Fertility, labour force participation and poverty among married women in Nigeria

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Abstract

Context: Previous studies have established increasing female employment and fertility transition in developed countries and improved social welfare. However, findings on female employment, fertility transition and poverty incidence have shown mixed results in Nigeria. The paper examined critical issues of fertility, female employment and poverty incidence among women of reproductive ages in Nigeria. Specifically, we examined the linkages between fertility, female employment, and household wealth to enrich our understanding of the relationships among characteristics.

Method: We analysed the 2013 Nigeria DHS dataset. The association of fertility, female employment, and poverty incidence was assessed using Chi-square and multinomial logistic regression.

Results: Female employment was positively related to fertility rate and negatively related to household wealth. Other significant predictors of fertility and poverty incidence are age, level of education, religion, and location of residence.

Conclusion: Women participation in Labour force enhance household wealth status but do not necessarily limit fertility. Policies and programmes aimed at fertility reduction and poverty alleviation should focus on formal employment and female education.

Keywords: female employment, poverty incidence, demographic dividend, Nigeria.

Introduction

Nigeria remains one of the top ten most populous nations in the world. As of 2014, Nigeria's population was more than 170 million and seventh most populated country (Gribble, 2012). The recent round of the Nigeria Demographic and Health Survey (NDHS, 2013) estimated the total fertility rate at 5.5 children per woman (National Population Commission and ICF International 2014) which is one of the highest total fertility rate per woman in sub-Saharan Africa and stalled over the long term (Ezeh et al., 2012, United Nations, 2013, Bongaarts, 2003, Shapiro and Gebreselassie, 2009, McNicoll, 2011).

A copious amount of evidence affirms that one of the characteristics of a high populated nation is poor economic growth index such as low wage, chronic poverty, pervasive unemployment and a myriad of other perennial problems (United Nations, 2013, Buhaug and Urdal, 2013). Far more than we probably realise, Nigeria is richly endowed with both human and mineral resources in quantum proportion. The recent statistical rebasing exercise conducted in 2014 revealed Nigeria as the Africa's largest economy with 2013 GDP estimated at US$509 billion while her economy grows at 6-8% per annum (pre-rebasing) (Adetula et al., 2014, World Bank, 2014). Despite this impressive economy growth rate, oil-rich Nigeria has been hobbled by a host of demographic and non-demographic phenomena. More importantly, a sizeable number of Nigerians, over 62% of Nigeria's 170 million people live in extreme poverty (ibid).

Also, a couple of recent studies have established that fertility transition affects the age structure of a population and brings about economic development (Bloom et al., 2007, Bloom et al., 2009). That is a country with rapidly declining fertility is accompanied by changes in the ratio between the economically active population and dependent population whereby the working population creates an economic support ratio resulting in demographic bonus paving the way for other non-demographic policies to achieve demographic dividend. However, in a number of countries in sub-Saharan Africa including Nigeria, fertility decline has been stalled or receeded (Lawanson, 2008, Garenne, 2010, Mberu and Reed,

2014). In a corresponding manner, fertility reduction increases the ratio of working-age population lowering the youth dependency ratio. The combination of these effects implies an increase in per capita income of such population.

On the heels of demographic change and development issues, the Sustainable Development Goals (SDGs) which suceeded the Millenium Development Goals (MDG) addressed issues of demographic changes and development (Kates et al., 2005). The SDG 5 aimed to ensure gender equality through the empowerment of all women and girls. It also incorporates other pertinent issues such as access to sexual and reproductive health, recognise the value of unpaid domestic care work, end discrimination, violence and other harmful practices and participation in decision making (Sachs, 2012, Kates et al., 2005). Studies have accertained that there is a relationship between female participation in the labour market and fertility behaviour (Adebiyi and Onifade, 2014, FADAYOMI and Olurinola, 2014, Stycos and Weller, 1967) while others have established a link between a woman's fertility behaviour and ability to engage in either paid or unpaid labour (Sackey, 2005, Lam and Duryea, 1999, Hilgeman and Butts, 2004, Halli and Rao, 1986).

More importantly, the number of these studies from developed and developing countries have shown increasing women participation in the labour force (World Bank, 2014, Lim, 2002, Lawanson, 2008). These prior studies have unambiguously established, especially from the industrialised world, the increasing female labour force participation is linked to fertility transition (Snopkowski and Kaplan, 2014, Balbo et al., 2013, Guetto et al., 2015). Women in this context forgo childbearing efforts if subjective gains from childbearing would not override opportunity cost (Easterlin, 1975, Balbo et al., 2013, Galor, 2012, Snopkowski and Kaplan, 2014) unlike in developing countries especially Nigeria where women have reportedly high fertility rates (between 4 and 7 children per woman) and accompanying high labour force participation (Lawanson, 2008, Adebiyi and Onifade, 2014, Adedini, 2014).

Lending credence to this stance, Becker's pioneering work on fertility based on economic theory (Becker, 1960), many studies have revealed there is a relationship between fertility and labour force decision (Bick, 2015, Lee and Lee, 2014). Yet, studies on effects of fertility on female employment have yielded mixed results, especially in poor countries(Adedini, 2014, Lawanson, 2008). In addition to this, the traditional African setting where women have had the enormous tasks of childbearing and rearing as well as handling household chores have to a large extent limit labour force participation

compared to men(Angrist and Evans, 1996). On the contrary, this stylized fact hitherto evident in developing countries settings has been waning in contemporary demographic researches. An enormous body of empirical literature has shown contradictory findings on "wealth flow" from parents to children and lends credence to the "second demographic transition theory" from hitherto old-fashioned values and beliefs to a new set of worldview and attitudes which emphasise self-fulfillment and self-actualization (Lesthaeghe and Neidert, 2006, Brewster and Rindfuss, 2000).

Further, the emergence of the industrialized and global market has created ample spaces for women at different cadres and sectors especially in less developed countries, of which Nigeria is one. Similarly, another contributing factor to women's participation in labour force is the emergence of new household structures such as female headed household whereby women, as the primary breadwinner actively engages in the labour market both in formal and informal sectors to meet the arising family needs (Obiyan and Ogunjuyigbe, 2008, FADAYOMI and Olurinola, 2014). All this is couched in the inevitable eclipse of the second demographic transition all over the world.

What motivated this study is the divergent of evidence from a number of studies in developing countries including Nigeria between female employment and fertility rate which negates the stylized relationship explained in an earlier study (Mberu and Reed, 2014, Nigeria. National Planning Commission National Economic Empowerment Development Strategy (NEEDS), 2007). That is, the higher the fertility, the lower women's chances of participation in the labour force and the higher their vulnerability to poverty (Gaddis and Klasen, 2014, Babalola and Akor, 2013). High fertility increases the opportunity costs to a woman. Since women spend most of their time caring for the child especially immediately after childbirth, they have less time to dedicate to paid employment either inside or outside the home (Porter and King, 2012). High fertility strains the family's budget because of too many dependents which reduce the resources to feed, educate and to provide adequate health care. Thus, many children suffer from malnutrition and infant or child mortality.

Studies have been carried out extensively, mostly in both developed and developing countries on the existing relationship between fertility and economic activity of a woman. The effect of fertility on the participation rate of a woman in the labour force cannot be underestimated. While some studies (Adebiyi and Onifade, 2014, Ahmed et al., 2010) revealed that labour force participation reduces the

fertility of women, some others showed that fertility has not much impact on labour force participation especially for those who joined after the birth of their first child due to child care services. However, the existing relationship between fertility, labour force participation and poverty of women in sub-Saharan Africa countries, most especially in Nigeria have largely been overlooked or under-researched.

Therefore, this study fills research opacity by exploring in detail, the association between the variables (fertility, labour force participation and poverty), enhances our understanding and generate new insights on the causal relationships among the variables beyond extant studies in Nigeria.

Against the above evidence that an increase in women's labour force participation causes a downward shift in their corresponding fertility, the International Labour Organisation (ILO) recently stated the labour force participation of women in Nigeria had increased from 34.1% in 1990 to 42.45 in 2014 (World Bank, 2016). On the other hand, the total fertility rate (TFR) of women within the country during the same defined period of 1990 (6.0) and 2014 (5.5) showed little or no significant reduction, although there are variations of TFR across the geo-political zones (National Population Commission and ICF International 2014). This development has been of great concern to the government, researchers and policy makers especially when efforts are being made towards achieving the SGDs.

Given this current trend of fertility and poverty level among many married working women, the country's process of economic development could be hampered. Hence, the need to carry out an intensive national study to examine the effect of labour force participation on fertility and poverty level of women. This will add to the literature on nexus between female labour force participation, fertility and household poverty in Nigeria. This study is aimed at understanding the relationship between fertility, labour force participation and household poverty level of women in Nigeria using the 2013 NDHS dataset. It examined the effect of socioeconomic and demographic characteristics on fertility and poverty level. The following research questions shall guide the study:

➢ Does female labour force participation reduce fertility rate?

➢ What are the linkages among fertility, female labour force participation and household poverty?

Data and Methods

Data from Nigeria Demographic and Health Survey 2013 was used for this study. The DHS is a large household survey from a nationally representative sample. It provides information on respondents'

reproductive health history, nutritional status, awareness and use of modern contraceptives, HIV/AIDs, gender violence, child health among many others. The 2013 NDHS used three stage stratified sampling design for the selection of 904 clusters (372 urban and 532 rural) with a representative sample of 45 households from each cluster having a total of successfully interviewed 38,948 eligible respondents.

Operational definitions and measurements were assigned to variables employed in this study. The main predictor variable is labour force participation of women measured as "Work Status" with two categories of 'no' and 'yes' while the outcome variables are "Fertility behaviour" and "Poverty Level". Children ever born (CEB) was used as proxy for fertility behaviour in this study and categorized into three: no child = '0'; 1-3 children = '1'; 4 or more children = '2'. This categorization was done based on the Nigerians population policy of 4 children per woman. The second outcome variable 'poverty level' is measured by household wealth index (poorest, poorer, middle, richer and richest) as obtained from the 2013 NDHS.

Data were analysed with STATA 13.0, a statistical package. Different levels of analysis, including, univariate, bivariate, and multivariate analysis, were done in the study. The degree of association was shown between socio-demographic factors of respondents and outcome variables using chi-square tests while the multivariate analysis was done to explore the relationship between the explanatory and outcome variables using multinomial regression model. The multinomial regression fits maximum likelihood models with discrete dependent (left-hand-side) variables when the dependent variable takes on more than two outcomes and the outcomes have no natural ordering. If the dependent variable takes on only two outcomes, estimates are identical to those produced by logistic or logit.

If the dependent variable y has k levels where k is more than 2, then

$$P(y = i) = \frac{e^{x\beta^i}}{e^{x\beta^1} + e^{x\beta^2} + e^{x\beta^3} + \cdots \ldots + e^{x\beta^k}}$$

where i= 1, 2, 3..., k

The model is unidentified in the sense that there is more than one solution to the different k. It works by arbitrarily setting one (base outcome) of the k_s to zero whereby the remaining coefficients of k will measure the change relative to the chosen group. The coefficients differ from one chosen k to another because they have different interpretations but the predicted probabilities for the k_s will be the same.

Thus, either parameterization will be a solution to the same underlying model.

For instance, setting $x\beta^{i=1} = 0$, the equation become

$$P(y = 1) = \frac{1}{1 + e^{x\beta 2} + e^{x\beta 3} + \cdots \ldots + e^{x\beta k}}$$

The relative probability of y=2 relative to base outcome y=1 is given by which is otherwise known as the relative risk so if it is assumed that X and β are vectors equal to covariates and their coefficients respectively. The ratio of the relative risk for a one-unit change in xi is then Thus, the exponentiated value of a coefficient is the relative-risk ratio for a one-unit change in the corresponding variable (risk is measured as the risk of the outcome relative to the base outcome. Furthermore, four models will be employed in the multivariate analysis.

Model I: the effect of labour force participation on poverty level
Model II: the effect of labour force participation on fertility level
Model III: adjusted labour force on poverty level; and
Model IV; adjusted labour force on fertility level.
In all the analysis, the significance level was 5%.

Study's Hypotheses
➢ Female labour force leads to higher opportunity costs of time, leading to higher contraceptive use and lower fertility rate
➢ Female labour force participation increases household wealth

Results
Descriptive results
In this sub-section, we present a discussion of the descriptive evidence on fertility and household to provide a foundation for the quantitative results. The 2013 NDHS final report makes a very rich presentation of the underlying factors of fertility in Nigeria (National Population Commission and ICF International 2014). In this section, we therefore only highlight the descriptive evidence germane to the current study, as summarized in Table 1.

The summary is generated using the sample weights implying that they are nationally representative and are consistent with those in the 2013 NDHS report. Table 1 showed the percentage distribution of women's socio-demographic factors. The results showed a higher proportion of women aged 15-24 and 25-34 (37% and 32%, respectively) relative to women aged 35-44 and 45 years or more (21% and 8.7%, respectively). The results show more percentage of educated women compared with the uneducated (45% vs. 38%, respectively).

Regarding women's work status, nearly a two-third was currently working at the time of the survey relative to the unwaged (38%). The findings of the analyses of the 2013 NDHS show that most women in Nigeria participate in the labour force. The results further showed an overwhelming proportion of women living with their spouses (71%) while (20%) are unmarried. Half of the women are Islamic faithful, 46% are Christians while a handful belongs to another religious sect. The findings from this study show the majority of women are relatively poor.

Women's wealth index showed even distribution across the categories of wealth index, each averages one-fifth of the total (poorest, poorer, middle, richer and richest). By region, the findings showed a third of the women are from the North-West geopolitical zone while other geo-political zones average 14% of the total. Additionally, the finding revealed that the majority of women had at least 4 children. One-third is nulliparous and 32% had between 1 and 3 children. These results support the findings that fertility is on the high side in Nigeria.

Table 1: Percent Distribution of Respondents Background Characteristics, NDHS 2013

Background Characteristics	Number	Percent (%)	Mean
Age Group			28.80
15-24	14,576	37.43	
25-34	12,612	32.38	
35-44	8,338	21.41	
45+	3,422	8.79	
Educational Level			
No Education	14,729	37.82	
Primary Education	6,734	17.29	
Secondary Education	17,485	44.89	
Working Status			
Not Working	14,888	38.23	
Working	24,060	61.77	

Marital Status		
Not Married	9,326	23.94
Living Together	27,830	71.45
Others	1,793	4.60
Religion		
Christianity	18,237	46.82
Islam	20,149	51.73
Others	361	1.44
Wealth Index		
Poorest	7,132	18.31
Poorer	7,428	19.07
Middle	7,486	19.22
Richer	7,992	20.52
Richest	8,910	22.88
Regions		
North Central	5,572	14.31
North East	5,766	14.80
North West	11,877	30.49
South East	4,476	11.49
South South	4,942	12.69
South West	6,314	16.21
CEB		3.06
0	11,333	29.10
1-3	12,491	32.07
4+	15,124	38.83

Relationship between household wealth and women socio-demographic characteristics

In Table 2, we present the association between wealth status and other control variables. The results showed age is significantly associated with wealth quintile (p<0.05). As would be expected, increasing age of women places them on higher wealth ladder. The results show 36% of women aged 25-34 years are richer than those aged 15-24 years (34%). However, the positive relationship between age and wealth index peaked at age 25-34 and declined thereafter for older women aged 35 and above. Regarding education, the results showed a significant relationship with wealth status (p<0.05). Increasing women's education places women of higher wealth status. This confirms previous findings in this study. Women with secondary education or higher are better-off the uneducated ones (87% vs.3.3%, respectively).

The analysis also showed that work status is a predictor of wealth quintile and children ever born (p<0.05). The percentage distribution of women's wealth index increases with their work status. That is, those working are better-off the non-working women with respect to wealth status. For richest wealth quintile, percentage distribution of women working is higher than non-working (64% vs. 36% respectively). This finding is in contrast to the presumed hypothesis of chronic poverty even among the working class. Place of residence is also significant with wealth index (p<0.05). Women resident in the urban area is better-off on the wealth status scale than their rural counterparts (87% vs. 13% respectively). Region of residence is a predictor of wealth quintile (p<0.05). Women from the south-west are more in the richest category (37%), South-South (19%) and south east (15%). The proportions in the Northern zones for rich women are lower. A substantial proportion of married women belong to richest wealth category (60%), in contrast, 36% in richest category are unmarried.

Moreover, religion is also associated with wealth index (p<0.05). The Christian faithful is economically better-off than Islamic faithful. Of the women from richest households, 72% are Christians while 27% are of Islamic religion.

Table 2: Percent Distribution of Household Wealth and women's Socio-demographic characteristics

Socio-demographic factors	Wealth Quintile				
	Poorest	Poorer	Middle	Richer	Richest
Age Group	P value: 0.000				
15-24	33.83	39.26	40.71	39.23	34.39
25-34	32.28	31.46	29.69	31.35	36.42
35-44	23.53	19.92	20.47	20.65	22.43
45+	10.36	9.36	9.13	8.77	6.77
Education	P value: 0.000				
None	87.28	61.52	32.79	14.83	3.30
Primary	9.13	21.09	26.19	21.40	9.48
Secondary and Higher	3.59	7.39	41.02	63.76	87.22
Currently Working	P value: 0.000				
No	44.17	38.45	37.82	35.63	35.94
Yes	55.83	61.55	62.18	64.37	64.06
Place of Residence	P value: 0.000				
Urban	5.76	13.02	32.44	61.12	86.68
Rural	94.24	86.98	67.56	38.88	13.32
Marital Status	P value: 0.000				
Not Married	7.45	14.68	26.73	31.48	35.77
Married / Living Together	90.07	80.59	66.56	63.09	60.55
Others	2.48	4.73	6.71	5.43	3.68
Religion	P value: 0.000				
Christianity	9.47	32.96	53.04	58.67	72.43
Islam	88.37	65.15	45.28	40.25	26.95
Others	2.15	1.89	1.68	1.08	0.62
Regions	P value: 0.000				
North Central	7.95	14.96	23.05	14.82	11.04
North East	31.18	20.07	11.84	8.31	5.62
North West	56.59	46.96	24.94	18.29	11.49
South East	2.66	7.40	14.88	16.18	14.93
South South	0.30	5.64	15.98	19.84	19.31
South West	1.33	4.96	9.32	22.56	37.61

Relationship between children ever born and women socio-demographic characteristics

We explored the association between children ever born and respondents' characteristics as shown in Table 3. The results showed that number of children ever born increases with age. While women 36% of women aged 25-34 had 4 or more children, 2.1% of those aged 15-24 had at least 4 children, however, the pattern changed for older women with a reduced children ever born (3.3%). As regards education, the results showed a significant relationship with children ever born (p<0.05). More than half uneducated women had 4 children or more relative to those of secondary education or higher (22%). This is because a number of studies have unambiguously established that increasing female education leads to higher participation in labour market and in turn reduced fertility rates.

Furthermore, we found work status as a predictor of children ever born (p<0.05). A positive relationship exists between working women and children ever born. The results showed a higher percentage of women working who had at least 4 children relative to those not working (78% vs. 22% respectively). Importantly, this is one of the overriding motivations for this study. In fact, it confirms the hypothesis and shows where our finding sits in the body of literature given the confounding results in Nigerian context as in other developing countries. Place of residence is also significant with children ever born (p<0.05). Women in rural area had more children than those residents in urban area. More than two-thirds of women in the rural area had at least 4 children relative to those in the urban area (35%). Similarly, region of residence is a predictor of children ever born (p<0.05) with higher rates in the northern regions compared with the southern regions.

Marital status is statistically associated with children ever born (p<0.05). Higher proportion of married women had at least 4 children relative to the unmarried (94% vs 0.2%). The finding also confirms the work of Bongaarts that higher proportion of women in marriage is one of the proximate determinants of fertility. Religion is also associated with children ever born (p<0.05). The Muslim women have higher number of children ever born than Christians (61% vs. 37% respectively).

Table 3: Percent distribution of children ever born by respondents'socio-demographic characterictics

Socio-demographic factors	Fertility Behaviour		
	Children Ever Born		
	0	1-3	4+
Age Group	P value: 0.000		
15-24	80.31	41.28	2.11
25-34	15.54	42.73	36.45
35-44	3.24	12.60	42.30
45+	0.91	3.39	19.14
Education	P value: 0.000		
None	17.73	37.14	53.43
Primary	9.88	16.35	23.62
Secondary and Higher	72.39	46.51	22.96
Currently Working	P value: 0.000		
No	62.97	35.02	22.33
Yes	37.03	64.98	77.67
Place of Residence	P value: 0.000		
Urban	53.03	41.32	34.67
Rural	46.97	58.68	65.33
Marital Status	P value: 0.000		
Not Married	76.84	4.80	0.12
Married / Living Together	21.85	89.72	93.54
Others	1.31	5.48	6.34
Religion	P value: 0.000		
Christianity	59.61	46.59	37.43
Islam	39.35	52.03	60.77
Others	1.04	1.38	1.80
Regions	P value: 0.000		
North Central	15.29	14.69	13.26
North East	12.18	15.24	16.42
North West	22.29	28.72	38.10
South East	16.75	9.40	9.28
South South	16.41	12.76	9.84
South West	17.08	19.19	13.10

Relationship between Labour Force Participation on Poverty Level

The outcome of multinomial logistic regression of poverty level on women's labour force participation showed that women working are 26% more likely to be poorer relative to non-working women instead of being in the poorest wealth category. In like manner, working women are 1.28 times more likely to be in the middle-income category compared with those not working, instead of being in the poorest household wealth category. Those who are working also have 1.32 odds of being richer than the non-working, instead of being in the poorest wealth category. A similar result was estimated for the richest category (Not shown in the tables).

Results from Multivariate Analysis

Table 4 shows the multivariate relationship between socio-demographic factors and wealth status. The results revealed women working are 1% more likely

of being the poorer compared with non-working women, instead of being in the poorest wealth quintile. Working women are 1 percent less likely to be in the middle-income wealth category relative to non-working women, instead of being among the poorest wealth quintile. The results further showed that working women are 4% less likely to be in the richer wealth category relative to non-working women, rather than being in the poorest category. Similarly, the findings showed that working women are 18% less likely to in the richest wealth category relative to non-working women, instead of being in the poorest wealth category. As regards age, the results showed a significant relationship with wealth quintile. Women aged 25-34 have 23% relative risk of been in the poorer wealth category compared with those aged 15-24, rather than being in the poorest wealth category. The results further showed women aged 25-34 are 4% more likely to be in the middle-income category relative to those aged 15-24, rather than being in the poorest category. Women aged 35-44 are almost 3 times more likely to be in the richest wealth category relative to those aged 15-24, instead of being in the poorest category.

On the ages of respondents, there were higher odds of increasing wealth status with increasing ages. Concerning level of education, the findings showed women with only primary school education are 98% more likely to be in the poorer wealth category relative to the uneducated, instead of being in the poorest category, those having secondary education or higher are almost 4 times more likely to in the poorer wealth category compared with non-educated women, instead of being in the poorest category. The results further showed women of secondary school education or higher to be 60 times more likely to be richer than the uneducated rather than being in the poorest wealth category. In addition

to this, women with primary education are 9 times more likely to be in the richest wealth category relative to the uneducated rather than being in the poorest category. The results showed the increasing wealth of women as they move up the educational ladder. Regarding marital status, married women/living together with a spouse is 34% more likely to be poorer relative to the unmarried women, instead of being in the poorest wealth category.

In the same vein, married women are 50% more likely to be richer than the unmarried women rather than being in the poorest wealth category. Invariably, being married increases wealth status of women. The results showed Islamic faithful are 37% less likely to be poorer relative to Christians, instead of being in the poorest wealth category. The Islamic worshippers are also 14% more likely to be in the richest wealth category relative to the Christians instead of being in the poorest wealth category. With a place of residence, the results revealed rural women are 56% less likely to be in the poorer wealth category relative to the urban women, rather than being in the poorest wealth status. Similarly, women in the rural area are 95% less likely to be in the richest wealth group relative to the urban women instead of being in the poorest wealth category. Simply put, urban women are better-off with respect to wealth status. By region, the results showed women from the South-South are 4 times more likely to be in the poorer wealth category relative to the women from North Central, rather than being in the poorest wealth status. South-West and South-South women are 3 and 12 times more likely to be in the richest wealth category relative to the women from North Central instead of being in the poorest wealth status. Women from the Southern dichotomy are richer than the Northern axis.

Table 4: Multinomial regression of respondents' wealth status on socio-demographic factors

Socio-demographic factors	Poorer RRR (95% CI) p-value	Middle RRR (95% CI) p-value	Richer RRR (95% CI) p-value	Richest RRR (95% CI) p-value
Work Status				
No	1.00	1.00	1.00	1.00
Yes	1.01 (1.02 – 1.19)*	0.99 (0.91 – 1.08)	0.96 (0.87 – 1.06)	0.82 (0.73 – 0.91)***
Age Group				
15-24	1.00	1.00	1.00	1.00
25-34	0.87 (0.79 – 0.95)**	1.04 (0.93 – 1.15)	1.41 (1.25 – 1.59)***	2.64 (2.30 – 3.02)***
35-44	0.74 (0.66 – 0.81)***	0.96 (0.86 – 1.09)	1.42 (1.24 – 1.62)***	2.96 (2.53 – 3.46)***
45+	0.77 (0.68 – 0.88)***	1.03 (0.88 – 1.19)	1.72 (1.45 – 2.04)***	3.19 (2.61 – 3.90)***
Level of Education				
None	1.00	1.00	1.00	1.00
Primary	1.98 (1.77 – 2.21)***	3.76 (3.34 – 4.22)***	6.43 (5.63 – 7.35)***	9.81 (8.12 – 11.83)***
Secondary and Higher	3.94 (3.34 – 4.64)***	15.13(12.82–17.86)***	60.60(50.82-72.26)***	296.67(239.86-66.94)***

Marital Status				
Not Married	1.00	1.00	1.00	1.00
Married / Living Together	1.34 (1.16 – 1.54)***	1.39 (1.20-1.61)***	1.50 (1.28-1.76)***	1.29 (1.09-1.53)**
Others	1.80 (1.42- 2.30)***	2.17 (1.68-2.79)***	2.05 (1.56-2.68)***	1.34 (0.99-1.80)
Religion				
Christianity	1.00	1.00	1.00	1.00
Islam	0.63 (0.56-0.72)***	1.17 (1.02-1.34)*	1.68 (1.45-1.94)***	1.14 (0.98-1.33)
Others	0.47 (0.37-0.62)***	0.44 (0.32-0.60)***	0.36 (0.25-0.52)***	0.30 (0.19-0.47)***
Place of Residence				
Urban	1.00	Ref Cat 1.00	Ref Cat 1.00	Ref Cat 1.00
Rural	0.44 (0.39-0.50)***	0.14 (0.12-0.16)***	0.05 (0.04-0.05)***	0.01 (0.01-0.01)***
Region				
North Central	Ref Cat 1.00	Ref Cat 1.00	Ref Cat 1.00	Ref Cat 1.00
North East	0.41 (0.36-0.47)***	0.13 (0.11-0.14)***	0.10 (0.09-0.12)***	0.07 (0.06-0.09)***
North West	0.51 (0.45-0.59)***	0.14 (0.12-0.16)***	0.14 (0.12-0.16)***	0.09 (0.08-0.11)***
South East	0.45 (0.36-0.55)***	0.31 (0.25-0.38)***	0.33 (0.27-0.41)***	0.15 (0.12-0.19)
South South	4.35 (2.96-6.38)***	7.17 (4.90-10.49)***	14.59 (9.93-21.42)***	12.47 (8.44-18.42)***
South West	1.4 (1.08-1.84)*	1.34 (1.02-1.74)*	3.02 (2.31-3.94)**	2.99 (2.27-3.92)***

+Poorest Wealth Quintile is the base category compared with other categories

The multinomial logistic regression of women socio-economic status and fertility behaviour is presented in Table 5. The results showed working women are 85% less likely to have between 1 and 3 children relative to non-working women, instead of being childless. In addition, working women are 47% less likely to have 4 or more children relative to non-working women, rather than being childless. The results revealed household wealth is statistically associated with children ever born. Poorer women are 24% less likely to have between 1 and 3 children relative to poorest women, rather than having no children. Similarly, poorer women are also 39% less likely to have 4 or more children compared with poorest women, instead of being a childless woman. For those in the middle wealth category, the results showed 47% fewer odds of having between 1 and 3 children compared with poorest women, instead of being childless. Almost 61% are less likely of having 4 or more children relative to poorest women, instead of being childless. The richest are 54% less likely to have between 1 and 3 children relative to poorest women, instead of being childless.

Women that were currently working were 24% less likely to have 1 and 3 children relative to non-working women, instead of being childless. In the same token, women working are almost 3 times more likely to have 4 or more children relative to non-working women, instead of being childless. The results showed clearly that working women have higher children ever born. With regard to age group, women aged 25-34 are almost three times more likely to have between 1 and 3 children relative to women aged 15-124, rather than being a childless mother. In addition, women aged 45 years or above are 195 times more likely to have 4 children or more relative to those aged 15-24 rather than being

childless woman. The analysis showed the older the women, the higher the odds of having more children.

Concerning women's education, the results showed women of secondary school education are 20% less likely to have between 1 and 3 children relative to the uneducated instead of being a childless woman. Also, women with secondary education or higher are 71% less likely to have 4 children or more relative to the uneducated women, rather than being a childless woman. By implication, education has a negative relationship with children ever born. The results further showed that married women are 60 times more likely to have between 1 and 3 children relative to the unmarried, instead of being a childless mother. Married women are also 713 times more likely to have 4 children or more relative to unmarried women, rather than being childless. Expectedly, married women had more birth than the unmarried. Regarding religion, Islamic faithful is 1 times more likely to have 4 or more children compared with the Christians, rather than being childless. As discussed earlier, a resident of the urban area is less likely to have children as the rural folks. The analysis showed that rural women are almost 2 times more likely to have between 1 and 3 children relative to the urban women, instead of being childless. As regards region, the results showed women from the Northern geopolitical zones are more likely to have given birth to more children than those from the Southern part. The results revealed women from the North East are 2 times more likely to have 4 children or more relative to those from the North Central, instead of being childless. However, multicollinearity affected the patterns of the results. The results surprisingly showed women from the South-South are two times more likely to have 4 or more children compared with those from North Central, rather than being childless.

Table 5: Multinomial regression of respondents' fertility behaviour on socio-demographic factors

Socio-demographic factors	Fertility Behaviour (CEB)	
	1-3 RRR (95% CI) p-value	4+ RRR (95% CI) p-value
Socio-Economic Status		
No	Ref	Ref
Yes	0.15 (0.14 – 0.16)***	0.53 (0.50 – 0.55)***
Household Wealth		
Poorest	Ref	Ref
Poorer	0.76 (0.69 – 0.84)***	0.61 (0.56 – 0.67)***
Miiddle	0.53 (0.48 – 0.58)***	0.39 (0.36 – 0.43)**
Richer	0.48 (0.43 – 0.52)***	0.29 (0.27 – 0.32)***
Richest	0.46 (0.42 – 0.51)***	0.18 (0.16 – 0.20)***
Work Status		
No	1.00	1.00
Yes	0.76 (0.68 – 0.85)	2.35 (2.13 – 2.60)***
Age Group		
15-24		
25-34	2.54 (2.31 – 2.79)***	56.87 (49.10 – 65.86)***
35-44	1.93 (1.65 – 2.26)***	217.73 (167.70 – 282.70)
45+	1.32 (1.02 – 1.69)*	195.49 (161.91 – 236.03)***
Level of Education		
None		
Primary	1.23 (1.07 – 1.41)**	1.21 (1.04 – 1.41)*
Secondary and Higher	0.80 (0.71 – 0.91)***	0.29 (0.25 – 0.34)***
Marital Status		
Not Married		
Married / Living Together	60.37 (53.92 – 67.58)***	713.51 (451.28 – 1128.12)***
Others	47.34 (38.16 – 58.74)***	331.03 (202.09 – 542.24)***
Religion		
Christianity		
Islam	0.81 (0.72 – 0.92)**	1.05 (0.91 – 1.22)
Others	1.01 (0.69 – 1.48)	1.07 (0.70 – 1.64)
Place of Residence		
Urban	1.00	Ref Cat 1.00
Rural	1.23 (1.12 – 1.34)***	1.51 (1.36 – 1.68)***
Region		
North Central	Ref Cat 1.00	Ref Cat 1.00
North East	1.00 (0.86 – 1.15)	1.56 (1.32 – 1.84)***
North West	0.84 (0.73 – 0.97)*	1.45 (1.24 – 1.71)***
South East	1.06 (0.89 – 1.25)	1.40 (1.15 – 1.70)***
South South	1.85 (1.59 – 2.16)***	2.08 (1.74 – 2.49)***
South West	1.56 (1.35 – 1.83)***	1.23 (1.03 – 1.46)**

[+]Women with "no children" is the base category compared with other categories

DISCUSSIONS AND CONCLUSION

Our paper revealed many salient findings in line with prior studies on women's labour force participation, fertility behaviour and poverty level. While most prior studies on women labour force participation and fertility behaviour in most developing countries have not shown consistent results as to whether being engaged in the labour force inhibits or buffers the propensity to have more children (Balbo et al., 2013, Bernhardt, 1993, Hilgeman and Butts, 2004).

This contradicts the importance of enhancing women's employment as a major driver of fertility transition that paves the way for a demographic window of opportunity that policy makers can take advantage of in realizing the so-called demographic dividend. Unlike the findings of several prior studies (Kalwij, 2000, Sackey, 2005, Adsera, 2004), which established most countries in the advanced stage of socio-economic, development where a negative relationship is confirmed between women's employment status and fertility levels (Porter and

King, 2012). Our analyses indicate a contrary result. Our results show higher fertility level among women that are employed.

This may be attributed to tight budget restraints, availability of family support system or child care centers whereby women though employed continually have their desired family size as there are paid (child care centres) or unpaid (family members) support to assist in child care (Porter and King, 2012, Upadhyay et al., 2014, Del Boca, 2002). This finding also lends credence to the sustained stalled fertility level in Nigeria as in other developing countries in sub-Saharan Africa. Furthermore, the higher fertility level among employed women is in consonance with the result of a study by Adedini (2014) on fertility transition in sub-Saharan Africa. In his study, findings on the level of TFR by employment did not yield a similar pattern in all the selected countries. While the fertility level was constantly higher for the employed women in Rwanda than the unemployed, conversely, findings indicate a consistently lower fertility for the employed in South Africa compared with the unemployed.

Additionally, our findings indicate children ever born consistently reduced with increased levels of education. Results from this study showed that as the level of education increases, the level of fertility reduces as do poverty incidence. This finding is in tandem with the study of Bongaarts (2003) that observed that educational attainment is a key determinant of fertility level, and low levels of education can significantly lead to stalling in fertility transition. Although poverty is chronic in Nigeria, our results showed that women with increasing level of education have reduced fertility and are better-off in household wealth and are more engaged in the labour market. While our results showed higher fertility rates among working women, it did not confirm poorer wealth status among working women. Overall, our study showed that increasing women education generally enhances their wealth status especially among women with high fertility. There is need to empower women with better education as fertility and poverty reduction strategy

In conclusion, the study showed an increase in female employment enhance household wealth status but not necessarily limit fertility. Therefore, policies, programmes and other interventions aimed at fertility reduction and poverty alleviation should factor in quality education for women and encourage formal employment opportunities.

The study revealed Nigeria's women are predominantly young and resident in rural areas, and imply that women have a long reproductive period hence being vulnerable to producing many children, corroborating previous studies.

Strengths and Limitations of study

This study has a major strength in that it sourced data from a nationally representative source; the 2013 NDHS data set is a robust data that has international appeal for limited sampling design and error. The study has also shown the modest contribution to the study of fertility, female employment and poverty incidence in Nigeria. Although, several studies has examined the relationship between fertility and labour force participation, however, this study has made a huge contribution to the discourse on fertility, labour force and poverty incidence in Nigeria as to the interrelationships among the variables.

On the other hand, this study has its limitations. One, what we used to measure wealth status as used elsewhere including possession of some household materials may not be generalized in every culture. Another is the female employment status. It is interesting to note that questions on occupational categories for women in the 2013 NDHS were not framed on the utilization of labour as there could be conceptual and definitional problems such as time work, job mismatch, time reference and a host of others. However, our result is a modest contribution to the on-going discourse on female employment, fertility level and poverty incidence in Nigeria.

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