

Chapter 23

AN EXAMINATION OF THE EFFECT OF FEMALE EDUCATION AND FERTILITY IN NIGERIA

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Abstract

The study examined the effect of female education on fertility in Nigeria. The Nigeria Demographic and Health Survey (NDHS) and time series data sourced from World Development Indicators (WDI) were used for the trend analyses. Due to inadequate time series data to achieve a robust analysis, the study used Tobit Regression to analyse a cross-sectional data surveyed on women in South-West Nigeria. The result showed increased years of schooling as well as educational attainment lowers fertility and it is statistically significant at 5%. The study concluded that higher educated women are less fertile or delay the birth of children than the less educated ones.

Keywords: Female Education, Fertility, Female Labour Force Participation.

1. Introduction

Female education has been advocated in many countries of the world in recent decades. The reasons for this may be adduced to both private and social returns that education yields. Empirical studies have shown a convex relationship between years of schooling and earning (Burger, 2012; Heckman, Lechner and Todd, 2008), therefore women want to earn better pay and improve their living standard. Also, many development policies adopted by many countries are now focused on improving the girl-child education, gender equality, and female participation in the economy.

In addition, many countries use female education as a tool for controlling their population. Studies have shown that increased schooling years will reduce fecundity (Kalwij, 1999), by reducing the period allocated to a woman to give birth. Also, better educated women make good use of contraceptive technology; contraceptive technology affords a woman to have children at a desired or planned period and helps control for the desired number of

children. Furthermore, better educated women tend to have lesser children than uneducated ones, because they are more interested in the quality of children rather than quantity (Gete and Porchia, 2011, and Adebisi and Olomola, 2014). For example, educated women have a high tendency to produce educated (even more educated) children because they know the value of education, and households can afford the financial cost attached to this due to their improved income by the working women.

Nigeria being the most populous black nation, like many other countries, have engaged in programmes and policies to achieve economic development which had been directly or indirectly rapt towards female education. Programmes like Millennium Development Goals, National Economic Empowerment and Development Strategy and the Vision 20:2020 promotes improved female education, women empowerment (female employment), gender equality, reproductive health programme, poverty reduction and welfare. This in turn has an effect on fertility measures of the country. Hence, this study examined the effect of female education on fertility in Nigeria using both microeconomic and macroeconomic data. Section two discussed the review of literature while data and method of analysis was discussed in section three. The result of the analyses was presented in section four, and section five discussed the conclusion.

2. Conceptual Framework

This work adopted the conceptual framework of Gunes (2013). Economic theory provides several mechanisms through which education may influence fertility choices. One explanation is that education increases the returns to labour market participation, thereby increasing the opportunity cost of time-intensive activities (Becker, 1981; Schultz, 1981). As a result, women might substitute time-intensive activities, such as childbearing and child rearing, in order to devote more time to the labour market participation. Therefore, education might result in fewer children for women. Also, education may affect fertility preferences –for instance, more educated women may prefer fewer but healthier (higher quality) children (Becker and Lewis, 1973). Improvements in child health resulting from female education may also reduce child mortality, thereby, lowering fertility since fewer births are required to achieve the same family size (Lam and Duryea, 1999; Schultz, 1993). Education may reduce fertility through increased knowledge about

contraceptives and the effective use of contraceptive methods (Rosenzweig and Schultz, 1985, 1989). Lastly, education may increase women's autonomy and bargaining power in the household, thereby, increasing women's participation in fertility decision-making (Mason, 1986). In addition, staying in school longer might postpone childbearing if having children impedes upon attending school.

Economic theory points to a number of mechanisms in which education influences fertility; however, according to the demography literature, the relevance of these mechanisms is highly dependent on a country's stage of demographic transition. Changes in fertility behaviour, including the adoption of birth control methods and preferences for smaller family size, caused by the spread of new ideas and information through mass media, family planning programs, etc., account for changes in the decline of the fertility rate in the early phase of the transition. However, as a country approaches the later stages of the transition, fertility becomes more closely tied to the level of socioeconomic development (Bongaarts, 2002). Further fertility declines, therefore, depend on improvements in socioeconomic conditions, particularly female education and child survival (Caldwell, 1980; Sen, 1999; Bongaarts, 2001). Therefore, increases in female education in demographic transitions may be linked to fertility declines at later stages. Many developing countries have experienced rapid fertility declines since the 1960s; however, the pace of decline slowed in a number of countries (Bongaarts, 2006).

1. Fertility and Education Trend in Nigeria

Fertility decline has been observed by literature in many countries of the world (Gunes, 2013). Studies have identified women education as a key variable that induced fertility reduction over the years (Bratti, 2003; Feyisetan and Bankole, 2003; Kim, 2016). This study attempted to look at the trend of fertility and education in Nigeria. Figure 1 showed the crude birth rate, a measure of fertility from 1990 to 2015. It was observed that for the period under consideration, crude birth rate has declined from 44 per thousand in 1990 to about 39 in 2015. Likewise, for the same period, the number of births per woman has declined from about 6.5 in 1990 to 5.6 in 2014. It could be deduced from data that fertility has reduced in Nigeria over the years, but according to Bongaarts (2006), the pace of decline differs from one country to another. The pace of fertility decline seemed slow in the country. However,

primary school enrolment for females had been fluctuating with the lowest being 72.4% (1996) and the highest 94.2% (2006). Despite the fluctuation, it is evident that girls' education in Nigeria is improving and more girls are being registered in school.

In addition, the study presented the cross-sectional data (microdata) for the following years: 2003, 2008 and 2013, sourced from the Nigeria Demographic and Health Survey (NDHS) in table 1. It is observed that the higher the educational attainment of the woman, the lower has been the number of children ever born. Also, as the years advanced, from 2003 to 2013, the number of children per woman had dropped for all educational groups. Likewise, total fertility rate reduced with increased educational attainment and it has dropped for education groups across the years. Age at first birth increased with improved educational attainment. The three measures of fertility revealed that female education has reduced fertility over the years in Nigeria. This is in conformity with Osili and Long (2004) and Bratti (2003). Also, fertility is reducing over the years; this shows that there is a gradual downward shift in fertility in the country. It may be as a result of effectiveness of policies and programmes geared towards improved female education, fertility decline and population control.

4. Data and Method of Analysis

Due to unavailability of data on key variables like schooling years and inadequate time series data for a period long enough for robust analysis; the study used cross-sectional data from a survey conducted on women in Southwest Nigeria, by the author, 2015. The target population were married or cohabiting women who are within the reproductive ages in the last 12 months. Reproductive age is defined as ages between 15 to 49 years, following the classification of Nigeria Demographic and Health Survey (2008). Also, at age 15, it is assumed that the woman had been given an opportunity to complete nine years of basic education (Universal Basic Education-UBE). The study adopted the multistage sampling technique. Three states were selected out of the six states in the region; and from each selected state, five Local Government Areas (LGAs) were selected using simple random technique. In addition, four wards were taken at random from each selected LGA and one street was selected from each ward. Also, out of each of the selected street, ten households were selected using systematic sampling technique and one

eligible respondent was selected from each house. Six hundred questionnaires were administered, 514 were recovered and used for the analysis. Following the work of Conesa (2000) and Gunes (2013), the linear equation was specified thus:

$$fet = c + \alpha_1 sc + \alpha_2 ed + \alpha_3 ex + \alpha_4 w + \varepsilon \dots\dots\dots(1)$$

Where, *fet* is fertility proxy number of children ever born, *sc* is schooling years, *ed* is educational attainment, *ex* is female participation in the labour force proxy by years of experience on the job and *w* is wage. Both *sc* and *ed* are measures of education and they are exogenously determined in the model, while *ex* and *w* are control variables.

However, fertility (the dependent variable) measured by children ever born can assume the minimum value of 0, and a positive value thereafter; in such a situation, Ordinary Least Squares is not an adequate estimation technique. Therefore, this study made use of Tobit Regression to test the effect of education on fertility using Binary Logit. Representing the explanatory variables with *X* and the control variables with *Z*, Tobit is specified as:

$$fet_i = \alpha_1 X_i + \alpha_2 Z_i + \varepsilon_i \dots\dots\dots(2)$$

Equation (2) was estimated using Tobit Regression (Table 2).

4.1 Findings

The result of the Tobit regression revealed that schooling years is negatively signed and statistically significant at 5%. Likewise, level of education is negatively signed and statistically significant at 5%. The implication of this is that the two variables measuring education revealed that the higher the education, the lower the fertility in Southwest, Nigeria. The result is in conformity with Osili and Long (2004), Gete and Porchia (2011), Adebisi and Olamola (2014), and Guns (2013) that education reduces fertility. Labour market variable (years of experience) is negatively signed but statistically not significant. However, wage is positively signed and statistically significant at 5%, implying that higher wages spur more children. This may be because higher female income increases household income and hence, affords household to be able to cater for more children.

5. Conclusion

The study examined the effect of female education on fertility in Nigeria. Cross-sectional data on women in Southwest Nigeria analysed with Tobit Regression showed that female education reduces fertility. The study concludes that education has a negative influence on fertility

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Appendix 1

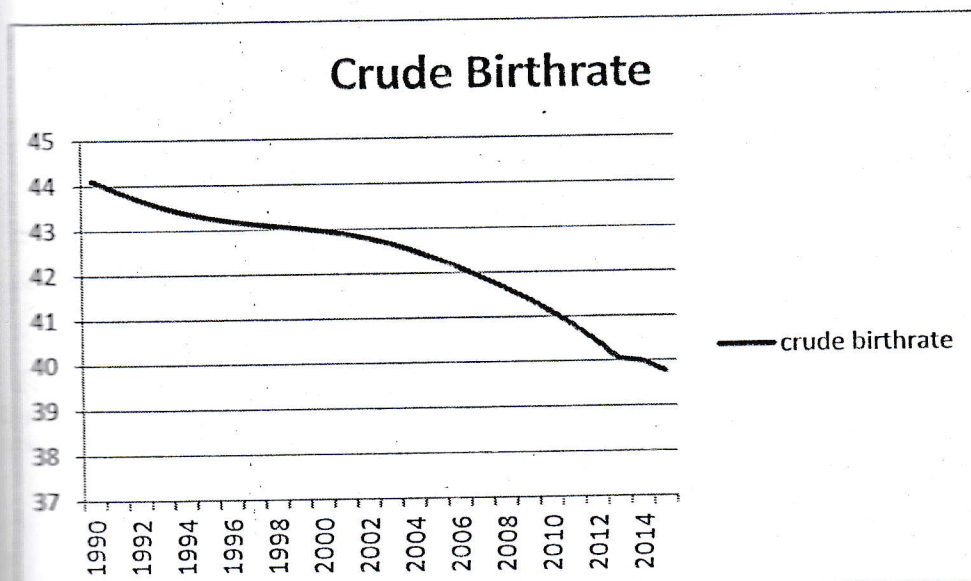


Figure 1: Crude Birth Rate in Nigeria

Source: (WDI, 2016)

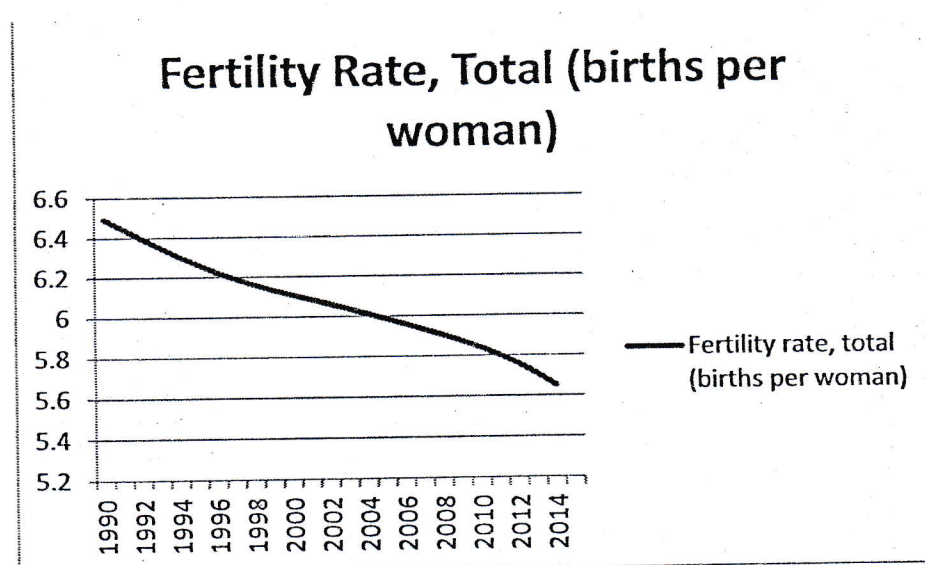


Figure 2: Fertility Rate, Total (birth per woman) in Nigeria

Source: (WDI, 2016)

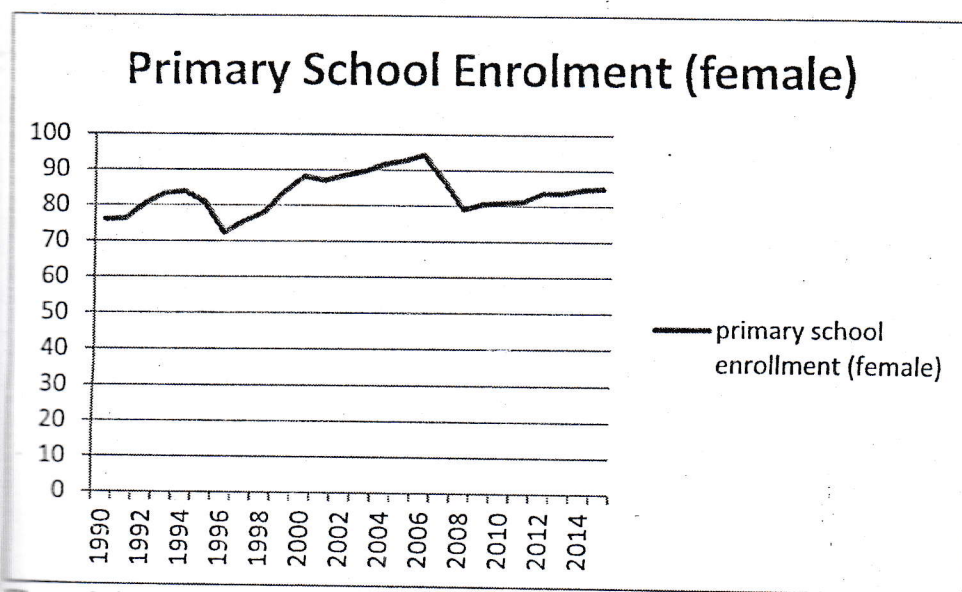


Figure 3: Primary School Enrolment (female)

Source: (WDI, 2016)

Table 1: Educational Attainment, Birth and Fertility Rates in Nigeria

Educational Attainment	2003			2008			2013		
	Children Ever Born	Total Fertility Rate	Age at First Birth	Children Ever Born	Total Fertility Rate	Age at First Birth	Children Ever Born	Total Fertility Rate	Age at First Birth
No Education	7.1	6.7	17.8	7.8	7.3	18.1	7.3	6.9	18.3
Primary	7.1	6.3	18.9	6.6	6.5	19.5	6.3	6.1	19.7
Secondary	5.5	4.7	22.8	5.1	4.7	22.4	4.9	4.6	22.8
More Than Secondary	4.3	2.8	24.9	4.1	2.9	na	3.9	3.1	n.a.

Source: Nigeria Bureau of Statistics, (2004, 2009, 2014)

Table 2: Tobit Regression on Fertility and Education in Southwest Nigeria

Variable	Coefficient	z-Statistic	Prob.
SC	-0.171128	4.862667	0.0000*
ED	-0.256585	-3.318249	0.0009*
EX	-0.000769	-0.585183	0.5584
LOG(W)	0.170415	4.917105	0.0000*

*Significant at 5%

Source: Author's
computation (2018)