UNIVERSITY OF OTTAWA

# The Long-Term Impact of Christian Missionaries on Human Capital: Evidence from Nigeria.

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Dedicated to my lovely wife, Ajibola F. Olajutemu

## Abstract

This study examines the long-term impact of exposure to missionary activities on education attainment in Nigeria. Using information on the locations of Christian missions, I find that generally, there is a strong positive effect of historical exposure to missionary activities on education attainment today in Nigeria. However, the impact varies across tribal and religious groups. The impact is stronger today among northern tribes and the Muslims than the southern tribes and the Christians. The reason being that, education in the south and among the Christians is approaching its peak while education in the north and among the Muslims started developing in recent years. Therefore, any increase in the number of mission stations will have a small impact on education development in the south unlike the north. More so, historically; the Southerners were first exposed to Christian missionary activities and were early school starters unlike the north that opposed education as an agent of Christianity and only saw the need for western education recently. I also find that exposure to Christian missionary activities reduces the gender gap in education attainment, even eliminating it in certain tribes.

**Keywords:** Mission Stations; Christian missionary activities; Human capital; Gender roles; Economic development; Regional economic development; Public policy

## Introduction

Exposure to certain orientations and activities affects the way people think, act and also shapes their perception on issues. This tends to form the orientation and the ideology people are identified with today. Evidence has suggested that historical presence and the interaction with the European missionaries formed an important factor in the economic development of most colonial Africans, especially in terms of education development and gender equality in education attainment today (Nunn, 2012[1]; Woodberry, 2002,2004). The European missionaries preached equality in every aspect of life while in Africa (Ibewuike, 2006). Equality in the face of the law means all is equal in every aspect, which can be likened to public goods that are non-rival in consumption. This justifies that every human being has equal opportunities to pursue basic economic and social needs, realise their full human potentials according to their wishes, irrespective of gender, religious affiliation and tribe. It has been claimed that some cultural limitations and religious ideologies such as male dominance over female tend to promote gender gap in education attainment in developing countries. (Njogu & Orchardson-Mazrui, 2008).[2]

This study rests on the theories and findings of Dev, Mberu & Pongou, (2013) and Biyapo (2013).[3] Dev, Mberu & Pongou, (2013) observe that the northern part of Nigeria lags behind the south in education attainment. Their findings equally show that Muslims lag behind the Christians in education attainment. They conclude that there exists a cross ethnic and cross religious differences in education attainment in Nigeria while the north opposes western education, the south embraces it. Biyapo (2013) in his own findings concludes that beyond the claims of Dev, Mberu & Pongou (2013), the education attainment differences are not limited to ethnic and religious identifications, but biased towards males especially in the Muslim dominated area of northern Nigeria.

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[1] The finding of Nathan Nunn (2010) is very striking by tracing the intergeneration transfer of beliefs. The descendants of those ancestors in contact with the missionaries are Christians today

[2] Inequality is pivotal to the theory of economic development. Inequality still exists in most developing countries, most government policies tend to widen the gap between the poor and the rich.

[3] Biyapo (2013) is unpublished Master Thesis carried out on education differences between males and females in Nigeria

Education attainment in this study refers to the number of years an individual between the age of 5 and 24 spends in school. Why is there a substantial difference in the education attainment of an average individual from the north and the south of Nigeria if the above mentioned theories are true? It has been argued that the historical exposure of ethnic groups to either Christianity or Islam is a major determinant of the difference in education attainment across ethnic and religious groups in Nigeria (Dev, Mberu & Pongou, 2013). The major determinant of formal/western education development in Africa and Nigeria in particular has been ascribed to the arrival of European missionaries. It has been observed that the European missionaries brought western education/civilisation, built schools and hospitals, they taught people how to read and write, and preached the equality of man and woman before God (Johnson, 1967). Horton (1971) observes that, "With the advent of the twentieth century … Europeans came to be seen as symbols of power, and Christianity itself came to be seen as part of a larger order, comprising of western education, colonial administration, commerce and industry, with which everyone had henceforth to reckon." (Horton;1971, 86).

The European missionaries convinced traditional Africans to convert to Christianity by providing basic amenities as enticements (Nunn, 2010). Therefore, this study in one part focuses on the long-term impact of ancestors' exposure to Christian missionary activities on education attainment across tribal and religious groups. Secondly, the study discusses how this exposure affects gender differences in education attainment across tribal and religious groups in Nigeria today. It is important to state that this study differs from that of Nunn (2012) which focuses on the differences in the impact of Protestant and Catholic missionary activities on education development and gender equality in Africa. Exposure to Christian missionary activities can be described in general terms as those activities the historical ancestors observed and adopted from the European missionaries which eventually became part of their lifestyle.

Historically, the coastal regions of African countries were first exposed to missionary activities due to the availability of waterways as links to Europe for supplies, the path the early European explorers used when they came to Africa, and the fear of the Arabs that

dominated most North African countries (Abernethy, 1969; Berman, 1974; Csapo, 1981; Coleman, 1958; Nunn, 2010). Those places where the missionaries settled witnessed an explosion of missionary activities and quickly experienced education development unlike the north. It has been observed that 97% of the student population in Ghana and Nigeria graduated from missionary schools (Berman, 1974 & Nunn, 2012). The same trend was particularly observed in Nigeria as there were 37,500 primary schools and 11 secondary schools in the south and just 1,100 primary schools in the north as at 1914 (Csapo, 1981).[4]

Based on the discussions above, I combine household cross-sectional data from the Nigerian 2008 Demographic and Health Surveys (DHS), the spatial information from a map published by Roome (1924) that provides the precise locations of foreign Christian missions during their sojourn in Nigeria and information on the locations of ethnic groups in Africa published by Murdock (1959).[5] I first conduct regression-based analyses to estimate the long-term impact of the ancestors' exposure (historical ethnic communities) to Christian missionary activities within certain defined distances (25 kilometres radius, 100 kilometres radius and any distance more than 25 kilometres radius around each ethnic group) on education attainment measured by years of education of individuals across religious groups, residence (urban and rural settlements) and the regions (north and south) in Nigeria. The second set of regressions investigate the impact of the exposure to Christian missionary activities on differences in years of education attained between males and females across ethnic and religious groups in Nigeria by interacting the female gender with Christian missionary activities measured by the number of mission locations.

Year of education is the dependent variable of the regressions and the surveys also collect information on a host of additional individual, household and community level characteristics, which are included in the control variables while using Ordinary Least Square

[4] The total number of missionary schools was taken across the northern and southern protectorates as at 1914. Due to the opposition to western education in the north, the colonial masters started influencing the thought in the north, therefore were directly involved in building schools in the north unlike the south

[5] The Map provided by Roome (1924) shows the historic spatial location of the missionaries when they came to Africa. However I limit my analysis to the mission locations in Nigeria

(OLS). The OLS results for the first set of regressions show that there is a strong positive impact of historical exposure to missionary activities on the current level of education in Nigeria. More specifically, mission locations within 25 kilometres distance around the historical ethnic base have a stronger and more significant impact on education attainment today than mission locations within the distances more than 25 kilometres. These results also indicate that, irrespective of religious affiliations, individuals who live in the south today are more educated than individuals who live in the north. This may not be surprising because the number of Christian mission locations in the south were more than those in the north as at 1924 even though this may not strictly be the causal effect. However, a continued increase of Christian mission locations will lead to a less significant impact on education attainment since there is a maximum limit to the level of education individuals can attain. This statement is justified because a continued increase in the number of Christian missions in the south does not have as much impact as the north because the educational attainment in the south is almost reaching its peak unlike that of the north. Based on the findings, it is expected that if the north was equally exposed to the amount of missionary activities as the south, the same result would be established.

The OLS results of the second set of regressions restate Biyapo's (2013) findings which indicate that females generally lag behind their male counterparts in Nigeria, but the gender gap varies across ethnic groups. The results show females being significantly ahead of their male counterparts in one region, while also lagging behind them substantially in the other region. The data also reveal that females generally lag behind males among the Muslims both before and after controls are added. However, females are ahead of their male counterparts among the Christians and in the south if controls are not added, but lag behind them once controls and neighbourhood fixed effects are added. Nonetheless, with the introduction of exposure variables, the gender gap reduces in the north and among the Muslims, but it is completely eliminated among the Christians and in the south. This indicates that, irrespective of religious orientations and cultural background, exposure to

certain missionary activities such as educational activities/facilities over time influences people's lives and this influence tends to have long-term implications.

### 1.1 Historical Overview of Nigeria

Nigeria was formally a British colony and the headquarters was in Lagos after the amalgamation of the northern and southern Protectorates by Lord Luggard in 1914. Nigeria, being divided along ethnic and religious affiliations had the major tribes being Ibo, Yoruba and Hausa/Fulani before the amalgamation. It is divided into basically mainly Muslim north and predominantly Christian south. The ethno-religious division of the country has not been altered till date which is partly responsible for religious unrest over the years with the latest being the Boko Haram menace.[6]

Nigeria got independence from the British government, became a sovereign nation in 1960 and was declared a republic in 1963. Nigeria is currently the most populous black nation with approximately over 168.8 million people (World Bank, 2012) and a population growth rate of 1.93 percent as of July 2011 (CIA World Factbook, 2013). Nigeria has a geographical space of 923,768 km² and is composed of more than 250 ethnic groups spread across six geopolitical Zones (CIA World Factbook, 2013). The Hausa/Fulani/Kanuri tribe settles in the north, they are predominantly Muslims and account for about 29 percent of Nigeria's population. The Yorubas reside in the South West account for approximately 21 percent of Nigeria's population and are equally divided between the Christians and Muslims (Dev, Mberu & Pongou, 2013); the Igbos are predominantly Catholic Christian, live in the South East, account for 18 percent of the population. The Ijaws are predominantly Christians as well and reside in the Niger-Delta region, accounting for about 10 percent of the country's population; while other minor prominent ethnic groups such as Tiv, Igala, Ebira, Egede and

[6]Boko Haram is a combination of two words in Hausa and Arabic languages. Boko means Book in Hausa while Haram means forbidden in Arabic. Therefore, it can be interpreted in general that western education is forbidden. Boko Haram is an Islamic Jihadist (just like Al-Shabaab in north and East Africa, al-Qaeda in the Middle East) in northern Nigeria that wage war against any western influences i.e. schools, hospital, anything with Christian identification and have killed more than 5000 people in recent times

Birom in the Middle Belt and Ibibio, Ekoi, Itsekiri in the southern part of the country account for the rest of the population.

The south is a coastal region that housed the first set of Christian missionaries (Abernethy, 1969; Coleman, 1958) and equally, a home to the mainstay of the economy. The country has been producing Crude oil and natural gas since its discovery in 1956 in the Niger-Delta region, part of South West region and South East Region, and has since the early 80s till now provided around 95% percent of foreign exchange earnings and about 80% of budgetary revenues in Nigeria (Nigerian National Petroleum Company (NNPC) publications, 2010). The GDP stands at $260.12 billion (3rd quarter, 2013 estimate – Current Market Price) and grew by 6.56% over the previous quarter. About 70% of Nigeria's Labour force is engaged in the agricultural sector, another 10 percent in the industrial sector and the final 20 percent in the services sector (Central Bank of Nigeria, 2012)

### 1.2 Education Development and the Influence of Christian Missionaries in Nigeria.

Education development in Nigeria can be traced back to El-Kanemi ruler, Umme Jilmi (1085 - 1097) the Kanuri tribe in the eastern part of Lake Chad and around what is today called Borno in the north eastern part of Nigeria. Subsequent rulers of the Kingdom, such as Dunama 1 (1097-1150) and Dunama II (1221 - 59) continued the tradition of Islamic learning and by the end of the 13th Century, El-Kanemi had become a centre of Islamic learning (Fafunwa, 1974, Mkpa, n.d). Islamic education and Arabic language were taught in primary schools as a result, many rulers employed the service of Islamic scholars as administrators therefore Islam became the political structure of the tribe with a great influence on the people. Islamic study became strong, consolidated and had spread to the western part of the country (Yoruba Kingdom) before the arrival of European missionaries (Fafunwa, 1974, Mkpa, n.d). It was established that, by 1914, there was an estimated 25,000 Quranic schools in the north (Csapo, 1981; Mkpa, n.d).[7] Record has it that there were sketchy frequent contacts between indigenous groups in the southern part of Nigeria and European

[7] There were undocumented reports of Portuguese missionaries in part of Lagos (formerly Nigeria Colony and Capital before it was moved to Abuja) and Ibibio/Ekoi region(Davis and Kalu-Nwiwu, 2001)

explorers in the 15th century long before the formal and documented arrival of the European missionaries.

The Western type of education started seriously in Nigeria with the arrival of the Wesleyan Christian Missionaries at Badagry, Lagos in the southern part of the country in 1842. The European met stiff opposition and initial mistrust due to the ongoing slave trade activities therefore the first challenge by the missionary was to get the trust of people hence they put an end to the slave trade. The mission was not equally successful due to the strategy adopted with the sole objective of exposing people to the word of God by providing just access to the Bible (Nunn 2010). It soon became obvious that Bible was not enough therefore the missionaries packaged conversion with benefits, by providing western education, building of schools as well as training (Berman, 1974). Intensive missionary work took place between 1842 and 1914, schools were built and even up to ten different types of missionaries were jostling for pupils to be enrolled in the missionary schools (Ibewuike, 2006). The curriculum of teaching focused on reading, writing, arithmetic and religion, hence the beneficiaries were prepared for job opportunities such as teaching, clergy works, office clerks and interpreters (Csapo, 1981; Mkpa, n.d).

The western type of education started spreading up to the north through the Middle Belt but its arrival and reception in the northern part of the country was met with serious and stiff opposition due to the perception that Christianity is synonymous with western education. On the other hand, there exists an already established Islamic religion controlled by feudal Lords, hence missionary activities was seen as an affront to their authority (Mkpa, n.d). It is interesting to note that Feudal system of government (where all economic, political and social decisions that affect the life of people were taken by their rulers) was in place in the north unlike the south where each individual was at liberty to take decisions. The main reason for the opposition centered on the fact that, the missionaries were directly controlling education therefore both religious and secular leaders in the Muslim north opposed western education with Christian coloration. As a respect to the Muslim leaders in the north, the

British colonial authorities banned Christian missionary activities, this eventually shuts the region from western education till early nineties (Aguolu, 1979; Csapo, 1981).[8]

It is interesting to note that, the historical spread and exposure to Islam by the Northerners, as well as Christianity by the Southerners (before and) during the colonial period strongly influenced and dictated the formal educational choices of both historical members of Muslim and Christian societies (Dev, Mberu & Pongou, 2013). This diverging attitude of both groups in terms of their relative investments in formal education is still very much evident in contemporary Nigeria (Dev, Mberu & Pongou, 2013; Adamu, n.d.). By 1882, there had been a wide disparity in education attainment between the north and the south as the missionaries virtually carried out all the educational activities in the latter while the former resisted it. However, from 1882, the Government began to regulate and promulgate rules and regulations, guidelines and policies on the organisation and management of schools to enhance equality of education across the regions (Mkpa, n.d).

The resistance of the Muslim north and the exposure of the Christian south to the Christian missionary activities have been described to be a major factor in the difference in the level of education attainment of each region and between males and females in Nigeria (Ajayi, 1965). Csapo (1981) found that the female education in the northern part of Nigeria is hindered by significant emphasis on the religious, social and economic factors.[9] It is a cultural practice that most parents in the northern part of Nigeria do not allow their female wards go beyond primary school. The Emirs of the north are seen as the custodians of the culture and Islamic orientation, therefore northern people's resistance to embrace western education can be blamed on the northern rulers/elites (Csapo, 1981). Csapo (1981) argues that, "Northern politicians might consider the education of every Nigerian citizen desirable, but they are confronted with the reality of prevalent religious and social practices. In a democratic system the majority rules, and until the majority is convinced of the value of and

[8] Muslim apathy and the fear by the feudal Lords that their subjects will soon challenge their rulership if Christianity was allowed, is what creates the differences between the south and the north till today (Aguolu,1979)

[9] Csapo (1981) equally reemphasised the north and south dichotomy in education attainment

the need for changing social practices, a politician seeking election has to be aware and respectful of the feelings of the voters. The government might make schooling compulsory for both sexes however, this decision will probably have to be postponed until sufficient classrooms are built, teachers are trained and methods of enforcing the law can be found" (Csapo 1981:315).

Conclusively, the exposure of people to different kinds of religion, Islamic religion in the mainly Muslim north and Christianity in the predominantly Christian south; coupled with different kinds of political structure of each region can explain the wide and significant difference in years of education attained in each divide of the country.

### 1.3 Major Highlights of the Study

Nigeria's nationalist, Chief Obafemi Awolowo describe the country as a mere geographical expression that contains different ethnic groups with different ways of life, culture, dressing, food and orientation (Ajayi, 1965). Also, Davids & Kalu-Nwiwu, (2001) described Nigeria as a nation not as a result of community and common character but a nation with different ethnic nations with distinct identification and orientation each claiming its own heritage, culture and language.

Nigeria is composed of over 250 ethnic groups, however, ethnic groups have always been officially classified into five groups in Nigeria namely: Hausa/Fulani/Kanuri of the core north; the Tiv, Igala, Idoma and Gwari of the Middle Belt; the Igbo in the South East; the Yoruba in the South West; and the Isoko, Urhobo, Edo, Ijaw/Zion, Efik, Ekoi and Ibibio of Niger-Delta region (NISER, 1997).[10] But for the purpose of the analysis in this section, I re-categorise the tribes into Yoruba, Igbo, Hausa/Fulani/Kanuri, Ijaw/Zion, Ekoi, Ibibio, Igala and Tiv in order to observe the impact of the exposure to missionary activities in the present day Nigeria.

[10] Officially Nigeria is divided into Six Regions vis South West – Yoruba, South East – Igbo, South-South (Niger-Delta) – Ijaw/Itshekiri, North West – Hausa/Fulani/Kanuri, North East - Hausa/Fulani/Kanuri and North Central (Middle-Belt) – Igala/Tiv/Ebira.

The study begins with the spatial analysis of the geographical locations of the Christian missions that is, where the missionaries carried out their conversion/religious activities. Using data obtained from map published by Roome (1924), the study presents the historical locations of the Christian missionaries in Nigeria. Figure 1 shows the precise locations and the distributions of the missionaries across the major zones/regions in Nigeria. It is evident that there were more Christian mission locations in the south, which comprises the Yoruba, the Igbo and the Niger-Delta, than in the north, which comprises the Hausa/Fulani/Kanuri and the Middle Belt. Even though some studies (i.e. Csapo, 1981; Adamu, n.d.) have cited reason such as opposition to European missionaries as reason for the determinant of location of mission stations. Another important factor is that the Missionaries favoured the coastal locations that give access to waterways and through which supplies come from Europe (Nunn, 2010; Berman, 1974). Figure 1 equally shows that there were mission locations around the Middle Belt part of the north, but few can be seen in the core north. The reason being that missionaries gradually moved up north, but the campaign stopped around the Middle Belt due to the dominance of Islamic religion in the north. Figures 2a and 2b present the number of mission locations around each ethnic group within 25 Kilometres radius and 100 Kilometres radius respectively. It is obvious from Figures 2a and 2b that within 25 Kilometres radius around the ethnic groups, the southern and the Middle Belt tribes are more exposed to a significant number of mission locations than the core northern tribes. However, the northern tribes were exposed to a few number of mission locations within 100 kilometres distance.

Figure 3 shows the distribution of the Christians and Muslims across the ethnic groups. Based on the sample size, it is evident that Christians are more concentrated among the Ekoi (100%), the Ibibio (100%), the Ijaw/Zion (100%), the Tiv (100%), the Igbo (99%), the Yoruba (59%) and the Igala (51%) ethnic groups, but fewer among the Hausa/Fulani/Kanuri tribe ethnic group (1%). On the other hand, Muslims are more concentrated in the core north among the Hausa/Fulani/Kanuri (99%) tribe while they represent 41% of the Yoruba tribe, 49% of the Igala, 1% of the Igbo tribe, but are not

represented amongst the Ekoi, Ibibio, Ijaw/Zion and Tiv. This fact is not farfetched, a closer look at the Figures 2a and 2b shows that the missionaries were more concentrated in the south especially in the Niger-Delta region. It is also evident that the Yorubas and the Igalas from Figure 3 are more balanced in religion than other ethnic groups

Figure 4 discusses the differences in educational attainment as measured by years of education, between the Christians and Muslims. It can be deduced from Figure 4 that an average Muslim lags behind his/her Christian counterpart by one year of education at the age 8 and the gap continues to widen over time even till the age of 24. By age 24, an average Muslim lags behind an average Christian by 6 years in education attainment. Figure 5 examines the differences in educational attainment across the ethnic groups. It is obvious from Figure 5 that an average Yoruba, Ibo, Ekoi and Igala person attained approximately the same level of education as the graphs for these tribes cluster around the same point which make these tribes have the highest level of education in Nigeria. The Ijaw/Izon and the Ibibio tribes have approximately the same level of education but are a year lower than the Yoruba, Ibo, Ekoi and Igala tribes. An average Tiv person achieves 7.8 years of education at the age of 24 while an average Hausa/Fulani/Kanuri person achieves 4 years of education at the age of 24 lagging behind a tribe like Ibo by approximately 7.7 years of education. The Tiv tribes are generally Christians but settled in the upper part of Middle Belt closer to the core the north than any other tribes. Historically, this particular tribe has been dominated by the Hausa/Fulani/Kanuri culture therefore it will be right to assume that even though they were exposed to Christian missionary activities, they still reflect a bit of the northern culture. If Figures 1 and 5 are combined together, it is obvious that there is a high positive relationship between historical presence of Christian missionaries and current level of education in Nigeria.

Figures 6 and 7 present the analysis of the gender differences in education attainment across religions. From Figure 6 among the Muslims, females consistently and continuously lag behind their male counterparts from age 10 with a gap of 0.5 years to age 24 by 4 years in education attainment. This is not similar to the Christians as Christian girls outperformed

their male counterparts marginally at early years but falls below the males by 1 year at the age of 24 as shown in Figure 7. From the previous analyses, it has been observed that the northern tribes/Muslims generally lag behind their southern/Christians counterparts in education attainment. Therefore, Figures 8 to 19 examine the gender differences in education attainment within each ethnic group.

Figure 8 presents statistics for the Hausa/Fulani/Kanuri tribe; the females lag behind the males from age 5 and lag further by 4.5 years in education attainment at the age of 24. This may be due to the social cultural hindrances placed on Muslim girls to pursue the western type of education due to the fear of being corrupt by civilisation as discussed in Abernethy (1969), Coleman (1958) and Csapo (1981). The Igbos as presented in Figure 9 show that the female gender is at par with their male counterparts from age 5 to age 24. The Yoruba in Figure 17 and the Ekoi in Figure 11 exhibit the same characteristic in gender equality. While in both tribes females outperform their male counterparts in the early age until later when they begin to lag behind the male gender by barely a year gap of education at 24 years. It is interesting to know that, the Yorubas and the Igalas are approximately equally distributed among the Christians and the Muslims therefore the study looks at the gender differences within the Muslims and Christian Yorubas and well as Muslim and Christian Igalas. The reason for this analysis is to find out if individuals that are not Christians today but their ancestors were exposed to Christian missionary activities were positively affected.

Figure 18 presents the graphical analysis for the Yoruba Muslims. An average Yoruba female Muslim exhibits the same characteristics as an average Yoruba female. The Yoruba Muslim girls initially outperform their male counterparts at the early age of schooling but lag behind by merely one year at the age of 24 unlike the Muslim north where their females lag behind their males continuously from age 5 to 24 and by age 24, the gap between an average Muslim girl and boy from the north is 4.5 years. The analysis here shows that irrespective of religion, the missionaries influenced the ancestors that were exposed to missionary activities in the 19th centuries. Figure 19 presents the graph for the Yoruba Christians; the difference in education attainment between the males and the females is

insignificant. The gender differences in education attainment among the Muslim Igala girls and boys, and the Christian Igala girls and boys follow the same pattern as Muslim Yorubas, this could be as a result of the number of mission stations in the Middle-Belt region as evident in Figure 1. The Ijaw/Izon as presented in Figure 15 indicates that the females have a slight advantage over the males at the early stage of schooling but by age 24, the females lag behind their male counterparts by 1.5 years. The differences in education attainment of the Ibibio males and females as presented in Figure 11 is not that pronounced but notwithstanding the female gender on average consistently outperforms the male gender, even at 24 years, the males lag behind the females by 0.5 years of schooling.

It is can be seen from the above descriptive statistics that girls generally lag behind boys with respect to education attainment in Nigeria; however, the gender gap varies substantially across ethnic groups and religions. It is informative that females in some ethnic and/or religious groups enjoy or exercise higher rights to education as opposed to others. There is a clear difference between predominantly Muslim north and mainly Christian south in education attainment and even across gender.

The paper covers six sections, including the introduction. In the second section, the study looks at the literature review of past studies in order to better understand the effect of exposure to Christian missionary activities on education attainment, the cultural disparities towards educational attainment, as well as the influence of exposure to western type of education brought about by the Christian missionaries on gender equality in Nigeria. I describe the data in the third section while section four presents the empirical strategy for the research. In section five, the empirical results are discussed in details. Section six contains conclusion and recommendations.

## 2. Literature Review

Education development in Africa especially former colonies of European countries has been ascribed to the activities of missionaries in the pre and post-colonial era even though the degree of the development varies across countries but was generally substantial

(Woodberry, 2004).11 Woodberry (2004) equally puts this degree to be highly substantial in sub-Saharan Africa as up to 90% of western education in this part of the world was provided by the missionaries during the colonial period. A host of literature abound that explains the ideology of the European missionaries. The missionaries were able to construct schools and aid learning so that the traditional Africans can read the Bible.12 The initial strategy adopted by the European missionaries was to convert Africans to Christianity. Therefore, schools were not meant for the purpose of developing people but were seen as mediums through which the Gospel of Jesus Christ can be spread to the pagans as well as to exert Christian domination (Berman, 1974; Ajayi, 1965; Ayandele, 1966). Ibewuike (2006), having studied the Igbo people precisely in Asaba Town, observes that with the arrival of missionaries in Ibo (Igbo) land, there came Christianity and western education. People were taught how to read and write, solve arithmetic problems as well as taking up clerical jobs.13

Ibewuike (2006) as well concludes that the missionaries' main focus was to convert African people to Christianity through the provision of education as an inducement but not to empower them for future opportunities. In the words of Campbell (1932), the missionaries placed the teaching of religious instructions at the forefront of academic curriculums, and as well noted, "Bible teaching was the backbone of all our school efforts" (Campbell, 1932: 113). Missionaries recognized that the school was a preparatory ground for infant Churches' development (Ajayi, 1965). Also, according to Nunn (2010), the initial objective of the missionaries was to expose Africans to the word of God by providing Bible to the traditional Africans but the strategy was not working; the word of God was not enough, Africans have long held to their traditional/indigenous beliefs which provide spiritual connection to their gods. Missionaries eventually realised that Africans were successfully converted if

[11] Woodberry (2004) shows that former British colonies are more prosperous than French colonies. Another important discovery is that the long-term impact of the Protestants missionary activities are stronger and more evident today than the Catholics. Also see Woodberry (2004) "The Shadow of Empire: Christian Missions, Colonial Policy, and Democracy in Postcolonial Societies" for more details

[12] It has been documented that the missionary's main objective was to convert Africans to Christianity, but the strategy was not working.

[13] Asaba town a settlement of Ibos (Igbos) in the present Delta State in Nigeria

conversion was packaged with benefits like western education and training (Berman, 1974). This action eventually started education development in Africa.

The Europeans were involved in educational infrastructural investments such as Schools construction. These infrastructural investments, according to Huillery (2009), became the foundation for educational development in most former European colonies and are still evident till today. In fact, missionaries used their schools as inducements to lure Africans into the missionary circle therefore Africans were in no way controlling the missionaries rather the missionaries were achieving their conversion objectives (Jordan, 1949). According to Jordan (1949: 94) "those who hold the school hold the country hold its religion, hold its future". The reason why Africans attended mission schools as pointed out by Jordan (1949) were related to well-defined political, social, or economic consequences (Ajayi, 1965).14 Nunn (2010) having studied data for 17 sub-Saharan African countries observes that there is a long-term positive impact of missionary activities on the descendants of the ancestors that had contact with the missionaries. The descendants of the ancestors that had contact with the missionaries profess Christianity today therefore there is a strong correlation between exposure to missionary activities and Christianity. It is therefore most likely that the descendants of those that had contact with the European missionaries are educated and have economic power today.

In Figure 1, there were significant records of Christian missionaries in the southern part of Nigeria, which is the coastal region. Even though, the missionaries started moving up to the north, their activities were confined to the southern part of the north (Middle Belt). This was because the safety of the missionaries could not be guaranteed by the colonial masters due to the opposition mounted by the northern Muslims. It became clear that Islamic communities particularly in the northern Nigeria could no longer be the target of Christian missionaries therefore the region was shut out of Christian school system/western education and were left with no education infrastructure (Lincove, 2008). The British (Colonial

[14] Most African ancestors saw education advancement as a way of gaining economic and political power. Competition for converts among the Protestant and Catholic churches was so intense that each type of missionaries provides amenities to edge the other out.

masters) protected the unsophisticated political structure of the northern Nigeria where the Hausa/Fulani tribal leaders resisted the Missionaries and western type of education (Davis & Kalu-Nwiwu, 2001). Due to this opposition, Christian missionaries were banned from carrying out the missionary works in the north. The fact that European missionaries were directly controlling education created resistance to its advancement in the Muslim north. Both the northern secular and religious leaders opposed western education with Christian coloration (Davis & Kalu-Nwiwu, 2001). This was the beginning of the north and the south divide in educational attainment in Nigeria. This divergence in terms of each region's relative ability/openness to give access to/accommodate European missionaries later formed the significant difference in educational attainment of each region till date.

Missionaries embarked on critical investment in formal education in the part of the country where they settled, and this impact has been found to be present and persistent for many generations even till date (Grier, 1997; Woodberry, 2002, 2004). This is even still very much evident in contemporary Nigeria, with the Christians being pro-schooling, and a clear resistance from Muslims as an agent of Christianity (Dev, Mberu & Pongou, 2013; Adamu, n.d.). This obvious gap in education attainment between the north and the south necessitated the government to come up with a free primary school education program for all Nigerians. Nigeria's first free primary education program under the Universal Primary Education (UPE) later changed to Universal Basic Primary Education (UBEC) was implemented in 1976 with the sole purpose of removing the bottlenecks associated with politics, religion and social problems that created the education development gap between the southern and the northern part of the country (Bray & Cooper, 1979).

What then is the relationship between missionary, education and economic development? Using data from 180 African provinces, Gallego & Woodbery (2010) in segregating the effect of missionaries on education attainment (the missionaries were basically grouped into the Protestants and the Catholics); they observed that the long-term impact of the Protestants missionaries on education today is more significant than the Catholics. Woodberry (2002, 2004) observes that Protestant missionaries were much more

active in school activities than Catholic missionaries even though the country regulations of those provinces benefited the Catholic Churches. The argument here is supported by Nunn (2011, 2012), using information on location of Catholic and Protestant missionaries as provided by Roome (1924) and the location of ethnic groups in Africa as provided by Murdock (1959) combined with household information provided in the Afrobarometer survey (2005) for 17 sub-Sahara African countries. Nunn (2012) finds that even though Christian missionaries have long-term positive impact on education attainment and development today, the protestant missionary's impact is more significant than the catholic. The presence of Christian missionaries (particularly protestant) has shown to be strongly correlated with increased educational attainment. Grier (1997) supports this argument further, having studied 63 ex-colonial countries could only conclude that there exist a positive correlation between protestant religion and economic growth but less of it is seen in the catholic religion.

The historical investment in education and the institution established in the past have been adjudged to have a long-lasting positive effect on educational attainment today (Engerman et al., 1997; Lindert, 1999; Gallego, 2009). It is worthy of note that, generally these long-lasting impacts have affected a number of economic and social outcomes such as democracy, gender equality and attitude at the regional level for different countries (Nunn, 2011). Nunn (2011) observes that, even though it has been established that the missionary activities aid conversion and education attainment, there are evidences that among those that profess Christianity today, gender equality is established and the tradition of males dominance over females disappears especially among those exposed to protestant religion. Beyond the effect of missionary activities on gender equality and education attainment, (Nunn, 2011) concludes that the descendants of the ancestors that had contact with missionaries favour democracy and democratic values. Since most of the missionaries and colonial masters came from Europe, It is not surprising to see the effect of education-promoting influence of missionary activities on so many factors in European colonies especially among those exposed to the protestant type of Christianity given the evidence that

the rise of Protestantism within Europe had long-term education and economic growth benefits (Becker & Woessmann, 2009, 2008, 2010).

On gender equality, it is a general knowledge that once the issue of gender inequality arises, the first thing that comes to mind is male dominance over female but the reverse has never been the case. These are obvious facts even judging from those who occupy the seat of the president in most countries; very few of them are females. Men are considered superior to women in most traditional African cultures especially when it comes to chores outside homes like farming, education, participation in community decisions hence, women functions and responsibilities are always confined to within the house, carrying out home chores, taking care of the kids, therefore they are never at liberty to determine their future (Ibewuike (2006). In the book of Dobkin (1968), while studying the role and legal status of women in Francophone Africa, observes the belief that women in the traditional African customs were seen as objects or chattel that can be passed around as properties and can be inherited by other men. In the case of the demise of a man, the wife is usually passed to the brother of the deceased even sometimes traded like property within the family. The degree of females and males social interaction within some cultures is usually well defined, as Folber & Badgett (1999) note that being female in many different cultures is associated with care for others and that in most societies, females are held to a higher standard of family responsibilities as opposed to their male counterparts. Some of these beliefs are still held in some traditional African societies till today (Dobkin, 1968).15

It is on record that most part of the African countries that were exposed to Christian missionary activities, have continued to view gender roles of women and men differently. Nunn (2012) in his empirical research into the long-term impact of the missionaries on gender equality in 17 sub-Sahara Africa countries that were exposed to missionary activities observes that, even though Christianity reduces gender inequality through the egalitarian principle it preaches however, the Protestant Christian religion has a strong and significant effect on gender equality. The same is enshrined in Ibewuike (2006) studies; she concludes

[15]See M. Dobkin (1968) "Colonialism and the Legal Status of Women in Francophone Africa" for more details

that the advent of missionary invasion into Ibo (Igbo) land (Asaba) had made the Ibo society more egalitarian. With the introduction of western education which came with Christianity, Ibo women were encouraged by the missionaries to go to school and embrace western culture (Ibewuike, 2006). The role of women changed from the traditional housewives to more education-induced roles such as functioning as doctors, nurses, accountants and teachers (Ibewuike, 2006). Therefore missionaries came with education in one hand and conversion of Igbo women to Christianity in the other hand (Ibewuike, 2006).

By combining Figure 1 and Biyapo (2013)'s analysis, one realises that first, the missionaries settled in the southern part of Nigeria among the Yoruba, Igbo, Ekoi, Ibibio and the Ijaws, and the Middle Belt but they had little presence in the core north. And secondly, Biyapo (2013) observes that the gender gap is well pronounced among the Muslims in the core north, therefore there may be possibility of establishing a positive relationship between gender equality and exposure to missionary activities. As Keysar & Kosmin (1999) while observing the impact of religious identification on women's education attainment in America, observe that religion defines the value women place on education, family, marriage and childbearing. They could only conclude that religion establishes a culture which goes a long way in influencing their attitude and behaviour towards gender roles in society.

The question one needs to ask is "does exposure to missionary activities reduce/eliminate the differences in educational attainment between males and females?" Even though the answer to this questions is close to "yes" since several authors such as Nunn (2011, 2012), Grier (1997) and Woodberry (2004, 2009) have emphasized the influence of the exposure to Christian missionary activities on women's education. Does that mean men are above women in all educational endeavours in Islam since Christianity is more egalitarian? It will be appropriate to discuss Islamic perception and most importantly the cultural perception in northern Nigeria on female-male education.

## 2.1 Northern Nigeria perception of female-male education and Islamic Culture

The opposition to western education has created a gender gap between males and females which requires concerted effort to eliminate through the removal of cultural barriers and the change in northern perception towards female education (Ayandele, 1966). After the introduction of Universal Primary Education in 1976, northern parents were still reluctant to send their female wards to school, and those who did, withdrew them from school before completion (Csapo, 1980; Ayandele, 1966). Certain factors have been identified as reasons why female education has not been totally embraced in the north. Csapo (1980) summarizes these factors as follows: (1) Traditional antagonism of Muslims toward Western education, (2) Marriage customs and seclusion of women, *purdah* (Kulle), in the Hausa Muslim Society, (3) Fear of moral laxity in the schools, (4) Paucity of post-primary institutions (5) Lukewarm support by the political leadership. (6) Parents' fear that their female children will mingle with Christian boys (fear of being morally corrupt) and (7) Perception that female children should only learn to take care of homes which is part of marriage preparation and as such, there was no need formal education (Csapo, 1980; Tibenderana, 2009). Most female children are given out at a tender age by their fathers without consent from the mothers or the child herself, to most often older men for economic purposes (Ayandele, 1966).

Lewis (1956) discusses the misconception of women's rights and privileges especially male dominance over female in Islam, and concludes that the misconception is also practised in the northern part of Nigeria. According to Ahmed (1992), the practice of subordinating women has been institutionalised to be part of religious norms in most part of the Muslim world today. The practice of this culture is still very much evident among the Hausa/Fulani/Kanuri of northern extraction till today.[16]

[16] Figure 7 presents the difference in education attainment of males and females of northern extractions. This confirms Csapo (1980) and Ahmed (1992) position as regards women privileges, rights and values in northern Nigeria.

## 3. Data

The data used for this study are obtained from three different sources. First of the sources is Nigeria 2008 Demographic and Health Survey (DHS). The DHS analyses and maintains nationally representative household data that cut across socioeconomic, demographic and health indicators. DHS gathers data on important household and individual characteristics such as marital status, place of birth, nationality, ethnicity, religion, income, education, gender and so on for more than 90 countries that cut across most continents. These data are gathered by administering questionnaires directly to households at an interval of 5 years hence the data available in the DHS are primary data that are obtained from the surveyed individuals/households. The data usually vary in sizes depending on the type of survey. The data for this analysis consists of 60,544 individuals within the age of 5 and 24 years. These individuals are spread across religions, regions, urban and rural settlements and across gender.17 From the 2008 DHS sample, 30.9% of the respondents identified belong to any of the ethnic groups in the south, 38.7% of the respondents belong to northern tribes while 30.4% are unidentified ethnic groups based on the lack of information about their ethnicity, therefore for accuracy of the analysis, they are grouped under "Other Ethnicities". From the same sample, 49% are Christians while 51% are Muslims, one can say that Nigeria is evenly distributed in terms of religion. 71% of the respondents live in the rural environments while 29% live in the city. Likewise, 48% of the sample are males while 52% are females.

The second source of the data for this study is the data obtained from Nathan Nunn, as provided by Roome (1924). Roome (1924) provides an accurate map on the precise historical locations of missionaries in Africa, but this research only focuses on Nigeria therefore I extract the mission locations that were stationed in Nigeria only. 18 There were exactly 144 mission locations in Nigeria as at 1924 and out of these locations, 134 were Protestants which represents 93.1% of the total mission stations, 9 were Catholic mission

[17] See Table 1 for more details
[18] The map equally provided information on the location of ethnic groups and their locations

locations which represents 6.3% and just one location for Baptist missionaries which as well represents 0.7% of the total mission stations. It is evident here that Nigerian Ancestors were mostly exposed to protestant missionaries more than any other form of Christian missionaries. Since this study focuses mainly on influence of missionary activities on education attainment in Nigeria, therefore, there is no need to separate the influence of any type of Christian missionaries. According to Roome (1924), mission locations are defined as those that serve the interest of the natives but not churches or any congregations that serve the interest of the immigrants.19 Roome's map equally provides data on the locations of ethnic groups in Africa but this was greeted with criticism as some of the ethnic names were wrongly spelt, therefore I do not rely on ethnic locations provided by Roome (1924) for my ethnic identification.

Due to the shortcoming of the data provided on ethnic locations by Roome (1924), I therefore use more reliable information on ethnic locations provided by Murdock (1959) in his book titled "Africa: Its Peoples and Their Cultural History". This information gives the precise locations of the ancestors which is taken to be the locations of the traditional ethnic groups in 1924 as most ethnic groups were fragmented and there were no records of movement among the ethnic groups before the arrival of colonial masters. Ancestors were formed in groups and clusters in villages and small towns identified by the same language and culture. Historically before the amalgamation of southern and northern protectorates, people were identified by their ethnic groups/names but not as Nigeria. For instance, the Yoruba ancestors were located in the old western region known as the South West of Nigeria today.

I combine all the data obtained from these three sources to get the precise historical locations of the Missionaries, the precise historical locations of the ancestors (ethnic groups) and data on the current level of household/individual characteristics. I therefore merge these data to create a link between the past and the present since people are still identified by their

[19] Immigrants are defined to be white (non-natives) that came with the purpose of converting natives to Christians.

tribal names till date. The spatial information obtained is superimposed on the Nigerian map in order to calculate the number of mission locations that fall within certain distances.20 For the purpose of this study, I calculate the number of mission locations that fall within 25 kilometres radius (exposure within 25 kilometres), 100 kilometres radius (Exposure within 100 kilometres) and outside 25 kilometres radius around each ethnic group. Figures 2a and 2b show all the ethnic locations according to Murdock (1959) in Nigeria, the mission locations and the number of missions that fall within 25 kilometres radius and 100 kilometres radius respectively.

There are over 100 ethnic groups in Nigeria that spread across the north and the south but for the purpose of this study, I aggregate all the ethnic groups in south (e.g south comprises the South West – Yoruba, South East – Igbo and Niger Delta- the Ijaws, Itshekiris, Ibibio, Efik, Ekoi and Izon) as one and all the ethnic tribes in the north (e.g. North West – Hausa/Fulani/Kanuri, North East – Hausa/Fulani/Kanuri and North Central – Tiv, Igala, Egede and Ebira) as one. Also, based on the data provided by the Nigeria 2008 DHS, there were other groups of individual that could not precisely identify with a particular ethnic group, because the genealogy of each ethnic group is paramount to the study, therefore they are labelled as "Other ethnicities". Apart from ethnic classification, religion is equally classified into the two dominant religions in Nigeria namely Christianity and Islam (Dev, Mberu & Pongou, 2013).

The dependent variable for this study is the year of education which indicates the level of education today while the variable of interest for the first set of analyses is the exposure of the ancestors to Christian missionary activities which are; exposure within 25 kilometres, exposure within 100 kilometres and exposure outside 25 kilometres around the ethnic groups. The variable of interest for the second analysis is exposure of female gender to Christian missionary activities. This I calculate by interacting the female gender if female equals to 1 with the exposure variables i.e. Exposure within 25Km*Female (female exposure

[20] See Figures (1) & (2a & b)

within 25 kilometres) and Exposure within 100Km*Female (female exposure within 100 kilometres).21

Table 1 presents the weighted summary statistics of the sample size. This consists of a host of individual, household and community level variables that are used in the study. The individual variables in Table 1 are; child age, gender, years of education and relationship with household head.22 The exposure variables are; exposure within 25 kilometres, exposure within 100 kilometres and exposure outside 25 kilometres while household characteristics that are controlled for are; age, religion, region, place of residence and wealth. Neighbourhood fixed effects are employed to cater for peculiar characteristics of areas of residence such as climatic factors that influence the location of mission stations and those other factors that in one way or the other create disparity in education attainment across regions in Nigeria since supply of educational infrastructures are not equally distributed across regions

It can be seen from Table 1 that the average year of education for the total respondents is 4.021; the south is 5.854 while the north is 2.088. It is evident that the average year of education in the South is higher than that in the north. Likewise the average year of education for the Christians is 5.552 while it is 2.495 for the Muslims; this is a replica of the difference in the level of education obtained between the north and the south. It is well known that the north that accounts for 39% of the sample size is mainly Muslim while the south that accounts for 31% is predominantly Christian.23 The average year of education for the urban dwellers (5.501) is more than the rural dwellers (3.288), this equally not surprising because there may be better education facilities in the cities as opposed to the villages. The average number of mission locations within 25 kilometres around the ethnic groups in the south is 2.940 while 0.074 in the north. The Number of Christian missions within 100 kilometres take the same pattern as 25 kilometres. An average ancestor in the South is

[21] See equation (4) for the calculation

[22]The inclusion of the "relationship to head of household" variable is premised on the assumption of Dev, Mberu & Pongou (2013), that parents in traditional African may have a high tendency to deliberately invest more in their biological children as opposed to non-biological children.

[23] See Figure (3) for more details

exposed to an average number of 19.098 mission stations while in the north; an average ancestor is exposed to 3.961 mission locations. Exposure outside 25 kilometres equally follows this pattern. Exposure of the Christians and Muslims to the Christian missions within 100 kilometres and 25 kilometres takes the same form as the exposure of the south and north within 100 kilometres and 25 kilometres respectively to Christian mission locations.

## 4. Econometric Models

The section begins by investigating the long-run impact of historical exposure to Christian missionary activities (proxied as the number of historical Christian mission locations) on human capital development in Nigeria (proxied as years of education attainment of individuals today). In this paper, I aggregate all the Christian missionary affiliations that identify with teachings from the bible as Christian missionaries.[24] The empirical equations are:

$$Y_{i,e,r} = \sigma_0 + Exposure^{25}_{i,e,r}\alpha + X'_i\beta_i + \mu_r + \varepsilon_{i,e,r} \quad (1)$$

$$Y_{i,e,r} = \sigma_0 + Exposure^{100}_{i,e,r}\alpha + X'_i\beta_i + \mu_r + \varepsilon_{i,e,r} \quad (2)$$

Where $Y_{i,e,r}$ is the years of education attained by an individual *i* which could be male or female living in a region *r* and certain ethnic group *e*. Region here denotes a state, or a particular location inside a state such as neighbourhood. The variables $Exposure^{25}_{i,e,r}$ and $Exposure^{100}_{i,e,r}$ measure the exposure of the ancestors of individual *i* of certain ethnic group *e* living in a particular region/state *r* to the Christian missions in the 19th century within 25 and 100 kilometres radius around the historical ethnic settlements respectively[25]. These are analogous to the number of mission stations that inhabited the locations of the ancestors of the respondent in 1924. In other words, it is considered to be the number of mission locations the ancestors of the respondents were exposed to within certain distances but for the purpose of this study, I consider 25 and 100 kilometres radius around the ethnic locations of the

[24] There were Protestants, Baptist and Catholic missionaries in Nigeria. In the Nigerian context, all these affiliations are never disaggregated, and therefore are called Christian religions.

[25] Roome (1924) provided data on the precise location of the missionaries in Africa in 1924. This information was restricted to Nigeria with the use of Geography information System (GIS) application.

respondents. Different tribes were exposed to different degree of Christian missionary activities; hence it will be reasonable to calculate the number of the mission locations from different distance dimensions. For instance, there were many mission locations closer to the Yorubas and the Igbos within 25 kilometres distance unlike the Middle Belt and the Hausa Fulani[26]. $\sigma_0$ represents the intercept of the equation

X denotes a vector that contains a host of control variables at the individual and regional level. Individual-level variables are wealth, age of the respondent, age squared, religion and gender which is equal 1 if individual is female and 0 otherwise. $\mu_r$ denotes neighbourhood-level fixed effect. It is important to state here that, since Christian mission locations are not randomly distributed between the north and the south[27], as there were factors responsible for the location of the mission stations such as good climate, path dependence and dependence on water way which cannot be accounted for; more so, it is natural that the supply of education (infrastructure, statutory allocation to education) varies across regions; therefore the study employs these fixed effect to control for those factors, and also conduct separate estimations for the North and the South to control for the non-random location of missions. Neighbourhood Fixed effect is equally essential in order to have a comparable supply of education, comparable influence of missionary activities across regions, and to have unbiased estimates from the regression results. The estimates of α for the two equations capture the effect of exposure to Christian missionary activities on educational attainment today. Thus, once the control variables (individual, household and community-level characteristic) are included, it may be argued that the remaining effects on education attainment across groups may be due to the degree of exposure to Christian missionary activities.

The equations also test the strength of the closeness to the Christian missions on education attainment of individual today, therefore Equation (2) and (3) serve as the robustness test for equation (1). Thus, in the empirical equation below, I look at the impact of

[26] Figure (1) explicitly shows the location of the missionaries superimposed on the location of the ethnic groups. It is evidence that most mission locations are situated in the coastal region (southern part)
[27] The North covers the Hausa/Fulani and the Middle belt while the South tribes are Yoruba, Igbo and Niger Delta.

the closeness to Christian missions on the education attainment of individual today by considering the effect of mission locations within 25 kilometres distance and outside 25 kilometres distance. The estimated equation is:

$$Y_{i,e,r} = Exposure^{25}_{i,e,r}\,\lambda + Exposure^{>25}_{i,e,r}\,\alpha + X'_i\beta_i + \mu_r + \varepsilon_{i,e,r} \quad (3)$$

Where $Y_{i,e,r}$ continues to denote years of education of individual $i$ in region $r$ belonging to ethnic group $e$ and $Exposure^{25}_{i,e,r}$ and $X'_i\beta_i$ are the same as defined in equation (1). The only difference is the introduction of $Exposure^{>25}_{i,e,r}$ which captures the effect of Christian missions that are located between 25 and 100 kilometres radius around the ethnic groups. As noted earlier, and from Figure 1, the ancestors of the northern ethnic groups were not exposed to the Christian missionaries within 25 kilometres distance as much as their southern counterparts. Therefore, in order to observe the impact of Christian missionary activities on locations further than 25 kilometres, other distances (e.g. 100 kilometres) are considered for further analysis.

The second part of the empirical analysis measures the effect of missionary activities on gender gap between males and females in education attainment. Even though several studies have been carried out separating the effect of Catholic and Protestant Christian religions on gender inequality such as Becker & Woessmann (2008) and Nunn (2012), the broad objective of this aspect of study is to aggregate the long-term impact of the Christian missionaries on the gender gap in education attainment across regions (north and south) and religions (Christianity and Islam) in Nigeria in as much as 93% of the missionaries that came to Nigeria were Protestants.[28] The motivation behind this aspect of research is the study carried out by Biyapo (2013) where he concludes that female gender generally lags behind their male counterparts in Nigeria but the gender gap in education attainment varies from one region to the other. He observes that the gender gap is well pronounced among the Hausa\Fulani\Kanuri of the northern part, the Muslims and the Middle Belt of the lower part of the north while the same is not concluded for the Yorubas and the Igbos of the southern

[28] Nunn (2012) investigates separately the impact of catholic and protestant missionaries on gender gap reduction. The rest of his findings are discussed in the literature review

part, as well as the Christians. Another motivation is equally derived from the study by Dev, Mberu & Pongou (2013) where they observe that education attainment is equally different among the Christians and Muslims, and among the southern and the northern tribes. According to Nunn (2012), Christianity preaches equality before God and can be seen to be egalitarian in nature, therefore it is important to show if the effect of Christian mission locations on current education is different for males and females in Nigeria. I hereby estimate the fourth equation as:

$$Y_{i,e,r} = \phi Female_i + \eta Exposure_{i,e,r} + \alpha Exposure_{i,e,r} * I_i^{female} + X'_i\beta_i + \mu_r + \varepsilon_{i,e,r} \quad (4)$$

Equation (4) is specified to cater for the effect of the exposure of the female gender to the Christian missionary activities. This is done by interacting the number of mission locations with the gender indicator that is equal to one if the respondent is female, $I_i^{female}$ (i.e. $Exposure_{i,e,r} * I_i^{female}$).[29] $Gender_i$ is a dummy variable that is equal to one if an individual is female and zero otherwise while $Exposure_{i,e,r}$ and $X'_i\beta_i$ are the same as defined in the previous equations.

## 5. Results

The results of the Ordinary Least Square (OLS) estimates for Equations (1), (2) and (3) are presented in Tables 2 – 8. Table 2 reports estimates for all the samples, Table 3 for the respondents living in the north, Table 4 for the respondents living in the south, Table 5 for the urban residents, Table 6 for the identified rural dwellers, Table 7 for respondents that identify with Christianity and Table 8 for the Muslims. All the three equations above are tested in all these categories as described by the Tables.

### 5.1 Exposure within 25 kilometres

Columns (1) and (2) of Tables 2 – 8 present the results for equation (1). Column (1) for each of the Tables 2 – 8 presents estimates without controls and neighbourhood fixed effects while Column (2) presents estimates with controls and neighbourhood fixed effects.

[29] $Exposure_{i,e,r}$ but this could be 25 or 100 kilometre distance for cross-ethnic effects i.e. depending on the distance of the ethnic group to the mission stations

The OLS results presented in Column (1) of Table 2 show that there exists a strong, positive and significant relationship between the ancestors' exposure to Christian missionary activities within 25 kilometres distance and the level of education of their descendants today. Column (2) of Table 2 presents results for ancestors' exposure to Christian missionary activities after controls are added. The OLS result here is not different from Column (1) in terms of impact as there equally exists a positive significant relationship between exposure to Christian missionary activities and education today but only differs in term of magnitude of the estimates. Exposure to Christian missionary activities account for 83.5% of education attainment if controls are not included in column (1) but this reduces to just 19.6% once controls and fixed effects are added as shown in Column (2). What this simply demonstrates is that, one cannot strictly conclude that exposure to missionary activities has a causal effect on education attainment today if no controls and fixed effects are added because as controls and fixed effects are added, the magnitude changes.

The importance of the OLS results in Tables 3 and 4 is to show how ancestors' exposure to Christian missionary activities affects education in the north and the south both before and after controls and fixed effects are employed. Columns (1) and (2) of Table 3 present the long-term impact of exposure to Christian missionary activities within 25 kilometres radius around the northern tribes. The OLS estimate shows that even though most Northerners are Muslims, the ancestors of those closer to the mission stations especially among the TIV, Igala and Nupe (all from the north central – Middle Belt) benefited from education infrastructures put in place by the missionaries during the missionary program, hence their descendants are educated today.[30] The OLS estimate for exposure within 25 kilometres without controls shows that there is a significant positive relationship between the level of education attained today and the exposure of the northern ancestors to Christian missionary activities. Column (2) of Table 3 shows the impact of exposure to Christian missionary activities on education after controls and fixed effects are added. The magnitude

[30] See Figure 1

(0.284) in Column (2) is small and not significant compared (i.e. when controls and the fixed effects are added) to the magnitude (1.908) in Column (1) when controls are excluded.

Columns (1) and (2) of Table 4 present the OLS estimates for the tribes in the south. Both estimates (with and without controls) for the ancestors' exposure within 25 kilometres radius are positive. This shows there is a positive correlation between exposure to Christian missionary activities and education however, these estimates are not significant. Historically, the people of the southern part of Nigeria were early or first exposed to Christian missionary activities. Therefore, southerners were immediately assimilated and influenced by western cultures perhaps reason why most Southerners today are Christians. The education of the Southerners quickly spiralled, since there is a maximum level or years of education an individual can attain (e.g. PhD level), it is expected that at the peak, irrespective of the number of mission locations, the marginal impact will be positive but close to zero. More so, the impact may not be significant over time as more descendants naturally observe the influence of Christian missionary activities. It will be right to say that the Southerners did not see western culture as imported culture any longer but rather a way of life. Most Southerners almost daily experience European way of work, dress and undergo personal care; hence see western culture as a way of life (Davis & Kalu-Nwiwu, 2001). A closer look at the magnitude of all the estimates before (0.048) and after (0.004) controls are added shows that exposure to Christian missionary activities account for 0.004 and 0.048 of education attainment today with and without controls respectively however, these estimates are not significant. The estimates are even too small compared to any of the estimates for the north. This equally shows that Northerners started embracing education recently (influence of Western/Christian missionary activities).

All the respondents that live in the urban and rural settlements from my sample as shown in Tables 5 and 6 respectively were equally influenced by the European missionary activities. From Table 6, the estimates for the exposure within 25 kilometres in Columns (1) and (2) show a strong significance in magnitude both before (0.771) and after (0.209) the controls are added respectively. This shows that exposure to Christian missionary activities

account for about 0.209 and 0.771 of education attainment in the rural settlements with and without controls respectively. The Protestants did not only carry out mission works in the city centres but equally in the interior villages. It is even noted that the missionaries at a point were competing for converts; the competition therefore aided the spread of the Christian missionary activities to the villages (Bassey, 1999)

The two final tables in this section are Tables 7 and 8. The Tables show that exposure to Christian missionary activities has a long-term positive impact on the descendants of either those ancestors that claimed to be Muslims or Christians. Religion is exogenous in most cases that is, it is transferred from the parents to the children. Most often children are either born Muslims or Christians in Nigeria. The analysis here explains why religion itself is not important in education attainment but the absorption and transfer of certain orientations (such as early introduction of the ancestors to education) by the ancestors to their descendants. Evidence from the results of the OLS estimates shows that if the ancestor of those that align with Islam today were exposed to the activities of the missionaries, their descendants will attain a high standard of education today. The positive signs of the OLS estimates in Columns (1) and (2) each for Table 7 and Table 8 show that, the ancestors of those who claimed to be Muslims or Christians today benefited from the activities of the missionaries therefore they transferred those values to their children and hence the descendants. The magnitudes of the estimates for the Muslims (Table 8) before (0.691) and after (0.260) controls show that exposure of the ancestors to missionary activities significantly accounts for 0.260 and 0.691 of education attainment of their descendants today with and without controls respectively. It equally shows that the impact of the mission stations on the education attainment of Muslim descendants today is large, even more than the Christians in Table 9, Columns (1) and (2). This is closely related to the results obtained for north and the south as the north is pro-Islam while the south is pro-Christian. Christians see the civilization that came with missionary activities as a way of life but not as a function of being a Christian. The long-run impact of exposure to missionary activities on education is

determined by the long-term persistence of Christian missionary activities for whoever comes in contact with the Christian missionaries.

### 5.2 Exposure within 100 kilometres

Columns (3) and (4) of Tables 2 – 8 present the results for Equation 2. Column (3) for each of the Tables from 2 – 8 presents estimates without the inclusion of controls and neighbourhood fixed effects while Column (4) presents estimates with controls and neighbourhood fixed effects. The OLS result presented in Column (3) of Table 2 shows that there exists a positive and significant relationship between the ancestors' exposure to Christian missionary activities within 100 kilometres radius and the level of education of the their descendants today. Column (4) of Table 2 presents the results of ancestors' exposure to Christian missionary activities after controls are added. The OLS result shows that the long-term impact of exposure of ancestors to Christian missionary activities within 100 kilometres on education attainment today is positive and significant hence accounts for about 0.024 and 0.13 of the education attainment after and before controls are added respectively. If the results here are compared to the impacts of the exposure within 25 kilometres distance around each ethnic group, it is evident that, the closer the better as exposure within 25 kilometres has a stronger impact on the level of education today than exposure within 100 kilometres.

The OLS estimate presented in Columns (3) and (4) of Table 3 for the north is similar to the results obtained for the north under exposure within 25 kilometres. The only difference is that the magnitudes of the estimates obtained under 100 kilometre distance are smaller than those obtained under 25 kilometres distance. This as well supports the claims that the impact of the Christian missionaries is more felt when the missionaries are closer. One major expected difference is that the estimate of exposure within 100 kilometres when the controls and fixed effects are added is significant unlike exposure within 25 kilometres. This result is not surprising as evidence in Figure 1 shows that Christian missionaries are very few within 25 kilometres unlike 100 kilometres in the core north. The estimates for the south as presented in Columns (3) and (4) of Table 4 are equally similar to the results obtained for

exposure within 25 kilometres. Even though the magnitude of the estimates of exposure within 100 kilometres are smaller than the estimates for exposure within 25 kilometres, the estimate of exposure within 100 kilometres when controls are not added is marginally significant at 5%. This is because like the north, more Christian missions are found within 100 kilometres distance compared to 25 kilometres but the impact is more felt when the missionaries are closer.

Columns (3) and (4) of Table 5 and Table 6 each, present the OLS results for exposure within 100 kilometres for Urban and Rural locations. The results are equally similar to the results obtained from exposure within 25 kilometres distance. The magnitudes of each of the estimates of exposure within 100 kilometres are smaller than exposure within 25 kilometres. This further establishes the belief that the impact of the missionary activities is more felt when they are closer. Similar to this, are the results presented for the Muslims and the Christians in Table 7 and Table 8. As it has been established, there is a significant positive relationship between exposure to Christian missionary activities and education, this relationship is equally established in Table 7 and Table 8. As equally noted, the magnitude of all the estimates of exposure within 100 kilometres distance around the ethnic groups that are either Christians or Muslims are small compared to the estimates obtained under exposure to Christian missionary activities within 25 kilometres distance. Another thing to be noted here is that, the magnitudes of exposure obtained for the Christians and the south are smaller than the magnitudes obtained for the Muslims and the north for estimates under 25 kilometres and 100 kilometres distances. This is in line with what has been established so far.

### 5.3 Exposure within 25 kilometres and outside 25 kilometres

This equally serves as a robustness test for what has been established so far that the impact of the exposure within 25 kilometres distance around the ethnic groups is more significant and has more impact than 100 kilometres distance or any other distances between 25 kilometres and 100 kilometres. A closer look at Columns (5) and (6) of Tables 2 – 8 shows that the findings discussed in equation (1) & (2) are well established here. This shows that, the closer the ancestor to the mission location, the more the effect of the missionary

activities on the education of the descendants. Evidence from Woodberry (2004), Gallego & Woodberry (2010) and Nunn (2010, 2012) show that exposure to missionary (Protestant) activities has a long-term positive and significant impact on education attainment of former European colonies today. Their findings are similar to the findings of this study as the historical exposure to missionary activities has a positive and strong impact on education attainment in Nigeria but stronger when the missionaries are closer to the ethnic groups. It will not be wrong to generalize that Nigerian ancestors were influenced by the activities of the Protestant missionaries as out of 144 mission stations in 192431, 134 of them, representing 93.1%, were Protestant mission stations. The inclusion of control variables and the neighbourhood fixed effects does not change the correlation between exposure to Christian missionary activities and education attainment but the magnitudes of the estimates.

The fact that the beliefs and mindset of the ancestor were altered towards formal education are evident today in Nigeria as the south and the Christians are more pro-schooling than northern part of Nigeria that exhibits an oppositional culture towards education as an agent of Christianity (Dev, Mberu & Pongou, 2013; Csapo, 1981; Adamu, n.d.). Therefore, if those ancestors that had contact with the missionaries transferred their altered beliefs and the new-found culture to their children, and the children to their descendants, the descendants would value education more and will be better educated today than the descendants of those ancestors that were not in contact with the missionaries.

Two things are obvious here, first; the closer one's ancestor to the mission locations, the higher the tendency of an individual to be educated today and secondly, the missionary activities have a positive and significant impact on education attainment of people today. The most important reason for this relationship is that missionaries invested in education in order to get people converted to Christianity (Nunn, 2010), and these education infrastructural investments are still evident till today (Huillery, 2009).

[31]Roome (1924) presented the accurate map on the precise locations of European missionaries in Africa.

### 5.4 Gender and Exposure to Christian missionary activities.

The second aspect of this study examines the impact of exposure to Christian missionary activities on differences in education attainment between males and females. In Nigerian context, it has been observed that females generally lag behind their male counterparts in education attainment. However, this varies across religions and tribes (Biyapo, 2013). Biyapo (2013) noted further that females of northern tribes and specifically the Muslims significantly lag behind their male counterparts but the same cannot be established in the southern part of the country that is predominantly Christian. The question here is that, if the females of the northern extractions or Muslim women were exposed to Christian missionary activities, will the gender gap in education attainment in the north reduces? Therefore, I test the effect of exposure to Christian missionary activities on the differences in education attainment of females relative to males. The OLS estimates for the results are presented in Tables 9 - 13.

Table 9 presents the effect of exposure to Christian missionary activities on the gender gap in education attainment. The estimates for the contacts with missionaries within 25 kilometres and 100 kilometres in Columns (1) and (3) respectively are positive and statistically significant. The coefficients of the interaction terms between being a female and exposure (exposure within certain distance*female e.g. exposure within 25km*female) for both 25 kilometres and 100 kilometres are equally positive and statistically significant while the estimates for female gender for Columns (1) and (3) are negative and statistically significant. From Column (1), it is evident that females lag behind the males generally in Nigeria by approximately 0.552 but the sum of exposure coefficient (0.685) and the coefficient of the interaction variable (0.287) gives a total effect of approximately 0.972 which is more than the gender gap between males and females. However, the total effect of the missionary activities eliminates the gender gap if considered under 25 kilometres (Column (1)) but does not eliminate the gender gap if 100 kilometres distance is considered as shown in Column (3). These results are similar to the previous results which reinforce that, the closer the ancestors to the missionaries the more the effects. It is equally obvious from

the results that the interaction of missionaries with the host environments enhances gender equality in education attainment within host communities. A closer look at Columns (2) and (4) of Table 9 indicates that if controls and the neighbourhood fixed effects are added, both exposure variables and the interaction variables for both 25 kilometres and 100 kilometres are still positive and statistically significant however, the addition of the two magnitudes for each of the distances is not large enough to eliminate the gender gap. This is not surprising because certain cultural behaviours and individual characteristics have been factored into the model.

For the rest of the analyses, I will analyse Tables 10 and 12 together, and similarly Tables 11 and 13 together. Table 10 presents the results for the Muslims while Table 12 presents the results for the north. Table 11 presents the results for the Christians and Table 13 presents the results for the south. It is not surprising to see Tables 11 and 13, and Tables 10 and 12 produce similar results. It is a common knowledge in Nigeria that the Northerners (mostly Hausa, Fulani and Kanuri) are mainly Muslims (around 98%) while Southerners (Yoruba, Igbo, Ijaw, Ibibio and Ekoi) are predominantly Christians.[32] From Column (1) of Table 10, the coefficient of the base variable (exposure within 25km) is positive and significant and same for the coefficient of the interaction variable. The Females equally lag behind their male counterparts by 0.848 but the total effect (addition of the coefficients of the base variable and the interaction variable i.e. 0.795) is not large enough to eliminate the gender gap but reduces it significantly. The results obtained here are similar to Column (3) of Table 10 (i.e. for exposure within 100 kilometres). The results obtained from Columns (2) and (4) with the inclusion of controls are not different from those obtained from Columns (1) and (3). Table 12 presents almost the same results as Table 10 but differs if considered under exposure within 100 kilometres. The coefficients of gender interaction variable for 100 kilometres distance are negative both before and after the inclusion of controls as presented Columns (3) and (4) of Table 12. The positive coefficients of interaction variables in Columns (1) and (3) could be as a result of a significant number of Muslims among the

[32] See figures (1) and (2a & b) for more details

Yoruba of the south that were evenly exposed to the Christian missionary activities as the Yoruba Christians. This as well indicates that even though there is a significant effect of the missionary activities on northern Nigerian education, gender gap in education attainment does not abate which could be regarded as a result of cultural factors and the fear that the female children will be corrupt by western culture (Csapo, 1981).

Table 11 presents results for the Christians and Table 13 for the Southerners. The results presented in the two Tables are similar in terms of the signs and significance of the estimates; therefore I restrict the analysis to just one table. From Table 11, the estimates in Columns (1) and (3) are similar. All the base variables in both Columns (exposure within 25 kilometres and exposure within 100 kilometres) have positive and statistical significant effects; this reinforces the long-term positive effect of missionaries on current level of education in Nigeria. The gender variables are positive and significant which is similar to what Biyapo (2013) derives for the Southerners). The coefficients of interaction variables are equally positive and significant before inclusion of controls. The Southerners (most often seen as Christians) are pro-schooling and one of the major breakthroughs of the missionaries in the south is the preaching of equality of gender in every facet of life through the biblical injunctions. The women in the south go to school as much as men, in fact in some tribes especially among the Igbos and the Ibibios, women are more pro-schooling than men while men and women are equal on average in education attainment among the Yorubas and the Ekois but men surpass women among the Ijaws. After the inclusion of controls, the gender gap is pronounced hence, women lag behind the men in education attainment but the interaction variables are still significant and positive while the base variable is only positive but not significant.

This study has been able to look at the long-term impact of missionary activities in Nigeria across religions and tribes. It is observed that the long-term impact of missionaries has been positive and significant on the current level of education and more importantly on the descendants of the ancestors that were closer to the mission stations. However, a striking result is obtained for the Southerners as the long-term impact of the exposure to missionary

activities is gradually diminishing as more Southerners go to schools, therefore reaching the peak level of education. The long-term effect of exposure to missionaries on gender equality has equally been positive and significant especially among the Christians and the Southerners but because of cultural and religious hindrances, the gender gap is still pronounced among the Northerners. Cultural differences between the north and south divide as well as each ethnic group's exposure to Christian missionary activities have generated differences in education among Nigerian two regions till today and this has a negative implication for gender equality in education attainment (Davids & Kalu-Nwiwu, 2001).

This study acknowledges that there may be problem of omitted variable bias such as openness of a particular tribe to receive missionaries which may affect the location of missionaries and at the same time affects the ability of an individual to pursue education. The study could not control for this variable because of data limitation. Other major factors that could create endogeneity problems are geographic factors such as good climates, water ways and humidity. By conducting separate estimations for the South and the North, we address this issue to a large extent. The study has been able to demonstrate that exposure to Christian missionary activities does not only have a positive and strong impact on education attainment of individuals today but also reduces gender differences in education attainment

## 6. Conclusion and recommendations

This study clearly provides intuition into Dev, Mberu & Pongou's (2013) findings on why the ethnic tribes in the north and the south have different level of education attainment today. The second part of the research equally provides insight into gender inequality in education attainment among the tribes in the north and south as concluded by Biyapo (2013). I started this study by looking at the locations of the Christian missionaries in Nigeria, according to the map provided by Roome (1924); it is clearly evident that missionaries recorded a huge presence in the south while they were few in the north. Combining the data from Roome (1924), data from the DHS, and data on the locations of the ethnic groups in Nigeria as provided by Murdock (1959), it is obvious that missionary activities back in the past have a long-term positive impact on education attainment today irrespective of the tribes

or religions. The study also shows that the descendants of the ancestors that had contact with the missionaries are likely to be more educated today. The study equally indicates that there is a positive and significant impact of missionary activities on the level of education recorded today among the urban and rural dwellers.

I partitioned the exposure to Christian missionary activities into exposure within 25 kilometres, 100 kilometres and exposure outside of 25 kilometres radius around the observed ethnic groups. Even though exposure within all these distances has a positive effect on the level of the descendants' education today, the long-term impact of exposure within 25 kilometre distance is stronger than other distances. It is equally evident in this study that, exposure within 25 kilometres was not significant for the north but exposure within 100 kilometre distance. The reason for this is evident in Figure 1 as few mission locations were found within 25 kilometres in the core north but more were found within 100 kilometre radius.[33] Sometimes in the past, children used to walk as much as 5 kilometres to schools therefore the ancestors closer to the locations of missionary's infrastructures such as schools benefitted more from these infrastructural investments.

Another important finding the study shows is that, the influence of the missionaries in the education attainment of the south/Christians today is positive but in terms of impact, it is small compared to the north. The reason behind this is that the south/Christians were quickly dissolved into western culture, they were early school starters hence they did not see western activities/culture as influence any longer but a way of life (Davis & Kalu-Nwiwu, 2001), unlike the north and the Muslims that still differentiate between Islamic/northern culture and western education. More so, the level of education in the south is high, therefore the effect of this exposure gradually fades out as more people go to school and attain a high level of education. Since there is a limit to the years of education one can attain therefore a large presence of mission locations has a limit to the extent it can influence the education attainment of people. The findings indicate that education in the north is still gradually developing while that of the south is reaching its peak. In all, the study shows that

[33] See figure (2a & b)

irrespective of the ancestors' distance from mission locations or religious affiliation, the missionaries prepared the ground for education advancement in Nigeria today, therefore the activities of the missionaries have a long-term impact on education today. The findings in this study are similar to the findings by Nunn (2011, 2012), Woodberry (2002, 2004), and Gallego & Woodbery (2010) but different in term of scope.

The impact of the missionaries on gender equality in all spheres of life cannot be over-emphasised. The gender gap in Nigeria differs across tribes and religions. From the total sample, the females lack behind the males in education attainment but if the female gender is exposed to Christian missionary activities, the gender gap in education attainment in the north/among the Muslims will be reduced significantly. However, because the south/Christians have been long exposed to Christian missionary activities, there is no significant record of the gender gap in education attainment. It is evident in this study that Christian missionary activities have a positive impact on gender gap reduction in education attainment and this is in agreement with Nunn (2012) findings that the Christian missionaries (Protestants) enhance women values.

The findings from the study so far show that there is a sharp gap between the north and the south in major areas of development indicators like human capital development (education attainment) and gender equality, even though exposure to certain doctrines and culture have been adduced for this. For Nigeria to achieve all round development, education development of the northern part of the country must be enhanced because a house divided against can never stand (north and south divide).

Since culture in the north is a very important aspect of their lives, and the emirs are usually seen as the God's image on earth and the custodian of these cultures, therefore the government needs to work with this council of emirs, and through them, the government can indirectly change the orientation of the Northerners. It is on record that the best strategy the Europeans adopted to control the north was through indirect rule. This is one of the most important things government should do as previous efforts on education programs (e.g. UBEC) were greeted with apathy especially among the locals in the north. Secondly, the

government should come up with well-articulated policies and programs that are specifically appealing to the north such as blending education with religious teachings. Such policies/programs will correct a long-term notion and misconception that formal education is synonymous with Christianity.

In Conclusion, effort should be directed towards qualitative education in Nigeria that does not create gender bottlenecks but aims at providing at least free basic education for all the citizens.

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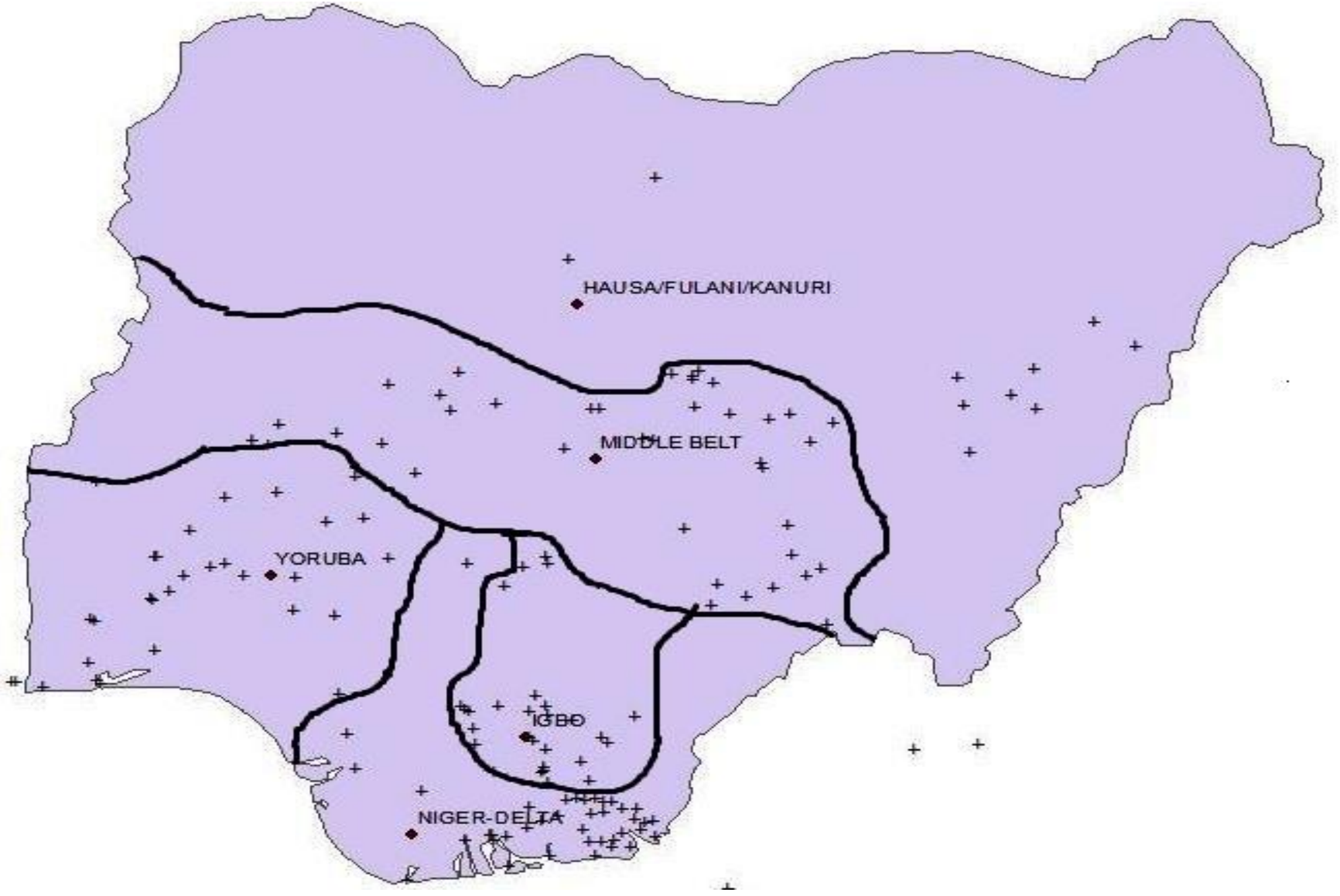
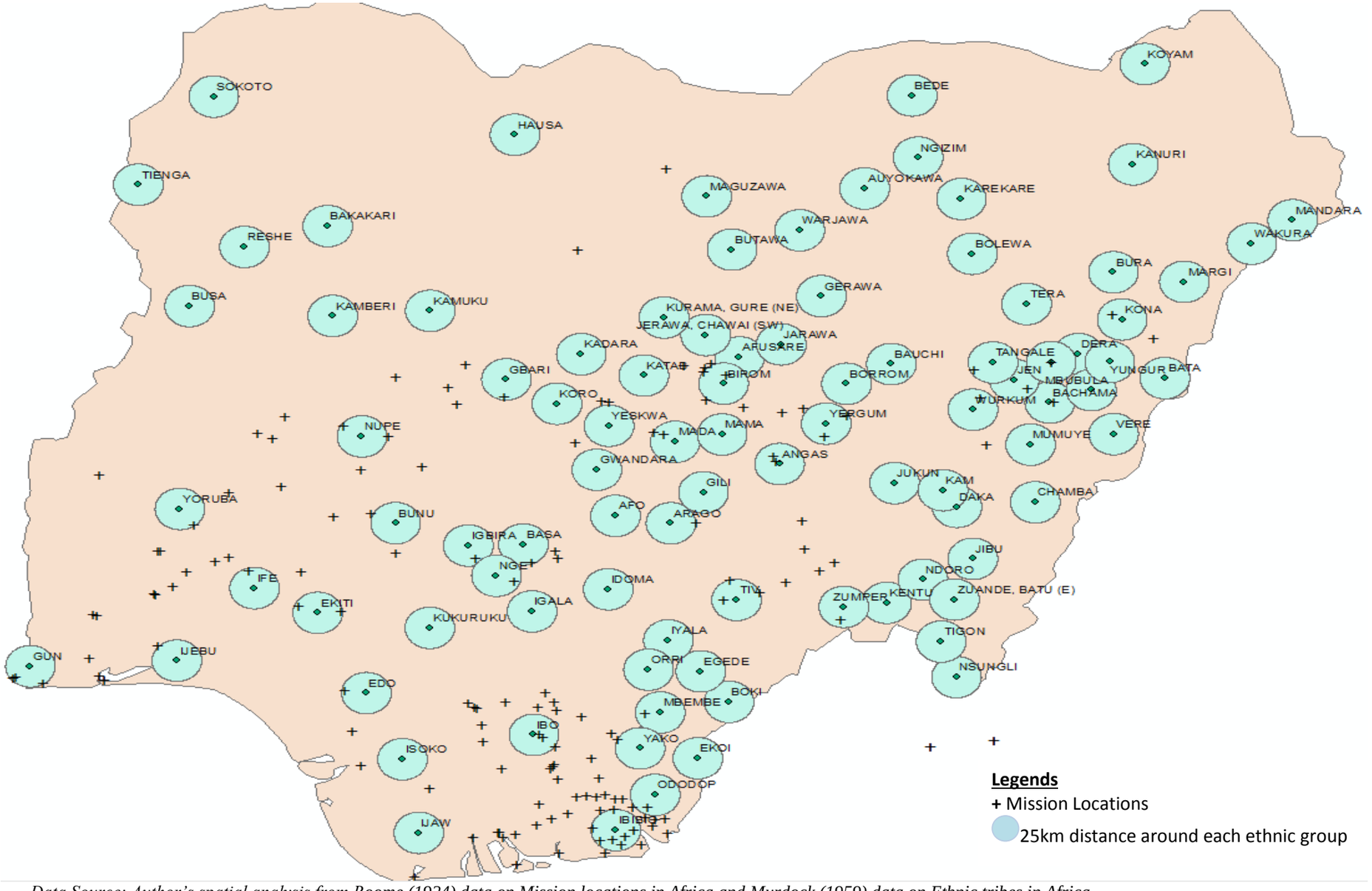
## Appendix

Figure 1: Nigeria Map showing the precise ChristianMission locations across the ethnic groups in 1924



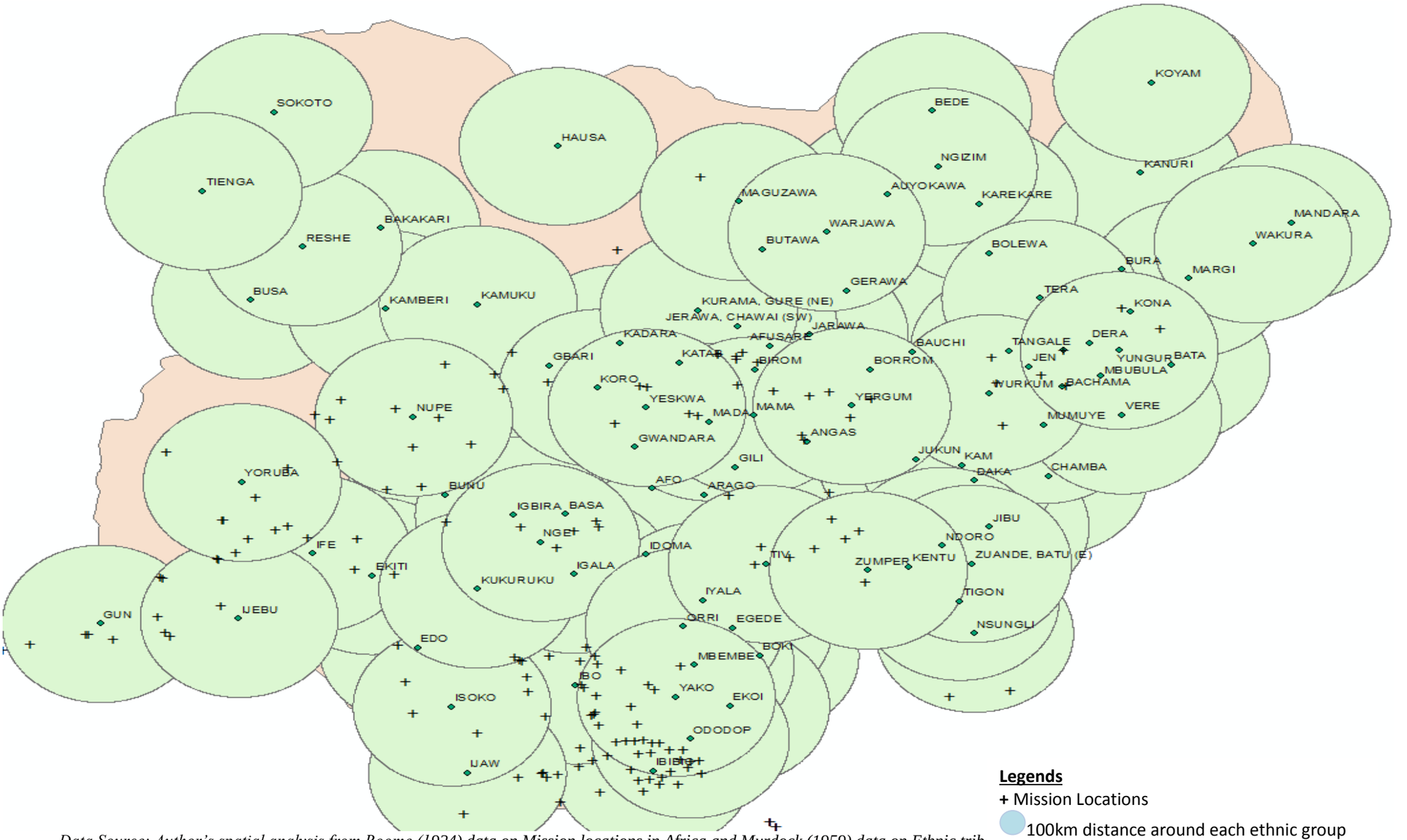

*Source: Authors computation from Roome (1924) Data*

Figure 2a: Map of Nigeria showing the Mission Stations within 25km distance around each Ethnic Group




*Data Source: Author's spatial analysis from Roome (1924) data on Mission locations in Africa and Murdock (1959) data on Ethnic tribes in Africa*

Figure 2b: Map of Nigeria showing the Mission Stations within 100km distance around each Ethnic Group



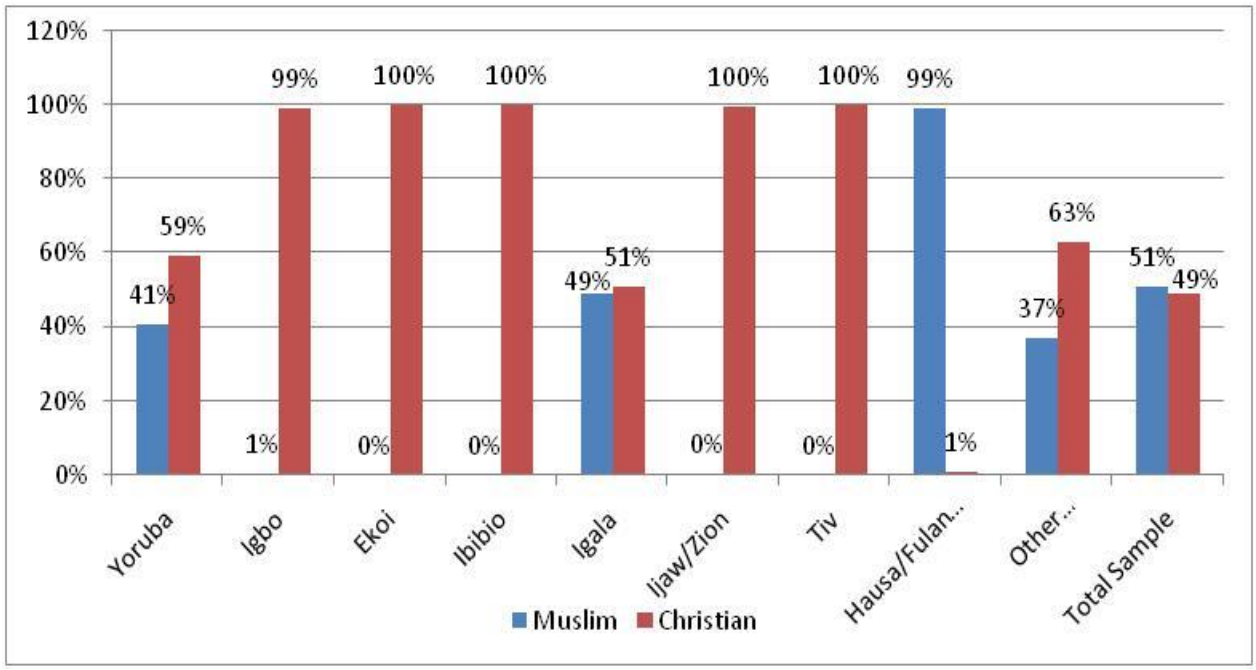

**Legends**

**+** Mission Locations

100km distance around each ethnic group

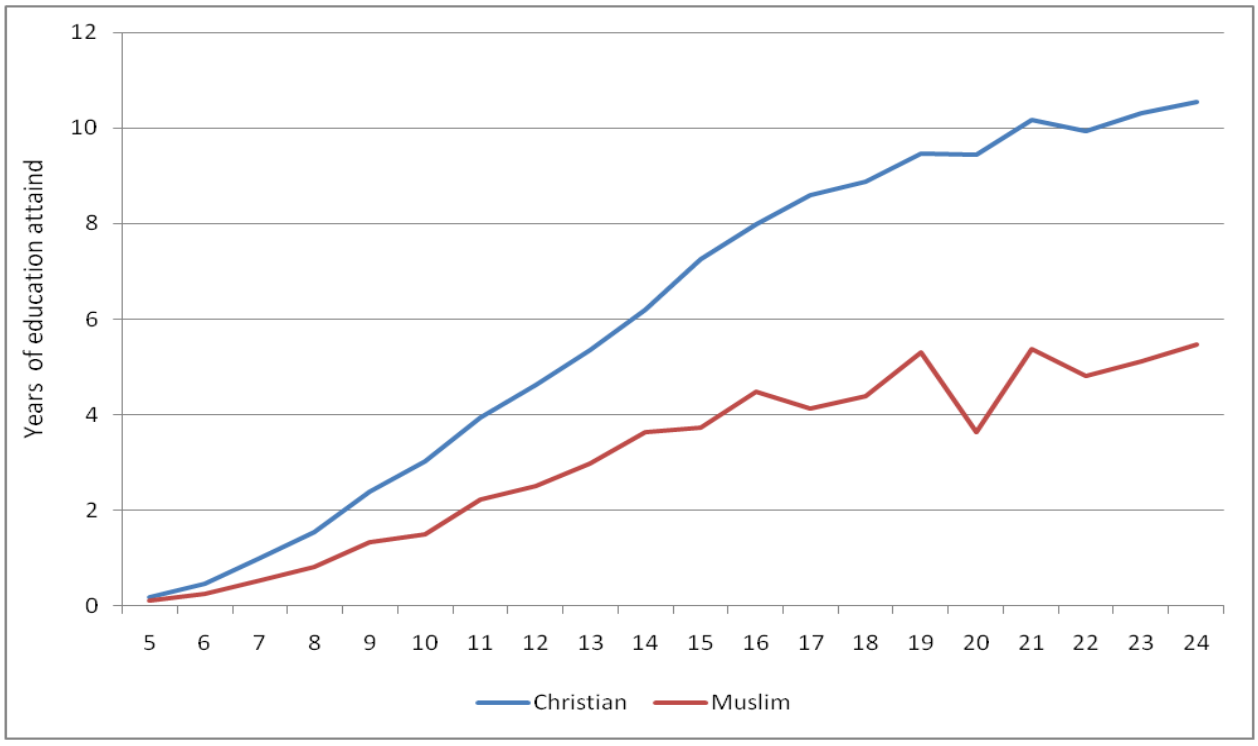
*Data Source: Author's spatial analysis from Roome (1924) data on Mission locations in Africa and Murdock (1959) data on Ethnic trib*

Figure 3: Distribution of Christians and Muslims across ethnic groups in Nigeria, 5 - 24 year olds



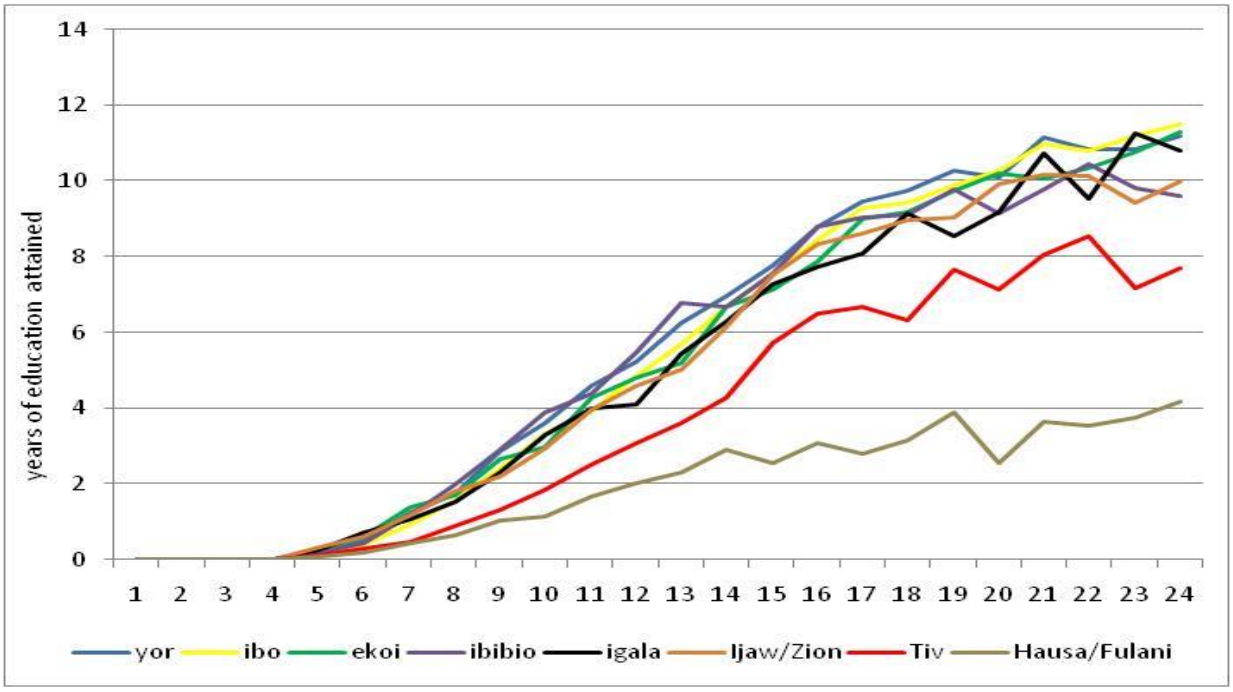

*Data source: Author's computation from Demographic and Health Surveys (DHS) 2008 data*

Figure 4: Years of Education attained by Christians and Muslims in Nigeria, 5 - 24 year olds



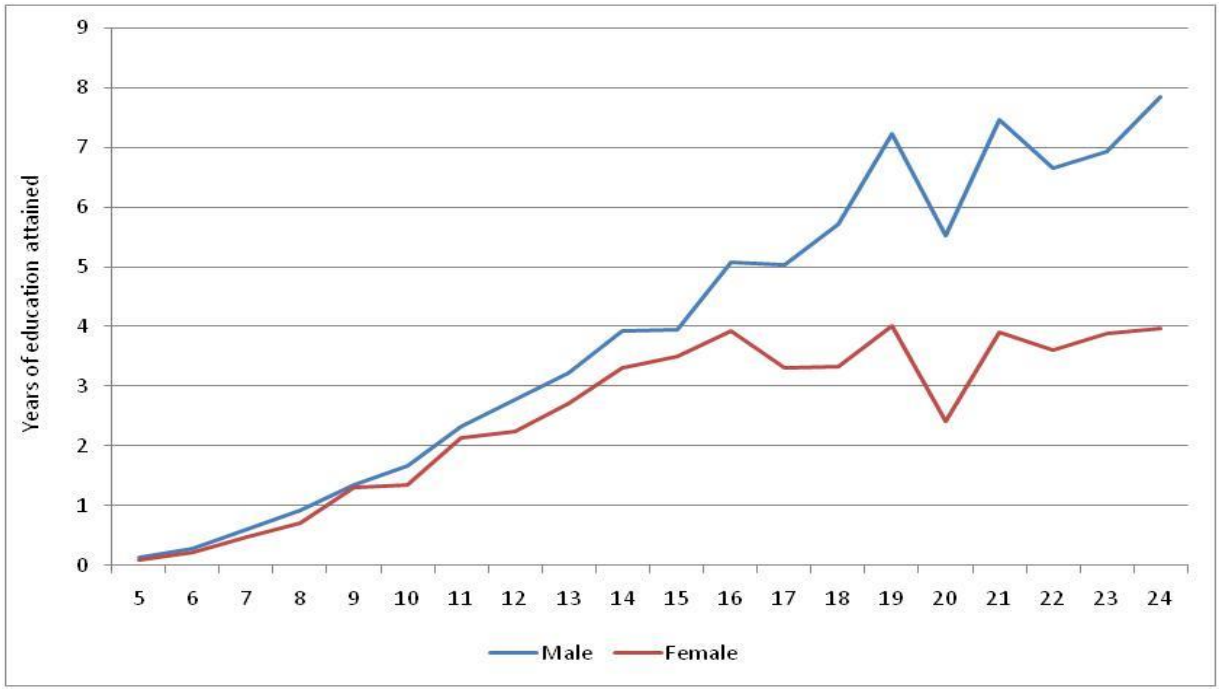

*Data source: Author's computation from Demographic and Health Surveys (DHS) 2008 data*

Figure 5: Average years of education acquired by age and ethnicity



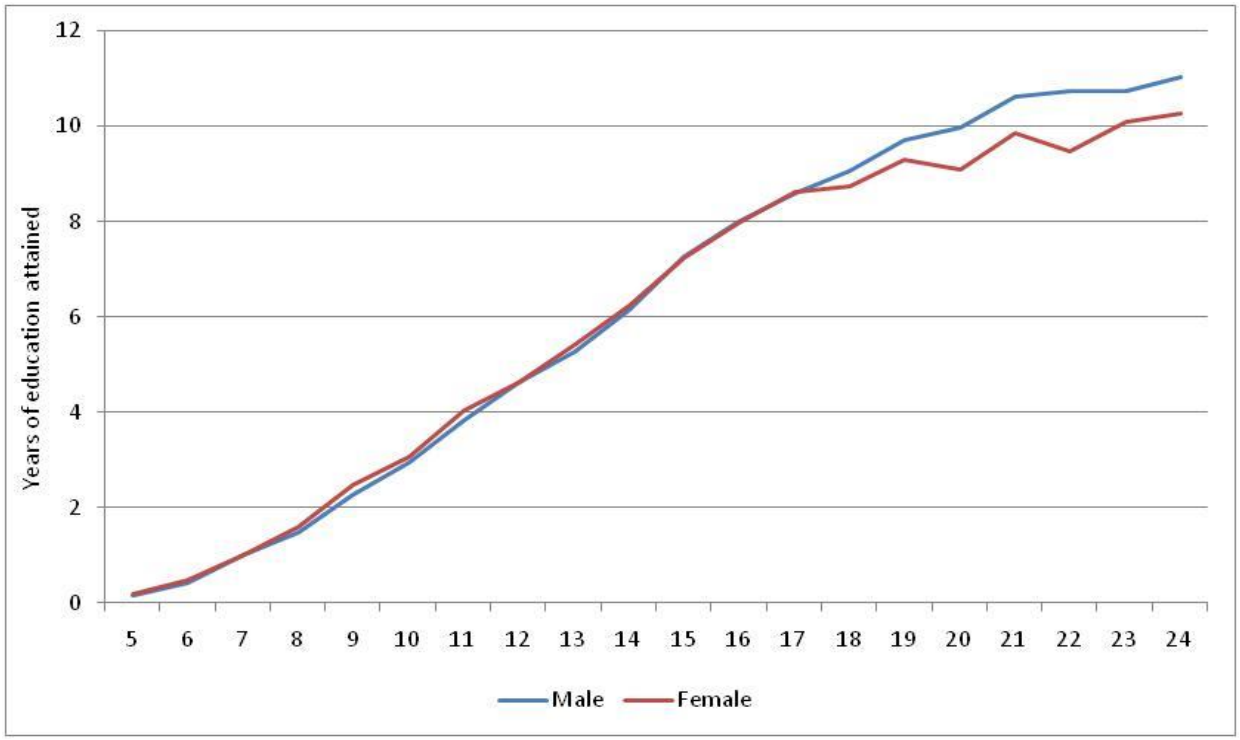

*Data source: Author's computation from Demographic and Health Surveys (DHS) 2008 data*

Figure 6: Average year of education by age and gender among the Muslims



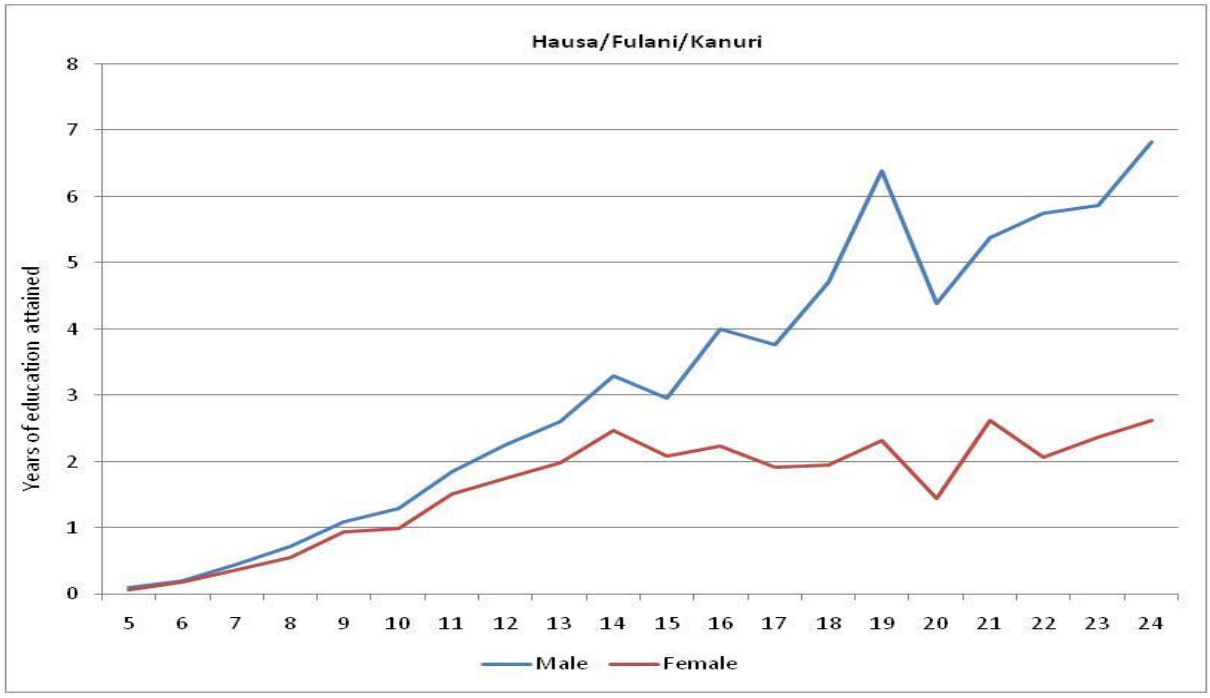

*Data source: Author's computation from Demographic and Health Surveys (DHS) 2008 data*

Figure 7: Average year of education by age and gender among the Christians




*Data source: Author's computation from Demographic and Health Surveys (DHS) 2008 data*

Figure 8: Average year of education by age and gender

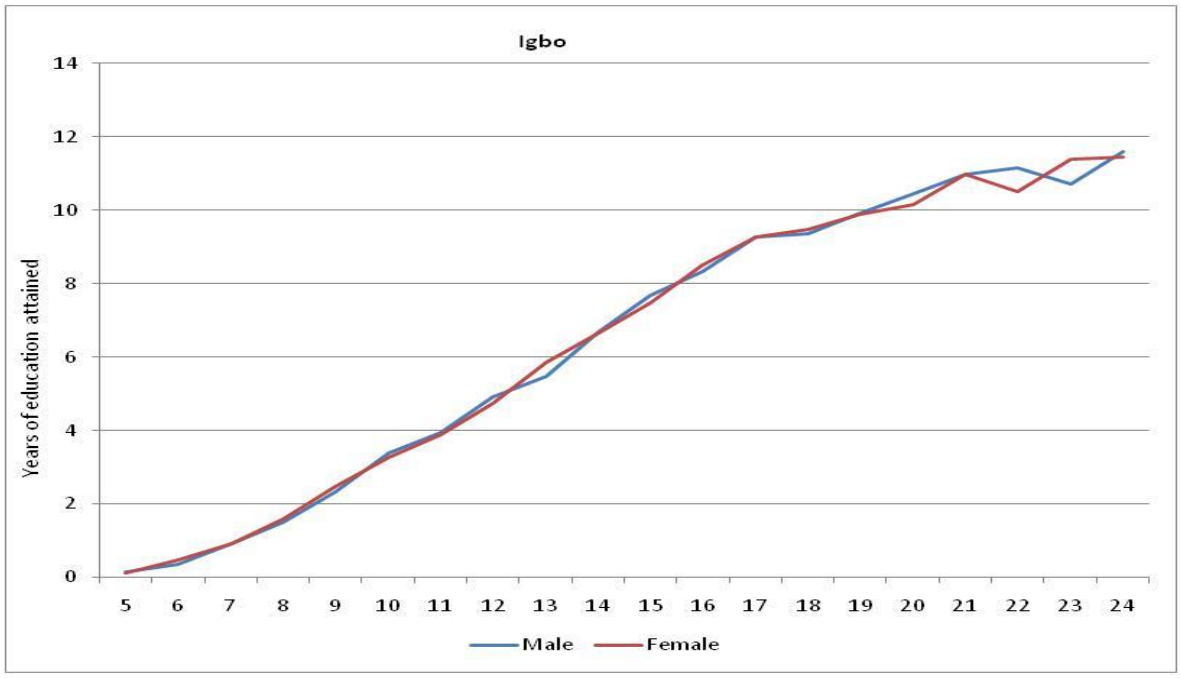



*Data source: Author's computation from Demographic and Health Surveys (DHS) 2008 data*

**Number of Mission Stations for Hausa/Fulani/Kanuri**

Within 25 Kilometres = 0, Within 100 Kilometres = 5

Figure 9: Average year of education by age and gender

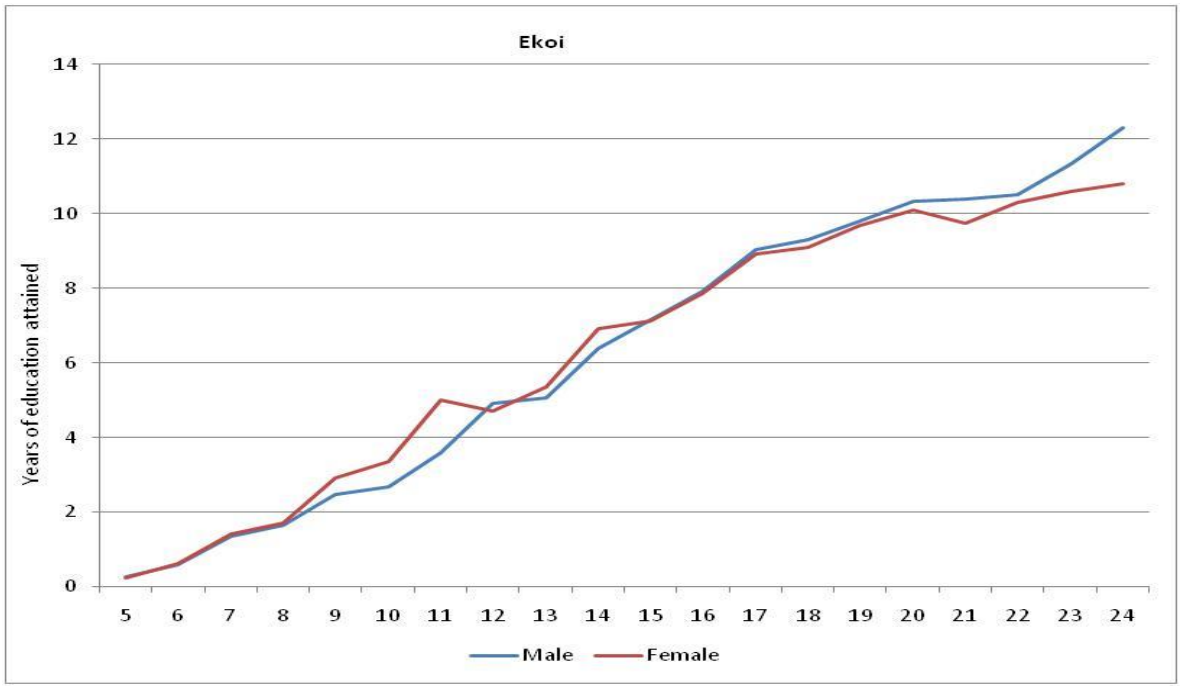



*Data source: Author's computation from Demographic and Health Surveys (DHS) 2008 data*

**Number of Mission Stations for Igbo**

Within 25 Kilometres = 3, Within 100 Kilometres = 29

Figure 10: Average year of education by age and gender

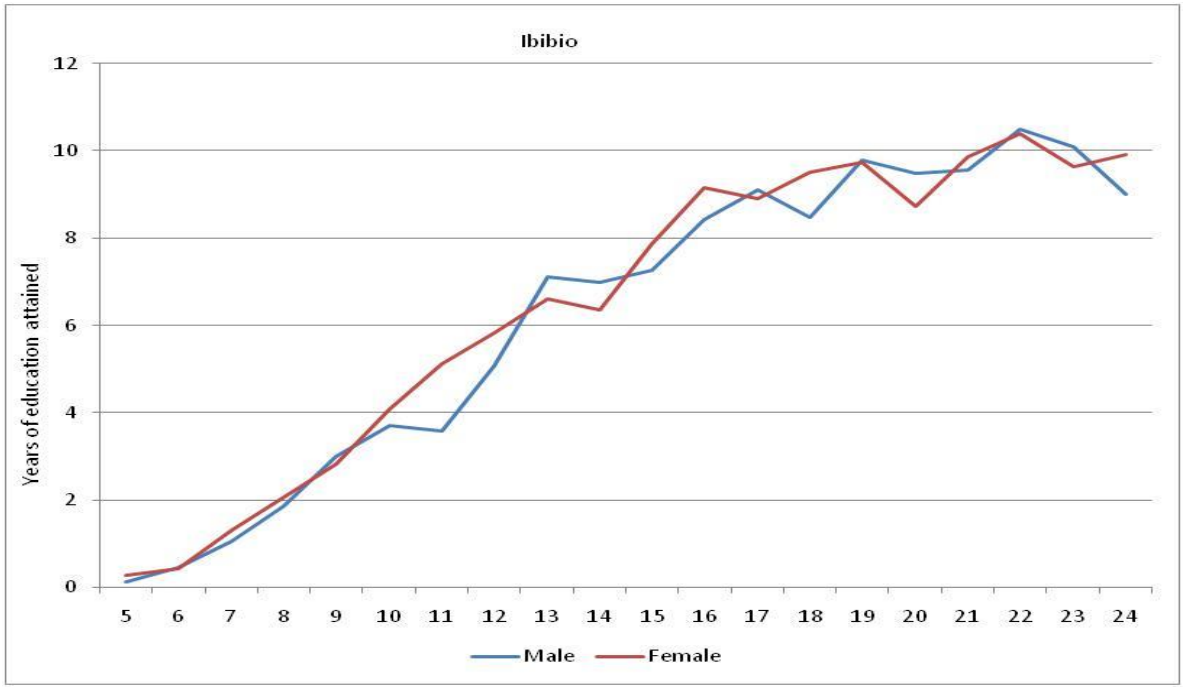



*Data source: Author's computation from Demographic and Health Surveys (DHS) 2008 data*

**Number of Mission Stations for Ekoi**

Within 25 Kilometres = 2, Within 100 Kilometres = 26

Figure 11: Average year of education by age and gender

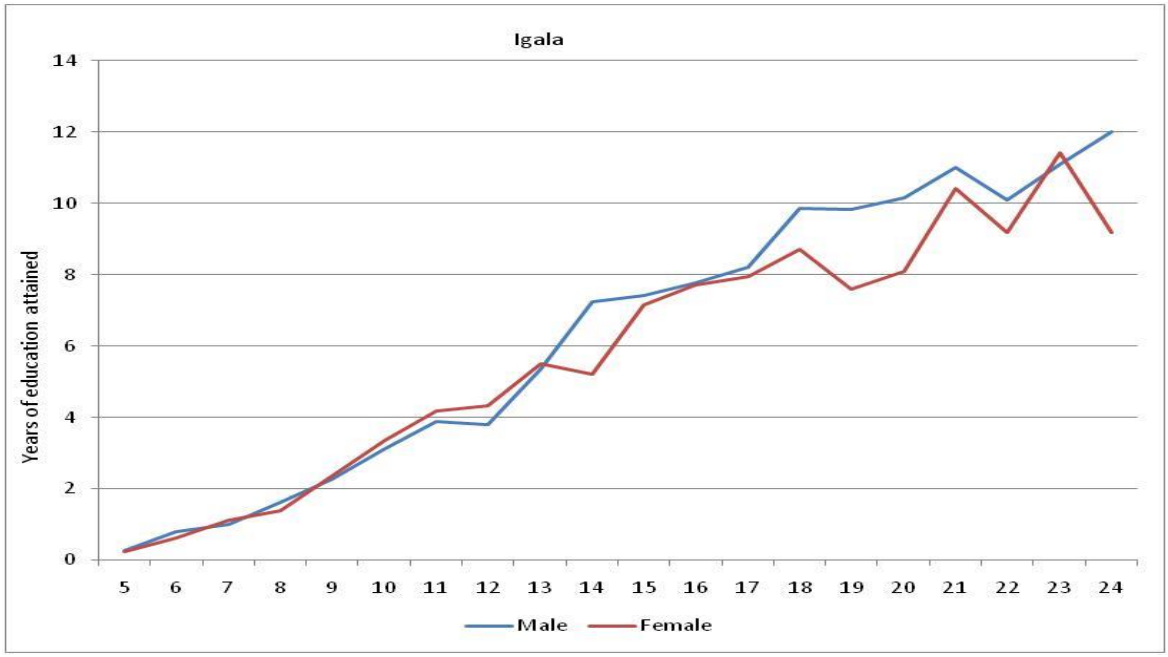



*Data source: Author's computation from Demographic and Health Surveys (DHS) 2008 data*

**Number of Mission Stations for Ibibio**

Within 25 Kilometres = 2, Within 100 Kilometres = 26

Figure 12: Average year of education by age and gender

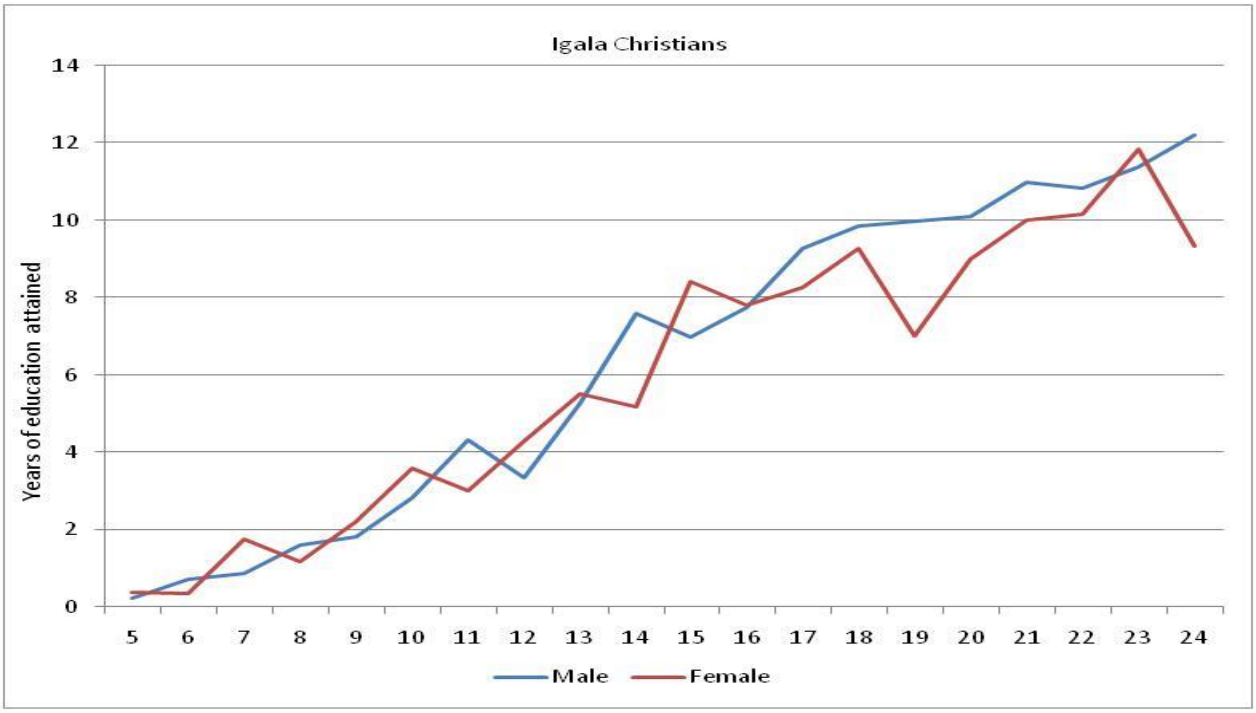



*Data source: Author's computation from Demographic and Health Surveys (DHS) 2008 data*

**Number of Mission Stations for Igala**

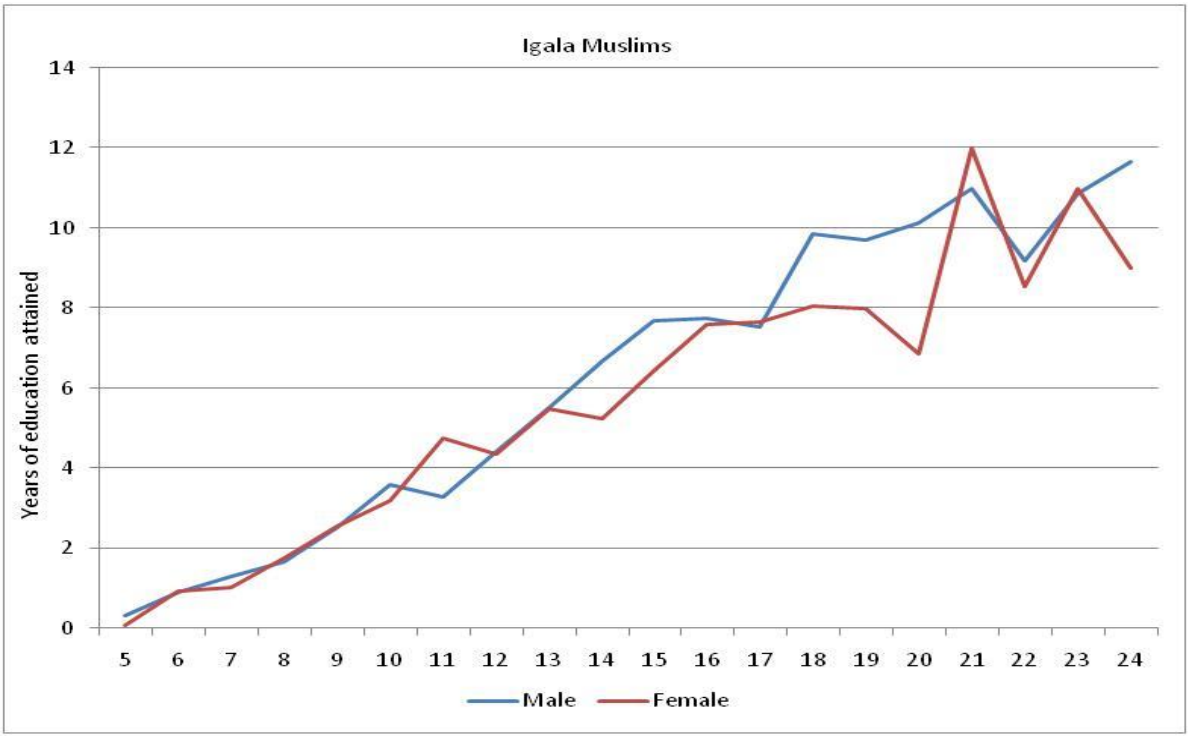
Within 25 Kilometres = 1, Within 100 Kilometres = 5

Figure 13: Average year of education by age and gender



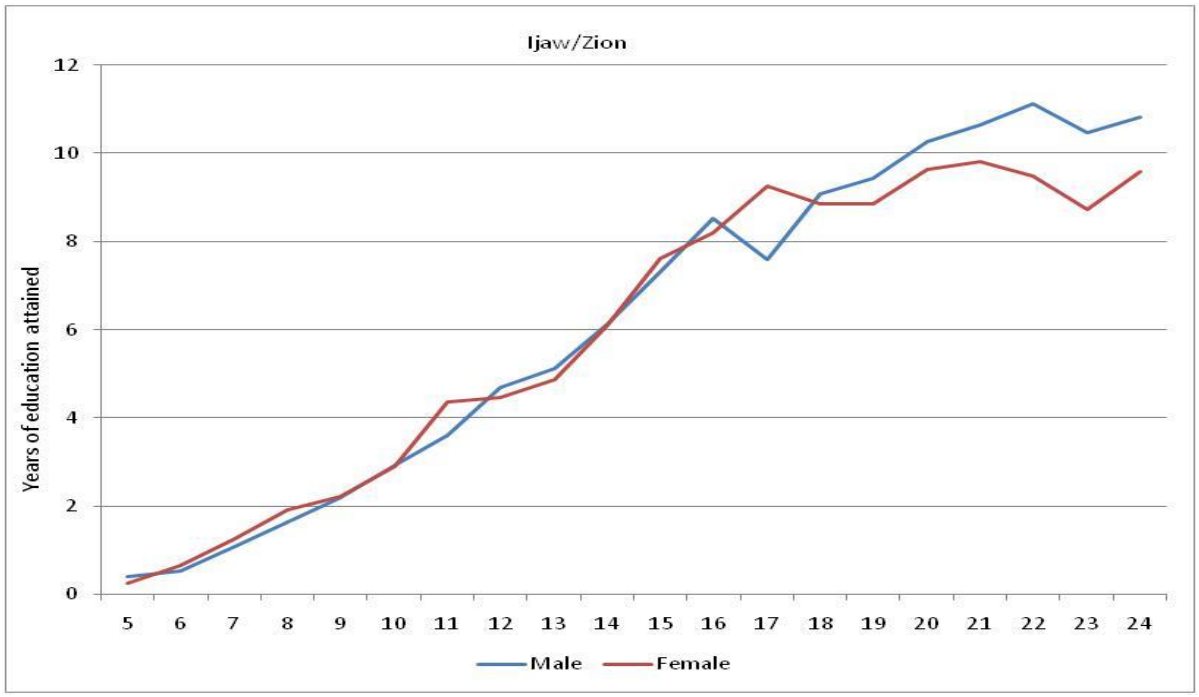

*Data source: Author's computation from Demographic and Health Surveys (DHS) 2008 data*

Figure 14: Average year of education by age and gender




*Data source: Author's computation from Demographic and Health Surveys (DHS) 2008 data*

Figure 15: Average year of education by age and gender

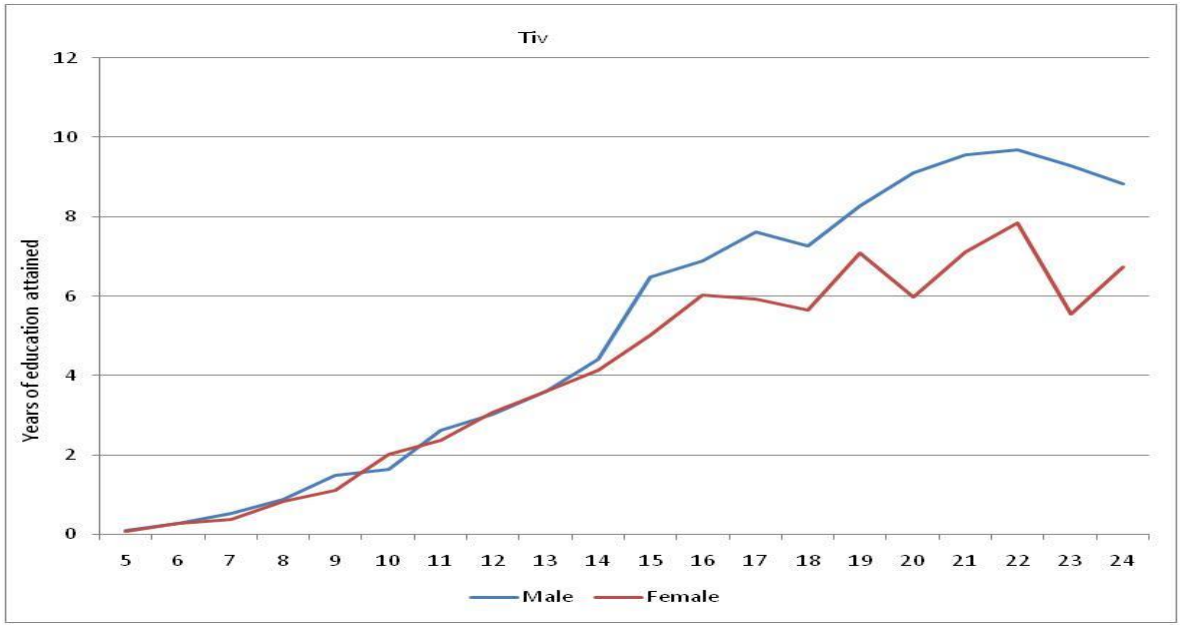



*Data source: Author's computation from Demographic and Health Surveys (DHS) 2008 data*

**Number of Mission Stations for Ijaw/Izon**

Within 25 Kilometres = 1, Within 100 Kilometres = 7

Figure 16: Average year of education by age and gender

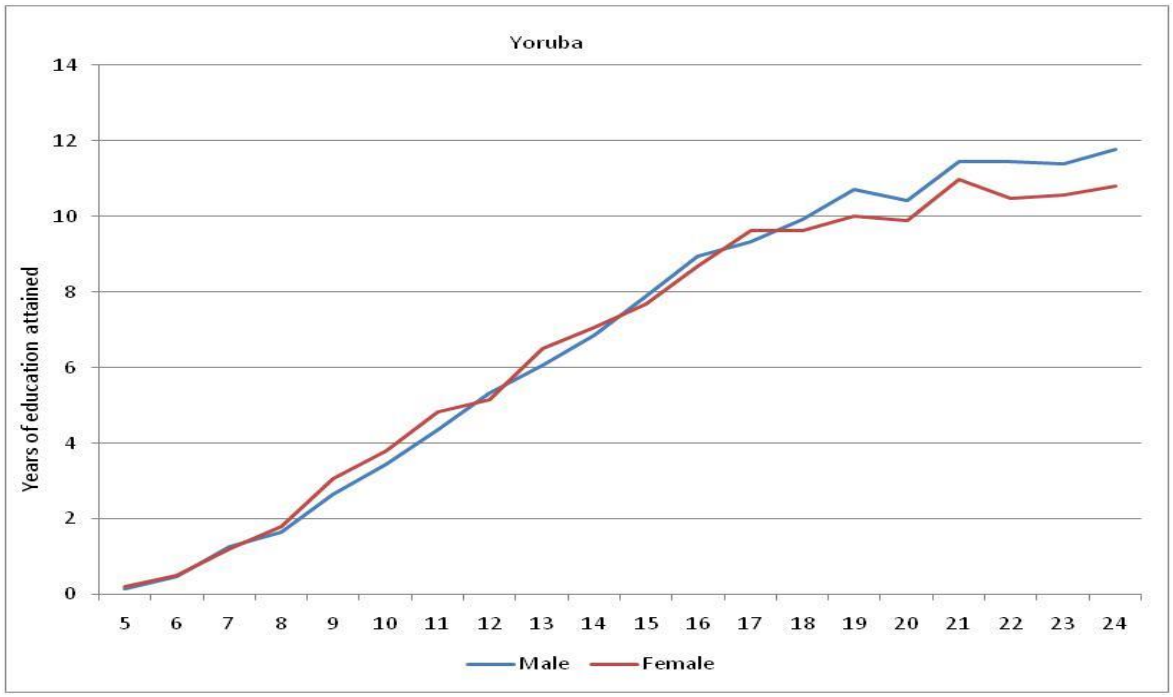



*Data source: Author's computation from Demographic and Health Surveys (DHS) 2008 data*

**Number of Mission Stations for Tiv**

Within 25 Kilometres = 1, Within 100 Kilometres = 3

Figure 17: Average year of education by age and gender

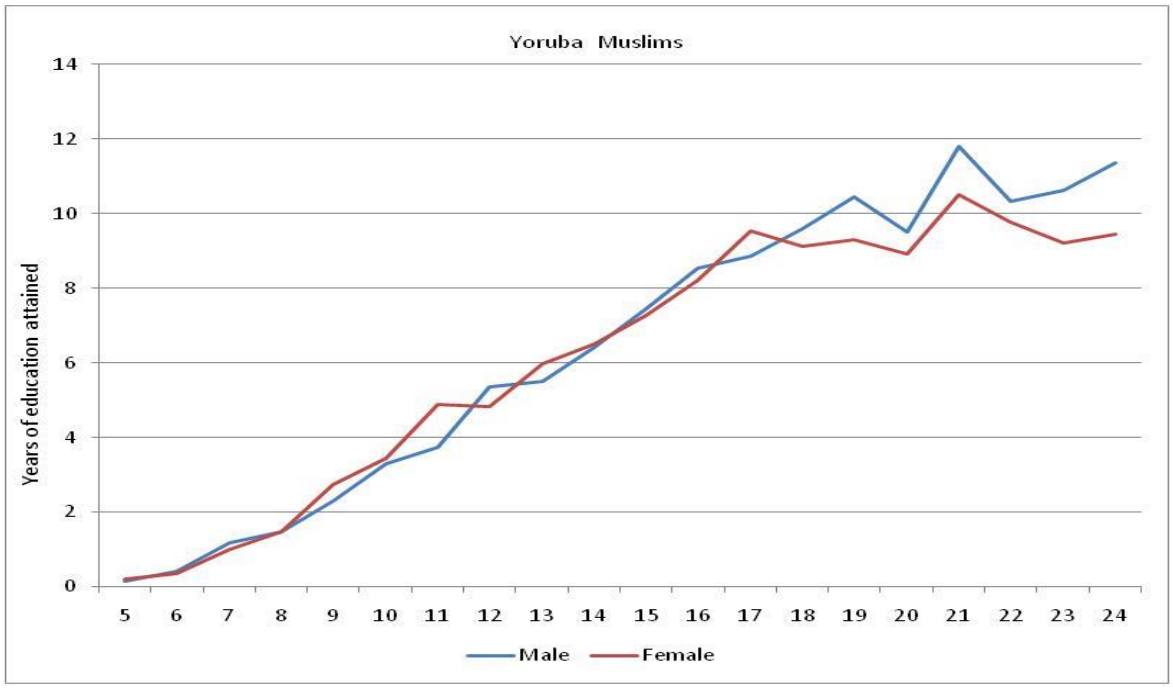



*Data source: Author's computation from Demographic and Health Surveys (DHS) 2008 data*

**Number of Mission Stations for Yoruba**

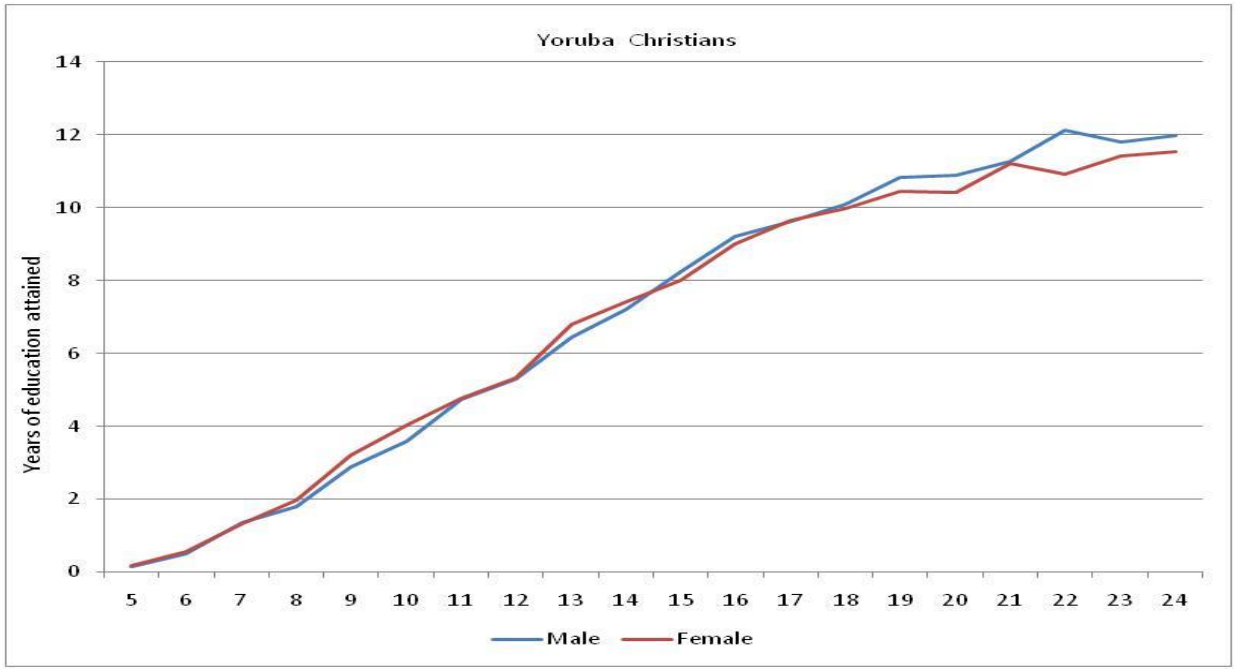
Within 25 Kilometres = 3, Within 100 Kilometres = 10

Figure 18: Average year of education by age and gender




*Data source: Author's computation from Demographic and Health Surveys (DHS) 2008 data*

Figure 19: Average year of education by age and gender




*Data source: Author's computation from Demographic and Health Surveys (DHS) 2008 data*

**Table 1**: Weighted Summary Statistics

| | All Sample | | South | | North | | Other Ethnicity | | Christian | | Muslim | | Urban | | Rural | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Variables** | Mean | S.D | Mean | S.D | Mean | S.D | Mean | S.D | Mean | S.D | Mean | S.D | Mean | S.D | Mean | S.D |
| **Ethnic Exposures** | | | | | | | | | | | | | | | | |
| Exposure within 25Km | 1.855 | 1.628 | 2.940 | 1.342 | 0.074 | 0.262 | 3.000 | 0.000 | 2.783 | 1.284 | 0.912 | 1.380 | 2.187 | 1.495 | 1.691 | 1.666 |
| Exposure within 100Km | 10.069 | 9.229 | 19.098 | 10.048 | 3.691 | 2.095 | 7.000 | 0.000 | 14.905 | 10.613 | 5.152 | 3.055 | 12.264 | 9.820 | 8.982 | 8.720 |
| Exposure outside 25Km | 8.214 | 8.324 | 16.158 | 9.477 | 3.617 | 2.135 | 4.000 | 0.000 | 12.122 | 10.073 | 4.240 | 2.290 | 10.077 | 9.041 | 7.291 | 7.781 |
| Exposure within 25Km*Female | 0.973 | 1.501 | 1.560 | 1.764 | 0.038 | 0.191 | 1.553 | 1.499 | 1.482 | 1.676 | 0.456 | 1.077 | 1.177 | 1.551 | 0.873 | 1.466 |
| Exposure within 100Km*Female | 5.324 | 8.432 | 10.182 | 12.056 | 1.928 | 2.387 | 3.623 | 3.498 | 7.968 | 10.766 | 2.637 | 3.352 | 6.532 | 9.468 | 4.726 | 7.800 |
| **Region** | | | | | | | | | | | | | | | | |
| South | 0.359 | 0.480 | 1.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.577 | 0.494 | 0.136 | 0.343 | 0.518 | 0.500 | 0.280 | 0.449 |
| North | 0.384 | 0.486 | 0.000 | 0.000 | 1.000 | 0.000 | 0.000 | 0.000 | 0.077 | 0.267 | 0.696 | 0.460 | 0.281 | 0.450 | 0.435 | 0.496 |
| Other Ethnicity | 0.257 | 0.437 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | 0.346 | 0.476 | 0.168 | 0.374 | 0.200 | 0.400 | 0.286 | 0.452 |
| **Religion** | | | | | | | | | | | | | | | | |
| Christian | 0.504 | 0.500 | 0.811 | 0.391 | 0.101 | 0.302 | 0.677 | 0.468 | 1.000 | 0.000 | 0.000 | 0.000 | 0.565 | 0.496 | 0.474 | 0.499 |
| Muslim | 0.496 | 0.500 | 0.189 | 0.391 | 0.899 | 0.302 | 0.323 | 0.468 | 0.000 | 0.000 | 1.000 | 0.000 | 0.435 | 0.496 | 0.526 | 0.499 |
| **Child characteristics** | | | | | | | | | | | | | | | | |
| Female | 0.522 | 0.499 | 0.531 | 0.499 | 0.518 | 0.500 | 0.518 | 0.500 | 0.532 | 0.499 | 0.513 | 0.500 | 0.527 | 0.499 | 0.520 | 0.500 |
| Male | 0.478 | 0.499 | 0.469 | 0.499 | 0.482 | 0.500 | 0.482 | 0.500 | 0.468 | 0.499 | 0.487 | 0.500 | 0.473 | 0.499 | 0.480 | 0.500 |
| Age | 12.794 | 5.569 | 13.402 | 5.638 | 12.148 | 5.429 | 12.909 | 5.575 | 13.386 | 5.639 | 12.192 | 5.431 | 13.325 | 5.707 | 12.531 | 5.480 |
| Years of education | 4.021 | 4.287 | 5.854 | 4.377 | 2.088 | 3.364 | 4.351 | 4.181 | 5.522 | 4.327 | 2.495 | 3.663 | 5.501 | 4.558 | 3.288 | 3.946 |
| Biological child of household head (HH) | 0.745 | 0.436 | 0.737 | 0.440 | 0.757 | 0.429 | 0.738 | 0.440 | 0.727 | 0.446 | 0.764 | 0.425 | 0.739 | 0.439 | 0.748 | 0.434 |
| **Household characteristics** | | | | | | | | | | | | | | | | |
| HH is male | 0.855 | 0.353 | 0.770 | 0.421 | 0.934 | 0.247 | 0.853 | 0.354 | 0.781 | 0.414 | 0.930 | 0.255 | 0.826 | 0.379 | 0.869 | 0.338 |
| HH's age | 46.503 | 13.517 | 48.160 | 13.616 | 45.120 | 13.120 | 46.257 | 13.714 | 47.155 | 13.772 | 45.840 | 13.221 | 47.046 | 13.171 | 46.234 | 13.678 |
| HH has no education | 0.006 | 0.079 | 0.001 | 0.023 | 0.014 | 0.117 | 0.003 | 0.055 | 0.001 | 0.025 | 0.012 | 0.109 | 0.002 | 0.039 | 0.009 | 0.092 |
| HH has primary education | 0.003 | 0.057 | 0.003 | 0.054 | 0.004 | 0.061 | 0.003 | 0.053 | 0.003 | 0.057 | 0.003 | 0.056 | 0.002 | 0.049 | 0.004 | 0.060 |
| HH has secondary education | 0.010 | 0.097 | 0.014 | 0.116 | 0.004 | 0.065 | 0.012 | 0.107 | 0.015 | 0.123 | 0.003 | 0.059 | 0.011 | 0.106 | 0.009 | 0.093 |
| HH has university education | 0.002 | 0.049 | 0.004 | 0.066 | 0.000 | 0.020 | 0.003 | 0.052 | 0.004 | 0.063 | 0.001 | 0.029 | 0.005 | 0.074 | 0.001 | 0.030 |
| Urban place of residence | 0.331 | 0.471 | 0.479 | 0.500 | 0.243 | 0.429 | 0.258 | 0.437 | 0.371 | 0.483 | 0.291 | 0.454 | 1.000 | 0.000 | 0.000 | 0.000 |
| Rural place of residence | 0.669 | 0.471 | 0.521 | 0.500 | 0.757 | 0.429 | 0.742 | 0.437 | 0.629 | 0.483 | 0.709 | 0.454 | 0.000 | 0.000 | 1.000 | 0.000 |
| Wealth | 0.056 | 1.022 | 0.625 | 0.933 | -0.433 | 0.844 | -0.009 | 0.984 | 0.357 | 1.012 | -0.250 | 0.938 | 0.897 | 0.875 | -0.361 | 0.811 |
| Observations | 60,544 | 60,544 | 18,718 | 18,718 | 23,429 | 23,429 | 18,397 | 18,397 | 29,669 | 29,669 | 30,875 | 30,875 | 17,846 | 17,846 | 42,698 | 42,698 |

**Table 2:** OLS estimates of long-run effect of historical exposure of the ancestors to missionary activities on year of education today within defined distances.

| | All sample | | | | | |
|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 |
| **Distances** | | | | | | |
| Exposure within 25Km | 0.835 | 0.196 | | | 0.676 | 0.188 |
| | (0.011)*** | (0.011)*** | | | (0.013)*** | (0.011)*** |
| Exposure within 100Km | | | 0.13 | 0.024 | | |
| | | | (0.002)*** | (0.002)*** | | |
| Exposure outside 25Km | | | | | 0.064 | 0.006 |
| | | | | | (0.003)*** | (0.003)** |
| Controls | NO | YES | NO | YES | NO | YES |
| Neighbourhood fixed effect | NO | YES | NO | YES | NO | YES |
| Observations | 60,544 | 60,544 | 60,544 | 60,544 | 60,544 | 60,544 |
| R-Squared | 0.1 | 0.66 | 0.08 | 0.66 | 0.11 | 0.66 |

Note: Robust standard errors in parenthesis and all estimates are weighted. Controls include individual and household characteristics.* significant at 10%, **significant at 5%; ***significant at 1%.

**Table 3:**OLS estimates of long-run effect of historical exposure of the ancestors to missionary activities on year of education today

| | North | | | | | |
|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 |
| **Distances** | | | | | | |
| Exposure within 25Km | 1.908 | 0.284 | | | 2.374 | 0.353 |
| | 0.096)*** | (0.262) | | | (0.095)*** | (0.260) |
| Exposure within 100Km | | | 0.242 | 0.063 | | |
| | | | 0.009)*** | (0.009)*** | | |
| Exposure outside 25Km | | | | | 0.267 | 0.063 |
| | | | | | (0.009)*** | (0.009)*** |
| Controls | NO | YES | NO | YES | NO | YES |
| Neighbourhood fixed effect | NO | YES | NO | YES | NO | YES |
| Observations | 23,429 | 23,429 | 23,429 | 23,429 | 23,429 | 23,429 |
| R-Squared | 0.02 | 0.46 | 0.02 | 0.46 | 0.05 | 0.46 |

Note: Robust standard errors in parenthesis and all estimates are weighted. Controls include individual and household characteristics.* significant at 10%, **significant at 5%; ***significant at 1%.

**Table 4:**OLS estimates of long-run effect of historical exposure of the ancestors to missionary activities on year of education today

| | South | | | | | |
|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 |
| **Distances** | | | | | | |
| Exposure within 25Km | 0.048 | 0.040 | | | 0.032 | 0.06 |
| | (0.024)* | (0.222) | | | (0.025) | (0.222) |
| Exposure within 100Km | | | 0.008 | 0.001 | | |
| | | | (0.003)** | (0.003) | | |
| Exposure outside 25Km | | | | | 0.006 | 0.005 |
| | | | | | (0.004) | (0.004) |
| Controls | NO | YES | NO | YES | NO | YES |
| Neighbourhood fixed effect | NO | YES | NO | YES | NO | YES |
| Observations | 18,718 | 18,718 | 18,718 | 18,718 | 18,718 | 18,718 |
| R-Squared | 0.00 | 0.79 | 0.00 | 0.79 | 0.00 | 0.79 |

Note: Robust standard errors in parenthesis and all estimates are weighted. Controls include individual and household characteristics.* significant at 10%, **significant at 5%; ***significant at 1%.

**Table 5:** OLS estimates of long-run effect of historical exposure of the ancestors to missionary activities on year of education today

| | Urban | | | | | |
|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 |
| **Distances** | | | | | | |
| Exposure within 25Km | 0.73<br>0.024)*** | 0.176<br>(0.021)*** | | | 0.695<br>(0.028)*** | 0.168<br>(0.022)*** |
| Exposure within 100Km | | | 0.073<br>(0.004)*** | 0.016<br>(0.003)*** | | |
| Exposure outside 25Km | | | | | 0.013<br>(0.005)** | 0.006<br>(0.003) |
| Controls | NO | YES | NO | YES | NO | YES |
| Neighbourhood fixed effect | NO | YES | NO | YES | NO | YES |
| Observations | 17,846 | 17,846 | 17,846 | 18,718 | 17,846 | 18,718 |
| R-Squared | 0.06 | 0.73 | 0.02 | 0.79 | 0.06 | 0.73 |

Note: Robust standard errors in parenthesis and all estimates are weighted. Controls include individual and household characteristics.* significant at 10%, **significant at 5%; ***significant at 1%.

**Table 6**: OLS estimates of long-run effect of historical exposure of the ancestors to missionary activities on year of education today

| | Rural | | | | | |
|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 |
| **Distances** | | | | | | |
| Exposure within 25Km | 0.771 | 0.209 | | | 0.587 | 0.203 |
| | (0.012)*** | (0.013)*** | | | (0.014)*** | (0.014)*** |
| Exposure within 100Km | | | 0.141 | 0.032 | | |
| | | | (0.002)*** | (0.003)*** | | |
| Exposure outside 25Km | | | | | 0.08 | 0.004 |
| | | | | | (0.003)*** | (0.004) |
| Controls | NO | YES | NO | YES | NO | YES |
| Neighbourhood fixed effect | NO | YES | NO | YES | NO | YES |
| Observations | 42,698 | 42,698 | 42,698 | 42,698 | 42,698 | 42,698 |
| R-Squared | 0.11 | 0.61 | 0.1 | 0.61 | 0.11 | 0.61 |

Note: Robust standard errors in parenthesis and all estimates are weighted. Controls include individual and household characteristics.* significant at 10%, **significant at 5%; ***significant at 1%.

**Table 7**: OLS estimates of long-run effect of historical exposure of the ancestors to missionary activities on year of education

| | Christians | | | | | |
|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 |
| **Distances** | | | | | | |
| Exposure within 25Km | 0.175 | 0.013 | | | 0.08 | 0.203 |
| | (0.021)*** | (0.015)*** | | | (0.022)*** | (0.014)*** |
| Exposure within 100Km | | | 0.036 | 0.011 | | |
| | | | (0.002)*** | (0.015)*** | | |
| Exposure outside 25Km | | | | | 0.033 | 0.013 |
| | | | | | (0.003)*** | (0.003)*** |
| Controls | NO | YES | NO | YES | NO | YES |
| Neighbourhood fixed effect | NO | YES | NO | YES | NO | YES |
| Observations | 29,699 | 29,699 | 29,699 | 29,699 | 29,699 | 29,699 |
| R-Squared | 0.00 | 0.76 | 0.00 | 0.76 | 0.09 | 0.76 |

Note: Robust standard errors in parenthesis and all estimates are weighted. Controls include individual and household characteristics.* significant at 10%, **significant at 5%; ***significant at 1%.

**Table 8**: OLS estimates of long-run effect of historical exposure of the ancestors to missionary activities on year of education

| | Muslims | | | | | |
|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 |
| **Distances** | | | | | | |
| Exposure within 25Km | 0.691 | 0.260 | | | 0.523 | 0.218 |
| | (0.018)*** | (0.015)*** | | | (0.018)*** | (0.016)*** |
| Exposure within 100Km | | | 0.367 | 0.109 | | |
| | | | (0.009)*** | (0.007)*** | | |
| Exposure outside 25Km | | | | | 0.294 | 0.067 |
| | | | | | (0.011)*** | (0.008)*** |
| Controls | NO | YES | NO | YES | NO | YES |
| Neighbourhood fixed effect | NO | YES | NO | YES | NO | YES |
| Observations | 30,875 | 30,875 | 30,875 | 30,875 | 30,875 | 30,875 |
| R-Squared | 0.07 | 0.52 | 0.09 | 0.52 | 0.09 | 0.52 |

Note: Robust standard errors in parenthesis and all estimates are weighted. Controls include individual and household characteristics.* significant at 10%, **significant at 5%; ***significant at 1%.

**Table 9**: OLS estimate for long-run effect of missionary activities on education attainment, allowing for effect on gender

| | All sample | | | |
|---|---|---|---|---|
| | 1 | 2 | 3 | 4 |
| **25 Kilometers Radius** | | | | |
| Exposure within 25Km | 0.685 | 0.096 | | |
| | (0.016)*** | (0.013)*** | | |
| Female | -0.552 | -0.628 | | |
| | (0.049)*** | (0.034)*** | | |
| Exposure within 25Km*Female | 0.287 | 0.192 | | |
| | (0.022)*** | (0.013)*** | | |
| **100 Kilometers Radius** | | | | |
| Exposure within 100Km | | | 0.108 | 0.006 |
| | | | (0.003)*** | (0.003)* |
| Female | | | -0.464 | -0.611 |
| | | | (0.051)*** | (0.032)*** |
| Exposure within 100Km*Female | | | 0.042 | 0.034 |
| | | | (0.004)*** | (0.002)*** |
| Controls | NO | YES | NO | YES |
| Neighbourhood fixed effect | NO | YES | NO | YES |
| Observations | 60,544 | 60,544 | 60,544 | 60,544 |
| R-Squared | 0.1 | 0.66 | 0.08 | 0.66 |

Note: Robust standard errors in parenthesis and all estimates are weighted. Controls include individual and household characteristics.* significant at 10%, **significant at 5%; ***significant at 1%.

**Table 10**: OLS estimate for long-run effect of missionary activities on education attainment, allowing for effect on gender

| | Muslims | | | |
|---|---|---|---|---|
| | 1 | 2 | 3 | 4 |
| **25 Kilometers Radius** | | | | |
| Exposure within 25Km | 0.575 | 0.206 | | |
| | (0.025)*** | (0.019)*** | | |
| Female | -0.848 | -0.576 | | |
| | (0.048)*** | (0.037)*** | | |
| Exposure within 25Km*Female | 0.22 | 0.111 | | |
| | (0.036)*** | (0.024)*** | | |
| **100 Kilometers Radius** | | | | |
| Exposure within 100Km | | | 0.336 | 0.101 |
| | | | (0.012)*** | (0.008)*** |
| Female | | | -0.984 | -0.583 |
| | | | (0.084)*** | (0.058)*** |
| Exposure within 100Km*Female | | | 0.061 | 0.02 |
| | | | (0.017)*** | (0.011)*** |
| Controls | NO | YES | NO | YES |
| Neighbourhood fixed effect | NO | YES | NO | YES |
| Observations | 30,875 | 30,875 | 30,875 | 30,875 |
| R-Squared | 0.08 | 0.52 | 0.10 | 0.52 |

Note: Robust standard errors in parenthesis and all estimates are weighted. Controls include individual and household characteristics.* significant at 10%, **significant at 5%; ***significant at 1%.

**Table 11**: OLS estimate for long-run effect of missionary activities on education attainment, allowing for effect on gender

| | Christians | | | |
|---|---|---|---|---|
| | 1 | 2 | 3 | 4 |
| **25 Kilometers Radius** | | | | |
| Exposure within 25Km | 0.182 | 0.022 | | |
| | (0.029)*** | (0.019) | | |
| Female | 0.589 | -0.284 | | |
| | (0.125)*** | (0.064)*** | | |
| Exposure within 25Km*Female | 0.016 | 0.065 | | |
| | (0.041) | (0.021)*** | | |
| **100 Kilometers Radius** | | | | |
| Exposure within 100Km | | | 0.03 | 0.002 |
| | | | (0.004)*** | (0.002) |
| Female | | | 0.378 | -0.309 |
| | | | (0.091)*** | (0.045)*** |
| Exposure within 100Km*Female | | | 0.011 | 0.016 |
| | | | (0.005)** | (0.002)*** |
| Controls | NO | YES | NO | YES |
| Neighbourhood fixed effect | NO | YES | NO | YES |
| Observations | 29,699 | 29,699 | 29,699 | 29,699 |
| R-Squared | 0.01 | 0.76 | 0.01 | 0.76 |

Note: Robust standard errors in parenthesis and all estimates are weighted. Controls include individual and household characteristics.* significant at 10%, **significant at 5%; ***significant at 1%.

**Table 12**: OLS estimate for long-run effect of missionary activities on education attainment, allowing for effect on gender

| | North | | | |
|---|---|---|---|---|
| | 1 | 2 | 3 | 4 |
| 25 Kilometers Radius | | | | |
| Exposure within 25Km | 1.653 | 0.169 | | |
| | (0.141)*** | (0.269) | | |
| Female | -0.81 | -0.553 | | |
| | (0.048)*** | (0.036)*** | | |
| Exposure within 25Km*Female | 0.487 | 0.244 | | |
| | (0.191)** | (0.128) | | |
| 100 Kilometers Radius | | | | |
| Exposure within 100Km | | | 0.314 | 0.17 |
| | | | (0.003)*** | (0.012)*** |
| Female | | | -0.299 | -0.18 |
| | | | (0.051)*** | (0.054)*** |
| Exposure within 100Km*Female | | | -0.134 | -0.097 |
| | | | (0.004)*** | (0.014)*** |
| Controls | NO | YES | NO | YES |
| Neighbourhood fixed effect | NO | YES | NO | YES |
| Observations | 23,429 | 23,429 | 23,429 | 23,429 |
| R-Squared | 0.04 | 0.47 | 0.04 | 0.47 |

Note: Robust standard errors in parenthesis and all estimates are weighted. Controls include individual and household characteristics.* significant at 10%, **significant at 5%; ***significant at 1%.

**Table 13**: OLS estimate for long-run effect of missionary activities on education attainment, allowing for effect on gender

| | South | | | |
|---|---|---|---|---|
| | 1 | 2 | 3 | 4 |
| 25 Kilometers Radius | | | | |
| Exposure within 25Km | 0.094 | 0.061 | | |
| | (0.034)*** | (0.026)** | | |
| Female | 0.886 | -0.051 | | |
| | (0.155)*** | (0.077) | | |
| Exposure within 25Km*Female | 0.086 | 0.024 | | |
| | (0.047) | (0.024) | | |
| 100 Kilometers Radius | | | | |
| Exposure within 100Km | | | 0.005 | 0.002 |
| | | | (0.005) | (0.004) |
| Female | | | 0.559 | -0.166 |
| | | | (0.150)*** | (0.069)** |
| Exposure within 100Km*Female | | | 0.004 | 0.01 |
| | | | (0.005) | (0.003)*** |
| Controls | NO | YES | NO | YES |
| Neighbourhood fixed effect | NO | YES | NO | YES |
| Observations | 18,718 | 18,718 | 18,718 | 18,718 |
| R-Squared | 0.01 | 0.79 | 0.01 | 0.52 |

Note: Robust standard errors in parenthesis and all estimates are weighted. Controls include individual and household characteristics.* significant at 10%, **significant at 5%; ***significant at 1%.