

# A Correlation Analysis of Fertility Rates In Southern and North-Eastern-Region of Nigeria

Gwanshak Joshua Yohanna

Department of Geography Faculty of Environmental Science, Plateau State University, Bokokos, Plateau State -Nigeria

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**Abstract:** Fertility in human population is one of the principal components of population dynamics in any country's population. To have a proper understanding of total fertility rate in Nigeria, as it varies from region to region, a study must be carried out to know those variations. This article is one of those research works that was done to correlate the fertility rate of the North-east and South-west of the country. These were achieved by retrieved data from Nigerian Demographic and Health Survey (NDHS), 2013 information on the characteristics of respondents which include: age, sex, marital status and education, other data was on fertility rate. The findings revealed that rural areas have high fertility rate than urban areas and posit to have an adolescent high rate of fertility. A significant different were achieved at 95% degree of freedom in its comparism of the two region. Thereby, suggesting positive ways to bring a general decline to fertility growth to the country.

**Keywords:** Fertility, Total Fertility Rate (TFR).

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## 1. INTRODUCTION

Fertility is the most important component of population dynamics and plays a major role in changing the size and structure of the population of a given area over time (Dube, 2013 citing Yohannes et al, 2004). The increase in the rate of fertility in less developed countries as found in the sub Sahara, is worrisome that all measures including, modern contraceptive devices suggested or put in place at national, community and household levels seem not to have had much impact (Nonye. A and David O, 2013). Nevertheless, according to the 2011 estimates by the Central Intelligence Agency (CIA), Total Fertility Rate (TFR) in Nigeria was 4.73- rated 27th in the world and 25th in Africa immediately after Sudan and Senegal but ahead of Togo, Central Africa Republic and Gabon (in that order). In addition, according to the results of the 2008 census, Nigeria is the most populous black nation in the world with a total population of over 140million people and an annual population growth rate of 3.2%2-4. These statistics are obviously indicator of impending population explosions if measures for checks are not considered. (Onoja. M and Osayomore.I, 2012)

The total fertility rate is the average number of children that would be born to a woman during her lifetime, during her biotic potential years estimated at 16-44+ (Loremate, 2004). Estimates of TFR for the years 1960, 1965, 1970, 1975, 1980 are 6.354, 6.335, 6.471, 6.706, 6.787 respectively. These figures imply an increase between 1965 and 1980 or, at best, a stability of fertility at high levels. The rise in fertility in early to mid-1970s may be explained partly by the dramatic rise in revenue from oil export which leads to a sharp increase in food import as well as workers' salaries (Bankole and Bamisaye, 1985). From 1981 up till 1997 TFR rose to 6.006 per female. Further decline in TFR was indicated from 1998 when fertility rate dropped by one percentage point to 5.963 to 2011 closing the period at 5.489. It can be argued that an onset of a sustained fertility decline appeared to have begun after the mid-eighties when policy makers started to give population control issues some serious considerations which culminated in the formulation of a national population policy in 1988 (Federal Republic of Nigeria, 1988). That fertility declined among all age groups reinforces the assertion by Caldwell et. al. (1992), that because young adult attempts to avoid pregnancy and marriage, efforts at birth spacing by older women will continue to be important driving force in the transition (Nonye. A and David .O, 2013)

Although comparison of TFRs for 1970 and 1988-90 suggests a decline in fertility between the two dates, the TFRs for 1980-82 and 1988-90 suggest stagnation in fertility levels in the eighties. However, there are three reasons to argue that the TFR for 1980-82 reflects a gross underestimation of births in the period and hence could not be used as a valid base for determining fertility trends in the eighties. First, the sudden decline in TFR from 7 in 1975 to 6.34 in 1980-82 cannot be justified in a population where desired fertility in 1981/82 was higher than the achieved fertility in 1975. Two, it is impossible to achieve about 15 per cent reduction in fertility in five years with only 2.6 per cent of women as ever-users of efficient contraception<sup>3</sup>. Three, there were neither strong population control activities nor socio-economic policies<sup>4</sup> in the late seventies that would have engendered such a drastic decline in fertility between 1975 and 1980. The TFR for 1981/82 appeared to be an underestimation, thus accounting for lack of observable change in fertility in the eighties. Argue here that an onset of a sustained fertility decline appeared to have begun after the mid-eighties when policy makers started to give population control issues some serious considerations which culminated in the formulation of a national population policy in 1988 (Federal Republic of Nigeria, 1988) <sup>5</sup>. A comparison of Lagos and Kaduna states, where the household survey data, Lagos had fertility rate of 5.41, Kaduna had 6.86. This represents a difference of over one child between the two states. Indeed, this demographic trend of high fertility rate with 44% of the population being 15 years and below has enormous implicative contributions to national development (Nelson E jiro, 2008). Several studies have tried to examine the proximate determinants of current fertility and possibly fertility dynamics. Here, the research tends to compare the rate of fertility growth between southern and northern, Nigeria. This study therefore empirically examines the following questions.

1. What is the average fertility of the Southern and Northern Nigerian family?
2. Is there any substantial difference in fertility rate of urban and rural families in Southern and northern, Nigeria?

Therefore, postulated some hypotheses as stated below:

- I. Fertility rate in Nigeria shows no significant decline over a decade.
- II. There is no fertility rate difference between southern and northern-Nigeria.

## 2. THEORETICAL PERSPECTIVE

The theory of demographic transition also posits a future decline in fertility when there is a change in the motivations to have children and fertility desires decline to a much lower level than actual fertility (Vande Walle, 1992; Feyisetan and Bankole, 2002). This was further demonstrated by the Easterlin (1985) framework, which showed how modernization leads to a shift from high to low fertility using the socio-economic approach of demand and supply. The Bongaarts (1993) variant of the demand and supply framework for the analysis of fertility posits that fertility is an outcome of the interaction of supply of births, demand for births and the degree to which people are able to implement their fertility preferences. In essence, the demand for births (children) is one of the key factors that drives eventual fertility outcome. Nigeria as most populous nation in Africa has a culture and religion beliefs on many children. This has posit another factor towards variation in demand for children in region within the country, has further contradict the theory of demographic transition having much effect to display in the increasing nature of population growth. Among the regions, the decline was most rapid in the south-west and lowest in the Northwest and Northeast. The reduction in fertility was positively associated with education and also fertility transition will be characterized by fertility declines at all ages, both inside and outside marriage.

Fertility trend by region, however, brings out some elements of peculiarity. Between 1990 and 1999, fertility rate rose from 5.9 in 1990 to 6.8 in 1999 in the northeast region, representing 0.9 percentage point increase (i.e., a percentage change of 15.3). The trends in other regions follow the national pattern. A remarkable decline of 2.6 percentage points- 36.6 percentage change- was recorded in central part of the country. While the trends in the southeast and southwest are lower than the national average that of the northwest is higher. Observers of the country's fertility trend have, however, shown that given the level of contraceptive use in the central part of the country the recorded sharp decline may be due to serious under-reporting. This notwithstanding, across all the regions the total wanted fertility rates are lower than the actual fertility rates by between 0.3 and 0.5 percentage points. On average, the gap between the two is 0.4 percentage point (NPC, 2000: 98).

### 3. RESEARCH MATERIALS AND METHODOLOGY

Nigeria lies on the west coast of Africa between latitude  $4^{\circ}16'$  and  $13^{\circ}53'$  north and longitudes  $2^{\circ}40'$  and  $14^{\circ}41'$  East. It occupies approximately 923,768 square kilometers of land stretching from the Gulf of Guinea on the Atlantic coast in the south to the fringes of the Sahara Desert in the north. Nigeria's population is unevenly distributed across the country, according to 2006 Population and Housing Census a population estimated 140, 431,790 and recent population estimated of 174 million people in 2015.

The country is categorized into six geo-political zone which include North-east, North-west, North-Central, South-east, South-west and South-south. This research would be concerned with correlation of North-east and South-west.

The study design and all other methods connected with the data collection and sampling strategies in the 2013 NDHS have been published in different reports, I briefly highlight some important aspects. With the 2006 Population and Housing Census of the Federal Republic of Nigeria as the sampling frame, the sample for the 2013 NDHS was designed to provide population and health indicators at the national, zonal, and state levels. The primary sampling unit (PSU), referred to as a cluster for the 2013 NDHS, is defined on the basis of the Enumeration Areas (EAs) from the 2006 EA census frame. The 2013 NDHS sample was selected using a stratified two-stage cluster design consisting of 904 clusters, 372 in the urban and 532 in the rural areas. A fixed sample taken of 45 household were selected per cluster, all women age 15-49 who were either permanent resident or visitor at present. Secondary data recorded in NDHS 2013 of information on the characteristics of respondents which include: age, sex, marital status and education, other data was on fertility rate. And on the information, analysis was carried out to achieve postulated hypotheses using spearman ranking correlation. Thus, with a formula,

$$\rho = 1 - \frac{6 \sum d_i^2}{n(n^2 - 1)}$$

Where:

P= Spearman rank correlation

di= the difference between the ranks of corresponding values Xi and Yi

n= number of value in each data set

### 4. DISCUSSION AND RESULT

Table1. Shows the percentage distribution of women at the age of 15-49 were about 56% of women in the total population of the country. A high of 20.1% were between 15-19 of age while the lowest of 8.8% of respondents were between the age 45-49, this reflect a comparatively young age structure of population and an indicator of past history of high fertility rate. More than half of the sampled population are Muslim with 51.7%, 11% Catholic, 35.7% other Christians while 0.9 and 0.5% respectively, were traditionalist and missing ones. Majority of respondents are currently married or living together with a partner, 69.4% married, 2.0% living together and 2.1% divorced and while 2.5% were widowed. There is a likelihood of remarriage among the divorce and widowhood. Education is an determinant factor, with 37.8% no education, 35.8% attended secondary school, 17.3% had primary education while only 9.1% had tertiary education

**Table 1: Background Characteristics of Respondents**

Background Characteristic	Weighted Number	Weighted Percentage
Age		
15-19	7820	20.1
20-24	6757	17.3
25-29	7145	18.3
30-34	5467	14.0
35-39	4718	12.1
40-44	3620	9.3
45-49	3422	8.8

Religion		
Catholic	4316	11.1
Other Christian	13922	35.7
Islam	20149	51.7
Traditional	359	0.9
Others	192	0.5
Marital Status		
Never married	9326	23.9
Married	27043	69.4
Living together	787	2.0
Divorced	826	2.1
widowed	967	2.5
Education		
No Education	14729	37.8
Primary	6734	17.3
Secondary	13927	35.8
Tertiary	3558	9.1

Source: NDHS, 2013

**Table 2: Age Group Current Urban and Rural Fertility Rate in Nigeria**

Age Group	Urban	Rural	Total
15-19	62	162	
20-24	188	262	
25-29	237	265	
30-34	218	247	
35-39	148	169	
40-44	59	91	
45-49	20	38	
TFR	4.7	6.5	
GFR	159	213	
CBR	35	42	

The table presented the current fertility rates survey in NDHS 2013 which point out that an average Nigerian women will give birth to 5.5 children by the end of their childbearing years, this is less than reported in 2003 and 2008 NDHS survey respectively. Fertility is peak in the age group of 25-29 years in urban area (237 birth per 1000 women) and an age group of 20-24 years in rural area (267 birth per 1000 women). Rural areas have a much higher fertility rate than urban (6.2 and 4.7). thus, rural areas is dominated with adolescent fertility.

**Table 3: Comparism Of Fertility Differences In North-East And South-West Region In Nigeria**

Back ground	TFR	% of women age 15-49 currently pregnant	No. of children ever born by woman age 40-49
Urban	4.7	9.5	5.8
Rural	6.2	14.0	6.8
North-east			
Adamawa	5.8	15.8	6.7
Bauchi	8.1	16.9	8.4
Borno	4.7	12.7	5.2
Gombe	7.0	14.3	7.9
Taraba	6.0	10.5	7.1
Yobe	6.6	13.4	7.4
South-west			
Ekiti	4.3	7.0	5.2
Lagos	4.1	7.2	4.3
Ogun	5.4	10.6	4.9

Ondo	5.2	9.1	5.2
Osun	4.1	6.8	4.3
Oyo	4.5	11.9	5.1

Source: 2013 NDHS

Table3. Observed the fertility difference percentage of women in the selected zone; North-east and South-west of Nigeria, revealed aged 15-49 who are currently pregnant and the average number of birth among them of 40-49 years. Urban area shows 4.7 % of total fertility rate , 9.5% of age 15-49 currently pregnant and 5.8% of children born at age 40-49 years, the north-eastern states is observed with highest total fertility rate at 8.1 while Borno indicated low fertility rate at 4.9%. for the south-west, Ogun has the highest TFR at 5.4% while Lagos and Osun state has the lowest with 4.1% respectively.

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