

Emerging Gender Revolution in Nigeria: Implications for Timing of Family Formation and Fertility Behaviour

Onipede Wusu and Olaide A. Adedokun

Department of Sociology, Lagos State University, Ojo;

Corresponding Email: onipedewusu@yahoo.com;

Abstract

We hypothesize that gender revolution is emerging in Nigeria and it is swaying the timing of family formation and fertility behaviour. The 1990 and 2013 NDHS data sets and qualitative data through 45 in-depth interviews (IDI) were analysed. The results show that 19.5% of women were in paid work in 2013 (10.3% in 1990), 44.9% had at least secondary education (24.2% in 1990) and 63% were in non-poor wealth status. Hierarchical regression model reveals that paid work ($\beta = 0.05$, CI=0.45-0.80) relative to not in paid work, rich wealth status ($\beta = 0.07$, CI=0.49-0.80) compared to poor wealth status and secondary education ($\beta = 0.23$, CI=2.15-2.45) relative no schooling significantly ($p < 0.001$) predicted timing of family formation. Likewise, adjusted Poisson estimates suggest that unpaid work ($\beta = 1.03$, CI=1.01-1.05) relative to paid work, no formal education ($\beta = 1.16$, CI=1.08-1.14), primary education ($\beta = 1.11$, CI=1.13-1.19) compared to secondary+ education, poor wealth status ($\beta = 1.11$, CI=1.08-1.14) and middle wealth status ($\beta = 1.11$, CI=1.08-1.05) relative to rich wealth status significantly ($p < 0.001$) predicted CEB. Also, adjusted logistic regression model shows that no formal education (OR=0.23, CI=0.19-0.27), primary education (OR = 0.84, CI=0.76-0.92) relative secondary education, and poor (OR= 0.42, CI=0.36-0.47) and middle wealth status (OR=0.72, CI=0.66-0.80) relative rich wealth category significantly ($p < 0.001$) predicted modern contraception. Narratives from the IDIs corroborate the results, reflecting that education, paid work and desire for independent wealth are gaining acceptance among females in Nigeria. Restriction of sex and childbearing to marriage is waning among young females and average age at marriage of 25 years is gaining prominence. Thus, the analyses lend support to the study hypothesis. The findings suggest that as education, paid employment and improved wealth status intensify among females, delayed family formation and fertility decline would continue.

Keywords: Gender, Revolution, Age at marriage, Children ever born, Contraception

Introduction

Gender revolution and its implications for demographic behaviour are well documented in industrialized societies (Goldscheider, Bernhardt, & Lappegard, 2015; Lesthaeghe, 2010). The major attributes of such societies include completion of the first demographic transition (DT), involving shift from high mortality and high fertility to low mortality and low fertility (Cherlin, 2012). Also, the second DT in which adult self-realisation along with motivation to become fulfilled parent predominate is on course (Lesthaeghe, 2010). However, there is rarity of information on the possibility of emergence of the revolution in developing societies where the take-off of the first DT is uncertain. In this study, we explored the likelihood of the emergence of the first half of the revolution (close up of private and public spheres gap) in Nigeria, where industrialisation is yet to attain the height in the developed societies (Asaju & Adagba, 2013).

Gender revolution is construed as significant change in gender roles whereby women (including women with babies) previously restricted to private sphere dramatically joined the public sphere hitherto dominated by men (Goldscheider *et al.*, 2015). Goldscheider and

colleagues considered the close up of the gap between private and public spheres as the first half of gender revolution. How did the private and public spheres emerge in the developed societies of North America, Europe and East Asia? Prior to the industrial revolution in the mid-nineteenth century, human population survived on agro-based subsistence economy (Stanfors & Goldscheider, 2015). Both men and women raised families that combined reproduction and production. Thus, husband and wife operated just one sphere—the private sphere. The industrial revolution changed this single sphere. This revolution took production from the family domain into factories and paid employment became available. Thus, the birth of industrialisation marked the emergence of the public sphere. The period witnessed movement of production from private (family domain) to public sphere (factories). Men were the first to seek and secure paid employment in the emerged public sphere and left the private sphere for women (Cotter, Hermsen, & Vanneman, 2011; Goldscheider *et al.*, 2015). Although scholarly investigation has shown recently that public sphere existed earlier in institutions such as the church and government, the scale of the engagement of men in such institutions was limited, compared to that of the industrial revolution (Stanfors & Goldscheider, 2015).

Men maintained sole engagement in paid employment up to middle 20th century, thus being the breadwinners in their families for over a century. However, with time a number of factors promoted the involvement of women in paid employment, taking them from the private sphere to the public sphere, first in Europe and North America and later in East Asia (Lesthaeghe, 1998, 2010). These factors include the rise in female education, development of household equipment, improvement in wages of female employee, effect of demographic transition on fertility and female life expectancy, and emergence of more effective contraceptives (Esping-Andersen & Billari, 2015; Goldscheider *et al.*, 2015; Lesthaeghe, 2010; Macunovich, 2012; Stanfors & Goldscheider, 2015).

Involvement of women in labour force market closed the gap between private and public spheres, and marked the beginning of the first part of the gender revolution in industrialised societies (Stanfors & Goldscheider, 2015). What was the implication of the disappearance of the gap between the public and private spheres for family formation and fertility in the societies documented to have experienced it?

The first half of the gender revolution played the key role in economic elevation of women and further transformed demographic behaviour in developed societies (Goldscheider *et al.*, 2015; Mason, 2001). Critical among the demographic concomitants of the first part of the gender revolution was the widespread disinterestedness of women in starting family relationships and the adoption of non-traditional family attitudes such as married but remain childless (Choe, Bumpass, Tsuya, & Rindfuss, 2014; Goldscheider *et al.*, 2015). Also, because survival of women did not depend absolutely on family relationships any more, owing to their participation in paid work, interest in reproductive activities, including childbearing and childrearing began to dwindle (Esping-Andersen & Billari, 2015; Gerson, 2009; Lesthaeghe, 2010). The disinterestedness was also reinforced by the conflicting demands of paid employment and commitments of marriage relationships (Fuwa, 2014; Lesthaeghe, 1998, 2010; Mason, 2001). Also, the use of more effective contraception culminated in the emergence and maintenance of below replacement fertility in the Western world (Lesthaeghe, 2010; Mason, 2001). In addition, sexual revolution occurred, which motivated young people to question restriction of sex and childbearing to marriage (Lesthaeghe, 2010). Thus, marriage became less attractive to educated women participating in labour force, thereby leading to the rise in age at first marriage. Consequently, fertility declined and the diffusion of small family size in the population increased the scale of the decline (Esping-Andersen & Billari, 2015).

In the last few decades Nigeria has made noticeable strides on the journey to industrialisation, propelled by the discovery of oil in the 1950s (Effoduh, 2016). While female education is still largely low in Nigeria (Asaju & Adagba, 2013), it has experienced some

relative improvement in the last five decades (Anugwom, 2009; Grant & Behrman, 2010; Wusu, 2012). Earlier studies suggest that in spite of the growing proportion of educated women in Nigeria, the proportion in paid work is still disproportionately low (Anugwom, 2009). Thus, the private sphere was considered the dominant domain of women while their male counterparts dominated the public sphere in Nigeria. Some of the crucial factors influencing female labour force participation in the country that have been identified include geographic region, marital status, religion and literacy level (Gayawan & Adebayo, 2015; Iweagu, Yeni, Nwokolo, & Bulus, 2015). However, a relatively recent nationally representative study hinted that women's entry into paid work has been growing in the country (Wusu, 2012). In addition, gender gap in wealth status which is skewed against women has a long history in Nigeria. But recent evidence is suggesting that the gap is slowly closing up (National Population Commission [Nigeria] & ICF International, 2014). The findings of previous studies suggest the likelihood of gender revolution commencing in Nigeria, in which the private-public sphere gap is slowly closing up.

What are the implications of the changes in female education, wealth status and employment for timing of family formation and fertility behaviour in sub-Saharan Africa, particularly in Nigeria? This question has not been adequately addressed. With respect to timing of family formation, there are conflicting findings over the relationship between female education and age at marriage or birth. For example, in Malawi, Grant (2015) found inverse relationship between education and age at first birth (a proxy of age at marriage in settings where marriage is universal and birth is usually a gateway to marriage). On the other hand, Wusu (2012) observed positive association between education and age at marriage in Nigeria. However, previous studies agreed on inverse relationship between education and fertility behaviour (Bongaarts, 2010; Isiugo-Abanihe, 2010; Wusu, 2009).

The influence of wealth status on fertility behaviour in Nigeria appears inconsistent. For instance, Ibisomi (2008) in a qualitative study, highlighted that improved economic performance would reverse declining family size among women and men. The study implied a positive association between wealth and family size. Conversely, Wusu and Amoo (2015) observed an inverse relationship between fertility and wealth status among women. Similarly, Mason (2001) argued that the relationship between female employment and fertility has not been consistent, that it varies from one place to another. In Nigeria, mixed results have been reported for the association between female employment and fertility in Nigeria (Wusu, 2012).

In order to resolve the conflicts and inconsistencies in the findings on the influence of female education, wealth status and employment on age at marriage as well as fertility behaviour in Nigeria and elsewhere in sub-Saharan Africa, further studies are needed. Previous empirical studies in parts of Nigeria had observed noticeable trends in family formation with changes in age at first marriage (for instance, Adedokun, 1999, 2000; Wusu & Isiugo-Abanihe 2006; Wusu, 2003). Such studies were limited in coverage. Also, the need to validate and update findings of such studies in the light of new data cannot be over emphasized.

This study sought to examine the intellectual suspicion that the first half of the gender revolution is emerging in Nigeria, using method triangulation approach. Three questions are proposed. First, how real is gender revolution in Nigeria? Second, how is the emergence of gender revolution influencing the timing of family formation among women of reproductive age in Nigeria? Third, what is the nature of the association between the gender revolution and fertility behaviour in Nigeria? We hypothesize that gender revolution is emerging in Nigeria and it is influencing timing of family formation and fertility behaviour in the country.

Data and Methods

This study adopted method triangulation approach—it used quantitative and qualitative data. The quantitative data consist of the first (1990) and latest (2013) Nigeria Demographic

and Health Survey (NDHS). The analysis used the individual recode file representing the reproductive age women sample in 1990 (N= 8781) and 2013 (N= 38,948). The surveys deployed a stratified/cluster random sampling strategy to generate nationally representative sample for data collection exercise (further details on the sampling strategy see Federal Office of Statistics [Nigeria] and IRD/Macro Int. 1992; National Population Commission [Nigeria] and ICF Macro 2014).

Qualitative data were generated through 45 in-depth interviews (IDI) conducted in Lagos metropolis between April and June 2016 using a purposive sampling strategy. Participants included married women in paid non-agricultural employment in four sectors (education, banking, manufacturing and services sectors) and young female adolescents. The sample was limited to the very diverse and representative Lagos metropolis, which also allowed the management of meagre resources available for the study. The carefully selected interviewees in the metropolis were adjudged representative of the different parts of the country. Trained field assistants equipped with the 17-themes interview guide and recording equipment conducted the interviews. The background characteristics of the study participants are presented in Table 1.

Table 1 about here

In the quantitative segment, we measured the independent variable—gender revolution—using three indicators: paid non-agricultural employment, highest education attained and wealth status. These indicators perfectly fit the explanatory frameworks on gender revolution presented in Goldscheider, Bernhardt and Lappegard (2015) and Lesthaeghe (2010). Paid non-agricultural work had two categories: No (0) and Yes (1). Highest education was categorized into no schooling (0), primary (1) and secondary + (2); wealth status was classified into three categories namely poor (0), middle (1) and rich (2). The analysis sought to explain two dependent variables: (a) timing of family formation indicated by age at first marriage; and (b) fertility behaviour, which was captured through children ever born (CEB) to women age 35 years and above and current use of contraceptives (none = 0, traditional = 1, modern = 2) among women who were not pregnant. Confounding factors considered capable of influencing the association between the independent and dependent variables in the analysis include age, age at first sex, place of residence (urban (1) and rural (2)), region (Central (1), North (2) and south (3)) and religion (no religion/others (0), Christians (1), Muslims (2)).

Univariate analysis of the NDHS data employed descriptive statistical techniques to explain the socio-economic and demographic backgrounds of the sampled women by year of survey. This level of analysis involved all indicators of gender revolution and timing of family formation and fertility behaviour. Descriptive bivariate statistical tools (mean and standard deviation (σ), independent t-test and one-way ANOVA as well as chi-square (χ^2)) were employed to demonstrate the proportion of women involved in paid employment (yes) compared with those who were not (no), in various educational categories and in different wealth categories by region. Also, comparison of the proportions of the gender revolution indicators in 2013 NDHS with that of the first NDHS data collected in 1990 were drawn.

At the level of multivariate analysis, three major regression models were constructed to figure out the prevailing implications of gender revolution for the timing of family formation and fertility behaviour (using the 2013 NDHS data). Firstly, hierarchical regression technique was employed to examine the effects of gender revolution indicators on the timing of family formation (age at first marriage). Secondly, the analysis used the Poisson regression technique to examine the association between gender revolution indicators and fertility (CEB). The Poisson regression was preferred because CEB, the dependent variable, is a count variable, the major prerequisite of the technique. Thirdly, adjusted and unadjusted logistic regression models

examined the association between gender revolution indicators and modern contraception (recoded modern method (1) and non-modern/non-use (0)). All categorical independent and confounding variables were re-coded dummy before inclusion in the hierarchical regression models. The SPSS version 21.0 software was used in conducting all quantitative analysis.

The NVivo 10 software facilitated the analysis of the qualitative data. After the transcription of the audios of the interviews and word processing it, the files were imported into the software. The coding was done under themes, which include women's priority between education and marriage, perception of women on the timing of marriage, women's position on female employment, perception of young women on female education and employment, restriction of sexual pleasure to marriage, restriction of childbearing to marriage, importance of marriage to young women, perception of women on full time housewives and influence of female employment on household responsibilities. The themes were in tandem with the basic characteristics of existing gender revolution framework (Goldscheider *et al.*, 2015). The coding enabled the achievement of proper organisation of the data into the themes that were directly related to the objectives of the study. The coded narratives were used to prepare global views of the expressions of the study participants on study objectives. The global views enhanced understanding and interpretation of the data. Striking and representative excerpts from the narratives were selected and presented to corroborate the global views in the results section.

Results

Table 2 shows the comparative distribution of women of reproductive age in the two NDHS by selected background characteristics and region. Also, the table presents the descriptive statistic on the indicators of gender revolution, timing of family formation and fertility behaviour. The national average age of the respondents was 28.2 years in 1990 and 28.8 years in 2013 while it ranged between 28.1 and 29.3 years across the regions in the two data sets. The sampled women were largely rural in the north (78.7% in 1990 and 71.7% in 2013) while their southern counterparts were more urbanised (54.2% and 63.0% in 1990 and 2013 respectively). The religious distribution of the respondents were in tandem with Nigeria religious landscape, where Christians predominate in the south (73.8% in 1990 and 83.9% in 2013) and Muslims are in majority in the north (87.0% and 87.2% in 1990 and 2013 respectively).

Table 2 about here

Changes in Gender Revolution Indicators in Nigeria

Three gender revolution indicators presented in the table include education, wealth status and paid non-agricultural work. At the national level, the proportion of women with no formal education declined from 51.7% in 1990 to 37.8% in 2013 while the proportion with secondary education increased from 24.2% (1990) to 44.9% (2013). However, there were wide regional variations. While the proportion with no formal education was 83.2% in the north in 1990 it was 28.3% in the south and it declined to 67.7% in the north and 6.5% in the south in 2013. In a similar pattern, proportion with secondary education that was 5.7% in the north only increased to 19.9% whereas it increased from 38% to 72.5% in the south between 1990 and 2013. Thus, the uptake of female education had improved nationally and at regional levels, but there was high disparity between the north and south. Wealth status was only available in the 2013 NDHS, and the data show that the proportion poor was higher in the north (63.7%) than the south (10.4%). In the same vein, the proportion rich was sharply higher in the south (70.4%) than in the north (20.7%). Female labour force participation in Nigeria reflected by the proportion in paid non-agricultural employment shows increase from 10.3% in 1990 to 19.5%

in 2013. While the proportion in labour force in the north increased from 5.0% to 16.1%, it increased from 14.3% to 25.0% in the south, between 1990 and 2013.

The IDI data reveal a deep appreciation of female education by women of reproductive age. Almost all of the interviewees, married and unmarried, opined that education should be acquired as the means of gaining self-respect in society and as the channel to self-independence. The women highlighted that formal education is no longer the preserve of male children. The interviewees accentuated that embracing education was important for women to participate in the labour force and opportunities are open to both sexes in the society. The study participants explained that women now desire and actually participate actively in modern employment just like their male counterparts. The spectrum of their opinion indicates that women now desire good jobs to be independent and supportive of their families. The IDI excerpts below corroborate the growing importance of female education and labour force participation from women's perspective.

Between education and marriage, education comes first, because education is your guideline, it is your manual as a woman. Regardless of any moral discipline received first at home, education should come before marriage. Both are important, but education is more important. You know, when a woman is educated, people will respect her, including her spouse. But if you are not educated, people will take you for granted, especially men of these days. [A 32 year old Muslim employee]

I prefer education first before marriage because a young girl of my age that goes into marriage will be turned to a baby factory machine and exposed to boring and dependent lifestyle. Education comes first before marriage because as a woman it is disrespectful to study in one's husband's house. A woman that goes into marriage without adequate education will look very cheap to the husband and will be dependent on him. Moreover, going to school in marriage will be too stressful. [A 20 year old college student]

Education is very good. My advice to young women is to get education quick than rushing into marriage. My priority is education because I think it is good. Education should be women's priority in order for them to meet the society's standard. [A 32 year old Christian employee]

It is very important for females to go to school. Why should only males go to school? Males and females are both humans and most men of today are not even interested in marrying females who are not educated. There is the saying that 'what a man can do, a woman can do better.' For women, it is important for them to go to school. The trend now is after education, paid employment, after working for some months or years you can then talk about marriage, because marriage without money is nothing, your husband cannot shoulder all responsibilities, you have to assist him. [A 21 year old Christian undergraduate]

For me, I prefer to have paid employment before getting married. My reason is that with the little money that you earn, you can use it to assist your husband. [A 22 year old Muslim college student]

Paid employment is my priority because paid employment will help me to cater for myself and my family, mostly my parents. This will enable one to be independent. [A 21 year old Muslim Secondary School student]

One related revolution that accompanied and complemented the gender revolution in industrial societies was the *sexual revolution* (Lesthaeghe, 2010). In the words of Lesthaeghe, in sexual revolution ‘younger generation sought the values of sex for its own sake and accused their parents’ generation of hypocrisy’ (p. 216). In this study, both married and single study participants were requested to discuss changes in the way young people perceive of sex in modern Nigeria. Majority of the study participants acknowledged that significant changes had occurred in sexual behaviour in Nigeria. That in the past, sexual pleasure was confined to marriage and those that engaged in premarital sex, especially among females, were considered social deviants. However, currently, sexual pleasure has become a common practice among unmarried young people and societal disapproval has considerably weakened. The excerpts cited below are common expressions of the study participants, underscoring the emergence of sexual revolution in Nigeria.

No, about 80% young women don’t think sexual pleasure should be restricted to married couples. This depends upon the guy they are dating, because guys of today believe that sex is love, that without it you cannot secure a strong relationship. Premarital sex is becoming normal today. I don’t think ladies still believe in virginity. [An 18 year old Christian undergraduate]

I found out that they don’t believe it anymore, but I still think there are some ladies still ‘holding’ themselves. But these days, almost everybody does not believe that sex should be restricted to marriage. [A 20 year old college student]

That is before, but now a 13, 10 or 12 year old girls has boyfriend(s) and conducting sex, some are even getting pregnant. Parents, and money are causing this problem, also peer pressure. ‘I want to belong’ is the drive. Some want to get the same clothes like their friends and as a result are lured into sex. I have not met any guy that wants a relationship without sex. I haven’t seen any. [A 22 year old Muslim undergraduate]

No. Reasons being that every youth out there wants to taste sex and belong to the civilized class. Moreover, pressure from peer groups and male partners has eroded abstinence because relationships on campuses are contracted and sustained by sexual pleasure. Because high proportion of them believe that sex is a free gift which can be given out at will, though negligible proportion still supports the belief that young females should refrain from sex. [A 21 year old Christian undergraduate]

In the past, most still prefer to wait till marriage before engaging in sexual pleasures, but in recent times this is no longer the trait. However, I prefer sexual pleasures within marriage. [A 17 year old Muslim student]

An associated change that became apparent in the first half of the gender revolution in Western societies was the emergence of out-of-wedlock childbearing (Cherlin, 2012). The study explored this phenomenon in the sample through the IDIs and found that the traditional prescription and expectation regarding out-of-wedlock childbearing has weakened. Majority of interviewee stressed that young ladies are dropping respect for the norm and societal disapproval for such behaviour was no longer as stringent as before. Also, many participants accentuated the integration into the marriage process of pre-marriage pregnancy as evidence of

fecundity is growing in scale and prevalence. Below are some excerpts from the IDIs to drive home our point here.

They don't believe that childbearing is restricted to marriage again. They think they can give birth at any time they want. The rate of out-of-wedlock childbearing is becoming unbearable. [A 23 year old unemployed single Muslim]

It appears that childbearing is no longer the exclusive right of married couples. Because once there is an unexpected pregnancy, a lady has no choice except she decides to abort. Like I said before, some ladies do not want to be under someone and be dependent. Most of the women that don't have money may not think of childbearing outside marriage but most of those with jobs think otherwise. [An 18 year old Christian undergraduate]

Young women feel that childbearing should not be only within marriage. The reason for this is the high prevalence of pre-marital sex and unwanted pregnancies arising from pressure from the boys. And sometimes the intention of young women to tie down the man with the baby. [A 20 year old Muslim undergraduate]

Although, most preferred to bear children within marriage, but considering the preponderance of infidelity recently single ladies bear one or two children without shame. So many women undergoing series of abortion and later find it difficult to get pregnant in marriage. Because of this men prefer to impregnate their potential wives before getting married (i.e. contracting marriage with pregnancy. [A 21 year old Muslim student]

Changes in Indicators of Timing of Family Formation and Fertility Behaviour

The three indicators of timing of family formation and fertility behaviour are presented in the last segment of Table 2. The national average age at first marriage that was 16.7 years in 1990 soared marginally to 17.8 years in 2013. The regional distribution shows similar increase but with wide regional variations. National CEB declined from 6.2 in 1990 to 5.5 in 2013. However, while it declined from 6.0 to 4.8 in the south, it increased from 6.0 to 7.1 in the north during the period. National level of modern contraception among non-pregnant women remains low but rose from 5.8% in 1990 to 13.3% in 2013. At the regional level, the north marginally increased from 1.7% to 4.3% while in the south it rose to 21.2% in 2013 from 8.7% in 1990.

The IDIs corroborate the NDHS data on the timing of family formation and fertility behaviour. Majority of the study participants indicated that marriage is still important to young people. The suggested average age at first marriage was generally associated with the completion of schooling beyond secondary education. Some suggested 22 to 23 years for first marriage others felt 25 to 27 years were appropriate. Clearly, for all participants, female age at first marriage should be far beyond 20 years. In addition, marriage should only be contracted after obtaining some education and skills useful for self-reliance and economic independence. The excerpts below lend credence to the changing age at marriage among females in the study setting.

I just know it is not easy to be married. If I had known I wouldn't have married at the age I did. It was as a result of parental pressure. My reason for saying so is that my husband wants to know everything about my whereabouts. If I were with my parents, I would have been free. [A 30 year old Muslim teacher]

According to Islam, it is not early to get married at 25 years, but for me it is early because then I didn't have the educational qualification I desire, which am struggling to acquire now. [A 27 year old Muslim teacher]

The appropriate age a lady should marry is 23 years, the reason is that if you should start education early, you should get married at 23 years. The maximum age I think a lady should get married is 25. Even for those who don't have formal education, the age still applies. [A 22 year old Muslim undergraduate]

Twenty two to 23 years is fine for a lady to get married. This is usually good for female, most especially for ladies that are chubby or fat. This is because women have weak hormones and the fear of menopause grasps them. [A 20 year old Christian college student]

Twenty four to 25 years (24-25), because late marriage is very risky in terms of difficulty in pregnancy and delivery, and it might also lead to death. Such was the experience of one of my aunts. Thus, a Yoruba adage says *ile obinrin ko kin pe su*, meaning the night of females falls early. [A 21 year old Christian college student]

In my opinion, I will say 27 years because I will like to finish my education, get a suitable job and earn good money to be able to take care of myself and parents. [A 16 year old senior secondary Muslim student]

Implications of Gender Revolution for Timing of Family Formation and Fertility Behaviour

Table 3 presents the bivariate distribution of the sampled women by the indicators of gender revolution, timing of family formation and fertility behaviour. The one-way ANOVA analysis suggests that education and wealth status were significantly positively related to age at first marriage and CEB ($p < 0.001$) whereas the two variables were negatively associated with CEB. Moreover, the ANOVA results suggest that age at first marriage and CEB varied significantly across educational and wealth categories. Also, t-test analysis shows that paid non-agricultural work was significantly related to age at marriage and CEB ($p < 0.001$). Women employed in non-agricultural paid work reported higher age at first marriage and lower CEB than their counterparts in unpaid work. With respect to contraception, Chi-square (χ^2) analysis reveals that education, wealth status and paid non-agricultural work were significantly related to contraception ($p < 0.001$). Use of traditional and modern contraception exhibited positive association with the three gender revolution indicators. Higher proportions of women who indicated higher educational and wealth statuses or paid employment in non-agricultural sector reported traditional and modern contraception. In addition, the table shows that the four confounding factors were significantly associated with the indicators of timing of family formation and fertility behaviour.

Table 3 about here

Multivariate analysis of the implications of gender revolution indicators for the timing of family formation and fertility behaviour are presented in Tables 3, 4 and 5. Table 4 shows the results of hierarchical regression analysis on the association between indicators of gender revolution and timing of family formation indicator—age at first marriage. The table shows that when gender revolution indicators were introduced to the model, R square that was 53% (adjusted R square = 28%) increased to 57% (adjusted R square = 33%), ($p < 0.001$). This change (of 4%) indicates that indicators of gender revolution (education, paid non-agricultural

work, wealth status) predicted and made significant contribution to age at first marriage after controlling for the effects of the confounding factors. The gender revolution indicators elevated the explanatory power of the model by 4%. Apparently, the three indicators of gender revolution were significantly and positively associated with age at marriage. Secondary education or more ($\beta = 0.23$, 95% CI = 2.15 – 2.45), $p < 0.001$), rich wealth status ($\beta = 0.07$, 95% CI = -0.49 – 0.80), $p < 0.001$ and paid non-agricultural work ($\beta = 0.05$, 95% CI = 0.45 – 0.68, $p < 0.001$) were positively associated with age at first marriage. Among the three gender revolution indicators, the model suggests that education has the strongest influence on the timing of family formation.

Table 4 about here

We used the Poisson regression technique to construct a multivariate model on the association between indicators of gender revolution and fertility behaviour (CEB). The unadjusted and adjusted models indicate that the three gender revolution indicators significantly predicted CEB (Table 5). In the unadjusted model, women with no formal education (45%) and those with primary schooling (32%) reported higher CEB than those with secondary education or more. This association remains significant and in the same direction after adjusting for confounding variables. Also, women in poor and middle wealth statuses reported 21% and 13%, respectively, higher fertility than their rich counterparts. After adjusting for confounding factors, women of the two wealth statuses reported 11% higher CEB each compared to those who indicated rich wealth category. In addition, women employed in paid non-agricultural work reported 4% in the unadjusted and 3% in adjusted models, higher CEB than others. Overall, higher education (secondary or more) and wealth status (rich) as well as paid non-agricultural work among women of reproductive age were likely associated with lower CEB.

Table 5 about here

Table 6 presents the adjusted and unadjusted odds ratios of logistic regression models on the association between indicators of gender revolution and fertility behaviour (current use of modern contraception). The three gender revolution indicators significantly predicted modern contraception in both unadjusted and adjusted models. Women with no formal education (unadjusted OR = 0.11; adjusted OR = 0.20, $p < 0.001$) and primary schooling (unadjusted OR = 0.59; adjusted OR = 0.75, $p < 0.001$) were less likely to report current modern contraception compared to their counterparts with secondary or more education. Similarly, women in poor (unadjusted OR = 0.32; adjusted OR = 0.39, $p < 0.001$) and middle (unadjusted OR = 0.70; adjusted OR = 0.73, $p < 0.001$) wealth categories were less likely to report modern contraceptive use relative to those in the rich wealth category. Women who were not employed in paid non-agricultural work (unadjusted OR = 0.77; adjusted OR = 0.81, $p < 0.001$) were less likely to use modern contraceptives relative those in paid non-agricultural employment. Thus, women with higher education, in higher wealth status and employed in paid non-agricultural work were more likely to adopt modern contraceptives in Nigeria.

Table 6 about here

Furthermore, we explored, through the qualitative data the perceptions of women on the likely consequences of the changes in the emerging gender revolution in the Nigerian society. The focus was on the implications of the changes for old norms such as a woman being full housewife, frequency of sex between married couples, frequency of pregnancy and number

of children per couple. Almost all young study participants stressed their disapproval for a woman being a full housewife. They opined that the practice promoted dependency on men. On the frequency of sex, married study participants underscored the conflict between the demands of their occupations and frequent sex with their husbands, though a few were indifferent. The common perception of the interviewees was that pregnancy and number of children (fertility) depended mainly on individual choices. However, many of them observed that family size is declining among women. We present below some excerpts corroborating the highlights above.

I don't think being a full housewife is a nice idea for a woman. Because she will end up being a liability to her husband. [A 21 year old Muslim student]

For some people it is good, but for me it is not good at all, because I have to work to make my own money. [A 20 year old Christian college student]

To be a full housewife is not good, because the woman will be dependent on the man and that is not pleasant to the ears. Moreover, being a full housewife will make the woman unable to discover, exhibit and maximise her potentials. [A 21 year old Christian undergraduate]

I don't support the idea of being a full housewife but if the husband is much capable to carry the family's responsibility, then it is not a problem. However, irrespective of my husband's level of wealth, I can't do it. [A 17 year old Muslim student]

My job affects my chores. I don't do chores in the morning until I get home from work. I have sex with my husband once in a while. Sometimes I can use my work to cover up, but in this case there is a marital cause for it. For instance, I had my last sex with my husband sometime last year. Although I need more children but that should be left for God. My job does not have effect on it. It depends on my husband, for me I don't want more than four children even though I have the money. So my job is not the challenge. [A 30 year old Muslim teacher]

My job affects frequency of sex between us. Because sometimes I get worn out as a result of work and I try to appeal to my husband to postpone sex at that time. It affects at the first stage of pregnancy, e.g. spitting and vomiting, after which I work normally. Of course it does affect childbearing. There should be gap between them so that it will not become stressful. I don't use contraceptive because of the side effects. I don't use lady condoms. [A 29 year old Muslim employee]

Discussion

The study has established the likelihood of the emergence of gender revolution and implications for the timing of family formation and fertility behaviour in a low industrialised societies such as Nigeria. The quantitative and qualitative data analysed lend some degree of support for the hypothesis tested. Firstly, up to the 1990s in Nigeria, men dominated the public sector while women were more of private sphere operators because of the negligible proportion of females that took advantage of formal education, engaged in paid non-agricultural work and could boost of economic independence, compared with their male counterparts (Federal Office of Statistics [Nigeria] & IRD/Macro International, 1992). Thus, the private-public sphere predominated in Nigeria well beyond the 1990s. Since then, there have been significant improvement in the proportions of educated women, of women in paid non-agricultural

employment and in higher wealth status (Grant & Behrman, 2010; Wusu, 2012). At the national level, there has been a significant increase in women with at least primary education. The proportion that reported at least secondary schooling rose by about 20% from what the situation was in 1990. Besides, the qualitative data revealed that there is a high awareness of the significance of female education among young and adult women. In addition, there is an increasing consciousness among women that education is the reliable pathway to self-respect and economic independence. This rising female education and the general appreciation of the importance of education among women were one of the critical attributes in countries that experienced gender revolution in the Western societies (Esping-Andersen & Billari, 2015; Stanfors & Goldscheider, 2015).

Consequently, increasing proportion of women had functioned in paid non-agricultural employment in Nigeria. The findings are explicit on the significant rise in the proportion as reflected in almost 10% increase in the proportion between 1990 and 2013. The qualitative data revealed that female involvement in non-agricultural employment is now popular and most women now prefer to get educated and employed in paid work, to secure financial independence before marriage. The findings suggest that the gender gap in paid employment in Nigeria is not only closing up, but women are overcoming the very cultural justifications that had sustained it. For example, the practice of full housewife that kept the gap wide for decades since independence is broadly detested among young women in the sample. Also, the analysis suggests that the proportion of females in paid employment is rising. There is a preponderance of the desire to acquire the prerequisite to accessing paid non-agricultural work among women, an indication that the gender revolution is emerging in Nigeria (Goldscheider *et al.*, 2015; Lesthaeghe, 2010). Therefore, although Nigeria is not a fully industrialised nation, women are no longer entirely restricted to the private domain. This study suggests emergence of a new form of gender revolution in Nigeria, which is corroborating the assertion that 'later' industrialising societies may not follow exactly the path of Western industrial world (Cotter *et al.*, 2011).

Secondly, previous writings on gender revolution highlighted that its emergence impacted on demographic behaviour, including family formation and fertility behaviour (Goldscheider *et al.*, 2015). The bivariate analysis of the data reveals that all the relevant gender revolution indicators significantly predicted age at marriage. Although the age at marriage only increased marginally (roughly one year), there were indications that the propensity for further rise is likely to grow with time. The result suggests that women with higher education, wealth status and paid work in non-agricultural sector were likely to delay marriage. Similarly, the multivariate hierarchical regression suggested that the three indicators of gender revolution made significant contribution to explaining age at family formation. Also, the multivariate analysis indicated that positive association existed between the indicators of the revolution and age at marriage, even after adjusting for confounding factors. Therefore, increasing female education, female paid employment and wealth status will continue to push the age at marriage higher.

However, within over 20 years, the increase in age at first marriage observed is below expectation vis-à-vis the improvement noticed in female education and employment. The marginal increase in age at first marriage observed in the analysis might have stemmed from the proposition that diffusion of new behaviour may be slow in more segmented societies (Esping-Andersen & Billari, 2015). Nigeria is highly segmented in the light of ethnic and social heterogeneity that pervade the society. So, in spite of the rising level of female education and the general preference of education and paid employment over marriage among young people, marriage is still largely universal and early, especially in the north (National Population Commission [Nigeria] & ICF International, 2014). As suggested in a previous study,

penetration of modern marriage-related behaviour may be difficult in Nigeria because diffusion of new ideas is decelerated in highly segmented society (Esping-Andersen & Billari, 2015).

Moreover, perhaps, as recently reported in other developing countries, the ability of women to access income from paid work may facilitate early entry into marriage (Kuo & Raley, 2014). This is probably more of societal expectation, whereby young educated women, employed in paid work and earning income may attract societal disapproval if they remain single for a long time. Another plausible explanation may be the deterioration in quality of education that likely account for the insignificant effect of rising education on age at first birth as observed in Malawi (Grant, 2015). The declining quality of education in Nigeria may inhibit expected effect of female schooling on marriage. The qualitative data demonstrated that pre-marriage sex and pregnancy are rampant and out-of-wedlock birth is a pathway to getting married. As a result, marriage is still relatively early but the age will likely continue to rise as gender revolution and its complementary sexual and contraceptive revolutions progress (Lesthaeghe, 2010). The findings provide support for this proposition in the light of the gradual popularity of age at first marriage beyond 20 years among the study participants.

Furthermore, both bivariate and multivariate analyses suggest that all the gender revolution indicators significantly predicted CEB. The negative association observed implies that women with higher education, wealth status and paid non-agricultural work were likely to report lower CEB. The results suggest that although the level of CEB at the moment varies between 4.8 and 7.1, there is a high probability that with increases in level and intensity of the revolution, CEB will begin to fall in the north while the decline in the south will accelerate. When the fertility decline accelerates at national level, Nigeria will begin the journey towards replacement fertility. Studies in the Western societies reported similar demographic changes, including sustained fertility decline promoted by indicators of the revolution (Goldscheider *et al.*, 2015; Lesthaeghe, 2010).

However, the marginal consequences of the present level of the revolution may be connected to a few factors. Firstly, the use of modern contraceptives remains very low (National Population Commission [Nigeria] & ICF International, 2014). This contraceptive situation is in contrast with what was experienced in the Western world where the revolution was first experienced (Goldscheider *et al.*, 2015). The fact that paid non-agricultural work, female education and wealth status positively predicted modern contraception at bivariate and multivariate levels suggest that further improvement in these factors will likely increase the use among women. Secondly, Islamic fundamentalism resisting Western education in the north, son preference, insurance childbearing consideration and extended family system have been inhibiting modernisation of reproductive behaviour in Nigeria (Wusu, 2012; Wusu & Isiugo-Abanihe, 2006; Caldwell, 2005). Those impeding factors are likely to crumble as gender revolution progresses. Consequently, family formation would be delayed, modern contraception would rise and fertility decline accelerated.

The study has a few limitations we considered important to highlight before concluding the paper. In the first instance, the NDHS data analysed was cross-sectional and therefore our interpretations do not imply cause-and-effect relationships. Secondly, we compared 1990 and 2013 NDHS at univariate and bivariate levels of analysis. This comparison may not be a perfect representation of reality relative to what we could have obtained if the two data sets were derived from a panel survey design. In addition, the qualitative data collection exercise took place only in urban Lagos, with the assumption that the purposive sample could be representative of other cities and rural areas in Nigeria. It is likely that this assumption may not be universally correct. As a result, we suggest that further studies should replicate this study (the qualitative aspect) in other cities and selected rural communities.

In spite of the limitations highlighted above, the findings suggest emergence of a new gender revolution in Nigeria. A new kind because, unlike what obtained in industrial societies

in mid-nineteenth century, women are increasingly participating in paid work owing to rising female education, though the level of industrialisation is still low. The study lends support to the study hypothesis that gender revolution is emerging in Nigeria and it is swaying timing of family formation and fertility in the country. Proportions of educated women and in paid work have increased significantly if compared to what obtained in 1990. Although the effects of the opportunity cost of family commitments on timing of family formation and fertility behaviour is not yet strong, the potential is extraordinary. On the whole, the findings suggest that as industrialisation grows along with more fundamental societal transformations in the country, the emerging gender revolution would be reinforced. Consequently, delayed family formation and sustainable fertility decline would continue. Therefore, social policies aimed at deepening female education and paid employment in formal sector as well as viable blue print on industrialisation are imperatives.

References

- Adedokun O. A, Oyetunji, A., Adeola, C., & Nelson-Twakor. N. N. (2000). Economic Liberalisation and Women in the Informal Sector in Rural Nigeria”, in D. Tsikata and J. Kerr (eds.) *Demanding Dignity: Women Confronting Economic Reforms in Africa*. Ottawa: Cathy Blacklock and Jocelyne Laforce Renouf Publishing Co., (www.nsi-ins.ca/english/pdf/gera/10e_nigeria.pdf).
- Adedokun, O. A. (1999). *Shifting patterns in age at first and implications for family size in metropolitan Lagos, Nigeria*. Dakar: Union African Population Studies, No. 41, 135pp.
- Anugwom, E. E. (2009). Women, education and work in Nigeria. *Educational Research and Review*, 4(4), 127-134.
- Asaju, K., & Adagba, O. S. (2013). Women participation in national development in Nigeria: The imperatives of education. *Journal of Public Administration and Governance*, 3(1), 57-69.
- Bongaarts, J. (2010). The causes of educational differences in fertility in sub-Saharan Africa. *Vienna Yearbook of Population Research*, 8, 31-50.
- Caldwell, J. C. (2005). On net intergenerational wealth flows: An update. *Population and Development Review*, 31(4), 721-740.
- Cherlin, A. (2012). Goode's world revolution and family pattern: A reconsideration at fifty years. *Population and Development Review*, 38(4), 577-607.
- Choe, M. K., Bumpass, L. L., Tsuya, N. O., & Rindfuss, R. R. (2014). Nontraditional family-related attitudes in Japan: Macro and micro determinants. *Population and Development Review*, 40(2), 241-271.
- Cotter, D., Hermsen, J. M., & Vanneman, R. (2011). The end of the gender revolution? Gender role attitudes from 1977 to 2008. *American Journal of Sociology*, 116(4), 1-31.
- Effoduh, J. O. (2016). The economic development of Nigeria from 1914 to 2014. Academic.edu. Retrieved 29 July 2016
- Esping-Andersen, G., & Billari, F. C. (2015). Re-theorizing family demographics. *Population and Development Review*, 41(1), 1-31.
- Federal Office of Statistics [Nigeria] & IRD/Macro International Inc. (1992). *Nigeria demographic and health survey, 1990*. Lagos: FOS and IRD/Macro International Inc.
- Federal Office of Statistics [Nigeria], & IRD/Macro International. (1992). *Nigeria demographic and health survey 1990*. Lagos: Federal Office of Statistics and IRD/Macro International, Inc.
- Fuwa, M. (2014). Work-family conflict and attitudes toward marriage. *Journal of Family Issues*, 35(6), 731-754.
- Gayawan, E., & Adebayo, S. B. (2015). Spatial analysis of women employment status in Nigeria. *CBN Journal Applied Statistics*, 6(2), 1-17.
- Gerson, K. (2009). The unfinished revolution: How a new generation is reshaping family, work and gender in America. *International Journal of Gender, Science and Technology*, 3(1), 108-112.
- Goldscheider, F., Bernhardt, E., & Lappegard, T. (2015). The gender revolution: Understanding changing family and demographic behaviour. *Population and Development Review*, 41(2), 207-239.
- Grant, M. J. (2015). The demographic promise of expanded female education: Trends in the age at first birth in Malawi. *Population and Development Review*, 41(3), 409-438.
- Grant, M. J., & Behrman, J. R. (2010). Gender gaps in educational attainment in less developed countries. *Population and Development Review*, 36(1), 71-89.
- Ibisomi, L. (2008). Fertility transition in Nigeria: Exploring the role of desired number of children. *African Population Studies*, 23(2), 207-222.
- Isiugo-Abanihe, U. C. (2010). *Continuity and change in Nigeria's fertility regime*. Ibadan: University of Ibadan.
- Iweagu, H., Yeni, D. N., Nwokolo, C., & Bulus, A. (2015). Determinants of female labour force participation in Nigeria: The rural/urban dichotomy. *Journal of Economics and Sustainable Development*, 5(10), 212-219.

- Kuo, J. C. and R. K. Raley. 2014. "Is it all about money? Work characteristics and women's and men's marriage formation in early adulthoods." *Journal of Family Issues*, doi: 10.1177/0192513X14530973.
- Lesthaeghe, R. (1998). On theory development and applications to the study of family. *Population and Development Review*, 24(1), 1-14.
- Lesthaeghe, R. (2010). The unfolding story of the second demographic transition. *Population and Development Review*, 36(2), 211-251.
- Macunovich, D. J. (2012). Relative cohort size, relative income, and married women's labour force participation: United states, 1968-2010. *Population and Development Review*, 38(4), 631-648.
- Mason, K. O. (2001). Gender and family systems in the fertility transition. *Population and Development Review*, 27(Supplement), 160 – 176.
- National Population Commission [Nigeria], & Icf International. (2014). *Nigeria demographic and health survey 2013*. Abuja, Nigeria and Rockville, Maryland, USA: NPC & ICF International.
- Stanfors, M., & Goldscheider. (2015). The forest and the trees: Industrialisation, demographic change, and the ongoing gender revolution in Sweden and United States, 1870-2010 *Stockholm Research Reports in Demography*: Stockholm University.
- Wusu, O. & Isiugo-Abanihe, U. C. (2003). Family structure and reproductive health decision-making among the *Ogu*, Southwestern Nigeria: a qualitative study. *African Population Studies* 18(2): 27 – 45.
- Wusu, O. & U. C. Isiugo-Abanihe. (2006). Interconnections among changing family structure, childrearing and fertility behaviour among the *Ogu*, Southwestern Nigeria: a qualitative study. *Demographic Research* 14(8): 139 – 156.
- Wusu, O. (2009). Correlates of fertility in a low contraception setting: A study of ogu of south-western Nigeria. *The Nigerian Journal of Sociology and Anthropology*, 7, 29-42.
- Wusu, O. (2012). A re-assessment of the effects of women education and labour force participation on fertility in Nigeria. *Vienna Yearbook of Population Research*, 10, 31-48.
- Wusu, O., & Amoo, O. E. (2015). Fertility behaviour and wealth situation in Nigeria: Evidence from 2013 demographic and health survey. *Social Indicators Research*. 128(1), 1-14. doi: 10.1007/s11205-1016-4

Table 1: Background characteristics of IDI study participants

Characteristics	Number	Percent
Age		
< 20	5	11.1
20 – 29	29	64.4
30 – 39	9	20.0
40+	2	4.4
Education		
Below Secondary	6	13.3
Secondary	15	33.3
OND/NCE	10	22.2
HND/BSc+	14	31.1
Occupation		
Unemployed	11	24.4
Services/Manufacturing	14	31.1
Teaching	4	8.9
Students	16	35.6
Religion		
Christians	21	46.7
Muslims	24	53.3
Marital status		
Not married	24	53.3
Married	21	46.7

Table 2: Percentage distribution of women of reproductive age by indicators of gender revolution, timing of family formation and fertility behaviour by regions in Nigeria, NDHS 1990 and 2013.

Characteristics	Percent						
	1990 NDHS			2013NDHS			
	National n = 8781	North n = 3737	South n = 5044	Natio nal n = 38948	Central n = 5572	North n = 17643	South n = 15733
Average age	28.2	28.3	28.1	28.8	28.1	28.6	29.3
Place of residence							
Urban	40.2	21.3	54.2	42.1	27.3	28.2	63.0
Rural	59.8	78.7	45.8	57.9	72.7	71.8	37.0
Religious affiliation							
None/others	4.1	1.4	6.1	1.4	2.8	1.1	1.4
Christians	47.3	11.5	73.8	46.8	53.5	11.7	83.9
Muslims	48.6	87.0	20.1	51.7	43.7	87.2	14.8
Education							
None	51.7	83.2	28.3	37.8	31.6	67.7	6.5
Primary	24.1	11.1	33.7	17.3	22.5	12.3	21.0
Secondary+	24.2	5.7	38.0	44.9	45.9	19.9	72.5
Wealth Status							
Poor	-	-	-	37.4	30.1	63.7	10.4
Middle	-	-	-	19.2	31.0	15.6	19.1
Rich	-	-	-	43.4	38.9	20.7	70.4
Paid non-agric. Work							
Yes	10.3	5.0	14.3	19.5	14.2	16.1	25.0
No	89.7	95.0	85.7	80.5	85.8	83.9	75.0
Age at first marriage	16.7	14.9	18.5	17.8	18.4	15.7	20.6
Children ever born (CEB)	6.2	5.8	6.5	6.0	5.5	7.1	4.8
Contraception							
None	89.4	97.5	82.8	81.8	83.8	95.1	67.4
Traditional	4.8	0.8	7.5	5.5	2.9	0.6	11.5
Modern	5.9	1.7	8.7	12.7	13.3	4.3	21.2

Note: 1990 NDHS: Average age ($\sigma = 9.0$ (National), 8.8 (North), 9.1 (South)); Age at first marriage was examined among ever married women ($n = 7080$, $\sigma = 4.1$ (National), $n = 3509$, $\sigma = 3.3$ (North), $n = 3571$, $\sigma = 3.9$ (South)); CEB (women age 35+, $n = 1906$ (National), 778 (North), 1128 (South)); Contraception was examined among non-pregnant women ($n = 7793$ (National), 3239 (North), 4623 (South)).

2013 NDHS: Average age ($\sigma = 9.6$ (National), 9.2 (Central), 9.7 (North), 9.7 (South)); Age at first marriage was examined among ever married women ($n = 29622$, $\sigma = 4.7$ (National), $n = 4134$, $\sigma = 4.4$ (Central) $n = 15327$, $\sigma = 3.3$ (North), $n = 10162$, $\sigma = 5.0$ (South)); CEB (women age 35+, $n = 11760$, $\sigma = 3.0$ (National), $n = 1479$, $\sigma = 2.4$ (Central), $n = 5294$, $\sigma = 3.0$ (North), $n = 4987$, $\sigma = 2.5$ (South)); Contraception was examined among non-pregnant women ($n = 34238$ (National), 4920 (Central), 14931 (North), 14387 (South)).

Table 3: Distribution of women of reproductive age by mean age of timing of family formation, children ever born and contraception (percentage) by gender revolution indicators and selected socio-demographic characteristics in Nigeria, NDHS 2013.

Characteristics	Mean AM		Mean CEB		Contraception						
	n	=	23662	n	=	11760	None	Traditional	Modern		
	Mean	σ	Mean	σ	%	n	%	n	%	n	
Gender revolution indicators											
Education											
None	15.7	3.4	7.0	3.0	96.9	12037	1.1	138	2.0	252	
Primary	17.7	4.3	6.0	2.5	79.1	4654	6.3	369	14.7	864	
Secondary+	20.8	4.9	4.2	2.3	71.1	11322	8.7	1378	20.3	3226	
<i>F-test</i>	4413.5***		1165.1***		$\chi^2=3153.3***$						
Wealth Status											
Poor	15.8	3.5	7.1	3.0	95.4	11727	1.4	175	3.1	387	
Middle	17.6	4.3	6.1	2.7	84.2	5572	4.4	293	11.4	754	
Rich	20.2	5.0	4.7	2.5	69.9	10714	9.2	1416	20.9	3201	
<i>F-test</i>	3256.8***		888.5***		$\chi^2=3025.0***$						
Paid non-agric. Work											
Yes	19.1	5.3	5.0	3.0	72.9	4829	8.8	582	18.3	1213	
No	17.4	4.4	6.1	2.9	84.0	3183	4.7	1302	11.3	3129	
<i>t-test</i>	-22.9***		15.8***		$\chi^2=446.0***$						
Confounding variables											
Average age											
15 – 19	15.0	1.7	-		93.3	6726	1.4	102	5.2	378	
20 – 24	16.5	2.9	-		79.6	4509	4.7	264	15.7	892	
25 - 29	17.8	4.2	-		77.6	4543	7.1	413	15.4	902	
30 – 34	18.4	5.1			75.8	3476	7.9	362	16.3	749	
35 - 39	18.6	5.1	5.3	2.6	76.6	3195	8.0	333	15.4	641	
40 – 44	18.6	5.4	5.9	2.9	77.3	2616	7.7	259	15.0	508	
45+	18.3	5.6	6.8	3.2	87.4	2947	4.5	152	8.1	273	
<i>F-test</i>	269.5***		269.4***		$\chi^2=1101.5***$						
Place of residence											
Urban	19.7	5.0	5.1	2.8	78.3	10894	8.2	1215	18.5	2745	
Rural	16.6	4.1	6.5	2.9	88.3	17118	3.2	669	8.2	1597	
<i>t-test</i>	53.6***		-25.8***		$\chi^2=1267.5***$						
Religious affiliation											
None/others	17.8	5.0	6.6	3.2	88.8	430	3.3	16	7.8	38	
Christians	20.2	5.1	4.9	2.6	70.3	11677	9.2	1521	20.5	3412	
Muslims	16.2	3.6	6.8	3.0	92.8	15905	2.0	387	5.2	892	
<i>F-test</i>	3087.9***		680.4***		$\chi^2=2882.3***$						
Region											
Central	18.4	4.4	5.5	2.4	83.3	4122	2.9	144	13.3	654	
North	15.7	3.3	7.1	3.0	95.1	14198	0.6	90	4.3	642	
South	21.0	5.0	4.8	2.5	67.4	9650	11.5	1650	21.2	3046	
<i>F-test</i>	4525.7***		926.6***		$\chi^2=3978.8***$						

*Note: AM = age at first marriage among ever married; CEB was among women 35 years and above; ***significant at $p < 0.001$.*

Table 4: Coefficients of hierarchical regression on the association between indicators of gender revolution and timing of family formation among ever married women of reproductive age in Nigeria, NDHS 2013

Characteristics	Model 1	95% CI	Model 2	95% CI
Confounding variables				
Average age	0.09***	0.04 - 0.05	0.12***	0.06 – 0.07
Place of residence				
Urban	0.17***	1.51 – 1.71	0.07***	0.53 - 0.76
Rural (r)	-	-	-	
Religious affiliation				
None/others	-0.03***	-0 1.49 - -0.75	-0.01	-0.56 - 0.17
Christians (r)	-		-	
Muslims	-0.16***	-1.62 - -1.37	-0.08***	-0 .94 - -0.67
Region				
Central (r)	-	-	-	-
North	-0.22***	-2.20 - -1.90	-0.18***	- 1.9 - -1.56
South	-0.11***	0.89 – 1.20	0.07***	0.49 - 0.79
Gender revolution indicators				
Education				
None (r)	-	-	-	-
Primary	-	-	0.01	-0.07 - 0.21
Secondary+	-	-	0.23***	2.15 – 2.45
Wealth Status				
Poor (r)	-	-	-	-
Middle	-	-	0.00	-0.12 - 0.15
Rich	-	-	0.07***	0.49 - 0.80
Paid non-agric. Work				
Yes	-	-	0.05***	0.45 - 0.68
No (r)	-	-	-	-
R Square	0.53	-	0.57	-
Adjusted R Square	0.28	-	0.33	-
R Square Change	-	-	.05	-
F	1930.8***	-	1321.9***	-

****significant at $p < 0.001$; (r) = reference category*

Table 5: Estimates of adjusted and unadjusted Poisson regression models on the association between indicators of gender revolution and Children Ever Born among women aged 35 to 49 years in Nigeria, NDHS 2013

Characteristics	Unadjusted Model		Adjusted Model	
	Exp (B)	95% Wald CI	Exp (B)	95% Wald CI
Gender revolution indicators				
Education				
None	1.45***	1.42 – 1.49	1.11***	1.08 – 1.14
Primary	1.32***	1.29 – 1.36	1.16***	1.13 – 1.19
Secondary+ (r)	-	-	-	-
Wealth Status				
Poor	1.21***	1.18 – 1.23	1.11***	1.08 – 1.14
Middle	1.13***	1.10 – 1.15	1.11***	1.08 – 1.13
Rich (r)			-	-
Paid non-agric. Work				
No	1.04***	1.02 – 1.06	1.03*	1.01 – 1.05
Yes (r)			-	-
Confounding variables				
Age		-	1.02***	1.02 – 1.02
Age at marriage		-	0.97***	0.97 – 0.97
Place of residence				
Urban		-	0.99	0.97 - 1.01
Rural (r)		-	-	-
Religious affiliation				
None/others		-	1.04	0.99 – 1.10
Christians		-	0.95***	0.93 – 0.97
Muslims (r)		-	-	-
Region				
Central		-	1.00	0.97 – 1.03
North		-	1.10***	1.07 – 1.13
South (r)		-	-	-
N	11961		11759	
Likelihood Ratio Chi-Square	2419.43***		4488.23***	

*significant at $p < 0.05$; **significant at $p < 0.01$; ***significant at $p < 0.001$; (r) = reference category

Table 6: Odds Ratios (OR) of adjusted and unadjusted Logistic regression with 95% confidence interval (CI) on the association between indicators of gender revolution and contraception among women of reproductive age not pregnant in Nigeria, NDHS 2013

Characteristics	Unadjusted OR	95% CI	Adjusted OR	95% CI
Gender revolution indicators				
Education				
None	0.16***	0.14 – 0.19	0.23***	0.19 – 0.27
Primary	0.91*	0.83 – 0.99	0.84***	0.76 – 0.92
Secondary+ (r)	-	-	-	-
Wealth Status				
Poor	0.32***	0.28 – 0.36	0.42***	0.36 – 0.47
Middle	0.66***	0.61 – 0.72	0.72***	0.66 – 0.80
Rich (r)	-	-	-	-
Paid non-agric. Work				
No	0.77***	0.71 – 0.83	0.81***	1.78 – 0.91
Yes (r)	-	-	-	-
Confounding variables				
Age	-	-	1.02***	1.02 – 1.03
Place of residence				
Urban	-	-	1.16***	1.07 – 1.25
Rural (r)	-	-	-	-
Religious affiliation				
None/others	-	-	1.20	0.84 – 1.70
Christians	-	-	1.73***	1.58 – 1.91
Muslims (r)	-	-	-	-
Region				
Central	-	-	1.05	0.95 – 1.16
North	--	-	0.66***	0.59 – 0.73
South (r)	-	-	-	-
N	34455		34455	
Likelihood Ratio Chi-Square	3101.53***		3692.49***	

*significant at $p < 0.05$; **significant at $p < 0.01$; ***significant at $p < 0.001$; (r) = reference category