EFFECT OF POPULATION ON ECONOMIC DEVELOPMENT IN NIGERIA: A QUANTITATIVE ASSESSMENT

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ABSTRACT:

This study examines the effect of population on economic development in Nigeria. Thus, Malthusian theory of population is relevant to Nigeria as a developing economy. The study used trend analysis of the study with the scope spanning between 1981 and 2007. The study adopted ordinary least square method of analysis. In examining the time series properties using the Phillips-Perron (PP) non-parametric unit root test. The analysis showed that real gross domestic product, population growth and per capita income are non-stationary at levels, but the null hypothesis of non stationary is rejected at first difference for both test models with intercept and trend. The study revealed that population growth has positive and significant impact on economic sustainability proxied as real gross domestic product (RGDP) and Per Capita Income. The study later proffer various policies options which government can implement for better economic development as a result of continuous population growth.

Key words: Population, Economic sustainability, Resources allocation

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1. INTRODUCTION:

In recent times, policymakers in the country have shown great concern in the economic growth of the nation. Both urban and rural economies have come under the lens of the policy makers to check what the real factor(s) that enhance economic growth. However, it has been accepted that economic growth is mainly affected by the population explosion, because the more the human activities the more driven economy will be and this in-turn brings the needed growth in the economy. For instance, fewer people live in rural areas which has little or no economic problem compared to urban, semi urban area that have more population. The federal government at one time or the other has introduced many policies to consciously enhance economic growth through the distribution of the nation's population evenly. It was thus realized that one of the factors responsible for the development of human capital formation in turn affects the economic growth of a nation. Nigeria is the most populous and largest demographic population census in Africa, with 56m total population census count in 1963. During this year the major economy resources was only agriculture and it's principal export are cotton, cocoa, palm oil, rubber and timber. These agriculture resources constitute the gross domestic product (GDP) which is used to measure the economic growth with the total population of 79.8m, around 1970 when Nigeria discovered oil as a natural resource, the labour force of Agricultural tends to reduce the about 30% compared to 1963. In this the labour force abandoned agricultural for oil because of higher incentive and more so people from the rural area that also contribute mostly to the economic growth of agriculture move to the urban areas to search for a white collar job which eventually lead to the decrease in agriculture. The efforts of governments in the developing countries to feed their peoples and also provide quality social services for them are being frustrated by rapid population growth. This growth is attributable, on the one hand, to improvement in human survival associated with the application of modern medical science to health matters, better sanitation and immunization of children, which have caused the death rate to decrease (Ashford, 2001; United Nations, 2001a).

On the other hand, the traditional beliefs about the value of children, particularly sons, as an asset to be relied upon by their parents in agricultural production and to support them during old age have combined with the practice of polygamy, the fear of child mortality and low levels of female education to encourage high fertility. Moreover, the continuity of the matrilineal decent group and the influence of religions, which teach that children are gifts from God sharply limits the prospects for lowering the birth rate (for details, see Lee and Miller, 1990; Renne, 1995; Ainsworth et al., 1996 and National Population Commission, 2003).

The most recent population census is estimated to over 140 million (2006 estimated figure) with 71,709,000 males and 68,293,683 females as at March 2006. This indicate that, the population census of 2006 is higher than the 1991 census figure which means faster population growth make the choice agricultural commodities more scarce between higher consumption now and the investment needed to bring higher consumption in the figure. However, population growth affects our condition for determining the golden rule level of capital accumulation. The country tends to be least able to cope with the development and environmental consequences of rapid growth due to their low per capital incomes, indebtedness, and limited capacity for investments [UNFPA 1991]. The situation in Nigeria is not different from what is obtainable from other African countries; her population is large which make it a "giant" relative to the other African countries. The efforts of governments in the developing countries to feed their peoples and also provide quality social services for them are being frustrated by rapid population growth. This projects work is an attempt to evaluate to what extent population growth will affect economic growth of a country using the Nigeria as a case study. In order for this country to meet up with the Millennium Development Goals (MDGs) declared by the United Nations, this study hereby posited that urban agriculture is a *sine qua non* to the achievement of economic growth.

The objective of this paper is to examine the effect of population increase on economic growth in Nigeria. The remaining part of this paper is divided into four sections. Section II presents literature review and theoretical framework, Section III provides the methodology while Section IV analyses the estimated results. The last section (Section V) comprises of concluding remarks and recommends.

2.0 LITERATURE REVIEW AND THEORETICAL FRAMEWORK:

CONCEPTUAL ISSUES

POPULATION

According to Thomas Frejka, 1973, the population of an area is the total number of all individuals alive in a particular point in time. In the Higgs (1963), population of a country is the number of its inhabitants and whatever account is taken of differences of quantity, it is of quality in close relation to numbers. Thus population can be regarded as a label for a human aggregate.

ECONOMIC GROWTH

Economic growth is an increase in a nation's capacity to produce goods and services (www.google.com, 2006). That is, economic growth is the increase in the value of goods and services produced by an economy.

Economic growth includes the rate of which new investment and new resources could be brought into productive use by the population – Ominde and Ejiogu (1972). Stanlake and Grant, 1995 defines economic growth as any increase in the Gross National Product (GNP) or Gross Domestic Product (GDP), but for several reasons this is a rather misleading use of the term.

In "Economics" "economic growth" or economic growth theory" typically refers to growth of potential output i.e. production at full employment" rather than growth of aggregate demand (David Begg, 1994).

"Balanced growth" is an important consideration for a community or region. It the economy of a community or region depends heavily on one industry, it will feel the effects of the peaks and valley of the business cycle of the industry. By encouraging the industry to expend into a number of different geographic markets or attracting different industries into the community or regions, the "boom" and "bust" cycle can be managed. Through this diversification, the impact of a single event in one market or industry on the local economy can be made less dramatic.

ECONOMIC DEVELOPMENT

According to wikipedia website address (2006), economic development is any effect or undertaking which aids in the growth of the economy. That is, it is the "process" of developing and maintaining "suitable economic", social and political environment" in which "balance growth" may be realized increasing the wealth of the community [Nigeria]. While this definition looks simple enough at first glance, an examination of each of its component parts shows how complex economic development actually is. Economic development is a "process". The highlight is the fact that economic development has two series of steps that build on each other to create a desired product or out come.

CAPITAL FORMATION

Population growth retards capital formation so say (Jhingan, 2005). As population increase, per capita available income decline. People are required to feed more children with the same income. It means more expenditure on consumption and a further fall in the already low savings and consequently in the level of investment. Further, a rapidly growing population by lowering incomes, saving and investment compels the people to use a low level technology which further retards capital formation. A developing nation, or any nation, accumulates capital through saving and investing. A nation must save retain from consumption to release resources from consumer goods production, in the view of McConnell and Brue (1996). Investment speeding must then absorb these released resources in the production for capital goods. But impediment to saving and investing are much greater in a low income nation than in an advanced economy. In conclusion, rapid growth of population affect economic development in many ways other than as mentioned above. It affects world economy in terms of income disparities between developing countries and developed nations because the per capital incomes decline with growth in numbers in the developing nations (Jhingan, 2005). The consequences of a rapidly increasing population are to retard all development efforts in Nigeria unless accompanied by high rate of capital accumulation and technological progress. But these counteracting factors are not available and the result is that “population explosion” leads to declining agricultural productivity, low per capita income, low living standards, mass unemployment, low rate of capital formation and adverse balance of payments.

THEORETICAL FRAMEWORK

The prospects of Malthusians prediction enacting itself due to population outstretching the available resources are time for developing countries, low Per Capita income of the developing nations lead to poverty which is on the increase in the developing nations because of rapid population. The crux of the matter now is how to manage the population growth as we seem to be in a situation of a vicious cycle of poverty and rapid population increase. This research work considers the complex interrelations between population and economy. It examines the effects/consequences of economic development with regard to the increase in the size of households. Often, many scholars, particularly economist, consider the relationship that exists between an urban area and rural area only on the level of a country’s national economy as indicated by the gross domestic product (GDP), per capital income and population. A consideration at the level of the individual's actions and reactions will help to clarify the broad generalizations inevitable when relationships are viewed nationally.

According to Ominde and Ejiogu (1972) two ideas are relevant to the discussion being initiated here. First, the question as to whether population growth will generate the type and intensity of tension and stress required to act as an effective catalyst to urge people into rational, forward looking economic decisions and actions armed at improving their present economic conditions will depend on the social, economic, physical resources and political situations within which the people concerned are operating their economy.

Secondly, the point at which individuals react favorably to the tensions of population growth to bring about economic development will be related to the people's level of skills, motivations, expectation, and resourcefulness and the circumstances in which population growth at the individual household level creates stress or strain.

Jhingan (2005) contributed his own quotas by considering the consequences of population growth on economic development. To him, these [the consequences] have attracted the attention of economists ever since Adam Smith wrote his "Wealth Nations" Adam Smith, (1776). "The annual Labour of nation is the resource which, originally supply with it all the necessaries and conveniences of life" it was only Malthus and Ricardo who created an alarm about the effects of population growth on the economy. But their fears have proved unfounded because the growth of population in Western Europe has led to its rapid industrialization. Population growth has helped the growth of such economies because they are wealthy, have abundant capital and scarcity of labour. In such countries, the supply curve of labour rate of population has led to a rapid increase in productivity and every increase in population has led to a more than proportionate increase in the gross national product.

POPULATION AND ECONOMIC DEVELOPMENT IN NIGERIA

Nigeria is the most populous country in Africa and the tenth in the world. These include the major demographic features as obtained from two major sources, viz, various censuses and the Population Reference Bureau (PRB) world population data sheet.

The first census in Nigeria took place in 1963 giving total population of Nigeria as 56m. This was followed by 1973 census with total population of 79.8m. According to the final figures of the 1991 census, the population of Nigeria, at the time was 88.5million. Projection of population, using a 3.0 percent growth rate, shows that the population of Nigeria could be about 106 million in 1999. The PR estimated total population of the country in 1999 at about 113.8 million.

The recent population census puts the Nigeria population at 140 million with 71,708,000 males and 68,293,683 females as at March 2006. The ratio of male to female – 105:100 is at variance with the overall global distribution, which has been generally skewed favour of females. Rapid population growth is one of the central problems of economic development. According to the Study Committee of the Office of the foreign Secretary National Academy of Science, 1972, Rapid population growth has economic Social and political effects. It also interacts with public education, health and welfare, and the quality of the environment in which people live. Rapid population growth is one of the central problems of economic development. According to the Study Committee of the Office of the foreign Secretary National Academy of Science, 1972, Rapid population growth has economic Social and political effects. It also interacts with public education, health and welfare, and the quality of the environment in which people live.

Some of the very poorest countries spend much of their increase in income on a rising population. The gap in income between rich and many of the very poor countries is not closing: however, some countries with low per capital GNI were among the faster growing in this period. Notice that there are no consistent growth data for 36 of the poorest countries.

CONSEQUENCE OF POPULATION ON ECONOMIC DEVELOPMENT

Population growth affects economic development in two ways; by promoting economic development this occurs in the developed economics, by retarding economic development this occurs in the developing countries like Nigeria.

ECONOMIC CONSEQUENCES

According to the study committee of the office of the foreign secretary National Academy of Science [SCOFSNAS] 1972, rates of population growth in many less developed Countries are at least half the rates of economic growth and in some cases almost equal the latter. Rapid population growth slows down the growth of per capita incomes in developing countries and tends to perpetuate inequalities of income distribution.

Jhingan 2005, in his view state that the effect of population growth on per capita income is unfavourable. The growth of population tends to retard the per capita income in 3 ways: It increases the pressure of population on land; It tends to rise in cost of consumption goods because of the scarcity of the cooperate factors to increase their supplies, It tends to a decline in the accumulation of capital because with increase in family members, expenses increase. These adverse effects of population growth on per capita income operate more severely if the percentage of children in the total population is high, as is actually the case in Nigeria. Children involve economic cost in the form of time spent and money expended in bringing them up. In addition, faster population growth makes the choice scarcer between higher consumption now and the investment needed to bring higher consumption in the future. Economic development depends upon investment. In Nigeria, the resources available for investment are limited.

Therefore, rapid population growth retards investment needed for higher future consumption. According to the SCOFSNAS, 1972 rapid population growth holds down the level of saving and capital investment in the means of production and thereby limits the rate of growth of gross national product.

3. RESEARCH METHODOLOGY:

This study employed ordinary least square (OLS) in analyzing the effect of population growth on economic development in Nigeria between 1981 ad 2007.Real economic output and per capital Income are proxies for economic development and growth in Nigeria. This is to know the precise effect of population growth on real output (RGDP) and standard of living. Therefore, the OLS regression models are specified as follows:

$$RGDP_t = \alpha_0 + \alpha_1 POP_t + u_{t1} \qquad (1)$$

$$PCI_t = \beta_0 + \beta_1 POP_t + u_{t2} \qquad (2)$$

The models are in line with Malthus argument, which he postulated that population growth in developing countries is becoming over population and available resources are timeless and not enough. Thus, related to low PCI and lead poverty which is on the increase in the developing nations because of rapid population growth.

Also, this study further attempt to examine the time series properties using the no-parametric statistical method of Phillips-Perron (PP) unit root test, based on the following system of equation irrespective of number of truncation lag suggested by both Bartlett and Newey-West.

Intercept: $\Delta Y_t = \alpha + \partial Y_{t-1} + \varepsilon_t$ (3)

Trend: $\Delta Y_t = \alpha_0 + \alpha_1 t + \partial Y_{t-1} + \varepsilon_t$ (4)

The null hypothesis of $\partial \succ 0$ (no stationary) is tested against the alternative hypothesis of $\partial \prec 0$ (stationary).

4. Empirical Analysis:

The estimated models for the analysis of population growth and economic development in Nigeria, as extracted from the E-View 5.0 output

Table 4.1: Regression Results: Real Output (RGDP) and Population Growth.

Dependent Variable: RGDP
Method: Least Square
Sample: 1981-2007

Co-efficient		Std.Error	t-Statistic	Prob.
C	-335670.2	61557.89	-5.4529	0.0000
POP	0.00664	0.00059	11.2995	0.0000

R-Squared= 0.8363 **F-Statistic**= 127.6783
Adjusted R-Squared = 0.8297 **Prob.(F-Stat)**= 0.0000
Durbin-Watson Stat= 0.6884

The result reveals that population growth influence real gross domestic product (RGDP) positively with a value of 0.00664. The positive effect of population on real output was found to be significant based on the t-Statistic and F-Statistic results.

The R-Squared also shows that 83.6 percent of the total variation in real output are explained by population growth during the period under review. The Durbin-Watson statistic result reveals that there is presence of strong positive serial correlation among the error terms which might make the estimated parameters bias and inconsistent.

Table 4.2: Regression Results: Per Capita Income (PCI) and Population Growth.

Dependent Variable: PCI
Method: Least Square
Sample: 1981-2007

	Co-efficient	Std.Error	t-Statistic	Prob.
C	2415.104	231.9049	10.4142	0.0000
POP	1.13E-05	2.21E-06	5.1236	0.0000

R-Squared= 0.5122 **F-Statistic=** 26.2516
Adjusted R-Squared= 0.4927 **Prob.(F-Stat)=** 0.00003
Durbin-Watson Stat= 0.5076

The analysis of the relationship between Per Capita Income (PCI) and population growth in Nigeria reveals that population growth is positively influence by growth in per capita income (PCI) over the review period. The positive effect of population growth on Per Capita Income (PCI) was found significant based on the t-Statistic and F-Statistic results. The R-Squared result shows that 51.2 percent of the total variation in per capita income is accounted for by population growth in Nigeria during the review period. The Durbin-Watson statistic result shows that there is presence of strong positive serial correlation among the error terms i.e. the residual terms are not independent of each other. Thus, low per capita income (PCI) leads to poverty which is on the increase in the developing nations like Nigeria because of rapid population growth. This result therefore implies that urban agriculture is indispensable strategies that can reduce the effect of poverty that could have occurred in the population increase.

Phillips-Perron (PP) Unit Root test result

The unit root test results is presented in the table 3. The result shows that all the null hypothesis of no stationary is accepted for all the time series variables at levels for both intercept and trend models of the test. But, the variables are differenced once to reject the null hypothesis and they are found significant at 1%, 5% and 10% MacKinnon critical values for rejection of hypothesis of a unit root. Therefore, they are integrated of order one.

Table 3: PHILLIPS-PERRON TEST STATISTIC

VARIABLES	LEVEL[1]		FIRST DIFFERENCE[2]		ORDER OF INTEGRATION
	Intercept	Trend	Intercept	Trend	
RGDP	-0.4972 (1)	-2.7109 (5)	-6.7884 (2)	-6.6272 (2)	I(1)
PCI	-0.6181 (6)	-2.2767 (6)	-3.9163 (2)	-4.4237 (2)	I(1)

POP	-2.0563 (7)	-1.0511 (6)	-3.7780 (2)	-4.3906 (2)	I(1)

Critical Values at First Difference

	Intercept	Trend
1%	-3.7024	-4.3738
5%	-2.9850	-3.6027
10%	-2.6318	-3.2367

Note: The selection of truncation number of lag is based on:
1. Bartlett Kernel Suggestion. 2. Newey-West Suggestion.

5.0 CONCLUSION AND RECOMMENDATION:

CONCLUSION

The econometric evidence reveals that population growth exert positive and significant effect on economic growth measured as Per Capita Income (PCI) and Real Gross Domestic Product (RGDP) in Nigeria between 1981 and 2007. Although, there is a positive correlation and degree of determination also shows that the multiple regression equation enjoys a prior expectation that there is no negative relationship between economic growth and population.

The statistical characteristics relates to indicator of population quantity but not only qualities and the relatives abilities to perform social and economic role are not into consideration (which includes literacy, educational attainment, intellectual capacity, professional skill, work experience, physical disability and mental defeat .

On the other hand, analytical technique examined the significant effect of population on economic growth in Nigeria. The result of model shows that per capita income is low and thus, there exist negative relationship between per capita income and population.

RECOMMENDATION

A nation that involves the welfare of the people are population policies but the concerned here with policies related to changes in the quality of the population and its geographical distribution in the members of human beings their education and skills, and where and how they live relative to the space and resources available to each person. The rate of changes of population size the level of fertility and mortality, the distribution significantly interact with the social and economic welfare of the people.

Improvement of the social/human welfare of the people and population related policies to promote growth in national output as population increases. Such policies include food subsidizing, employment generation, public health provision, etc.

Agricultural revolution provide food and employment generation for teeming population.

Population growth has brought about a vast increase in food requirement. Consequently, agriculture continues to be on the base of the economy in most developing nations like Nigeria, so urban agriculture development strategy is necessary to be considered to improve agricultural production which is essential for overall economic and social growth.

Governments at various levels are urged to extend to women and men the freedom and mean to determine the number of children in each family and the knowledge which will help them exercise responsible parenthood.

To serve national objection of economic development, public health, and welfare and environmental conservation, it is recommended that Nigeria should establish policies to influence the rate of growth of their population and to adopt politically and ethically. Acceptable measures towards this end that is within her administrative and economic capability. For most nations of the world the major goal of population influencing policies should be a reduction in fertility. Country like Nigeria in which rapid population growth is now occurring should seek to reduce their rates of national increase to less than 15 per 1,000 per year over the next 2 decades. Government and private effort should be should be expanded to accelerate the trend toward the smaller family and the sense of individual responsibility toward society. Policies declined to deal with the effort of the population should be established government department concerned with education, health, agriculture, urbanization, transportation, housing, welfare, finance and defense. There is a wide range of conditions and limitations to policy formulation and implementation. The obvious limitation of resources homed large. However, if Nigeria has a nation is to meet the Millennium Development Goals (MDGs) by the year 2015, the issue of urban agriculture is indispensable considering the population explosionof country. Hence, government needs to strategise the framework that will enhance the welfare of the citizenry

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APPENDIX 1

DATA ON REAL OUTPUT(RGDP), PER CAPITA INCOME (PCI) AND POPULATION (POP)

YEAR	RGDP	PCI	POP
1981	98,594.10	3758.3	72,091,511
1982	93,594.00	3607.3	74,538,322
1983	83,519.60	3258.6	75,901,026
1984	66,462.20	3113.1	77,544,433
1985	71,368.10	3113.1	79,883,929
1986	257,784.40	3113.1	81,971,220
1987	255,997.00	3113.1	84,505,163
1988	275,409.60	3113.1	87,114,522
1989	295,090.80	3113.1	89,800,511
1990	472,648.70	3790.2	92,565,560
1991	328,644.50	3713.5	88992220
1992	337,288.60	3686.21	91529572
1993	342,540.50	3632.45	94366992
1994	345,228.50	3548.08	97254424
1995	352,646.20	3554.54	99209942
1996	367,218.10	3593.84	102176322
1997	377,830.80	3590.52	105231394
1998	388,468.10	3518.73	110361848
1999	393,107.20	3448.31	114022924
2000	412,332.00	3576.67	117822901
2001	431,783.10	3547.93	121747888
2002	451,785.60	3591.3	125773016
2003	495,007.10	3810.68	129900168
2004	527,576.00	3934.2	134131224
2005	561,931.40	4057.27	138468013
2006	595,821.61	4255.87	140003542
2007	634,656.60	4447.52	142467416

Source: Several Issues of CBN Statistical Bulletin; National Population Commission; National Bureau of Statistics (NBS)