

UNIVERSITY OF OTTAWA

Human Capital Gender Gaps: How Does Culture Matter?

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Dedicated to the loving memory of my late father, M.W.O Biyapo G. Champet
02/14/1958 - 10/12/2012
(R.I.P).

Abstract

This study examines the role of culture in the gender gap in educational achievement in Nigeria. Culture is defined by ethnicity and religion. Using a nationally representative household survey, I find that, overall, women lag behind men in years of schooling. However, the gender gap varies substantially across ethnic and religious groups, with females being significantly ahead of their male counterparts in certain ethnic groups, whilst lagging behind them substantially in some other ethnic groups. Also, males and females have comparable levels of education among Christians, but females lag behind among Muslims. Females are generally disadvantaged in groups attached to an oppositional culture.

Keywords: Human capital; Gender roles; Group inequality; Economic development; Regional economic development; Public policy

1. Introduction

Malcolm X once said that “without education, you are not going anywhere in this world, as education is our passport to the future, for tomorrow belongs to those who prepare for it today” (Estate of Malcolm X, n.d.). Many will also tend to agree that education brings about knowledge and knowledge, many say, is power. Without documenting, educating and advancing on past experiences, humanity would not have come so far in terms of our present-day sophistication, civility and modernization. However, even with monumental changes in the affairs of humanity, gender differences in educational attainment and gender roles continue to determine who acquires education, how far they go and in what occupation they end up (Moen, Ericson, Dempster-McClain, 1997).

I study gender differences in educational achievement. The issue, along side several other aspects of gender segregation or inequality, has been around for a long time - largely discussed, investigated and documented by researchers and scholars in the fields of social and/or behavioural sciences. Gender differences in educational attainment can be said to be a worldwide phenomenon that varies significantly, within and across groups alike. The variant perspectives of differing societies and cultures on gender roles have most often-than-not been at the forefront of discussions pertaining to gender differences in education, as there happens to be well-documented evidence of gender roles and their impact on education across individuals (Vella, 1994). The cultures, traditions and norms of a society go a long way in contributing to how its gender roles are formed and perceived (Boserup, 2007; Sherkat & Darnell, 1999). Also, gender roles and their impact on human capital development have a significant effect in determining how well individuals fare later in life (Vella, 1994). For instance, in human capital theory, inequality in wages, given a perfectly competitive market economy, mainly accrues from group-level disparities in educational attainment. Therefore, being less educated equals lower wages, and lower wages translates to lower welfare, therefore, making it important to study the issue of gender differences in educational attainment within and across groups. Also, given the fact that differences in educational attainment and earnings impact the bargaining power of household members, it is important to analyze the gender gap in human capital accumulation knowing that increases in the bargaining power for women is usually associated with an increase in the amount of household resources allocated to children education. Nonetheless, most literatures illustrate

that women in general are still the most disadvantaged when it comes to educational attainment, largely due to attributes of gender roles (Vella, 1994)¹.

Likewise, the need for understanding the determinants of differences in educational attainment across ethnic and religious groups is pivotal to reducing group inequality, which could arguably be a major instigator of ethnic and/or religious intolerance or clashes in diverse regions of the world. Moreover, major genocides and bloodbaths, especially in Africa, have been linked to either ethnic and/or religious intolerance of one ethnic or religious group over the other. In most cases, such conflicts erupt as a result of economic inequality, leadership and/or political marginalization, or claims of religious superiority. Nigeria in particular, is no greenhorn to such ethnic and/or religious chaos². The country has, and continues to be, sporadically plagued by ethnic/religious crisis and instability - with the most recent threat to the West African nation's peace and progress being the Boko Haram menace³. Nevertheless, some literature has argued that group differences in human capital attainment accrue from cultural and socioeconomic factors (Dev, Mberu, & Pongou, 2011)⁴ in which some groups or cultures tend to invest in human capital accumulation more than others, who on the other hand actually tend to exhibit a certain kind of oppositional attitude towards "Western-type" education.

This paper builds on Dev, Mberu & Pongou (2011). They find considerable cross-ethnic and cross-religious differences in educational attainment. However, my primary focus is on gender differences in educational attainment within and across cultures. In the context of Nigeria, culture is defined on both ethnic and religious lines. Therefore, ethnicity and religion are the key explanatory variables employed in this study to analyse the gender differences in educational attainment.

Using nationally representative data from the Nigerian 2008 Demographic and Health Surveys (DHS), regression-based analyses are conducted to estimate the difference in years of education attained between males and females across ethnic and religious groups within the

¹ Recent studies, though, tend to show a change in trend, as females happen to have an advantage over their male counterparts in most industrialized countries. This fact is reviewed in detail in section 2.

² Ukiwo (2007) discusses how higher education can be used to militate against inequality among "ethno-regional" groups in Nigeria. The study reveals that policies aimed at equalising the access to education are necessary in preventing violent conflicts that arise from perceived "ethno-regional" domination of the public sector in Nigeria.

³ Section 1.1 is dedicated to giving a detailed overview of Nigeria.

⁴ Also see Ogbu (1978), Fordham and Ogbu (1986), Fordham (1996) for details on the oppositional culture hypothesis. Nonetheless, details of Dev, Mberu & Pongou (2011) are discussed in this paper in an attempt to understand and explain the source of group differences in educational attainment in the Nigerian context, as it relates to gender specific differences and the hypothesis of oppositional cultures.

country. I control for a range of observable individual, household and community level characteristics using Ordinary Least Squares (OLS). The main finding is that females generally lag behind their male counterparts in Nigeria. However, the gender gap varies across ethnic groups substantially, with females being significantly ahead of their male counterparts in certain ethnic groups, while also lagging behind them substantially in some other ethnic groups. The data also reveals that females generally lag behind males in the two most dominant religious groups (Christianity and Islam) in Nigeria, but the gap is more pronounced among Muslims. Nonetheless, the magnitude of the differences in all groups tends to decrease when controls for individual, household and community level factors are included in the estimation.

In order to understand the role of culture in the educational gender gap in Nigeria, it is important to gain an overview of the country, as several dominant themes in Nigeria's history are essential for understanding the contemporary Nigerian culture, society and polity.

1.1 Historical Overview of Nigeria and Educational Development

Nigeria, formally a British colony, came into existence in 1914 as a result of the amalgamation of the Northern (predominantly Muslim) and the Southern (Predominantly Christian) protectorates under the leadership of Lord Lugard. The country remained under British control until 1960 when Nigeria became an independent sovereign nation and a republic in 1963. Nigeria is currently Africa's most populous country (with over 160 million people alongside a population growth rate of 1.93 percent as of July 2011 (CIA World Factbook, 2013)), and is composed of more than 250 ethnic groups with six geopolitical Zones⁵. The Hausa/Fulani/Kanuri are settled in the North and account for about 29 percent of Nigerian's population. The Yorubas, settled in the South West, account for approximately 21 percent of Nigeria's population, the Igbos in the South East account for 18 percent of the population, Ijaws in the South South account for about 10 percent, while other minor ethnic groups (commonly referred to as minorities) account for the rest of the population. The South, a coastal region, is the home to the nation's mainstay of the economy. Crude oil and natural gas were discovered in this part of the country in 1956, and have since the early 80s, provided 95 percent of foreign exchange earnings and about 80 percent of budgetary revenues for Nigeria (Nigerian National Petroleum Company (NNPC) publications, 2010). GDP stands at \$414.5 billion (2011 est. - PPP) with a growth rate of 6.9% (2011 est.). Nigeria has 70 percent of its labour force concentrated in the

⁵ Namely, North West, North East, North Central, South East, South South, and South West geopolitical zones.

agricultural sector, another 10 percent in the industrial sector and the final 20 percent in services sector (Central Bank of Nigeria, 2012).

Ethnicity and religion are inextricably intertwined with the Nigerian identity and as such, have consistently played significant roles in numerous developments in the country. For instance, several political, ethnic and religious uprisings in Nigeria's history have often been attributed to her diverse array of ethnicities and numerous religious denominations. The first coup in Nigeria's history occurred in 1966 and was executed by predominantly Southern military officers of Igbo ethnicity. The coup, which led to the killing of prominent leaders of Northern ethnicities, such as Prime Minister Abubakar Tafawa Balewa and Premier Ahmadu Bello of the Northern Region⁶, was counteracted by another coup principally led by military officers of Northern descent. The follow-up coup led to the death of General J.T.U Aguyi-Ironsi (who was the Military Head of State at the time and came to power after the initial coup. He was of Igbo descent), replacing him with Lt Colonel Yakubu Gowon (who was of Northern descent) as Head of State. Just like the initial coup, the second led by the Northern military officers also brought about the death of high-profile members of the Igbo society. As a result, ethnic tensions brewed between the predominantly Muslim North and Igbos in the South, dividing the people along regional, ethnic and religious lines. Random acts of violence and killings of Igbos by Northerners all over Northern and Western Nigeria finally led to the Nigerian civil war in 1967, after the Igbos under the leadership of Lt Colonel Emeka Ojukwu declared the Eastern region independent of Nigeria and naming their new country the Republic of Biafra (Metz, 1991; Murray, 2007). The war between Biafra and what remained of Nigeria (Western and Northern Nigeria) endured until 1970 when Biafra surrendered, owing to lack of supplies, diseases and a devastating death toll of over a million people (Metz, 1991). The Easterners, predominantly the Igbos, suffered the most casualties of the war, coming out of the war to join the rest of Nigeria after being economically, psychologically and physically battered (Metz, 1991; Murray, 2007).

Educational development in what is today Nigeria began with Islamic education as far back as the 14th century⁷ in the Hausaland (today's Northern parts of Nigeria) with the coming of traders and scholars from Wangarawa to Kano between 1349 - 1385, and not so long afterward, the entire region became Islamized (Fafunwa, 1974). The teaching of the Quran went

⁶ Before the present day 36 States of Nigeria, the country was initially divided by regions, namely the Northern Region, the Western Region, and the Eastern Region, each with their own indigenous Premiers, senior military officers and civil administrators.

⁷ Although there are evidences of indigenous education that precedes Islamic education in Nigeria, due to the absence of writing at that time, very little knowledge was preserved and transferred across generations (Mkpa, n.d.).

simultaneously with the Arabic language, and many Northern rulers employed Islamic scholars as administrators. The *Jihad* of Uthman Dan Fodio circa 1804 helped to revive, spread and consolidate Islamic studies. It also extended the access of Islamic education to women, and although Islamic studies had already penetrated certain parts of Western Nigeria prior to the arrival of the *Jihadists*, the *Jihad* strengthened the religion wherever it was found wanting (Fafunwa, 1974; Mkpa, n.d.). Continued support for Islamic education came from several Northern Nigerian rulers alongside the Northern Region Ministry of Education. Therefore, before the arrival of Western-type education in the 19th century (roughly 300 years later), Islamic education had already been well established (Csapo, 1981; Mkpa, n.d.).

Western-type education in Nigeria began with the arrival of the Wesleyan Christian Missionaries in the Southern parts of Nigeria in 1842, and between 1842 and 1914 around ten different Christian missions arrived in Nigeria with the sole purpose of carrying out intensive missionary and educational work (Mkpa, n.d.). Though the curriculums centered on reading, writing, arithmetic and religion, this new form of missionary learning readied its beneficiaries for new job prospects, such as teaching, pastoring and interpreting, to name but a few occupations. Alternatively, western-type education flourished and grew faster in the South than in the North of Nigeria owing to the skepticism and concerns of Muslims about the consequence of Christian missionary education (Csapo, 1981; Mkpa, n.d.). The arrival of western-type education to the northern parts of Nigeria encountered significant difficulties and stiff opposition, as it is estimated that around 1914 about 25,000 Koranic schools were already in existence all over Northern Nigeria (Fafunwa, 1974). Although the missionaries almost without government interference carried out a lot of educational work in the South of Nigeria, prior to 1882, this was not the case in some parts of the North, as Christian missionaries were only able to establish schools in collaboration with government in those areas (Mkpa, n.d.). Thus, it should be noted that the historical spread and exposure to Islam, as well as Christianity (before and) during the colonial era profoundly influenced the formal educational choices of both historical members of Muslim and Christian societies (Dev, Mberu & Pongou, 2011). This diverging attitude of both groups in terms of their relative investments in formal education is still very much evident in contemporary Nigeria, with the Christians being pro-schooling, and the Muslims resisting it as an agent of Christianity (Dev, Mberu & Pongou, 2011; Adamu, n.d.). This is not only indicative of the general difference in educational attainment across both groups, but is also indicative of the relative level of educational attainment of females within both groups, as would be seen in this study.

Nonetheless, beginning from 1882 to the 1950s, the government began to play a much more significant role in order to improve the quality and regulate the standard of education in various parts of Nigeria. Therefore, programmes such as the universal primary education programme (UPE) began in the West and East in 1955 and 1957, respectively (Mkpa, n.d.). In 1976, the UPE programme, which guarantees nine years of basic primary education to every child (of school going age) was launched across the nation and was later expanded and realigned with the world millennium development goals of Education For All (EFA) in 1999 and renamed the Universal Basic Education programme (UBE) (Csapo, 1981; Adepoju & Fabiyi, 2007). One of the major goals of the programme was to equalize the educational divide that existed between the Northern and Southern regions of the country. However, the programme was poorly implemented and badly maintained, thereby leading to poor outcomes in terms of promoting and increasing the general level of education within the country and most especially in the north where it met with brick walls owing to the programme's poor reception by Muslims (Adepoju & Fabiyi, 2007). As of 2004, the average adult literacy rate in Nigeria was estimated at 69.1 percent, with a higher rate for men (78.2 percent) as opposed to women (60.1 percent) ("Country Profile: Nigeria", 2008). Presently, the educational structure in Nigeria consists of six years of primary school, three years of junior secondary school, three years of senior secondary school, and four years of university education cumulating to a bachelor's degree. In 2005, it was estimated that 68 percent of boys, as opposed to 59 percent of girls, were enrolled in school at the primary level, while at the secondary level it was estimated that only 23 percent of girls, as opposed to 28 percent of boys, were enrolled in school ("Country Profile: Nigeria", 2008). These estimates are in line with the findings in Figure 1, which illustrates the gender gap in educational attainment by age. It is evident that at an early age females do well in keeping up with their male counterparts, until age 12 where they begin to fall slightly behind. The lagging of females behind their male counterparts becomes even more apparent at age 24, when they lag behind their male counterparts by at least 1 year of education.

Conclusively, in terms of the general standard of education in the country, the Nigerian National Planning Commission in 2004 described the country's educational system as "dysfunctional", citing the condition of decaying institutions and ill-prepared graduates as the reasons characterising such a description ("Country Profile: Nigeria", 2008).

1.2 Major Highlights of this Study

Though Nigeria is composed of more than 250 ethnic groups and accounts for numerous religious denominations, for the purpose of this study, religions will be aggregated and classified by the two main dominant religions in the country, namely Christianity and Islam. Ethnic groups will be classified into five major categories, judging by their linguistic and cultural affinities, as: the Hausa/Fulani/Kanuri of the core North, the Tiv/Igala/Idoma/Gwari of the Central region, commonly referred to as the Middle-Belt, the Igbo of the South East, the Yoruba of the South West and the Isoko/Urhobo/Edo/Ijaw/Efik/Ibibio of the Niger-Delta region (NISER, 1997)⁸.

This study begins by observing the distribution of Christians and Muslims across ethnic groups in Nigeria, presented in Figure 2. It is clearly evident that Christians are more concentrated among the Niger-Delta (99.9 percent), the Igbo (99.5 percent), the Middle-Belt (83.4 percent), and the Yoruba (56.6 percent) ethnic groups, but are the fewest among the Hausa/Fulani/Kanuri (0.9 percent) ethnic group. On the other hand, Muslims are more concentrated among the Hausa/Fulani/Kanuri (99.1 percent), the Yoruba (43.4 percent), and the Middle-Belt (16.6 percent) ethnic groups, but the fewest amongst the Niger-Delta (0.1 percent) and the Igbo (0.6 percent) ethnic groups. It is clear that the Yorubas are the most equalized ethnic group in terms of religion, as opposed to other ethnic groups. It is also evident from Section 1.1 that the differences in religious beliefs across ethnic groups in Nigeria can be traced to the historical exposure of those ethnic groups to either Christianity or Islam (Dev, Mberu & Pongou 2011).

Figure 3 examines the within group gender difference in educational attainment among the Christians. It can be easily inferred that females tend to be at par with their male counterparts until later on in life, but by age 24 they lag behind their male counterparts by barely a year of education. Among the Muslims, as presented in Figure 4, the females are at a disadvantage earlier on, and continue to fall further over time, lagging behind their male counterparts by at least three years of education at age 24⁹.

Figure 5 examines the differences in educational attainment among females across ethnic groups. It is clear that the Igbo and Yoruba girls with 11 years of education and the Niger-Delta

⁸ A detailed linguistic map of Nigeria can be found right after the reference section of this article.

⁹ It can be easily inferred from Figure 3 and Figure 4 that the average years of educational attainment is generally higher for both the Christian girls (10 years) and boys (11 years) as opposed to their Muslim counterparts (four years for girls and seven years for boys). An explanation for this could be inferred from Section 1.1 of this study that sheds light on educational development in Nigeria and also in the studies of Dev, Mberu & Pongou (2011). They have noted that there has been a long documented history of a diverging attitude of Christians and Muslims towards formal education in Nigeria, with the Christians being usually pro-schooling, and the Muslims resisting it as a western “imperialist” institution.

with 10 years of education by age 24 consistently outperform the Middle-Belt (seven years) and the Hausa/Fulani/Kanuri (three years) girls. Figure 6 presents the same analysis for males, where, once again it can be seen that the Yoruba, Igbo and Niger-Delta boys with 11 years of education at age 24 consistently surpass the Middle-Belt (10 years) and the Hausa/Fulani/Kanuri (7 years) boys¹⁰.

The statistics presented in Figure 7 to Figure 11 are self-explanatory; they examine the gender differences in educational attainment within each ethnic group. Beginning with the Yoruba ethnic group, presented in Figure 7, it can be easily inferred that the females early on are at par with their male counterparts until later on when they begin to lag behind them by barely a year of education at age 24. Figure 8 examines the same scenario for the Igbos, where it is clearly evident that the females consistently perform just as well as their male peers, even surpassing them slightly by almost a year of education at age 24, ultimately revealing no substantial gender differences in educational attainment between the genders. Chimamanda Ngozi Adichie, Ngozi Okonjo Iweala, Dora Akunyili, Kema Chikwe, Bianca Ojukwu and Oby Ezekwesili to name but a few, are all world renowned professionals in their respective fields that exemplify the high level of educational attainment amongst the Igbo females. Figure 9 illustrates the case of the Niger-Delta, where it is observed that females actually begin with a slight advantage over their male counterparts, but over time begin to fall below them, and at age 24 the males are a year ahead of their female counterparts in education. Figure 10 represents the same analysis for the Middle-Belt. It is evident that the girls in this ethnic group actually start off just as well as their male counterparts, but later on begin to lag behind them. The girls continue to fall behind, and at age 24 the girls lag behind the boys by three years of education. Figure 11 presents the case of the Hausa/Fulani/Kanuri, where it is clear that females are at a disadvantage early on, and fall even further behind over time, lagging their male counterparts by four years of education at age 24.

It is evident from the above analysis that girls are generally lagging behind boys with respect to educational attainment in Nigeria; however, the gender gap varies substantially across groups, revealing that females in some ethnic and/or religious groups enjoy or exercise higher rights to education as opposed to others. These differences may accrue from demographic and

¹⁰ Dev, Mberu & Pongou (2011) in their analysis of cross-ethnic differences in formal versus Koranic education, argue that children in the Middle-Belt and Hausa/Fulani/Kanuri ethnic groups, which happen to be predominantly Muslims, are most likely to invest in Koranic education, thereby losing grounds with respect to investment in human capital early on. This ends up costing them valuable years of education, as their disadvantage grows with age, making them acquire education at a much slower speed. This might explain the reason why girls and boys in this study from these same ethnic groups and religious background tend to be lagging behind their respective counterparts.

socioeconomic conditions that are well known to vary across ethnic groups around the world. Therefore, using multivariate regressions, an array of individual, household, demographic and socioeconomic variables are controlled for. Also, given that formal educational infrastructures may not be evenly distributed across different regions in the country, certain differences could accrue from the fact that some individuals benefit more as opposed to others. Thus, in order to address this issue, further controls for state and neighbourhood fixed effects are added to the estimation, since individuals living within the same community would generally have the same exposure to the supply of educational infrastructure. Overall, the advantage of the males over the females increased in magnitude and becomes statistically significant. However, within each ethnic group the outcome varies, as it is found that females in the Yoruba, Igbo and Niger-Delta ethnic groups are no longer at a disadvantage, but the Middle-Belt and Hausa/Fulani/Kanuri females continue to lag behind their male counterparts significantly. This indicates that this difference could be due to certain oppositional elements in these cultures that hinder the educational development of females. As such, the remainder of this study is dedicated to explaining those factors that hinder the educational performance of females in general, and females within certain groups.

The paper proceeds in six sections, including the introduction. In the second section, past studies are discussed in order to better understand gender and group disparities in educational attainment generally and in the context of Nigeria. In the third section, a formal description of the data is given. In section four, the empirical strategy and specification are clearly outlined. In section five, the empirical results are discussed in detail. Section six contains conclusions and recommendations.

2. Literature Review

This article actually contributes to a large body of literature on gender differences and discrimination against women. However, gender related topics, discussions and issues have and continue to command significant attention and importance around the world and amongst diverse interest groups. Though much recent literature records considerable advancement in the affairs of females in diverse socioeconomic activities, substantial differences still persist between them and their male counterparts in most aspects of human endeavours. Nonetheless, unlike most topics, the issue of gender differences transcends the borders of social science and, as such, has found a solid place in economics, politics, sociology and many other fields of study. Consequently, there

is a plethora of papers that have sought to ascertain the gender gap and its implication using different research approaches, ranging from laboratory to field.

Generally, when the subject of gender inequality is raised, the common lean is toward masculinity. In most cultures men are more privy than women to life outside the four corners of the home. Hence, when it comes to “serious matters” like education the common knowledge out there is that females are the “visible minorities”. St. Thomas Aquinas succinctly puts this in the “Summa Theologica, Vol. 5”; “As regards the individual nature, woman is defective and misbegotten, for the active force in the male seed tends to the production of a perfect likeness in the masculine sex; while the production of woman comes from defect in the active force or from some material indisposition, or even from some external influence, such as that of a south wind, which is moist...”

As such, it is evident from both past and recent observations that gender roles do have an impact on gender discrimination, as the stereotypes or gender roles of different societies (over time) often shape the basis or grounds by which females are consciously or unconsciously discriminated against (Boserup, 2007; Angelique, 1997). The process of socialization in different societies conforms females to certain gender roles or norms, 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 responsibility as opposed to their male counterparts. They go on to note the circumstance that “a daughter who neglects her parents, a wife who leaves a husband or a mother who abandons a child are all considered more culpable than a son, husband or father who does the same” (p. 311). It is well documented that societies expect males and females to behave or conform to certain traditional attitudes or roles, typical of their respective genders, and any deviation from these expected norms is seen as being uncustomary (West & Zimmerman, 1987)¹¹, thus, refining the remarks of Harris and Firestone (1998) in the sense that the attitudes that are associated with gender roles are essentially conceived as opinions and beliefs about the ways that family and work roles are and should be differentiated based on sex¹². Boserup (2007) also adds that the manners by which household tasks are assigned both in primitive and in modern communities are mainly based on age and sex. The division of labour by gender is very much preeminent amongst traditional farming societies

¹¹ Blee & Tickamyer (1995), document substantial differences in African American and White men’s attitudes about women’s gender roles, further indicating that men’s beliefs change over time, and that individual status and life course processes influence these attitudes of men.

¹² See also Punch (2001) for an in-depth study of household division of labour by generation, gender, age, birth order and sibling composition.

that practice shifting cultivation, such as those in sub-Saharan Africa, South America and some parts of Asia (Boserup, 2007). And though, the roles and degrees of participation of both males or females in farming activities in these sort of societies may vary depending on region, it is generally the case that men are more likely to be involved in tasks that are not exhaustive of the entire planting season, such as the felling of trees, while to the women, falls the tedious and meticulous time constraining tasks such as, removing and burning of felled trees, sowing or planting in the ashes, weeding crops, harvesting and carrying in crops for storage or immediate consumption (Boserup, 2007). Female farming is a sort of traditional farming practice described by Boserup (2007) to constitute mainly of female labour with very little (if any) assistance from males. She describes this sort of farming practice to have originated from the natural order of gender roles in different cultures at different times. This sort of farming practice, Boserup (2007) notes, is typical amongst tribes in Africa, these tribes, in which females do almost all the tasks related to food production. This farming practice can indeed make it inherently difficult for females to acquire formal education. This is clearly the case in traditional African societies, where it is expected of girls to assist their mothers in farming, domestic and care-giving activities. As such, it is only common for girls to be pulled out of school in order to meet the social and household needs of families (Takyi & Addai, 2002).

Religion on the one hand, has been largely documented to aid in reinforcing and maintaining certain gender roles. As Keysar & Kosmin (1999) note, religion is very important in establishing cultural communities and also goes a long way in influencing their members' attitude and behaviour towards gender roles in society. Takyi & Addai (2002) also note that religious groups not only sustain, but also profess gender roles that discourage females from acquiring or gaining higher education. In the sense that, "some religious ideologies and norms help to legitimize traditional gender roles by providing a non-secular ethos and worldview about the position of women in relation to men" (Takyi & Addai, 2002, p. 181). In Muslim societies for instance, the subordination of women became institutionalized as part of religious norms in diverse regions of the world many centuries ago (Ahmed, 1992). In such societies, preference has always been given to males as opposed to females. Ahmed (1992) cites that when a male child is born tears of joy welcomes the child to the world, but this is not the case when the child is female, indicating that men are valued over women in Muslim communities. This religious orientation makes it even more challenging for girls in such communities to acquire education, as preference will always be given to the boys. This is very much evident in Figure 4 of this study, where it can be seen that the Muslim males outperform the Muslim females by at least four years of education.

Nonetheless, recent documentation shows evidence of substantial convergence of gender roles, especially in developed countries, such as Canada and the United States. In Canada, for instance, Marshall (2006), using data on labour and income reveals that more women as opposed to men have witnessed substantial increases in their total hours of paid work accompanied by significant declines in their total hours of unpaid work¹³, while men on the other hand witnessed a decrease in their total hours of paid work accompanied by increases in their total hours of unpaid work. The number of couples who both earn an income also increased in Canada in 2005 and the division of labour between such couples became more equal, as wives brought in more personal income (Marshall, 2006). The reason for this trend, as noted by Marshall (2006), is actually due to the rising rate of labour force participation of Canadian women, further revealing that Canadian women have the highest labour force participation rate in the world, a rate that is essentially converging with that of men. Comparable trends have also been observed in the United States by studies such as Cohen (2004), Bianchi et al. (2000) and Harris & Firestone (1998), to name a few. Over the period of 1975 to 1995, women's and men's hours spent doing housework have converged in the United States, mainly due to sharp declines in women's hours of housework. Also, during this period there were observations of increasing labour force participation among various groups of women, such as women with preschool children and those of Hispanic origin (Bianchi et al. 2000; Harris & Firestone, 1998).

Studies such as Rosenzweig & Zhang (2012), Shu (2004) and Liu & Xu (n.d.) have begun to notice similar trends in developing economies, such as China¹⁴. For the most part, studies such as Shu (2004) and Harris & Firestone (1998) have noted the fact that transitions towards relatively less traditional gender roles across groups accrues from increases in educational attainment. In the sense that, groups non-traditional orientation of gender roles accrues from higher educational attainment. This fact is also evident in this study, as the females of the Yoruba, Igbo and Niger-Delta ethnic groups (these groups happen to be generally more educated compared to the Middle-Belt and Hausa/Fulani/Kanuri ethnic groups) exhibit almost no difference in educational attainment between them and their respective male peers, as opposed to the females of the Middle-Belt and Hausa/Fulani/Kanuri ethnic groups that substantially lag behind their respective male counterparts. This insinuates some type of non-traditional orientation of gender roles amongst the Yoruba, Igbo, and Niger-Delta ethnic groups, while (more or less) insinuating a traditional orientation of gender roles amongst the Middle-Belt and Hausa/Fulani/Kanuri ethnic group.

¹³ Marshall (2006) defines unpaid work as activities involving household chores and other unpaid activities.

¹⁴ Also see Angelique (1997) for a broader perspective on the changing trends in gender roles.

Furthermore, it has been retained in previous literatures that females are generally disadvantaged in all aspects of educational attainment as opposed to their male counterparts; however, recent findings show that this actually is no longer the case (Buchmann et al., 2008). In recent years the number of females attending college has increased immensely. Astin & Kent (1983) note that since 1978 women have outnumbered men amongst the population of first-time freshmen in the United States. Similar trends have also been specifically observed in China by Rosenzweig & Zhang (2012)¹⁵. The review of Buchmann et al. (2008) on gender inequality in education in the United States reveals substantial advancement in females' college enrolment and graduation rates as opposed to their male peers. Buchmann et al. (2008) also reveal considerably lower high school dropout rates for females as opposed to their male counterparts. Using the 2010 version of Lee and Barro data, Pekkarinen (2012) also observes that out of 146 countries, women had more years of education than men in 11 countries, including Canada and the United States as at 1950. By 2010, the number of countries had already jumped to 43, with most advanced countries featuring very prominently. He further observes at the university level, where the real mind training occurs, there was a bigger pool of female graduates than male graduates in 2010 in 13 out of the 24 developed countries in the Barro and Lee dataset. Clearly, while men still remain leaders of education in most countries (146-43), based on the speed and magnitude of the increase in female education, he predicts that this situation will reverse in the very near future. Answering the biggest and hardest question of why, Pekkarinen (2012) opines that the reason lies in the basic logic behind cost-benefit analysis: choose if benefit outweighs cost. Due to the extremely high divorce rates in most advanced economies, the need for economic independence has increased for women, leading to more investment in education, which is one of the surest ways to success in the labour market. Gibb, Fergusson and Horwood (2008) further argue that the discussion loses some key elements when attention is given solely to educational participation at the expense of educational achievement. They thus focus their analysis on gender differences in educational accomplishment of a cohort of 1,265 persons up to age 25. They find that females have the tendency to score better than males on standardized tests and attain more qualifications, indicating that women are not only catching up in terms of school enrolment but are achieving more in education than men. They attribute this finding to the proclivity of males to be more inattentive, restless, aggressive, antisocial and oppositional than females.

Nonetheless, gender segregation in higher education still poses concerns, as other studies have narrowed the analysis to subject-specific differences across gender to ascertain how females

¹⁵ Rosenzweig & Zhang (2012) document a substantial increase in women's schooling over that of men in both rural and urban China beginning from 1965.

are faring in the so-called “macho” subjects like mathematics and the sciences. In mathematics for instance, the achievement level attained at the age of five remains fairly the same over time for girls, especially the low performers. However boys, even those in low groups, tend to progress at a much faster rate than girls do (Slyfield & Sturrock, 1993). At higher levels, they observe that though the tendency is improving, girls continue to have lower expectations of themselves, thereby undervaluing their performance. Nightingale & Sohler (1994) also observe that this feeling of inferiority continues, even into graduate programmes where better female students express less confidence in their abilities. Bradley (2000), using cross-national data spanning from 1965 to 1990, also reveals that there has been no substantial progress in gender disparity in educational discipline, as women are more likely to graduate from education, arts, humanities, social sciences and law, as opposed to men who are more likely to graduate from natural sciences, mathematics and engineering. Bradley (2000) also notes that few differences were found between developed and less developed countries. The innate competitiveness of males and females also play a huge role in determining the gender differences in education. Gneezy, Leonard & List (2008) use samples of two distinct representative cultures - a patriarchal culture from Tanzania (the Maasai) and the other a matrilineal culture from India (the Khasi). It is found that the average educational attainment of the males in the patriarchal culture is slightly higher than that of their female counterparts, while the average educational attainment of the females in the matrilineal culture is slightly higher than that of their male peers. This could also explain part of the reasons for the gender differentials in education in Nigeria, owing to the fact that Nigeria is entirely a patriarchal society.

Occupational gender segregation and wage discrimination are also very serious issues that have been extensively documented to play against females (even in recent times) in the labour market (Gerber & Cheung, 2008). Numerous studies have revealed empirical evidences of occupational gender segregation and wage discrimination against women both on national and international levels (see, e.g., Backer & Drolet, 2010; Oostendorp, 2009; Blau & Kahn, 2003; Weichselbaumer & Winter-Ebner, 2005; Sebagala, 2007; Drolet, 2001; Blau & Kahn, 2000; and Kidd & Shannon, 1996 for a comprehensive overview). Nonetheless, studies that have tried to go beyond the discriminatory outlook and approach of analysing the gender gap in labour market outcomes such as that of Flory, Leibbrandt & List (2010), which focuses on the interplay between job competitiveness and individuals’ labour market decisions, has shown that females generally tend to shy away from competitive work settings. Thereby, losing out on higher wages attached to such competitive work settings.

Notwithstanding, reasonable numbers of studies have documented persistent significant relationships between cultures, socioeconomic status, gender and educational attainment (e.g., Takyi & Addai, 2002; Dumais, 2002, McWhirter, 1997; and Csapo, 1981). Keysar & Kosmin (1995) for instance demonstrates how religions “directly” and “indirectly” affect the educational attainment of White non-Hispanic women in the United States. Their findings indicate that religion is significantly associated with the acquisition of postsecondary education, both directly and indirectly. They further note that religious cultures differ in the degree to which they emphasize the importance of the family, marriage and child bearing, as this in turn influences how much higher education the women of the group are likely to obtain. Likewise, studies such as McWhirter (1997), which looks at “perceived barriers to education and career” based on ethnic and gender differences, reveal that the female participants in the study anticipated more barriers than their male counterparts in their pursuit of education and career goals. However, Mexican-American women anticipated more barriers as opposed to their Euro-American counterparts. Sharkat & Darnell (1999) also observe that parental fundamentalism¹⁶ has an effect on children’s educational attainment with substantial differences by gender and children’s fundamentalism. Their main findings reveal that the educational attainment of nonfundamentalist females is significantly hindered by fundamentalist parents; however, fundamentalist parents do not differ significantly from nonfundamentalist parents in terms of their support of nonfundamentalist males or Bible-believing females, and Bible-believing parents significantly boost the educational attainment of male children who believe that the Bible is truly the word of God (Sharkat & Darnell, 1999). This essentially refines the fundamental theory of this study that girls in extremely conservative religious groups are generally at a disadvantage and worse off situation than their male counterparts.

It is also evident that religious groups that are extremely conservative might tend to profess and support certain views of the Bible that portray the subordinate status of women and their roles as caregivers and mothers. This type of orientation discourages women from pursuing higher education (Takyi & Addai, 2002; Folber & Badgett, 1999; Keysar & Kosmin, 1995). In addition, Takyi & Addai (2002) note that conservative religions might offer programs that help girls to be better housekeepers rather than providing the skills necessary for non-domestic and alternative roles in society. This is because it is likely that the contents of those sorts of programs or education delivered by these conservative groups may be too restricted in helping to improve

¹⁶ “Protestant fundamentalists subscribe to a vividly otherworldly belief system that is often antagonistic toward secular education because of the beliefs and values it is viewed to promote” (Sharkat & Darnell, 1999, p. 24).

the lots of its females (Takyi & Addai, 2002). This is exactly the case in northern Nigeria, where Koranic education is preferred to formal education (that is, education proliferated by Christian missionaries during Nigeria's colonial epoch). The Islamic nature of these regions has made it almost impossible for formal education to be widely accepted. Among these societies, there is still lingering suspicion of the Western education as an agent of Christianity. Due to this suspicion, it is difficult to convince a great number of people about the need to send their sons to school, let alone their daughters (Adamu, n.d.). This sort of oppositional attitude of Islamic societies towards formal education has also been documented in other regions of Western Africa such as Ghana, where, for instance, Muslim parents tend to send their daughters to Koranic schools rather than to the traditional Western oriented schools due to the widely held notions among these Muslim societies that "secular education is immoral and 'satanic' and can never lead one to heaven because it teaches western culture which drives children or people to engage in vices, such as drug abuse and illicit sexual practices that eventually results in teenage pregnancy" (Takyi & Addai, 2002, p. 182).

The work of Takyi & Addai (2002), echoes the studies of Keysar & Kosmin (1995) and Sharkat & Darnell (1999) in the African context, and also falls in line with the professed hypothesis of oppositional cultures by Dev, Mberu & Pongou (2011)¹⁷. Takyi & Addai (2002) use national level data on married women born during three different time periods - 1944-58, 1959-68 and 1969-78 - to explore the relationships between women's religious affiliation and their respective educational attainment in Ghana. Their findings are very insightful and to a reasonable extent reflective of similar findings in this study. Their account of the geographical and historical development of education in Ghana reflects similar patterns with those of Nigeria; and although Takyi & Addai (2002) had no information on the male population of Ghana in their studies and did not carry out their research with the classification of women by ethnicity, their finding that Muslim women consistently lag behind their female counterparts in the several Christian denominations (Protestants, Catholic and Other Christian groups) in Ghana is consistent with comparable findings in this study. Their main finding indicates that religion plays a vital role in determining the educational attainment of women in Ghana, thereby indicating that the reason why Muslim females consistently lag behind their counterparts that practice the formally mentioned Christian denominational faiths is because Muslim parents are antagonistic about sending their daughters to non-Islamic schools. On the other hand, they note two main reasons

¹⁷ Although Takyi & Addai (2002) did not explicitly discuss the oppositional culture hypothesis, their findings are however, in line with those used in Dev et al. (2011) to support and justify the existence of the hypothesis among the predominantly Muslim groups in Nigeria.

why females from the three Christian denominational groups perform better than their Muslim, Traditional and those who reported no religion peers. The first reason is based on the fact that the Christian groups tend to be associated with Western societies and religions. Therefore, given the proliferation of secular education by Christian evangelizing missions, women from these faith groups tend to have some higher levels of education. Their second reason is based on the fact that the followers of the Christian religious groups would be more likely to understand the need for formal education given the educational nature of the propagators.

As can be deduced thus far, the statistics of educational attainment in sub-Saharan Africa (as is the case with most less developed economies) are at odds and generally unfavourable to the female population¹⁸. For instance, Ghana is a country where women account for slightly more than 50 percent of the total population; however the majority of children who are not enrolled in school are girls. Not only are girls disadvantaged in enrolment levels in Ghana, they are also more likely than boys to drop out of school due to several household socioeconomic factors (Takyi & Addai, 2002). Comparable statistics also hold in the case of Nigeria, where in general, fewer girls than boys are found in schools all over the country, and the lowest rates for enrolment of girls are comparable with the lowest rates of children in schools (Csapo, 1981). In the northern regions, the statistics are even more worrisome as “a ratio of one girl to five boys in primary school is reported across the northern States. However, in the Katsina-Ala Division the ratio of one girl to six boys was reported” (as cited in Csapo, 1981, p. 311). Csapo (1981) cites that very few girls in the north as opposed to school-age girls in the south take advantage of the opportunity of going to school due to the fact that in Northern Nigeria, women are considered to be “secondary citizens” as their education does not receive the same priority as that of their male counterparts. Not only are parents in the north reluctant to send their daughters to school but also, those who go are often withdrawn before completion (Csapo, 1981).

2.1 Theory

The critical question here is why are girls in the north (the region mainly dominated by the Hausa/Fulani/Kanuri ethnic group) doing so badly in terms of educational attainment? Is it due to religious or ethnic factors? In a bid to answer a similar question about the poor participation of northern girls in the free Universal Primary Education scheme, Csapo (1981) builds on the observations of several articles, such as Haroun (1973), Hake (1970) and

¹⁸ Nonetheless, recent studies on gender differences in education across developing countries, such as Grant & Behrman (2010) have begun to predict a change in trend, even predicting a convergence similar to those in developed countries in the near future.

Ndugbueze (1973), before noting that several religious and socioeconomic factors which are closely interwoven and deeply rooted in the belief system and cultures of the Hausa Muslim Society impede the full participation of girls in education. Csapo (1981) goes on to outline 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) The parental misconception of the Islamic view on the education of women. (7) The place of women in Muslim society.¹⁹

It is well documented that the differences in the traditional patterns of ethnic groups in the north and south, as well as their timing and contact with the colonialist profoundly affected the distribution of education among these ethnic groups. Studies such as Davis & Kalu-Nwiwu (2001) and Aguolu (1979), note that the Igbos in the southwest followed a relatively decentralized political and social system. This system, made it easier for the Igbos to adopt new practices, such as the patterns or systems introduced by Europeans. The Yorubas also have a similar pattern as that of the Igbos, though to a lesser amount. These decentralized political and social patterns also mirror the relative non-traditional gender roles of the Igbos and Yorubas. The Hausa-Fulani on the other hand, followed a highly centralized autocratic traditional pattern that made it very difficult for them to welcome or adopt European patterns, such as schooling (Davis & Kalu-Nwiwu, 2001; Aguolu, 1979). Thus, owing to the traditional pattern of the Hausa-Fulani, women in these societies had limited rights. The varying patterns of social and economic organization contributed not only to how ethnic groups in the north and south adopted formal education, but also indicates the relative degree of ease or difficulty encountered by the females in these ethnic groups in acquiring education. After independence, there was a great awakening amongst ethnic groups to acquire formal education (Davis & Kalu-Nwiwu, 2001). This sense of awakening became even greater amongst the Igbos after the civil war; from which they came out the net losers. As such, there was a conscious effort amongst the Igbos to empower themselves by all means necessary. Igbos (irrespective of gender) began to invest in education and all sort of entrepreneurial and commercial activities. Owing to their long and frequent contact with Europeans, it was not difficult for the Yorubas and Igbos to embrace Western-style education in order to compete for resources as opposed to the Hausa-Fulani (Aguolu, 1979).

In order to abstract from common religious and ethnic factors, Figures 12 and 13 analyse the differences in education amongst the males and females of the Yoruba ethnic group (which

¹⁹ For an in depth and comprehensive review of each of these factors, see Csapo (1981).

has a substantial amount of both Christians and Muslims) for Muslims and Christians separately. As evident in Figures 12 and 13, the Muslims account for 80 percent of the gender, while Christians account for only 20 percent of the gender gap amongst the Yoruba ethnic group. The same analysis is done for the Middle-Belt ethnic group as evident in Figures 14 and 15. Here, it is seen that Muslims account for 51 percent of the gender gap, while Christians account for 49 percent of the gender gap in education. As such, it is evident that both ethnic traditions and religious practices have an impact on educational attainment. Therefore, it is expected that traditions and religions that are antagonistic towards Western ways would invest less in formal education and females in such societies would essentially experience lower educational attainment. This is very much the case among the Middle-Belt and Hausa/Fulani/Kanuri ethnic groups in this study.

3. Data

The data used in this study is the 2008 Nigerian Demographic and Health Survey (DHS). The DHS maintains a database of key nationally representative household surveys that are used to monitor several types of socioeconomic, demographic and health indicators, providing vital information on all the regions and ethnic groups in the country. A standard DHS typically consists of large sample sizes ranging between 5,000 and 30,000 households, and the surveys are usually carried out in intervals of five years by using household questionnaires to collect information on household members, household structure and several other household characteristics. Also, individual male and female questionnaires are used to collect information on demographic, social and economic characteristics such as age, religion, ethnicity, education, marital status and gender. Sampling clusters (or neighbourhoods) are also selected from each state of the country. The 2008 Nigerian DHS used in this study is cross-sectional, consisting of 60,544 male and female observations aged 5 - 24. The male sample size constitutes 48 percent of the total sample population with 29,024 observations, while the female sample size constitutes 52 percent of the total sample population with 31,520 observations.

The dependent variable that is analyzed in this study is the number of years of education acquired, while the independent variable of primary concern is gender. Data on over a hundred ethnic groups was made available from the 2008 Nigerian DHS. However, following the NISER (1997) classification and categorization of ethnic groups, this study aggregates these ethnic groups into five major categories as follows: the Hausa/Fulani/Kanuri of the core North, the Tiv/Igala/Idoma/Gwari of the Central region, commonly referred to as the Middle-Belt, the Igbo

of the South East, the Yoruba of the South West and the Isoko/Urhobo/Edo/Ijaw/Efik/Ibibio of the Niger-Delta region. Nonetheless, there is a collection of other ethnic groups that do not technically fit into these major groups, and is labelled as “Others” for the purpose of this study. As noted by Dev, Mberu & Pongou (2011), other than the category “Others”, the previously mentioned groupings are the best possible approximation of the diverse cultural identities in Nigeria, producing a good reflection of the geographic, economic, political and religious communities within the country. Notwithstanding, besides her diverse array of ethnicities, Nigeria also accounts for several religious affiliations and beliefs. However, for the purpose of this study religion is categorized to just two main dominant groups, namely Muslims and Christians.

Table 1 presents the weighted summary statistics of the data. It basically consists of a number of individual, household and community level characteristics, employed in order to understand the gender differences in cross-ethnic educational attainment. The purpose of these controls is to capture various correlates of education; thus, it is expected for their levels to vary across the different ethnicities. As evident from Table 1, the individual level variables are child age, years of education, gender and relationship to household head²⁰, while the household variables controlled for are basically the characteristics of household head such as gender, education, age and religion. Household variables also include place of residence (either urban or rural) and wealth per household.²¹ It can be easily inferred from Table 1 that for all males and females the average years of education is significantly comparable across gender, with 4.024 for males and 4.018 for females. It is also evident from Table 1 that the average years of education for females from the Yoruba, Igbo, and Niger-Delta ethnic groups are higher than those of their respective male counterparts, with Yoruba females averaging 6.046 years of education as opposed to Yoruba males with only 5.566 years of education. Igbo females average 6.316 years of education as opposed to their male counterparts with 5.593 years of education. Niger-Delta females average 6.058 years of education as opposed to their male counterparts with 5.263 years of education. For the Middle-Belt and Hausa/Fulani/Kanuri, the reverse is the case, with the Middle-Belt females averaging 4.198 years of education as opposed to their male counterparts with 4.391 years of education, and the Hausa/Fulani/Kanuri females averaging only 1.404 years of education as opposed to their male counterparts with 2.248 years of education. It can also be

²⁰ The inclusion of the “relationship to head of household” variable is in accordance with the assumption of Dev, Mberu & Pongou (2011), whereby they explain that parents may tend to deliberately invest more in their biological children as opposed to non-biological children.

²¹ The household wealth is an asset-based index. It was measured based on the procedure cited and applied by Dev, Mberu & Pongou (2011), whereby, the wealth index is divided by the number of household members.

easily inferred from Table 1 that the Hausa/Fulani/Kanuri ethnic group is the worst-off group in terms of average years of educational attainment between both genders.

4. Econometric Model

The econometric equation is illustrated as below:

$$Educ_{ir} = Gender_i \alpha + X'_i \beta_i + \gamma_r + \varepsilon_{ir} \quad (1)$$

where $Educ_{ir}$ is the number of years of education attained by a person i (who could be a male, m or a female, f) residing in a region r (being a State or an area inside a State, such as a neighbourhood). $Gender_i$ is a dummy variable that is equal to 1 if an individual is female and 0 otherwise. X is a vector of variables including individual, household and community level variables expected to influence years of educational attainment. One main individual level variable in X : $Ethnicity_i$ is a vector of ethnic groups [6 groups], namely, Igbo, Niger-Delta, Middle-Belt, Hausa/Fulani/Kanuri and Others ethnic groups. γ_r captures the region effect, and ε_{ir} are individual random effects. α is the actual parameter of interest. Region fixed effect is estimated because of the correlation between region and ethnicity (in the sense that $E(\gamma_r X'_i \beta_i) \neq 0$) and also due to the fact that the supply of education varies across regions, therefore ensuring that the supply of education is comparable for all individuals residing in the same area and that β only estimates differences in the demand for education. Since gender is not a choice variable, and also noting that religious affiliation, as ethnic affiliation, is mostly exogenous (Dev, Mberu & Pongou, 2011), the estimates of α strictly capture the causal effect of gender-related social and cultural characteristics on educational attainment. Thus, after controlling for a range of individual, household and community level factors, it is argued that the remaining gender differences in educational attainment across groups are due to affiliations to oppositional cultures that hinder the educational attainment of females in those respective groups. I also estimate equation (1) for each ethnic and religious group.

5. Results

Table 2 shows the Ordinary Least Squares (OLS) regression results from the estimation of equation (1). Column (I), which includes only gender, shows that females generally lag behind their male counterparts by an average of 0.006 years of education; however this is not statistically significant. Columns (II), (IV), (VI), (VIII), (X) and (XII) controls for a host of child (age, gender and relationship to household head), household (household head's age, education, gender,

religion, place of residence and wealth²²) and community (neighbourhood fixed effect²³) level characteristics to determine how much of this difference can be explained by the data. Column (II) reveals that the disadvantage of females relative to their male counterparts increases by an average of 0.264 years of education, indicating a lower demand of education on the part of the females. Column (IV) shows that there is no significant difference in the demand of education between the females and males of the Yoruba ethnic group after controlling for several child, household and community level factors, although prior to the controls being added in the estimation as evident in Column (III), Yoruba females happen to significantly outperform their male counterparts by an average of 0.480 years of education. Columns (V) and (VI) reveals that the Igbo females consistently and significantly outperform their male counterparts both before and after controls, by an average of 0.723 and 0.094 years of education, respectively. Columns (VII) and (VIII) show that Niger-Delta females actual do better than their male cohorts as evident in Column (VII) by a significant average of 0.795 years of education, however the magnitude of their advantage declines after controlling for child, household and community level factors. Though their advantage over their male counterparts remains positive at an average of 0.078 years of education, it is not significant, indicating that there is no significant difference in the demand for education between males and females in the Niger-Delta ethnic group. Columns (IX) and (X) show that females in the Middle-Belt generally lag behind their male counterparts. This is not significant in Column (IX), where they lag behind their male counterparts by an average of 0.193 years of education. It is significant in Column (X), as it can be seen that they significantly lag behind their male counterparts by an average of 0.518 years of education after controls are included, indicating a lower demand for education on the part of the females in this ethnic group. Columns (XI) and (XII) reveal that females from the Hausa/Fulani/Kanuri ethnic group, significantly and consistently lag behind their male counterparts. Column (XI) shows that females in this ethnic group lag behind their male counterparts by a significant average of 0.844 years of education prior to controlling for child, household and community level factors. Although the

²² It is well document that the parental socioeconomic status as determined by education and wealth is strongly correlated with child ability and can be used as a suitable proxy for child ability (Dev, Mberu & Pongou, 2011; Scott, 2004). Since education and wealth of household head are included in the econometric specification of this study, this should militate against endogeneity in terms of accounting for individual-child ability.

²³ Control for neighbourhood fixed effect is added to the estimation to militate against any sort of differences in educational attainment across gender owing to the supply of education, as this may vary across States or areas within a State, such as a neighbourhood. Therefore, given the unavailability of data on the supply of education, control neighbourhood fixed effect is added to the list of controls in respective estimations, relying on the assumption that individuals living in the same neighbourhood would most likely have equal access to the same educational infrastructure or facility supplied by the federal government, the State or any other organization.

magnitude of the disadvantage declines to an average of 0.550 years of education, as evident in Column (XII) after controlling for child, household and community level factors, the difference is still highly significant. Columns (X) and (XI) indicate that females are hindered in terms of educational attainment particularly amongst the Middle-Belt and Hausa/Fulani/Kanuri ethnic groups.

5.1 A Closer gaze at Gender Differences in Educational Attainment: Are the conditions of females worse off in a particular religion?

In order to control for common religious factors inherent in either Christianity or Islam that hinder female education, an estimation of equation (1) is separately replicated for Christian and Muslim individuals as shown in Tables (3) and (4), respectively. From Column (II) of Table (3), it can be inferred that the disadvantage of females relative to males declines by magnitude for Christian females, as these groups of females lag behind their male counterparts by an average of only 0.065 years of education. The Yoruba females lag behind their male counterparts (Column (IV)) by an average of 0.032 years of education; however, this outcome is not significant and once again, indicates no significant differences in educational attainment between the males and females of the Yoruba ethnic group. Between the Igbos, the females once again outperform their male counterparts (Column (VI)) with a significant average of 0.097 years of education. Among the Niger-Delta ethnic group the females are at an advantage over the males (Column (VIII)) with an insignificant average of 0.080 years of education, again indicative of no significant difference in educational attainment between the males and females in this ethnic group. Females in the Middle-Belt ethnic group continue to lag behind their male counterparts (Column (X)) with an average of 0.518 years of education, and this is highly significant. On the other hand, females among the Hausa/Fulani/Kanuri tend to do just as well as their Christian male counterparts (Column (XII)) with an insignificant average of 0.065 years of education, indicating that there is no significant difference in educational attainment between males and females from the Hausa/Fulani/Kanuri ethnic group who are Christians.

From Column (II) of Table (4), it can be simply inferred that the disadvantage of Muslim females in general relative to their male counterparts increases in magnitude well above the general average (0.264 years of education, Column (II) of Table 2), with female Muslims significantly lagging behind their male counterparts by an average of 0.475 years of education. Between the Yorubas, females tend to lag behind their male counterparts (Column (IV)), with an insignificant average of 0.092 years of education, indicating yet again that there happens to be no

significant differences in educational attainment among the Yoruba males and females. Between the Igbos, the females tend to lag behind their male counterparts (Column (VI)) by an average of 0.449 years of education; however this is insignificant, indicating that among the males and females from the Igbo ethnic group who are Muslims, there happen to be no significant differences in terms of educational attainment. In the Niger-Delta, females also trail behind their male counterparts (Column (VIII)); this estimate also happens to be insignificant, indicating that there is no significant difference in educational attainment between the males and females in this ethnic group. However, amongst the Middle-Belt and Hausa/Fulani/Kanuri ethnic groups, females continue to lag behind their male counterparts (Columns (X) and (XII)) by a significant average of 0.507 and 0.558 years of education, respectively.

Besides the outcome in Column (XII) of Table (3), going by Tables (2), (3) and (4), the females amongst the Middle-Belt and Hausa/Fulani/Kanuri ethnic groups have consistently and significantly lagged behind their male counterparts as opposed to the females amongst the Yoruba, Igbo and Niger-Delta ethnic groups. Table (5) represents the general differences in educational attainment by religion. As noted earlier, although female Christians generally lag behind their male counterparts (by 0.068 years of education, as in Column (IV)), the magnitude by which Muslim females lag behind their own male counterparts is substantially larger (by 0.472 years of education, as in Column (VI)) and far below the general average of 0.264 years of education, as in Column (II)).

On another note, one elusive limitation to this study can be ascribed to the omission of the “age at first marriage” variable. Although this variable would not have changed the direction of the outcomes in this study, it has been found to largely explain differences in educational attainment, mostly among female groups (Raymo, 2003; Takyi & Addai, 2002; Csapo, 1981). However, in light of similar studies in the future, it is advisable that this variable be included.

6. Conclusion and recommendations

It is evident from this study that though many literatures reveal a higher educational advancement level for females as opposed to their male peers in industrialized economies, this is not necessarily the general case in sub-Saharan Africa and more precisely, in Nigeria. Nonetheless, in the case of Nigeria, the within group differences vary substantially, so that in some ethnic groups such as the Yoruba, Igbo and Niger-Delta ethnic groups, the females are considerably at par with their male counterparts thereby, mimicking the outcomes of studies done based on similar prognosis in the developed world, while the females from the Middle-Belt and

Hausa/Fulani/Kanuri ethnic groups on the other hand, significantly lag behind their respective male counterparts. In terms of religious affiliations, females generally lag behind their male peers in both the Christian and Muslim religious groups, but the disadvantage of females among Muslims is greater than among Christians. Outcomes among religious groups also vary substantially by ethnicity, as females in almost all ethnic groups (Yoruba, Igbo, Niger-Delta), including females from the Hausa/Fulani/Kanuri ethnic group (with exception to females from the Middle-Belt ethnic group) who are members of the Christian faith are considerably at par with their respective male counterparts, as opposed to their female counterparts who are Muslims from the Middle-Belt and Hausa/Fulani/Kanuri ethnic groups who significantly lag behind their male peers.

An interesting observation, however, is that females who are Muslims from the Yoruba, Igbo and Niger-Delta ethnic groups happen to be at par with their male counterparts in terms of educational attainment. This reinforces one of the key predictions of the Dev, Mberu & Pongou (2011) model, whereby they note that “an individual may belong to a social group without necessarily adhering to its core values when these are in opposition to mainstream values” (p. 22).

All in all, it is clearly evident from the 2008 Nigerian DHS that religious and ethnic affiliations have an impact on gender differences in educational attainment. The findings in this study tend to be in line with many others but most particularly with the findings and predictions of Dev, Mberu & Pongou (2011), as it is evident in their study as well as this, that the Yoruba ethnic group happen to be the best off group, while the Hausa/Fulani/Kanuri are the worst off group in terms of educational attainment. In addition, the females of the Hausa/Fulani/Kanuri ethnic group are the worse off group in terms of educational attainment, while the Yoruba females are the best off. Among the males, the Igbo and Yorubas are comparable in terms of educational attainment; however the Niger-Delta, Middle-Belt and most particularly, the Hausa/Fulani/Kanuri males all significantly lag behind their Yoruba peers, with the Hausa/Fulani/Kanuri males being the worst off group.

If the opening remark and quote by Malcolm X in this article can be likened to both individuals and nations alike, then it can be said that poor educational (planning or) levels in any nation can simply be inferred as failing to prepare for future economic advancement. The government along with other organizations responsible for administering education in Nigeria should work towards establishing and implementing quality as well as effective policies aimed at improving the educational system in the country, especially in the northern States. Though the

Nigerian government has in the past taken certain steps in improving the level of literacy, quality and equality of education in the country, a lot still needs to be done. Programmes such as the UBE should be reinvigorated to efficiently achieve their supposed objective. Policies are to be seriously aimed at reducing (if not eradicating) the prevailing educational gender gap amongst the Middle-Belt and Hausa/Kanuri/Fulani ethnic groups, as educational expansion to girls in particular is crucial to economic growth (Benavot, 1989²⁴). With timely and well-articulated policies that blend with religious teaching, aimed at correcting the misperception of formal education especially among the Muslims, the general level of education in the country could increase, with even more significant increases in females' education in the north. As Adamu (n.d.) cites that the proliferation of *Islamiyya* Schools (mixed schools with strong Islamic influence) shows conclusively that when Western education is mixed with Arabic and Islamic religious teaching, it is readily acceptable among Muslim societies. This is very much evident in the work of Hajj & Panizza (2008), where they analyze a similar issue as this study in the context of Lebanon (a country with both a large Muslim and relatively significant Christian population). They essentially find that in a relatively "westernized" Islamic society such as that of Lebanon, girls (both Muslim and Christian) tend to outperform boys in terms of educational attainment. Nonetheless, in terms of the general level of education in Nigeria, investment in teachers and educational infrastructures would definitely go a long way in promoting the general level of education. As Adepoju & Fabiyi (2007) note that Nigerian teachers are poorly motivated and that educational infrastructures are in dysfunctional conditions.

The government should constantly make efforts in fostering and promoting impeccable educational guidelines that promote education not just across gender but also across all groups. As Abraham Lincoln once said in his famous 1858 "House Divided" speech, "A house divided against itself cannot stand. I believe this government cannot endure permanently half slave and half free. . . It will become all one thing, or all the other." (Lincoln's "House Divided" Speech, 1858, para. 3); so also Nigeria cannot efficiently make use of her human resources in order to achieve sustainable long-term economic growth if some girls (or women) are less educated than some boys (or men) and some groups are overly educated compared to others. Moreover, it is the responsibility of a government to provide quality education to its citizens and also ensure that every single individual possesses an equal opportunity in acquiring this education.

²⁴ Benavot (1989) analyzed cross-national data on 96 countries from 1960 to 1985 and found clear evidence that in less-developed countries, especially some of the poorest, educational expansion among school-age girls at the primary level has a stronger effect on long-term economic prosperity than does educational expansion among school-age boys.

Conclusively, it is well known that human capital development is vital to the economic growth and stability of any nation. Therefore, designing and implementing effective educational strategies that promote the reach of quality education to all and sundry is vital to economic development and to both national and international peace and progress.

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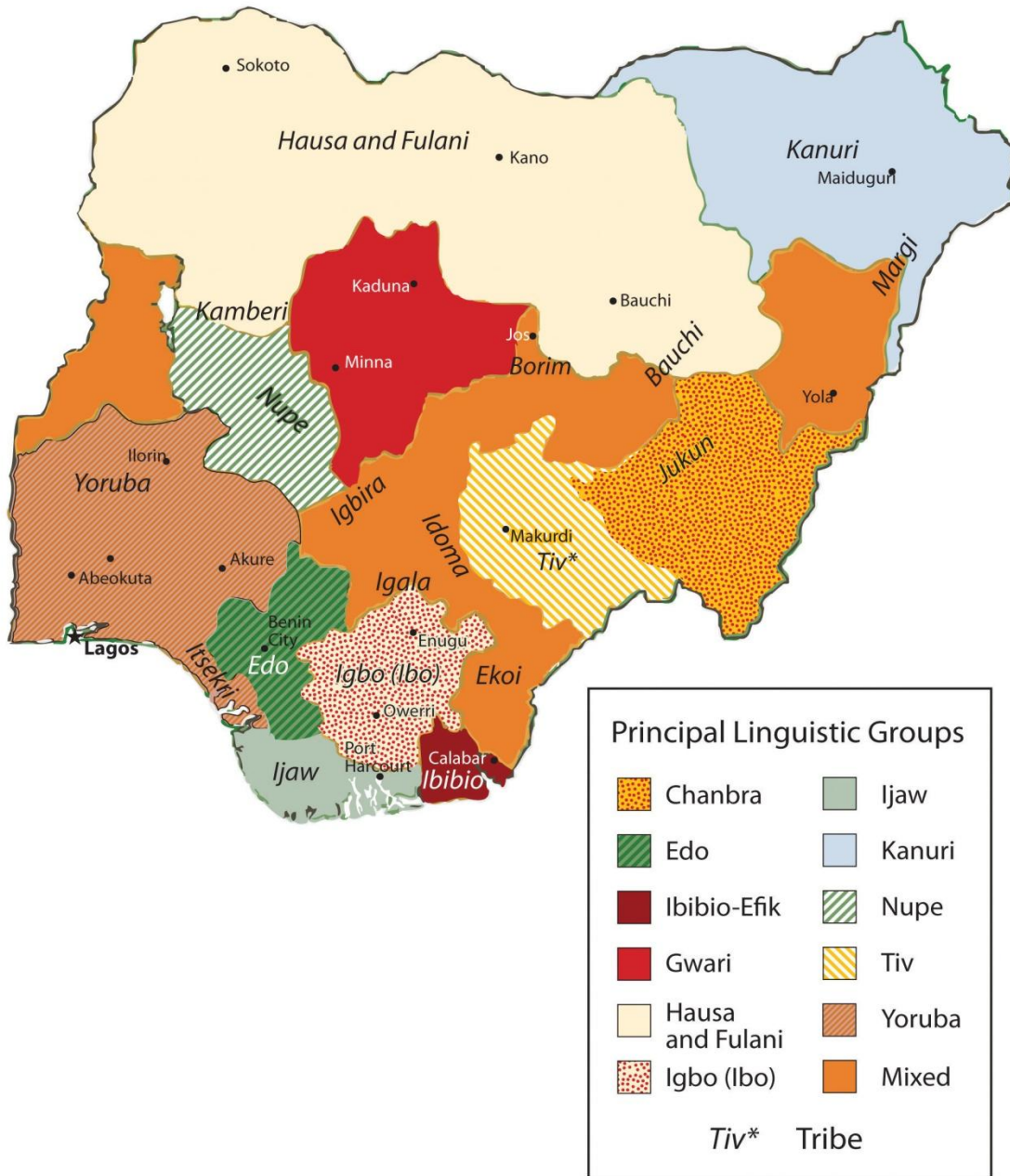
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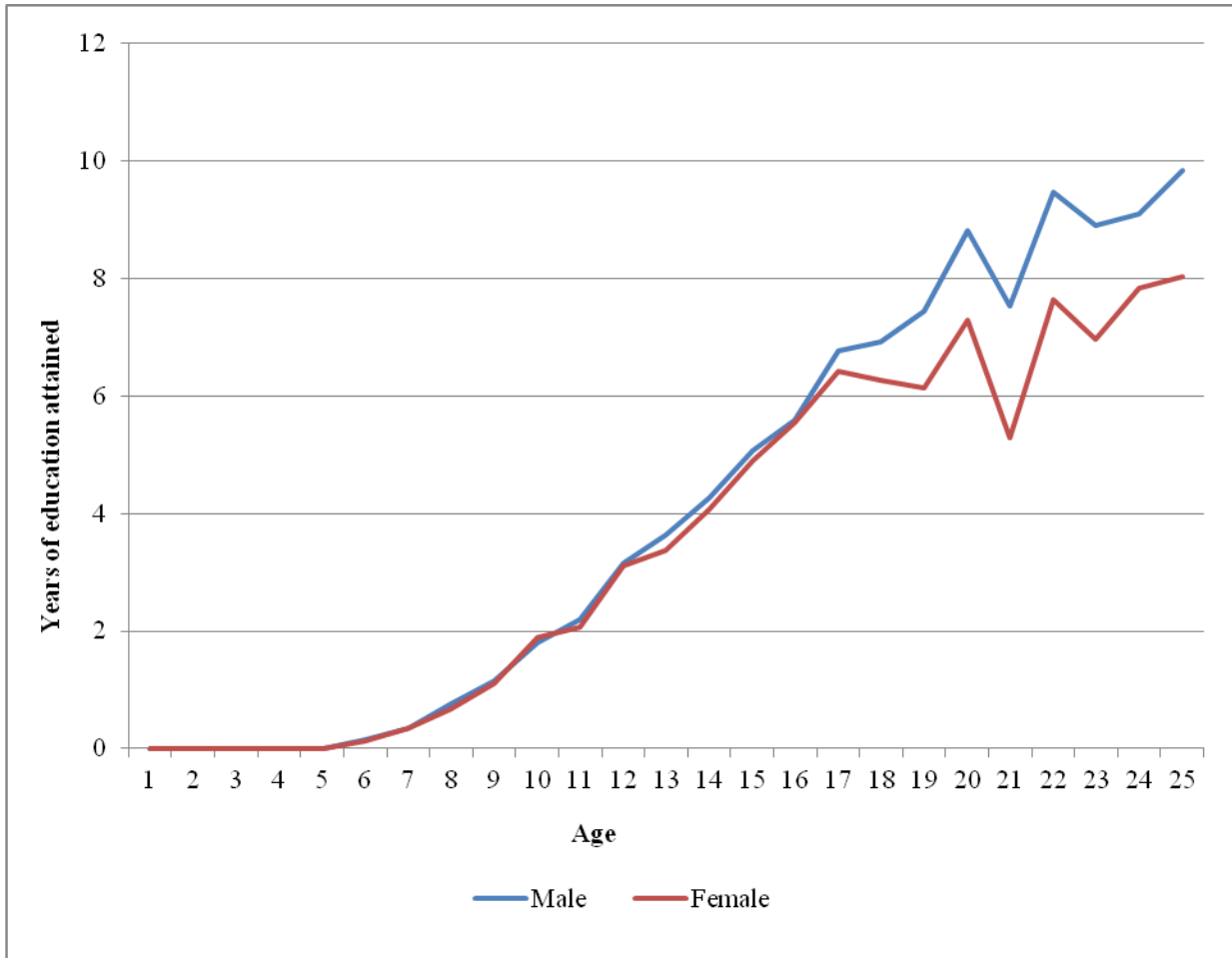
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Linguistic and Ethnic Map of Nigeria



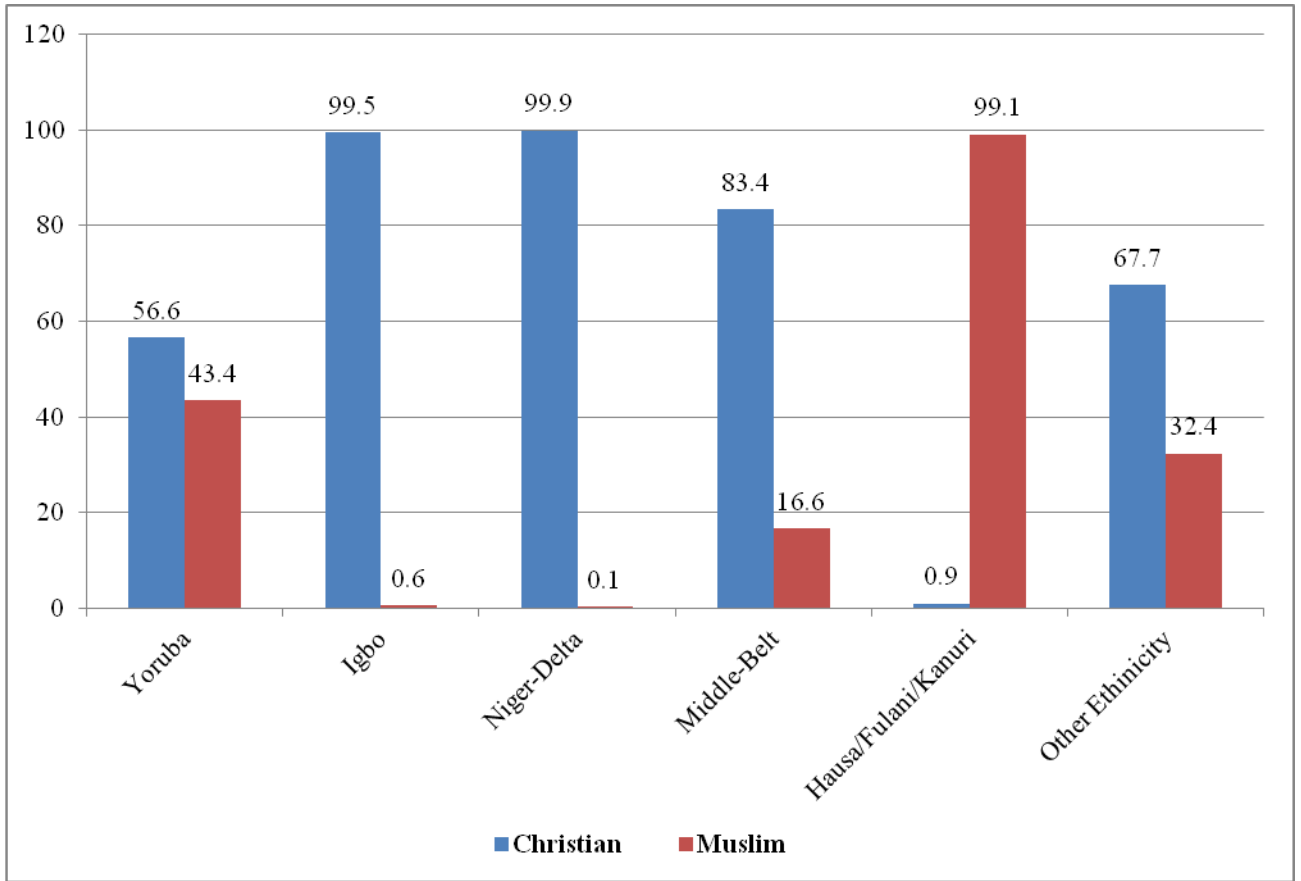
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Figure 1: Average years of education acquired by age and gender



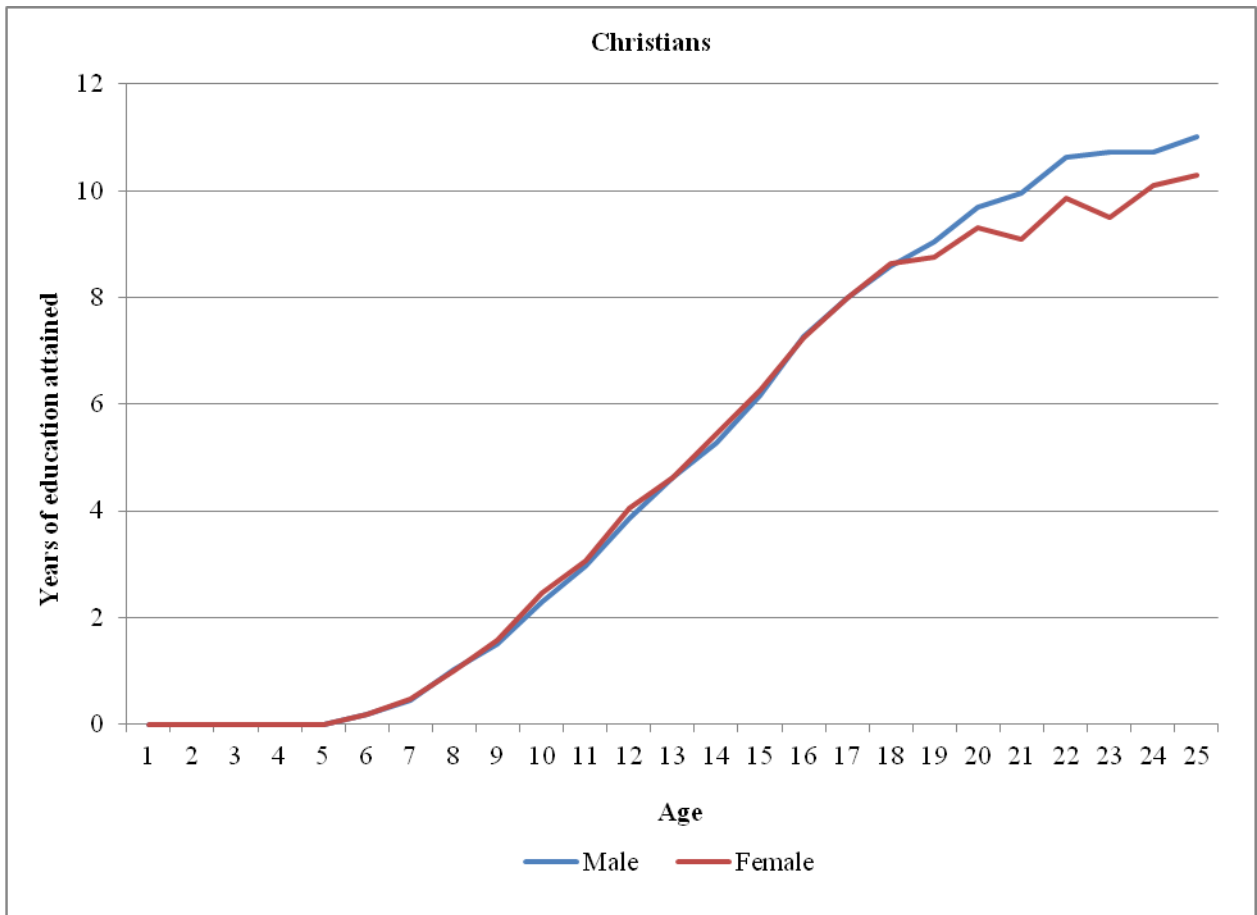
Data Source: Authors' estimates from the 2008 Demographic and Health Surveys

Figure 2: Distribution of Christians and Muslims across ethnic groups in Nigeria, 5 - 24 year olds



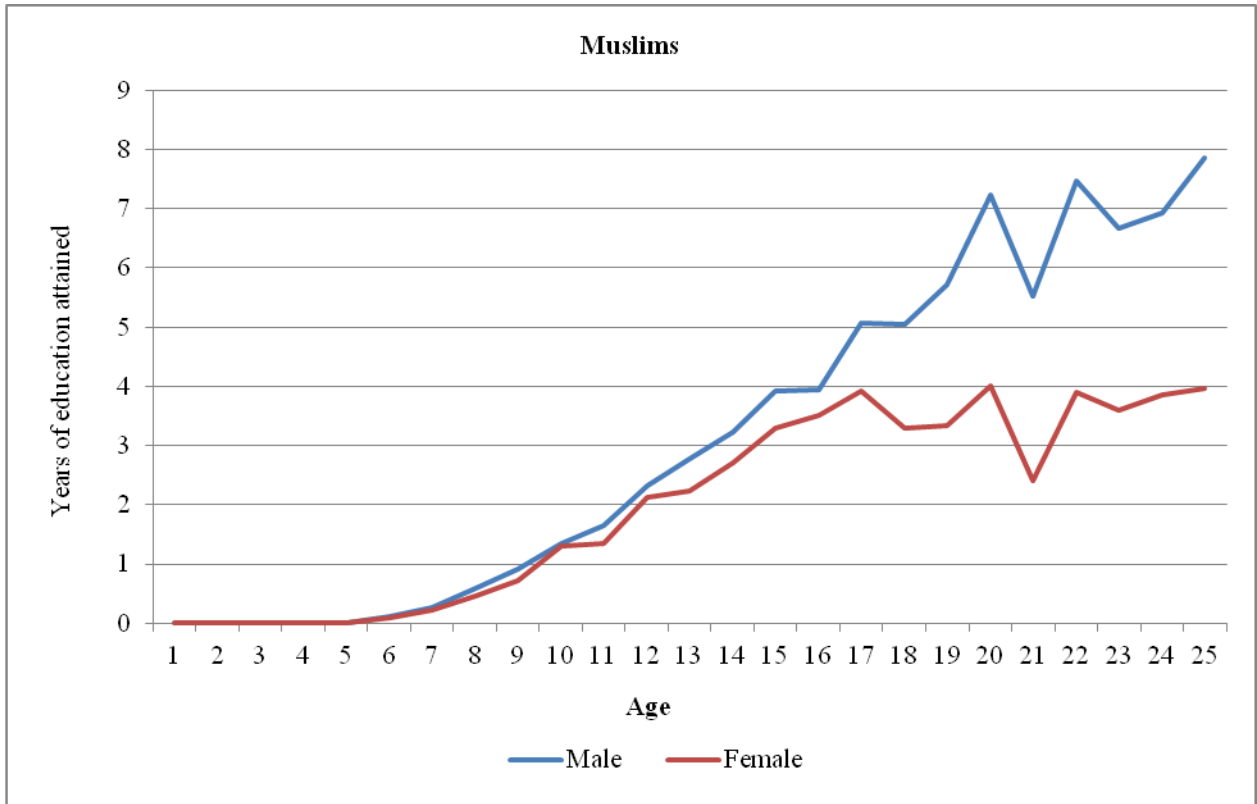
Data Source: Authors' estimates from the 2008 Demographic and Health Surveys

Figure 3: Average years of education acquired by age and gender



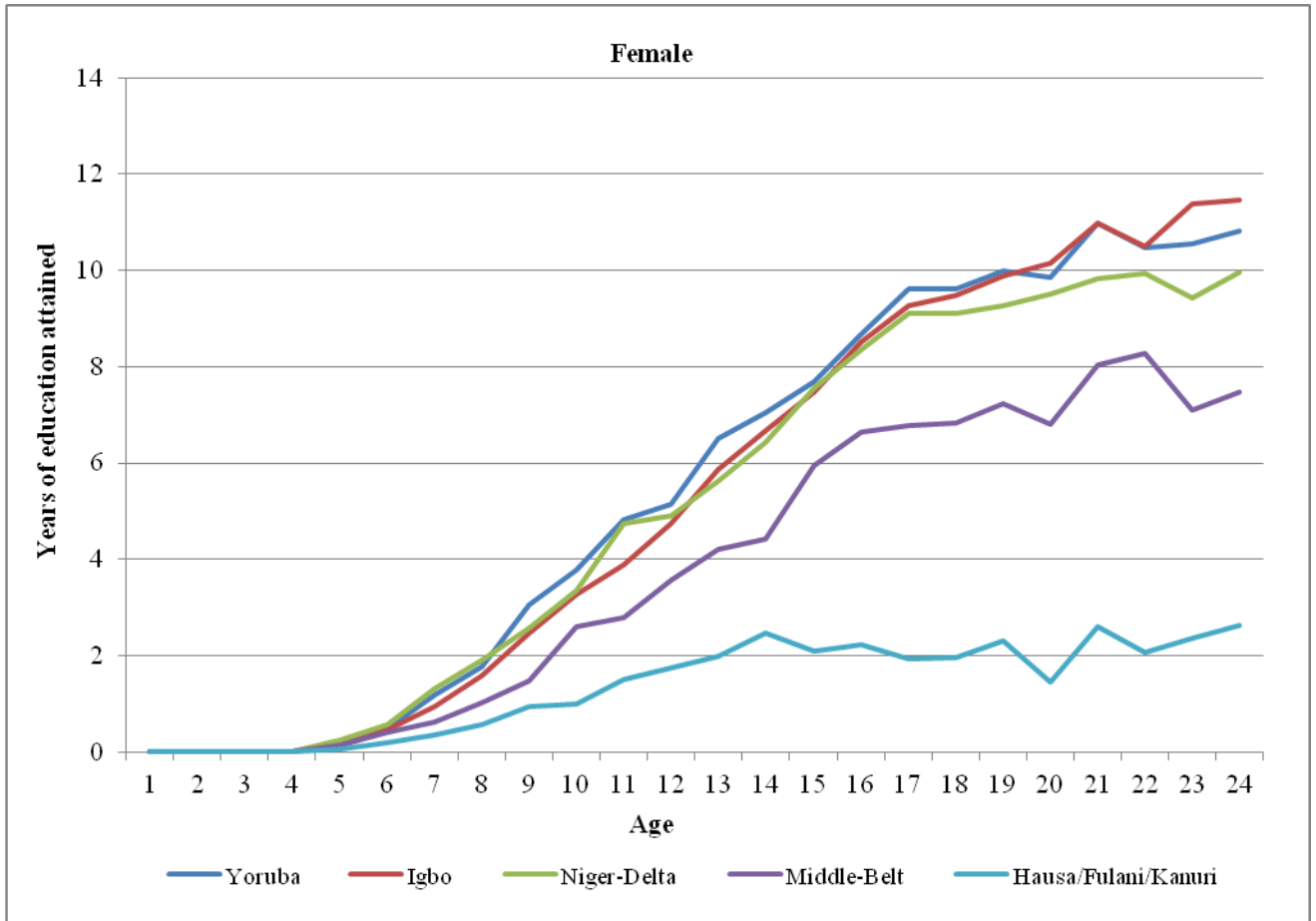
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Figure 4: Average years of education acquired by age and gender



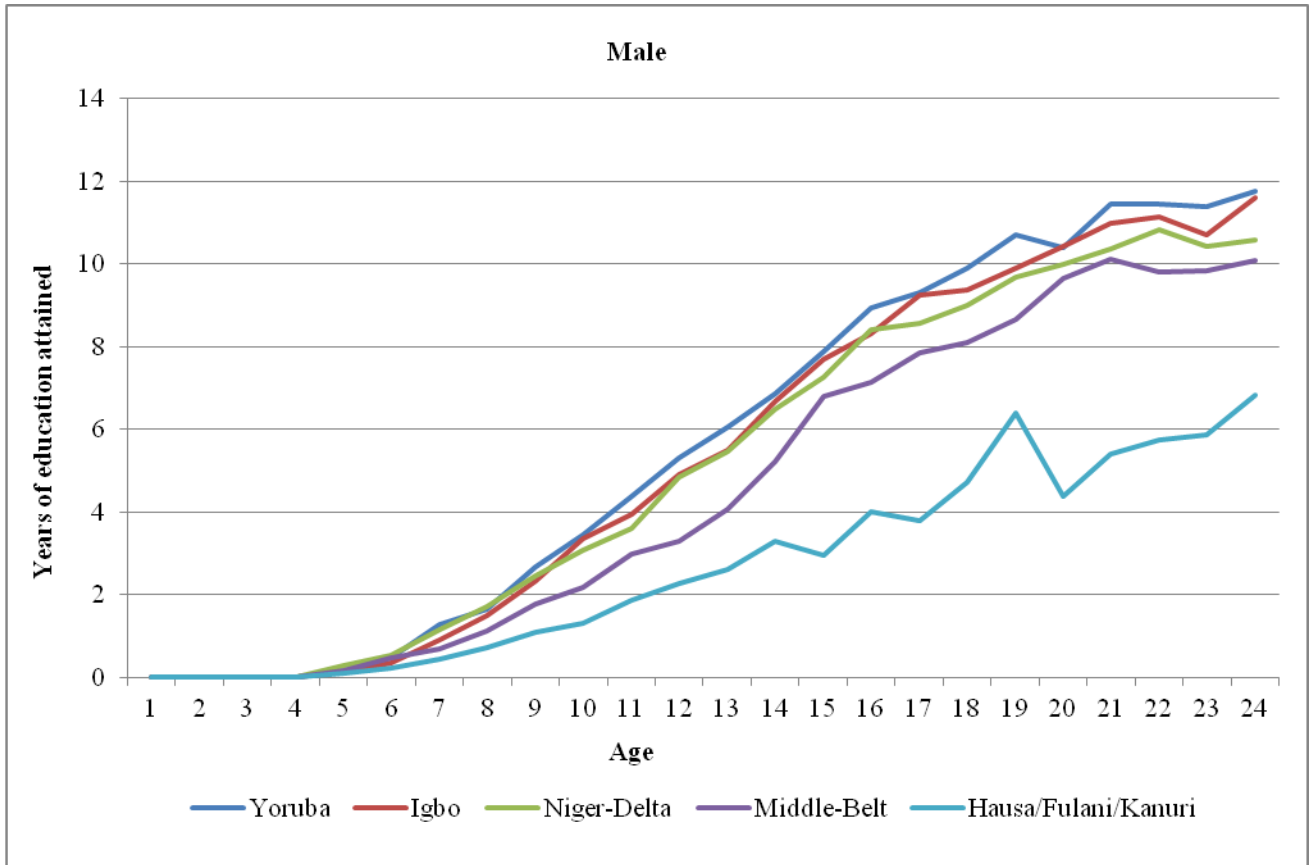
Data Source: Authors' estimates from the 2008 Demographic and Health Surveys

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



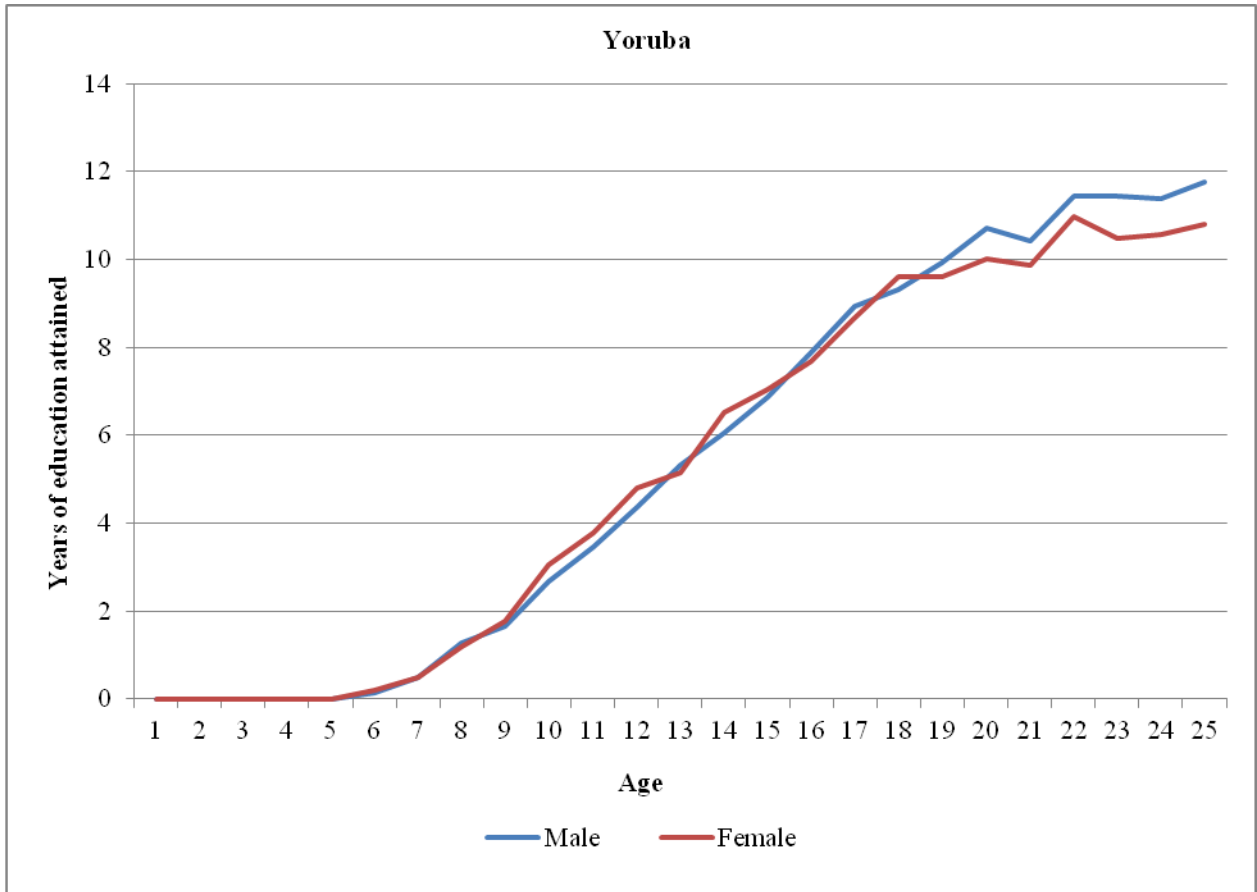
Data Source: Authors' estimates from the 2008 Demographic and Health Surveys

Figure 6: Average years of education acquired by age and ethnicity



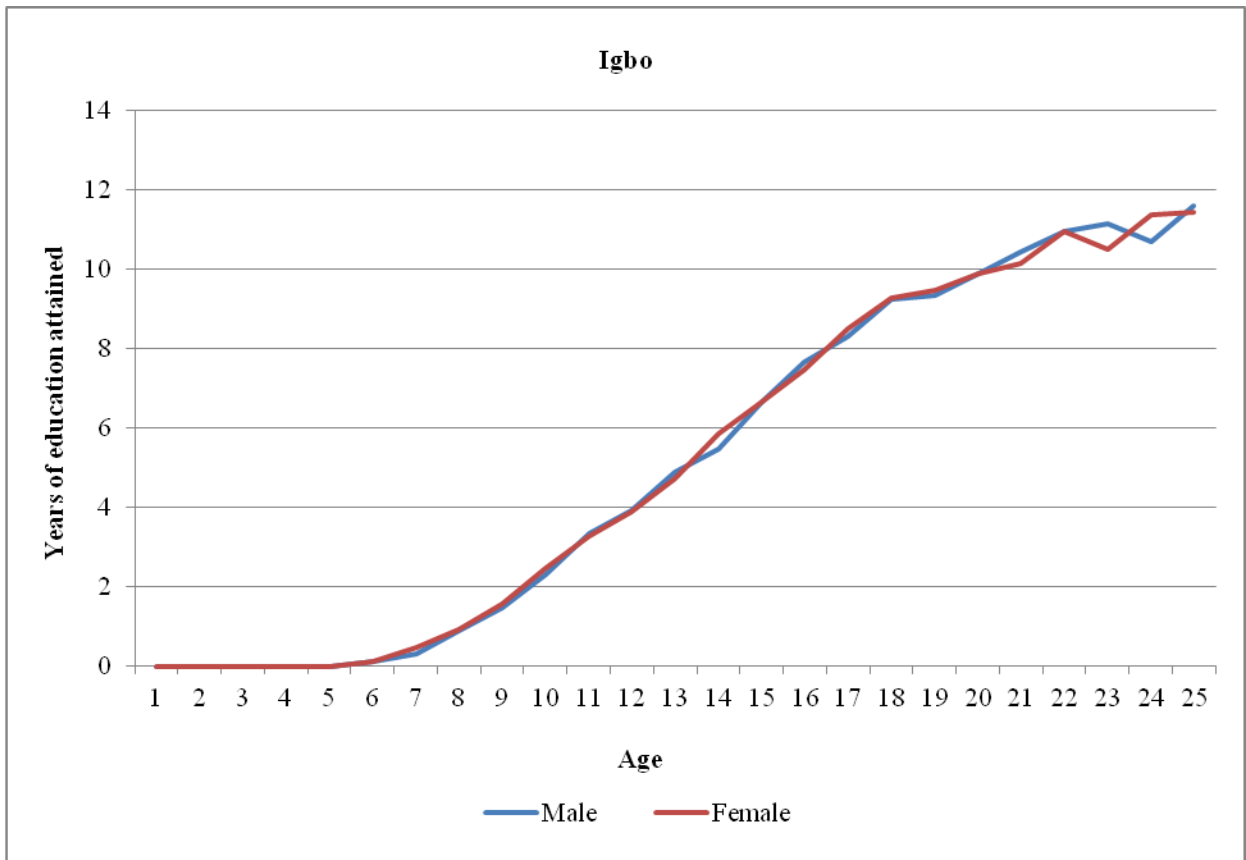
Data Source: Authors' estimates from the 2008 Demographic and Health Surveys

Figure 7: Average years of education acquired by age and gender



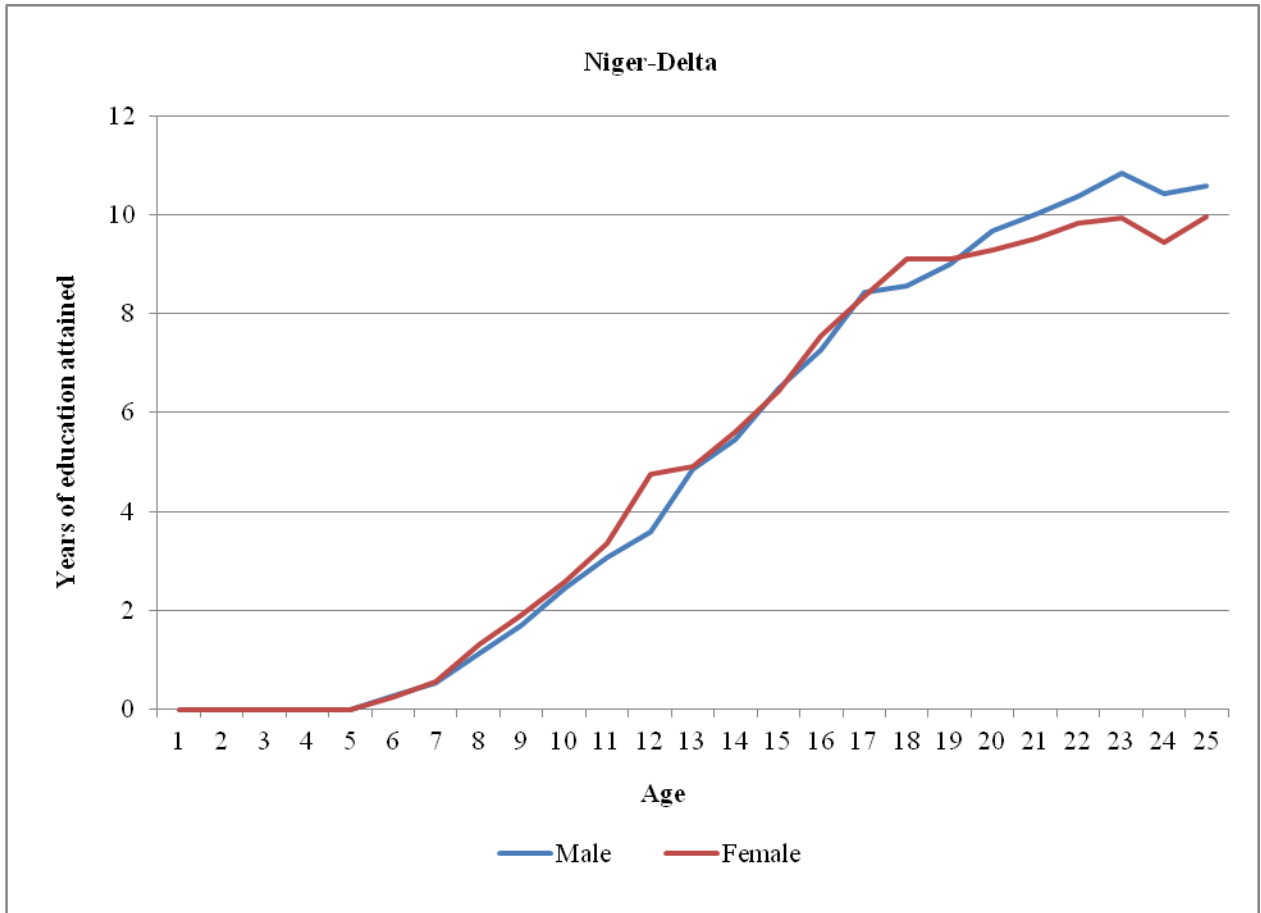
Data Source: Authors' estimates from the 2008 Demographic and Health Surveys

Figure 8: Average years of education acquired by age and gender



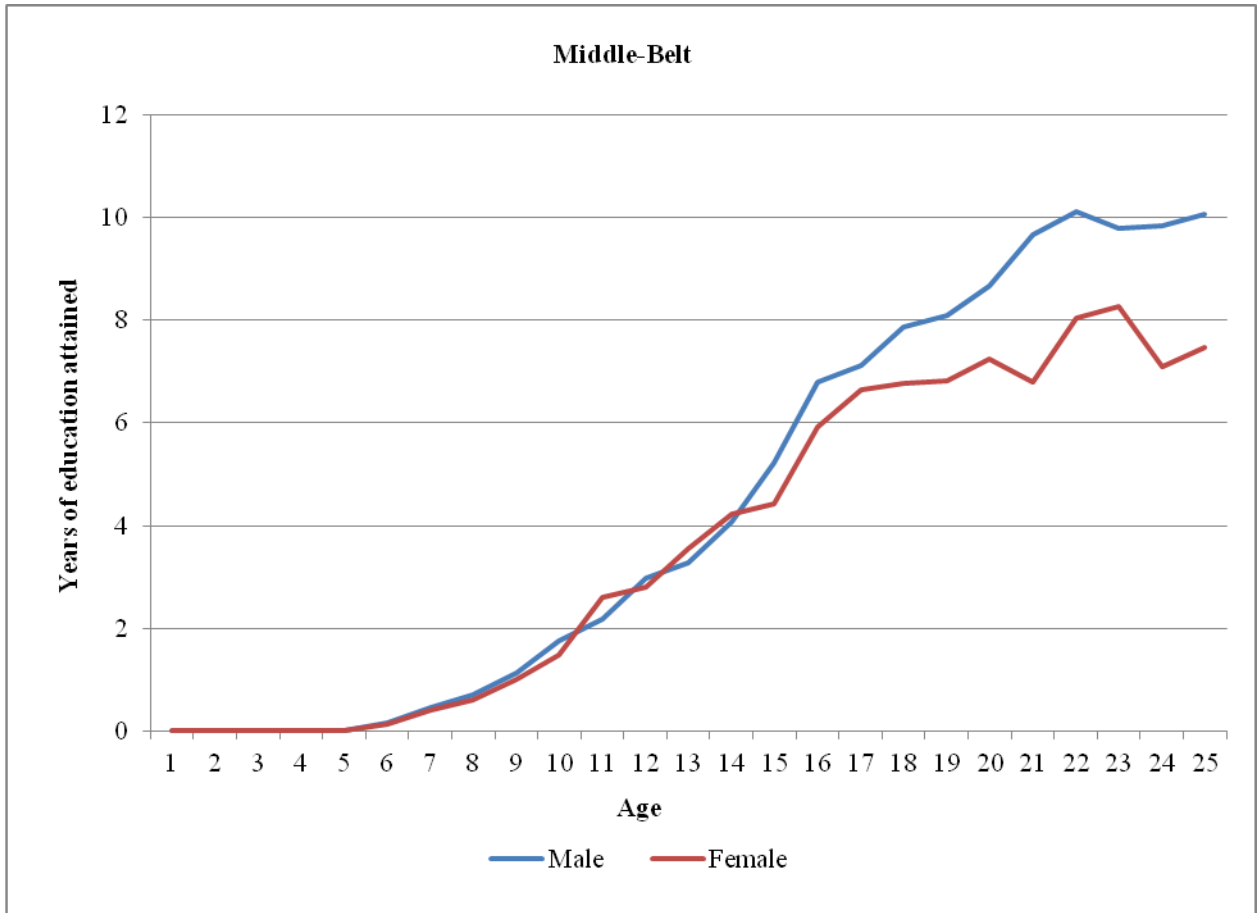
Data Source: Authors' estimates from the 2008 Demographic and Health Surveys

Figure 9: Average years of education acquired by age and gender



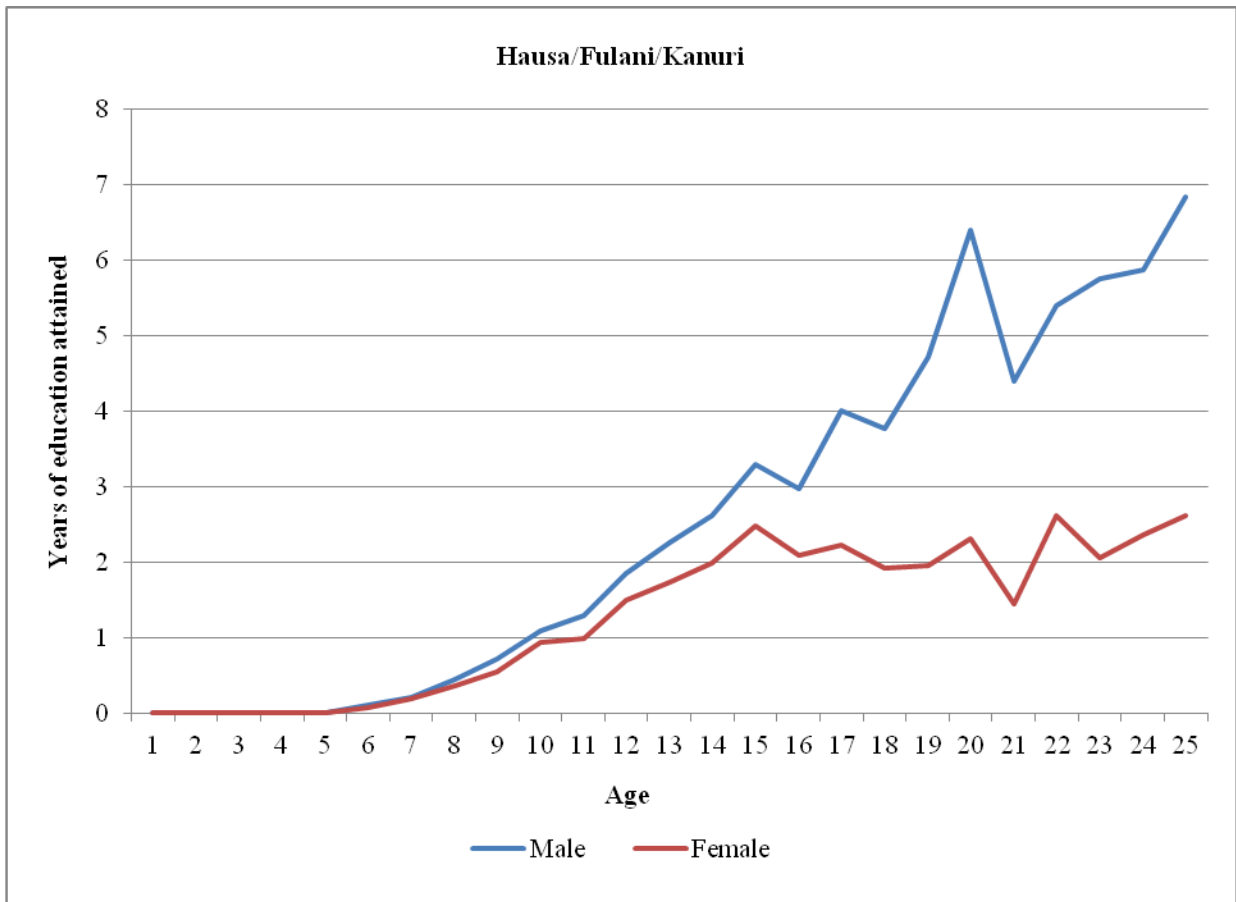
Data Source: Authors' estimates from the 2008 Demographic and Health Surveys

Figure 10: Average years of education acquired by age and gender



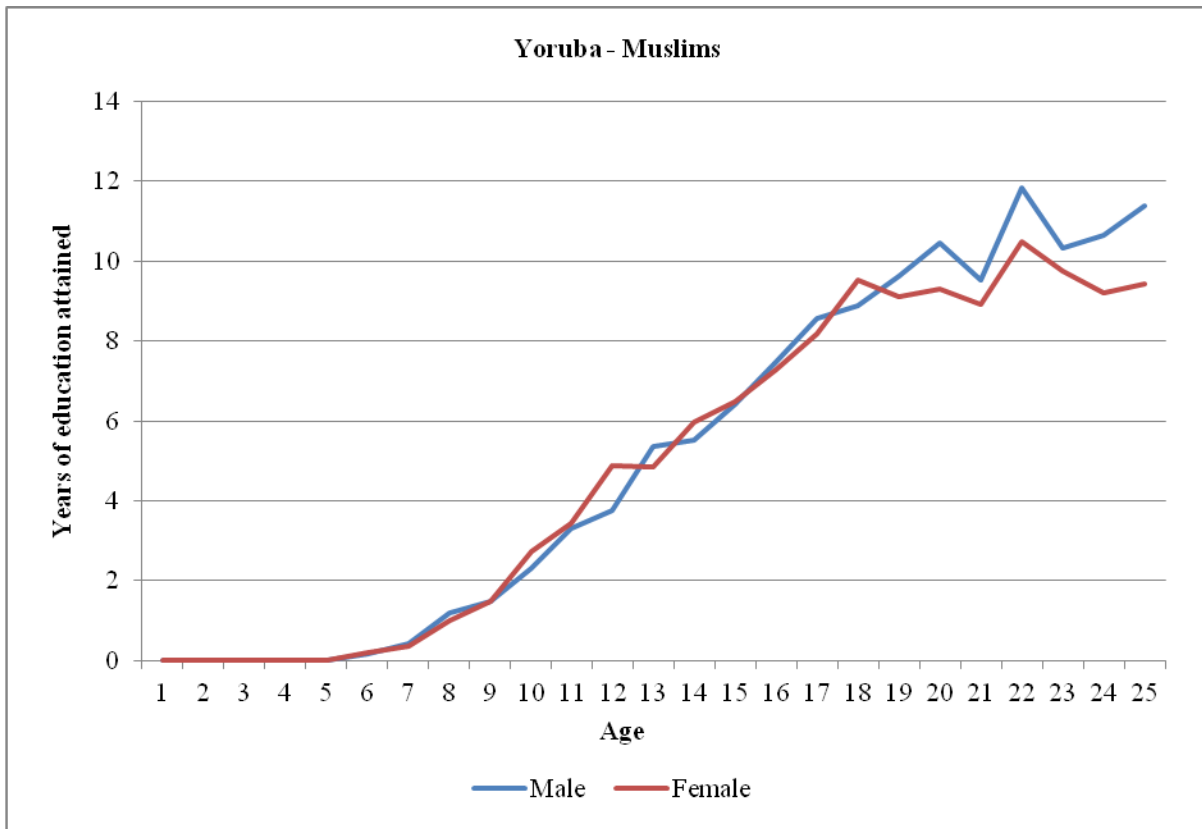
Data Source: Authors' estimates from the 2008 Demographic and Health Surveys

Figure 11: Average years of education acquired by age and gender



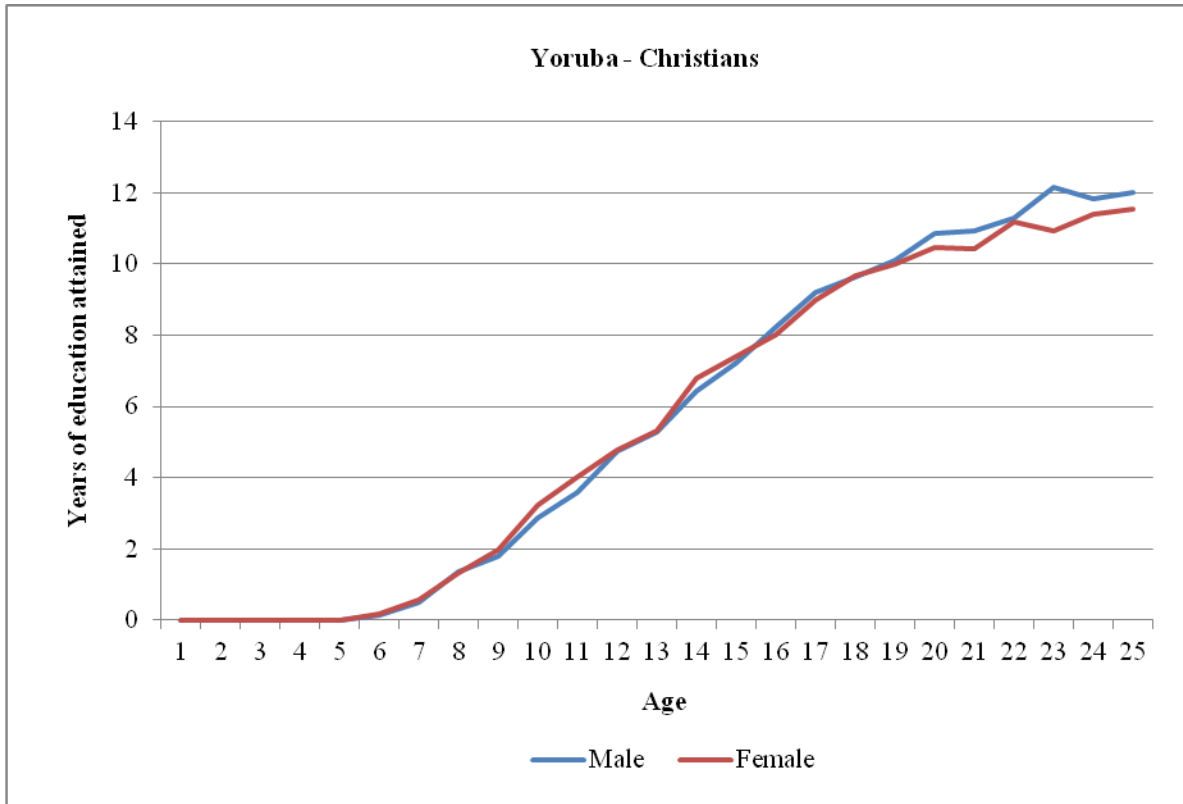
Data Source: Authors' estimates from the 2008 Demographic and Health Surveys

Figure 12: Average years of education acquired by age and gender



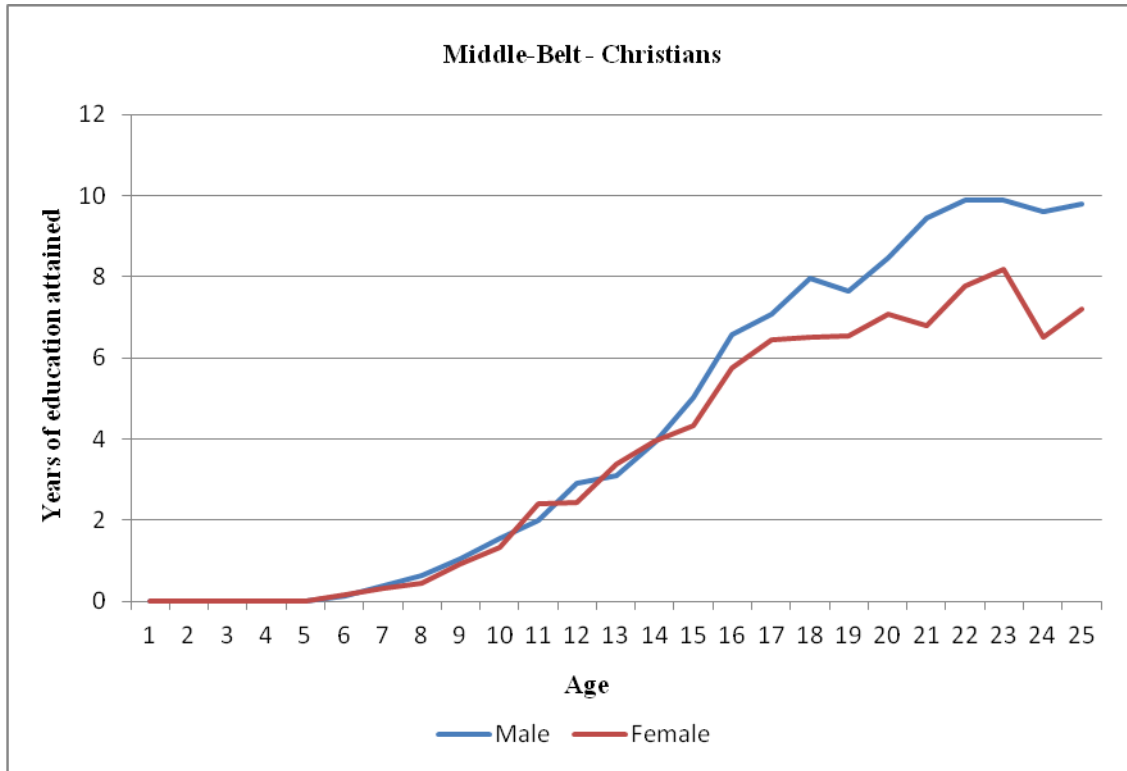
Data Source: Authors' estimates from the 2008 Demographic and Health Surveys

Figure 13: Average years of education acquired by age and gender



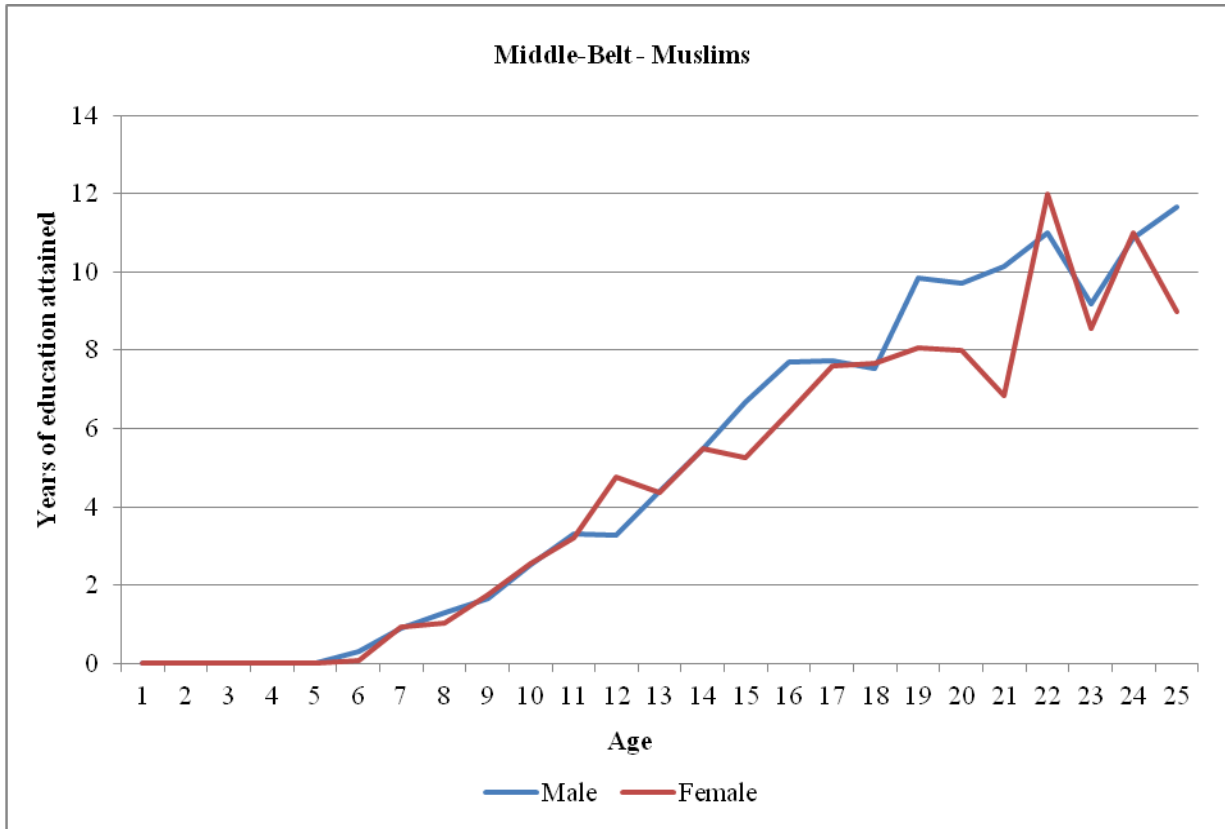
Data Source: Authors' estimates from the 2008 Demographic and Health Surveys

Figure 14: Average years of education acquired by age and gender



Data Source: Authors' estimates from the 2008 Demographic and Health Surveys

Figure 15: Average years of education acquired by age and gender



Data Source: Authors' estimates from the 2008 Demographic and Health Surveys

Table 1: Weighted Summary Statistics

Variables	All		Yoruba		Igbo		Niger-Delta		Middle-Belt		Hausa/Fulani/Kanuri		Other ethnicity																	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female																
	Mean	S.D	Mean	S.D	Mean	S.D	Mean	S.D	Mean	S.D	Mean	S.D	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 groups																														
Yoruba	0.154	0.361	0.155	0.362	1.000	0.000	1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Igbo	0.131	0.337	0.139	0.346	0.000	0.000	0.000	0.000	1.000	0.000	1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Niger-Delta	0.068	0.252	0.070	0.256	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Middle-Belt	0.044	0.205	0.042	0.201	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Hausa/Fulani/Kanuri	0.344	0.475	0.339	0.473	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Other ethnicity	0.260	0.439	0.255	0.436	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	1.000	0.000	0.000	
Religion																														
Christian	0.494	0.500	0.513	0.500	0.549	0.498	0.583	0.493	0.993	0.082	0.996	0.065	0.999	0.030	0.999	0.028	0.841	0.365	0.827	0.379	0.008	0.087	0.010	0.098	0.664	0.472	0.689	0.463	0.000	0.000
Muslim	0.506	0.500	0.487	0.500	0.451	0.498	0.417	0.493	0.007	0.082	0.004	0.065	0.001	0.030	0.001	0.028	0.159	0.365	0.173	0.379	0.992	0.087	0.990	0.098	0.336	0.472	0.311	0.463	0.000	0.000
Child characteristics																														
Age	12.303	5.358	13.243	5.718	12.715	5.412	13.609	5.715	13.013	5.513	14.050	5.779	12.894	5.410	14.145	5.778	12.677	5.565	13.436	5.599	11.609	5.157	12.426	5.581	12.400	5.355	13.383	5.732	0.000	0.000
Years of education	4.024	4.195	4.018	4.370	5.566	4.372	6.046	4.447	5.593	4.328	6.316	4.482	5.263	4.135	6.058	4.178	4.391	4.072	4.198	3.914	2.248	3.457	1.404	2.816	4.285	4.075	4.412	4.276	0.000	0.000
Biological child of household head (HH)	0.831	0.375	0.667	0.471	0.810	0.393	0.711	0.453	0.812	0.391	0.683	0.465	0.746	0.435	0.624	0.485	0.743	0.437	0.612	0.487	0.892	0.310	0.652	0.476	0.808	0.394	0.673	0.469	0.000	0.000
Household characteristics																														
HH is male	0.868	0.338	0.842	0.365	0.824	0.381	0.775	0.417	0.772	0.420	0.739	0.439	0.739	0.439	0.736	0.441	0.829	0.377	0.811	0.392	0.954	0.209	0.944	0.230	0.869	0.337	0.839	0.368	0.000	0.000
HH's age	47.707	12.941	45.402	13.933	49.036	12.904	48.086	13.992	49.895	12.862	48.699	14.167	46.277	13.072	44.236	13.833	46.399	14.934	44.862	15.077	47.210	12.266	43.061	13.072	47.075	13.279	45.494	14.065	0.000	0.000
HH has no education	0.009	0.093	0.004	0.063	0.001	0.034	0.001	0.027	0.000	0.000	0.000	0.017	0.001	0.024	0.000	0.016	0.002	0.040	0.001	0.038	0.021	0.143	0.010	0.101	0.005	0.072	0.001	0.032	0.000	0.000
HH has primary education	0.004	0.063	0.002	0.050	0.003	0.055	0.003	0.054	0.002	0.044	0.002	0.045	0.004	0.063	0.005	0.071	0.007	0.085	0.007	0.082	0.006	0.074	0.001	0.037	0.003	0.055	0.003	0.051	0.000	0.000
HH has secondary education	0.010	0.099	0.009	0.095	0.009	0.093	0.009	0.093	0.009	0.092	0.014	0.119	0.023	0.150	0.034	0.180	0.028	0.165	0.011	0.104	0.004	0.062	0.001	0.031	0.013	0.112	0.011	0.102	0.000	0.000
HH has university education	0.001	0.030	0.004	0.062	0.001	0.037	0.008	0.091	0.001	0.024	0.009	0.094	0.000	0.017	0.003	0.055	0.002	0.040	0.001	0.035	0.000	0.018	0.000	0.014	0.002	0.039	0.004	0.061	0.000	0.000
Urban place of residence	0.328	0.470	0.334	0.472	0.562	0.496	0.573	0.495	0.519	0.500	0.514	0.500	0.207	0.405	0.206	0.405	0.201	0.401	0.238	0.426	0.257	0.437	0.235	0.424	0.242	0.428	0.272	0.445	0.000	0.000
Wealth	0.042	1.015	0.069	1.028	0.764	0.904	0.802	0.884	0.653	0.921	0.674	0.934	0.172	0.906	0.222	0.896	-0.380	0.798	-0.340	0.854	-0.422	0.861	-0.460	0.831	-0.041	0.964	0.021	1.001	0.000	0.000
Observations	29,024		31,520		3,537		3,919		3,300		3,866		1,919		2,177		1,373		1,425		9,981		10,650		8,914		9,483			

Table 2: OLS, cross-gender differences in years of education within each ethnic group

	All sample		Yoruba		Igbo		Niger-Delta		Middle-Belt		Hausa/Fulani/Kanuri	
	(I)	(II)	(III)	(IV)	(V)	(VI)	(VII)	(VIII)	(IX)	(X)	(XI)	(XII)
Female	-0.006	-0.264	0.480	-0.072	0.723	0.094	0.795	0.078	-0.193	-0.518	-0.844	-0.550
	(0.038)	(0.021)**	(0.110)**	(0.049)	(0.112)**	(0.046)*	(0.141)**	(0.071)	(0.157)	(0.084)**	(0.048)**	(0.036)**
Controls	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES
Neighborhood fixed effect	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES
Observations	60,544	60,544	7,456	7,456	7,166	7,166	4,096	4,096	2,798	2,798	20,631	20,631
R ²	0.000	0.662	0.003	0.786	0.007	0.825	0.009	0.746	0.001	0.685	0.018	0.421

Note: Robust standard errors are in brackets and all estimates are weighted. Controls include child characteristics and household characteristics and the variable ‘Urban’ is dropped after controlling for neighborhood fixed effects because neighborhood totally accounts for that variable. *significant at 5%; **significant at 1%.

Table 3: OLS, cross-gender differences in years of education within each ethnic group for Christian

	Christian											
	All sample		Yoruba		Igbo		Niger-Delta		Middle-Belt		Hausa/Fulani/Kanuri	
	(I)	(II)	(III)	(IV)	(V)	(VI)	(VII)	(VIII)	(IX)	(X)	(XI)	(XII)
Female	0.547	-0.065	0.429	-0.032	0.722	0.097	0.796	0.080	-0.122	-0.518	0.210	0.065
	(0.055)**	(0.026)*	(0.144)**	(0.061)	(0.112)**	(0.046)*	(0.141)**	(0.071)	(0.170)	(0.091)**	(0.631)	(0.361)
Controls	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES
Neighborhood fixed effect	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES
Observations	29,669	29,669	4,405	4,405	7,117	7,117	4,090	4,090	2,332	2,332	168	168
R ²	0.004	0.765	0.002	0.815	0.007	0.826	0.009	0.746	0.000	0.688	0.001	0.803

Note: Robust standard errors are in brackets and all estimates are weighted. Controls include child characteristics and household characteristics and the variable ‘Urban’ is dropped after controlling for neighborhood fixed effects because neighborhood totally accounts for that variable. *significant at 5%; **significant at 1%.

Table 4: OLS, cross-gender differences in years of education within each ethnic group for Muslims

	Muslim											
	All sample		Yoruba		Igbo		Niger-Delta		Middle-Belt		Hausa/Fulani/Kanuri	
	(I)	(II)	(III)	(IV)	(V)	(VI)	(VII)	(VIII)	(IX)	(X)	(XI)	(XII)
Female	-0.680	-0.475	0.479	-0.092	-0.564	-0.449	-0.667	-1.906	-0.637	-0.507	-0.857	-0.558
	(0.046)**	(0.031)**	(0.168)**	(0.079)	(1.081)	(0.818)	(4.807)	(0.000)	(0.393)	(0.225)*	(0.048)**	(0.036)**
Controls	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES
Neighborhood fixed effect	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES
Observations	30,875	30,875	3,051	3,051	49	49	6	6	466	466	20,463	20,463
R ²	0.009	0.525	0.003	0.750	0.007	0.741	0.005	1.000	0.006	0.667	0.018	0.418

Note: Robust standard errors are in brackets and all estimates are weighted. Controls include child characteristics and household characteristics and the variable ‘Urban’ is dropped after controlling for neighborhood fixed effects because neighborhood totally accounts for that variable. *significant at 5%; **significant at 1%.

Table 5: OLS, cross-gender differences in years of education within each religious group

	All sample		Christian		Muslim	
	(I)	(II)	(III)	(IV)	(V)	(VI)
Female	-0.006	-0.264	0.547	-0.068	-0.680	-0.472
	(0.038)	(0.021)**	(0.055)**	(0.026)*	(0.046)**	(0.032)**
Controls	NO	YES	NO	YES	NO	YES
Neighborhood fixed effect	NO	YES	NO	YES	NO	YES
Observations	60,544	60,544	29,669	29,669	30,875	30,875
R ²	0.000	0.662	0.004	0.764	0.009	0.518

Note: Robust standard errors are in brackets and all estimates are weighted. Controls include child characteristics and household characteristics and the variable ‘Urban’ is dropped after controlling for neighborhood fixed effects because neighborhood totally accounts for that variable. *significant at 5%; **significant at 1%.