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Stylized Facts and Review of the Relation between Contraceptive Use, Delinquency and Age Structure in Nigeria, and It's Implications for Demographic Dividend

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Abstract

The young population structure of most African countries will serve as a driving force behind economic buoyancy in years to come, only if strategies are put in place to encourage smaller families. Forty percent of the Nigerian population is below 15 years, while 3 percent are 65 years and above. A large workforce with fewer children to support creates a window of opportunity to save money on health care and other social services. This study seeks to examine the association between contraceptive use, delinquency and age structure of Nigeria population; to identify ways of achieving the demographic dividend. Data were extracted from the Nigeria Demographic and Health Survey Report in 2008, United Nations World Population Prospects Report (2008) and World Population Data Sheets (2009-2016). Uses of trends (tables and charts) were adopted in presenting data in this study. Findings show that contraceptive prevalence level in the country is very low, it ranged from 11% - 15% within the selected periods. The desire to limit childbearing as the number of living children increases was reported to be common among women with three or more children in both urban and rural areas. Mothers with post-secondary education on the average had 4 children, while those without education had 8 children. Education is that best contraceptive to achieve the age structure that would result in demographic dividend; hence more investments in women education are needed. Also, job opportunities for different levels of skill are required as this encourages dual role among women apart from rearing children.

Subject Areas

Demography

Keywords

Contraceptive Methods, Age Structure, Demographic Dividend, Delinquency Rate

1. Introduction

A lot has been said on the potentials of developing countries, Nigeria is inclusive in benefiting from the current demographic transition in order to achieve the dividend [1], was of the believe that in order to achieve demographic dividend there must be a shift from a population with high mortality and fertility rates to a longer life expectancy and smaller family size. Demographic dividend is defined as the economic growth that results from changes to a country's age structure [2]. These changes are believed to usher better living standards for families and higher incomes per person if the right policies are put in place.

Family planning programs are one of the most critical services needed to manage population growth, complete demographic transitions and achieve the dividends. If contraceptive services are not available especially for the large youth population in less developed countries, the population would continue to grow rapidly and the burden of these would be magnified in so many areas. Nigeria is currently experiencing very substantial changes in its population that could have very important implications for her economic prospects. The driving force behind population change is the rise in Nigeria's total fertility rate (TFR) which leads to an immediate increase in the share of children in the population and a decrease in the share of the working-age population. The course that the economy will follow will depend on choices made by the people of Nigeria and their policymakers [3], but changes in age structure will present a set of options that are preferable to those currently available.

Nigeria cannot move into the middle stages of demographic transition which only occurs when fertility declines unless couples decide to have smaller families by having access to quality health services. Family planning programs contributed to nearly half of the total decline in fertility rates across the developing nations as it fell to one child per woman for each 16% point increase in contraceptive use [1]. However in recent years, contraceptive use remained low in Nigeria due to multiple factors [4]. Knowledge about current modern contraceptive methods remains a key in evaluating the impact of family planning on the age structure in Nigeria. In a survey conducted by the National Population Commission [5], about 68.6% of married women knew about contraceptive methods as at 1990, the proportion growing to 90.7% in 2003 only to drop to 87.1% in 2008. Therefore, the access to this services and not the knowledge about them remain the key impediment towards reducing the fertility rate. The age structure of a country gives us an insight into the opportunities that demographic change promotes. Countries with a youthful age structures were empirically found to

likely be afforded the opportunities provided through demographic transitions [6]. Changes in growth rates are reflected in the population age structure of any country. Nigeria's flat fertility and growth rates have meant the country's age structure is relatively unchanged overtime. Therefore, unless there is a drop in fertility in the near future the country would be unable to benefit from the opportunities that arise from a favorable age structure. The fertility rate of Nigeria has fallen steadily from an average of 6.5 children per women in 1960 to 5.5 children per women in 2010 even though the growth rate of the economy has stagnated in terms of income per capita from the period 1980 to 2006 [7]. Enough literatures exist on the impact of increase in population on economic growth but few have talked on the impact of contraceptive use on the pattern of the age structure of the Nigerian population and how it could be used to achieve demographic dividend.

This is the gap this paper wants to fill as it would serve as an invaluable addition to existing literature by establishing the relationship that exist between the current family planning methods, delinquency rate and age structure in Nigeria by proffering ways of achieving demographic dividends through the transition mechanism.

2. Literature Review

2.1. Link between Family Planning and Age Structure

The economic growth potential created by favorable shifts in the age structure of the population is known as the demographic dividend. For most developing countries, changes in age structure arises from a phenomenon known as the demographic transition-a descriptive model that refers to the change countries make from high fertility and mortality rates to lower ranges, a change that have asynchronous tendencies with the death rate declining first and the birth rate following later.

The workings of **Figure 1** (demographic transition) follows that mortality rate declines causing a baby boom which has a consequent effect on the economy as there are more pressure on significant resources, thereby slowing down economic growth at the initial stage [8]. The only way to achieve demographic dividend is for the fertility rate to decline as it serves as a potent driver of the age structure of the population. Many demographers are of the opinion that constraints in the supply of contraceptives accounts for the high fertility rates in developing countries in the early 60 s. [4] and [9] attributed the high rate of fertility decline to the expansions in family planning programs in recent years. In contrast, there exists a divergent view on the effect of family planning on fertility rates. [10] established that there exist no independent relationship between family planning and fertility but fertility is affected by other factors such as expansion in girl child education and greater economic opportunities for women [11]. This school of thought were of the opinion that the mere observation of a negative relationship between contraceptive use and fertility rate does not imply that contraceptive use lead to decline in births.

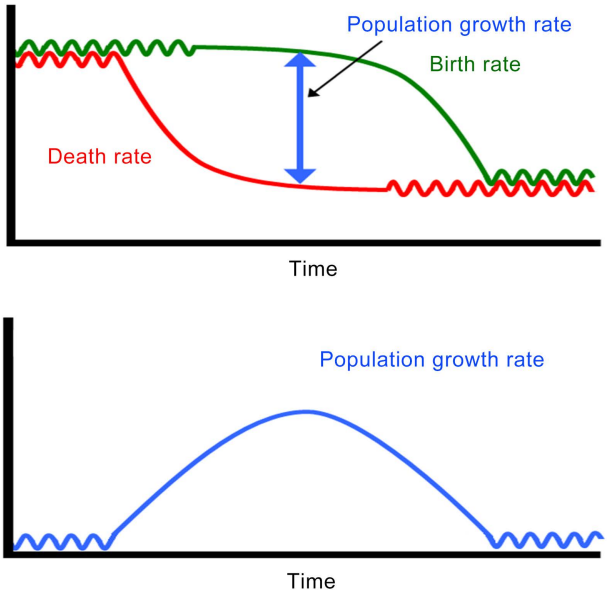

Figure 1. The demographic transition: High fertility and mortality transitioning to low fertility and mortality, with consequent temporary high rate of population growth. Population reference bureau, (2009). World population data sheet (2009).

Population dynamics have an important influence on development. In countries experiencing demographic changes, a more balanced age structure can encourage higher rate of economic growth. The pattern of the age structure of a country most times is influenced through policies and programs offering comprehensive family planning and effective reproductive health services [6]. [8] were of the opinion that the recent decline in fertility rate and increases in life expectancy are causing significant shift in the global age structure as the number of people over the age of 60 is expected to reach 1 billion by 2020 and reach double figures by 2020. [12] analyzed the impact of changing age structure on East Asia's remarkable economic growth in the second half of the 20th century. They discovered that rapid declines in infant mortality in the region in the late 40 s and the triggered decline in fertility rate through modern medical facilities brought about rapid development in the region.

The lag between falling mortality and fertility created a baby boom generation and as this generation reached working-age the level of savings rate and size of the labor force were boosted from the period 1965 to 1990. The working-age population grew by 2.4% while the dependent population stagnated at just 0.8%. [13] estimated that this demographic bonus experienced in Asia during this period accounted for about one-third of the Asian miracle between 1965 and 1990, while emphasizing the contributions of appropriate policies in achieving this feat (**Figure 2** and **Figure 3**).

The above **Table 1** revealed that fertility peaks at age group 25 - 29 with 265 births per 1000 women and declines thereafter. Rural areas had higher TFR than urban areas (6.3 compared with 4.7 respectively) and there are large urban-rural differences in ASFRs for all age groups. The largest variations are in age groups

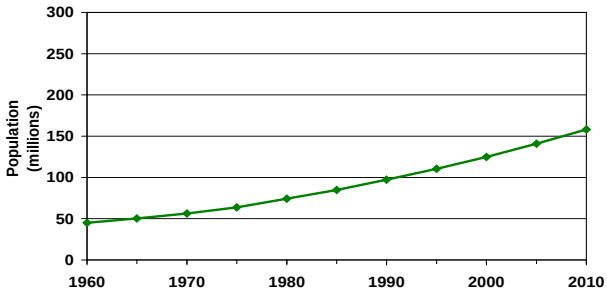

Figure 2. Nigeria's population has grown rapidly. Source: UN world population prospects 2012. Population reference bureau, (2010). World population data sheet.

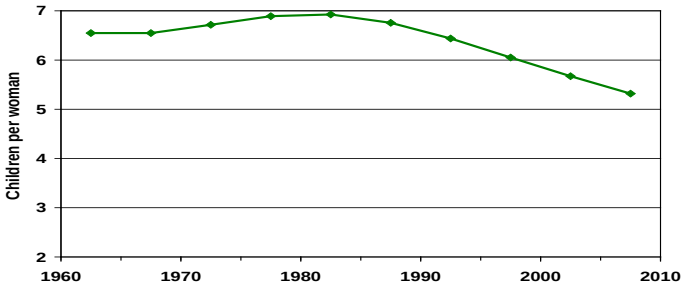

Figure 3. Nigeria's fertility rate has started to fall. Population reference bureau, (2011). World population data sheet.

Table 1. Total fertility rate and contraceptive prevalence level among currently married women.

Country	Total Fertility Rates (TFRs)							
	2009		2010		2011		2016	
Nigeria	5.7		5.7		5.7		5.6	
Country	**Percent of Married Women 15 - 49 Using Contraception**							
	All	Modern	All	Modern	All	Modern	All	Modern
Nigeria	11	9	15	10	15	10	15	8

Source: Population reference bureau, 2009-2016.

15 - 19 and 20 - 24; in these groups the rates for rural women exceed those for urban women by 78 and 77 births per thousand women, respectively. According to the survey report, the proportion of women and men who want another child generally decreases with increasing number of living children.

At the same time, the proportion of women and men who want to stop childbearing (including those sterilized) increases with increasing number of living children. Among women and men with no children, more women than men want to have a child soon (76 percent of women compared with 57 percent of men). By the fourth child, however, this pattern is reversed and more men than women want another child soon (23 percent of men and 22 percent of women). Among women and men with six or more living children, only 13 percent of women compared with 25 percent of men want another child soon.

The desire to limit childbearing as the number of living children increases was reported to be common among women with three or more children in both urban and rural areas. Overall, more than one-third (38 percent) of women with five living children want to limit childbearing, compared with 2 percent of women with one living child. Among the various zones, the proportion of women who want no more children varies. For instance, 10 percent women from the North West were willing to limit childbearing compared to 32 percent in South West. In all the southern zones, majority of women do not wish to have more children once they have had five children. At parity six and above, over two-thirds of currently married women in the southern zones do not want any more children. In contrast, in the North West and North East, only one-third or fewer women want to limit childbearing, regardless of the number of living children they already have. This is especially true of women in the North West where only 26 percent of women with six or more children say that they want no more children (Table 2).

Table 2. Fertility preference by number of living children.

Desire for Children	Number of Living Children							
	0	**1**	**2**	**3**	**4**	**5**	**6**	**Total**
				Women				
Have another soon	75.9	37.0	34.4	28.9	22.1	16.5	13.0	29.1
Have another later	6.4	47.3	44.0	39.8	30.9	25.4	16.5	32.2
Have another, undecided when	5.2	5.3	6.3	5.7	5.5	3.8	3.7	5.1
Undecided	8.5	6.6	7.8	10.0	12.8	13.0	15.8	10.8
Want no more	0.6	2.0	4.9	12.7	25.2	36.8	45.1	19.3
Sterilized	0.0	0.0	0.1	0.2	0.6	0.7	0.9	0.4
Declared In fecund	2.8	1.3	1.7	2.1	2.4	3.0	4.5	2.5
Missing	0.8	0.6	0.8	0.6	0.5	0.8	0.5	0.6
Total	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**
Number of women	**1650**	**3675**	**3911**	**3900**	**3517**	**2688**	**4238**	**23,578**
				Men				
Have another soon	57.4	34.1	34.1	26.7	23.2	30.0	21.9	28.5
Have another later	13.7	50.3	47.2	42.9	35.2	38.3	14.5	33.9
Have another, undecided when	18.3	10.4	7.6	11.3	10.3	10.9	9.4	10.6
Undecided	5.9	3.2	5.4	7.7	9.3	7.4	12.2	8.3
Want no more	1.0	0.4	4.1	9.7	20.2	11.6	39.5	16.8
Sterilized	1.0	0.7	0.7	0.7	0.8	0.8	0.9	0.8
Declared In fecund	0.0	0.0	0.2	0.3	0.3	0.2	0.5	0.3
Missing	2.7	0.8	0.5	0.8	0.7	0.8	1.1	0.8
Total	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**
Number of women	**482**	**1162**	**1244**	**1102**	**933**	**7018**	**1599**	**8618**

Source: NDHS, 2016.

Several reports have revealed that the knowledge of contraceptive is widespread in Nigeria. A larger proportion of the women are aware of most of the modern contraceptive and this is followed by traditional method. The male condom is the most common method among them, while foam/jelly and the diaphragm are the least known modern method. Among traditional methods, withdrawal and rhythm are the most commonly known among all women? In Nigeria, among the currently married women, inject tables were reported as the most common modern method and this is followed by male condom, while rhythm is the most commonly used traditional method. Among sexually active unmarried women, the most commonly used modern method is the male condom, followed by the pill, while the rhythm method and folk methods are the most widely used traditional methods. Also, the use of modern family planning methods is higher for sexually active unmarried women than for currently married women. The contraceptive prevalence rate (CPR) is usually defined as the percentage of currently married women who are currently using a method of contraception. The CPR for modern methods has increased from 6 percent in 1990 to 13 percent in 2003 and to 15 percent in 2016.

Mother's education is said to have indirect relationship with level of fertility. Education enlightens mothers on the benefits of using contraception, not only that since they can read and write they are opportune to get involved in the labour force. This afford them the means of paying for family planning services and confers on them a dual role (as mother and a worker) unlike their counterparts who are full-housewives and depend on their husbands for finances. Therefore, the higher the level of mother's education the more propensity for contraceptive usage and eventually reduction in fertility. The predominant use of contraception in Nigeria is for spacing rather than for limiting births. This may dilute the association between contraceptive practice and fertility, a theory for which there is some evidence. The basic idea is that when contraception is used for spacing, it is used only for short periods and perhaps with less motivation to avoid pregnancy, compared with its use for limiting (**Table 3** and **Table 4**).

Though, reports show that there is a wide knowledge of contraceptive methods, but other factors such as level of education, culture, women empowerment, etc have hindered the influence of contraceptive use on fertility desire. Different studies demonstrated that the average number of children will decline when women have more say in the family [14] [15] [16]. Gender equality is viewed as one of the most crucial tools for changing reproductive behavior. The lower the Gender-related Development Index (GDI), which measures among other things, women's and men's equality in society, the higher fertility rates tend to be. Niger, for example, has the lowest GDI-value worldwide. At the same time, they have the highest fertility rate in the world. A country's fertility rate is predominantly influenced by women's level of education. By comparison, the number of desired children is only marginally affected by how well men are educated.

Table 3. Trends in current use of family planning.

Method	1990	2003	2016
Any method	**6.0**	**12.6**	**14.6**
Any Modern Method	**3.5**	**8.2**	**9.7**
Female Sterilization	0.3	0.2	0.4
Pill	1.2	1.8	1.7
IUD	0.8	0.7	1.0
Injec tables	0.7	2.0	2.6
Male Condom	0.4	1.9	2.4
LAM	**U**	1.4	1.6
Any traditional Method	**2.5**	**4.3**	**4.9**
Rhythm	2.1	2.1	2.1
Withdrawal	2.0	1.3	2.0
Folk method	0.6	1.0	0.9
Not currently using	**94.0**	**87.4**	**85.4**
Total	**100**	**100**	**100**
Number of Women	**6880**	**5336**	**23,578**

LAM = Lactational Amenorrhea Method

U = Unknown (not available)

Source: NDHS, 2016.

Table 4. Relationship between mother's education and fertility.

Education	Nigeria (NDHS, 2016)
No Education	8.0
Primary	6.3
Secondary	4.9
Secondary+	4.3

Source: NDHS, 2016.

2.2. Demographic Transition through the Age Structure

In the literature, there is growing interest in Age-Structural Transitions (ASTs) as recent research has shown that the ASTs have major implications for economic development. In the view of [7] age-structural changes rather than population growth explains the link between demographic change and economic growth. Initial works on demographic dividends analysis focused on less developed countries and on new industrialized Asian countries [8] Early studies on

this subject constructed deterministic models that portrayed a simplified flow from demographic transition phase to projected gains in indices such as national income through the ASTs generated growth [9]. However, [17] believed that the process of demographic transition is not deterministically driven as earlier portrayed but could be better understood in terms of realizing dividend window of opportunity through age-structural changes.

[18] explains that age-structural transitions are driven by demographic transitions. He was of the opinion that ASTs unfold over three phases with demographic dividends only possible at the middle phase when the proportion of the population of working-age peaks. [19] demonstrated the linkage between age structure and development which is a principal variable of the dividend argument as presented by [20]. Youth constitute the age-group pivotal to the mobilization of human capital necessary to exploit the changes in population structure as they are the potential workforce needed to service the dependent population [21]. [22] believes that Nigeria is on the verge of experiencing very substantial changes in its population that could have very important consequences for its economic prospects. The driving force behind the country's population change according to him is the decline in the Total Fertility Ratio (TFR) which would lead to an increase in the share of the working-age population. Nigeria like many other African countries has a large percentage of its population under the age of 25. According to the [23], 62.4% of the country's population are under the age of 25 while a paltry 4.9% were 60 and above as at 2010. The combination of these two dependent age groups being so large makes the population of the working age group less than one-third of the country's population.

Figure 4 shows the current proportion of working-age group to dependent group in Nigeria which is pretty low for a country wishing to tap into the opportunities of a dividend through population changes. However going by the predictions of the United Nations using the 3 fertility scenarios based on the present level of population growth and contraceptives use, the percentage of working-age population is expected to rise to a point capable of bringing about development through changes in the age structure of the population (**Figure 5**).

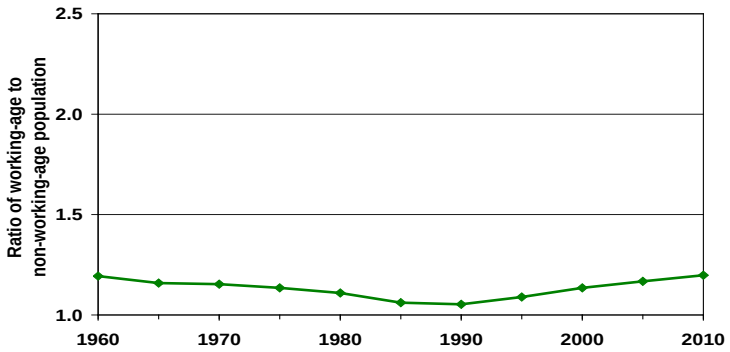

Figure 4. The ratio of working-age to non-working-age people has been pretty steady. Source: UN world population prospects 2012. Population reference bureau, (2016). World population data sheet.

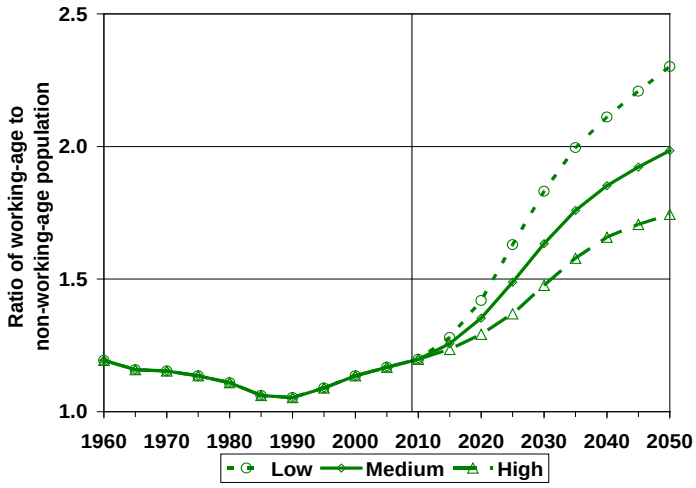

Figure 5. Growth of the working-age to non-working-age ratio, 1960-2050 (under 3 UN fertility scenarios). United nations (2008). World population prospects: the 2008 revision. Population.

2.3. Age Structure and Delinquency

Criminologists have continued to debate the relative importance of many socio-economic factors that could explain the rate of delinquency and traditionally there has been consensus that one variable that exhibits this relation to delinquency is the age structure of the population. Young people exhibits delinquent tendencies and could be involved in criminal activities dramatically during their teen years with a peak in their mid-20 s and decline after 65 years [24]. For instance, the import of the works of [25] showed that standard demographic indicators such as birth, death and immigration rates which are mechanisms for population and age structure forecasts show a temporal association between age structure and delinquency. This was evident in the reduction of crime rate in the United States significantly between 1980-1984 due to aging population during the time period as the "baby-boomer generation" began to move out of the crime-prone age groups with the relation between age structure and delinquency said to be symmetric in nature [26].

However, like most empirical investigations, there exist divergent views on the nature of the relation that exist between age structure and delinquency. Basing his work on a sample of 18 countries, [27] found no significant relation between the relative size of the young population and delinquency rates. So also, several cross-national studies such as [28]; [28] further raised questions about the supposedly temporal relation between age structure and delinquency rate. [29] for instance in their analysis of 5 developed countries for a period of 70 years found that changes in the structure (composition) of young males in the population does not have a consistent effect on delinquency rate across countries with a strong effect of age composition on the time trend of delinquency levels been observed in only 2 (Italy and USA) of the 5 countries analyzed.

Therefore, it was concluded with reference to the work of [28] in their com-

prehensive review of 90 studies examine the age-delinquency (crime) relation that the universally accepted hypothesis of a relation between age structure and delinquency could be an overtly simplistic statement and could vary amongst countries due to differences in cultural and social conditions such as a distinctive regional culture and heterogeneous composition of the population. Thus, with the aforementioned conditions in addition to very little research to date on these subject matters, our aim is to investigate the nexus between contraceptive usage, age structure and delinquency and how it could be used to achieve demographic dividend.

3. Research Methodology and Presentation

Data was extracted from the Nigeria Demographic and Health Survey Report and World Population Data Sheets (2009-2016).

4. Conclusion and Recommendations

Overall, women with secondary school education want fewer children than less educated women. Generally, they also know how they can realize their wishes because they are well or adequately informed about birth control and reproductive issues. This is reflected in the demand for and the use of modern contraceptives. Ultimately, the advanced knowledge also contributes to fewer unwanted pregnancies among better educated women. Also, have more couples use contraceptives for limiting rather than only spacing will help to reduce number of children desired. Education is that best contraceptive to achieve the age structure that result in demographic dividend; hence more investments in women education are needed. Also, job opportunities for different levels of skill are required as this encourages dual role among women apart from rearing children. That is, job opens ranging from white collar to blue collar, manual, skilled and unskilled labour. When women assumed other roles other than rearing children they become more involved in decision as regards the number of children they want to have or planning their family.

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