, 1923.

Murdock, G.P., *Africa: Its Peoples and Their Cultural History: Maps*, McGraw-Hill, 1959.

NBS, "Nigeria General Household Survey (GHS), Panel 2010," `http://microdata.worldbank.org/index.php/catalog/1002/accesspolicy` 2013.

Northrup, D., *Trade without rulers: pre-colonial economic development in south-eastern Nigeria* Oxford studies in African affairs, Clarendon Press, 1978.

Nunn, Nathan, "The Long-Term Effects of Africa's Slave Trades," *The Quarterly Journal of Economics*, 02 2008, *123* (1), 139–176.

__ , "Religious Conversion in Colonial Africa," *American Economic Review*, 2010, *100* (2), 147–52.

__ , "Gender and Missionary Influence in Colonial Africa," in Emmanuel Akyeampong, Robert H. Bates, Nathan Nunn, and James Robinson, eds., *African Development in Historical Perspective*, Cambridge: Cambridge University Press, May 2014.

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

Okoye, Dozie, Bosun Olajutemu, and Roland Pongou, "Persistent Effect of Missions on Schooling in Nigeria," Technical Report 2014.

Okwu, A.S.O., *Igbo Culture and the Christian Missions, 1857-1957: Conversion in Theory and Practice*, University Press of America, 2010.

Osberg, L., *The Economic Implications of Social Cohesion* Studies in comparative political economy and public policy, Toronto: University of Toronto Press, 2003.

Ostien, Philip, "Percentages by Religion of the 1952 and 1963 Populations of Nigerias Present 36 States," *NRN Background Paper*, 2012, (1).

Putnam, Robert D., *Bowling Alone: The Collapse and Revival of American Community*, New York: Simon & Schuster, 2000.

Roome, William R.M., *Ethnographic Survey of Africa Showing the Tribes and Languages: Also the Stations of Missionary Societies*, Edward Stanford Ltd, 1925.

Sapienza, Paola, Anna Toldra-Simats, and Luigi Zingales, "Understanding Trust," *The Economic Journal*, 2013, *123* (573), 1313–1332.

Sundkler, B. and C. Steed, *A History of the Church in Africa:* Studia Missionalia Upsaliensia, Cambridge University Press, 2000.

Swindell, Kenneth, "Population and Agriculture in the Sokoto-Rima Basin of North-West Nigeria: A Study of Political Intervention, Adaptation and Change, 1800-1980," *Cahiers d'tudes Africaines*, 1986, *26* (101/102), pp. 75–111.

Tabellini, Guido, "Institutions and Culture," Working Papers 330, IGIER (Innocenzo Gasparini Institute for Economic Research), Bocconi University 2007.

$\_$, "The Scope of Cooperation: Values and Incentives," *The Quarterly Journal of Economics*, 2008, *123* (3), 905–950.

$\_$, "Culture and Institutions: Economic Development in the Regions of Europe," *Journal of the European Economic Association*, 06 2010, *8* (4), 677–716.

Tasie, G.O.M., *Christian Missionary Enterprise In the Niger Delta 1864-1918* Studies on Religion in Africa, Brill, 1978.

Van den Bersselaar, Dmitri, "Creating 'Union Ibo: Missionaries and the Igbo language," *Africa*, 4 1997, *67*, 273–295.

Vande, Philip Terzungwe, "Ethnicity and the Politics of State Creation in Nigeria," *European Scientific Journal*, 2012, *8* (16).

VerEecke, Catherine, "The Slave Experience in Adamawa: Past and Present Perspectives from Yola (Nigeria)," *Cahiers d'tudes Africaines*, 1994, *34* (133/135), pp. 23–53.

Wantchekon, Leonard, Natalija Novta, and Marko Klašnja, "Education and Human Capital Externalities: Evidence from Colonial Benin," *Unpublished manuscript*, 2013.

Woodberry, Robert D., "The Missionary Roots of Liberal Democracy," *American Political Science Review*, 5 2012, *106*, 244–274.

WVS, "WORLD VALUES SURVEY 2005 OFFICIAL DATA FILE," v.20090901, 2009. Available at `www.worldvaluessurvey.org`.

Zylberberg, Yanos, "Do tropical typhoons smash community ties? Theory and evidence from Vietnam," PSE Working Papers halshs-00564941, HAL Oct 2010.

Table 7: Summary Statistics by Ethnicity

Ethnicity	Relatives	Measures of Trust Neigbours	Intraethnic	Others
Anang	1.52	1.29	1.06	0.90
Ebira	1.82	1.14	0.86	0.54
Edo	1.45	1.17	1.17	0.89
Efik	1.38	0.95	0.95	0.71
Ekoi	1.60	1.40	1.40	1.00
Ekpeye	1.58	1.08	0.92	0.92
Fulani	2.36	2.09	2.09	1.78
Gwari	2.00	1.71	1.53	1.53
Hausa	2.23	1.96	1.80	1.38
Ibibio	1.28	0.94	0.81	0.83
Idoma	1.85	1.15	0.65	0.35
Igala	1.82	1.18	1.10	0.79
Igbo	1.55	0.99	0.80	0.66
Igede	2.89	2.56	1.78	2.00
Ijaw	2.19	1.77	1.42	1.13
Ikwere	1.45	0.90	0.77	0.58
Isoko	0.83	0.75	0.75	0.83
Itsekiri	1.67	1.33	1.44	0.78
Kalabari	1.23	0.77	0.62	0.62
Kanuri	2.39	2.16	2.08	1.53
Nupe	1.85	1.58	1.62	1.23
Ogoni	1.83	1.33	0.50	0.33
Okirika	1.86	1.14	0.43	0.43
Okpella	2.25	1.75	1.25	1.13
Sayawa	2.80	2.60	2.40	1.80
Shuwa	2.67	2.33	2.67	2.00
Tapa	2.00	2.00	1.50	0.75
Taroh	2.75	1.75	2.25	1.88
Tiv	2.29	1.48	1.58	1.39
Ukwani	0.73	0.64	0.45	0.45
Urhobo	1.11	0.89	0.93	0.63
Yoruba	1.91	1.28	1.00	0.77
Total	1.91	1.46	1.27	1.00

Table 8: Other Summary Statistics by Ethnicity

Ethnicity	Missions	Means Slave Exports	Age	Christian	Proportions Urban	Male
Anang	1.10	1.91	31.77	1.00	0.19	0.52
Ebira	0.28	0.09	28.93	0.14	0.25	0.54
Edo	0.17	0.62	31.28	0.92	0.70	0.45
Efik	1.10	1.91	28.40	0.90	0.81	0.48
Ekoi	0.07	0.20	28.40	0.80	0.20	0.60
Ekpeye	0.22	0.99	29.92	0.92	0.08	0.58
Fulani	0.00	0.00	31.67	0.02	0.40	0.47
Gwari	0.15	0.04	36.53	0.35	0.29	0.53
Hausa	0.01	0.68	31.45	0.02	0.38	0.51
Ibibio	1.10	1.91	31.21	1.00	0.53	0.53
Idoma	0.28	0.00	26.81	1.00	0.27	0.62
Igala	0.13	0.00	29.72	0.69	0.49	0.49
Igbo	0.75	2.50	30.28	0.96	0.57	0.50
Igede	0.28	0.00	24.89	1.00	0.22	0.44
Ijaw	0.22	0.99	28.75	0.95	0.39	0.51
Ikwere	0.75	2.50	29.26	0.97	0.29	0.52
Isoko	0.00	0.07	29.83	1.00	0.92	0.58
Itsekiri	0.37	0.00	38.89	0.78	1.00	0.56
Kalabari	0.22	0.99	29.31	0.92	0.92	0.46
Kanuri	0.00	0.04	30.65	0.02	0.63	0.51
Nupe	0.27	1.19	29.46	0.08	0.23	0.58
Ogoni	1.10	1.91	25.00	1.00	0.33	0.33
Okirika	0.22	0.99	24.71	1.00	1.00	0.57
Okpella	0.17	0.62	21.75	0.63	0.13	0.38
Sayawa	0.27	0.00	24.80	1.00	0.00	0.00
Shuwa	0.00	0.00	38.67	0.00	1.00	0.33
Tapa	0.27	1.19	34.00	0.00	0.00	0.25
Taroh	0.43	0.00	31.88	1.00	0.00	0.50
Tiv	0.16	0.02	27.97	0.94	0.19	0.52
Ukwani	0.75	2.50	37.00	0.83	0.17	0.58
Urhobo	0.00	0.07	27.78	0.96	0.48	0.56
Yoruba	0.21	2.71	33.95	0.61	0.71	0.49
Total	0.29	1.49	31.24	0.56	0.51	0.50