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Impact of Population Growth on Economic Growth in Nigeria (1980-2010)

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Abstract: *The impact of population growth on economic growth has always been a subject of disagreement among economists. The rate of population growth in Nigeria is high and thus the need to evaluate its impact on economic growth is necessary. This paper evaluates the impact of population growth on economic growth in Nigeria (1980-2010). The research is conducted using secondary data. Data were obtained from the World Development Indicators from 1980-2010. The data were analysed using descriptive statistics as well as regression analysis. The result revealed that there is a positive relationship between economic growth (proxied by GDP growth) and population, fertility and export growth; while negative relationships were found between economic growth (proxied by GDP growth) and life expectancy, and crude death rate. The paper recommends among others that the average population growth rate of Nigeria should be maintained since it is found to impact positively on economic growth in Nigeria within the period of study and that measures should be adopted to check the crude death rate of Nigeria as it affects economic growth negatively.*

I.   Introduction

As the twenty –first century began, the world's population was estimated to be almost 6.1 billion people. Projections by the United Nations placed the figure at more than 9.2 billon by the year 2050 before reaching a maximum of 11 billion by 2200. Over 90% of that population will inhabit the developing world. (Todaro and Smith, 2006).

"Two thousand years ago population growth and production were positively correlated. More people meant greater productivity and security." The current modernization and technological advancement of today's world is highly attributable to centuries of rapid population growth and economic expansion. Hundreds of years ago, when societies and economies initially began to flourish, success was dependent upon a productive agricultural sector. A growing population meant more workers and laborers who would increase overall output. With more productive labor, the economy inevitably expanded and society reaped the financial benefits. Centuries ago, population booms were positive indications of the potential for long term economic growth. High fertility rates during these times allowed for increased labourers and also helped overcome the correspondingly exorbitant death rates. The combined effects of "famine, disease, malnutrition, plague and war" resulted in death rates that were high and inconsistent. Given the lack of modern medicine that many countries faced until recently, death rates remained relatively elevated for several centuries. Thus, in order to have any net population growth and eventual economic development, fertility rates had to be elevated (Latimer and Kulkarni, 2008).

In the twentieth century, modernization and technological expansion allowed societies to gain control of the ailments that previously killed large percentages of the population. Suddenly, societies were equipped to overcome famine, malnutrition, and other life threatening diseases. Rapid technological advances in modern medicine and sanitation drastically reduced global mortality rates. Increased technology also improved labour productivity. This combination of both technological and medical improvements set the conditions for unprecedented booms in world population growth." Despite a rapid decrease in mortality rates, global fertility rates remained constant and caused exponential growth within the global population. No longer do birth rates struggle to keep up with death rates. Currently, global fertility rates far outweigh mortality rates, forcing the world to confront serious population growth issues. With almost 7 billion people, the world population is placing a huge strain on natural resources. Unfortunately, the projections for the future do not appear to be improving.

At a population growth rate of 2.8 percent per annum between 1952 and 1991, Nigeria is one of the fastest growing countries in the world. Nigeria is the most populous country in Africa, and accounts for one in five of Sub-sahara's people. By 2013, the population forecast for Nigeria is 169.7 million. However, the composition of this population is mainly in the youthful category with 49% below the age of 21 years and a dependency ratio estimated at 89%. A large proportion of this population favours and is living in the rapidly expanding urban areas, presently estimated at over 45.2% and will likely hit 55.4% mark by the year 2015(UNDP, 2000). Will continued population growth have a positive effect on her economic growth?

The objective of this paper is to examine the trend of population growth; examine the trend of GDP growth and to evaluate the impact of population growth on economic growth in Nigeria (1980 -2010).

II.   Literature Review

Assessing the consequences of population on the pace and process of economic growth is one of the oldest themes in the literature on economics. These assessments have varied enormously over time, spanning the highly pessimistic to the outright optimistic. A systematic review of the major studies in this literature represents a useful way to organize a survey of the consequences of demographic change. Such an approach places the population debates in perspective, and it infuses a healthy dose of caution in appraising current debates. Specifically, how have the "bottom-line" appraisals of the consequences of demographic change on development changed over time; why have they changed; and what are the most recent contributions to this literature?(Kelly, 2009).

The Relationship between Population Growth and Economic Growth

Yusufu (2000) has indicated that labour is the most fundamental and dynamic element in all economic activities, natural development, and social well being. Even if the labour concept is restricted to those who actively participate in economic activity, that process is geared ultimately to identifying and satisfying the needs for consumer goods and services for the entire population. Whether the population is static or even declining, economic activity or output cannot in practice be easily held static. Accordingly, in economic activity, as elsewhere, progress is the essence of the game; and where it stops progress or cannot be maintained, retrogression begins, with its associated decline in per capita incomes and in the living and welfare standards of the people. The general consideration by economists and all persons concerned with the economy, therefore, is the attainment of progressive increase in output, the gross as well as the per capita gross domestic product, and the improvement of physical, mental and associated living conditions of the population – in other words whether expressly stated or implied, the general goal is economic development.

Effects of Population Growth

As pointed out by Prof Kuznets in his study of Modern Economic Growth, substantial rates of population growth in Europe have led to high rates of increase in total product and per capita product. The growth of total product and per capita product has been accompanied by the growth of national product, in turn, has been due to the enormous addition to population which has led to large increase in working labour force. Population growth also leads to the growth of physical capital; it has been proven recently that the growth of physical capital stock depends to a considerable extent on human capital formation, which is the process of increasing knowledge, the skills, and the capacities of all people in the country (Jhingan, 2005).

High population growth can be a source of capital formation in underdeveloped countries. Nurske points out that underdeveloped countries suffer from disguised unemployment on a mass scale. Thus labour force can be put to work on capital projects like irrigation, drainage, roads, railways, houses etc. Lewis suggests that economic development takes place when capital accumulates with the withdrawal of surplus labour from the rural sector and its employment in the industrial sector.

Population growth also leads to age of high mass consumption. Rostow has shown in his stages of Economic growth that during the "take- off stage" when the growth rate of population was high, the rate of net investment rose by 5-10 percent of national income. This led to the development of "leading sectors" due to the increase in the effective demand for their products. This paved the way for the age of high mass consumption through which almost all developing countries are passing (Jhingan, 2005).

However the effect of population growth on per capita incomes is unfavourable. The growth in population tends to retard per capita income in three ways; it increases the pressure of population on land, it leads to rise in cost of consumption goods because of the scarcity of the cooperant factors to increase their supplies, it leads to a decline in the accumulation of capital because with increase in family members, expenses increase. This is in addition to the adverse effect that population growth has on standard of living, employment, capital formation, environment, social infrastructure, and agricultural development (Jhingan, 2005).

Todaro and Smith, 2006 asserted that according to the latest empirical research, the potential negative consequences of population growth for economic development can be divided into seven categories: its impact on economic growth, poverty and inequality, education, health, food, the environment, and international migration.

Economic Growth: Evidence shows that rapid population growth lowers per capita income growth in most LDCs, especially those that are already poor, dependent on agriculture, and experiencing pressures on land and natural resources.

Poverty and inequality: Even though aggregate statistical correlations between measures of poverty and population growth at the national level are often inconclusive, at the household level the evidence is strong and compelling. The negative consequences of rapid population growth fall most heavily on the poor because they are the ones who are made landless, suffer first from cuts in government health and education programs, bear the brunt of environmental damage, and are the main victims of job cuts due to the slower growth of the economy. Poor women once again bear the greatest burden of government austerity programs, and another vicious cycle is set in motion. To the extent that large families perpetuate poverty, they also exacerbate inequality.

Education: Although the data are sometimes ambiguous on this point, it is generally agreed that large family size and low incomes restrict the opportunities of parents to educate all their children. At the national level, rapid population growth causes given educational expenditures to be spread more thinly, lowering quality for the sake of quantity. This in turn feeds back on economic growth because the stock of human capital is reduced by rapid population growth.

Health: High fertility harms the health of mothers and children. It increases the health risks of pregnancy, and closely spaced births have been shown to reduce birth weight and increases child mortality rates.

Food: Feeding the world's population is made more difficult by rapid population growth-over 90% of additional LDC food requirements are caused by population increases. New technologies of production must be introduced more rapidly, as the best lands have already been cultivated. International food relief programs become more widespread.

Environment: Rapid population growth contributes to environmental degradation in the form of forest encroachment, deforestation, fuel-wood depletion, soil erosion, declining fish and animal stocks, inadequate and unsafe water, air pollution, and urban congestion.

International Migration: Many observers consider the rapid increase in international migration, both legal and illegal, to be one of the major consequences of developing countries' population growth. Though many factors cause migration, an excess of job seekers (caused by rapid population growth) over job opportunities in the LDC economy is surely one of them. However, unlike the first six consequences listed here, some of the economic and social cost of international migration fall on recipient countries- increasingly in the developed world. It is not surprising, therefore, that this issue has recently taken on political importance in North America and Europe.

Perhaps the least understood aspect of population growth is its tendency to continue even after birth rate have declined substantially. Population growth has a built in tendency to continue, a powerful momentum that like a speeding automobile when the brakes are applied, tends to keep going for some time before coming to a stop. In the case of population growth, this momentum can persist for decades after birthrates drop. There are two basic reasons for this. First, high birth rates cannot be altered substantially overnight. The social, economic and institutional forces that have influenced fertility rates over the course of centuries do not simply evaporate at the urging of national leaders. The second and less obvious reason for the hidden momentum of population growth relates to the age structure of LDC populations (Todaro and Smith, 2006).

Population Trends in the Nigerian Economy

As the Nigerian population policy aptly acknowledges, the people are the most important and valuable resources of any nation and constitute the primary producers as well consumers of national wealth and development dividends. Thus human beings are at the centre of concern for sustainable development. The International Conference on Population and Development (ICPD) held in Cairo in 1994 emphasized the interrelationship between population, economic growth and social development. As the ICPD Programme of Action (PoA) states "there is a general agreement that persistent widespread poverty as well as serious social and gender inequalities have significant impact on, and are in turn influenced by demographic parameters such as population growth, structures and distribution". Thus there is a need to fully integrate population concerns into all aspects of development strategies, planning and decision making at all levels with the goal of improving the quality of life of the people (UNSN, 2001).

Proximate Determinants of Population Growth in Nigeria

At a growth rate of 2.8 per cent per annum between 1952 and 1991, Nigeria is one of the fastest growing countries in the world. The growth rate is not expected to change drastically in the short run. Nigeria's population is therefore expected to double in less than 25 years. The high population growth rate is essentially due to persistently high fertility in the face of decreasing mortality between 1960s and the 1980s, total fertility

rate (TFR) had remained high at about 6 children per woman (UN 2000a, 2000b) while the Crude Death Rate (CDR) had decreased from 27 to 15 deaths per 1000 population within the same period. The infant morality Rate (IMR) also declined from 187 to 90 deaths per 1000 live births between 1960s and 1980s. Available data show that international migration does not contribute significantly to the growth of the population in Nigeria (UNSN, 2001).

Nigeria is one of the fastest growing countries in the world. With an estimated population of 140 million in 2006, and an annual population growth rate of 2.9% (NPC, 2006), Nigeria is the most populous nation in sub Saharan Africa and the tenth most populous in the world. However, the composition of this population is mainly in the youthful category with 49% being youths below the age of 21 and a dependency ratio estimated at 89%. A large proportion of this population favours and is living in the rapidly expanding urban area, presently estimated at over 45.2% and will likely hit 55.4% mark by the year 2015 (UNDP, 2000).

With this statistics however, the population dynamics shows profound inequities and disproportions when analyzed with the development indicators, such as: 21 doctors per 100,000 people, infant mortality rate of 112 per 1000 live births, maternal mortality of over 980 per 100,000 live births, life expectancy at birth projected at 50.1 years, is getting lesser and lesser.

The Consequences and effects of population growth on economic development differ between the developed and developing countries. In the developed countries, population growth has enhanced the growth of such economies because they are wealthy, have abundant capital and scarcity of labour. On the contrary the consequences of rapid population growth on the development of LDCs are not the same. Most developing countries are poor, capital scarce and labour abundant; and therefore population growth adversely affects their economic development. Precisely every increase in population has led to more problems than benefits. Some of the negative effects of population growth include: High population growth rates require massive investment in Social infrastructure. Due to the shortage of investment funds, social infrastructure like education, health, transport and housing is likely to decrease. This results in overcrowding and declining quality of services and therefore mitigating.

Empirical Literature

Several researches have been conducted on the impact of population growth on economic growth. Some of these researches have been conducted by Klasen and Lawson (2007) as reported by Dao (2012). The results from cross-country and panel regressions mostly show a negative impact of population growth (or related variables) on economic growth.

In the study conducted by Klasen and Lawson (2007), as reported by Dao 2012, the link between population, per capita growth and poverty in Uganda was examined. The research was conducted using both cross-section data and panel data. The results of the estimates show that population growth has a positive impact on overall economic growth. But the coefficient is always smaller than 1 suggesting that the additional people have a less than proportionate influence on economic growth. In the cross-section specification, the impact is generally larger than in the panel specifications. From the discussion above, this is to be expected since the (positive short-term) impact of income growth on population growth is likely to reduce the negative coefficient in the panel specification. The impact of population growth on economic growth does not appear to be different in Sub Saharan Africa from elsewhere.

The research conducted by Dao in 2012 was on Population and Economic Growth in Developing Countries. The methodology of the research adopted the least-squares estimation technique in a multivariate linear regression (Dao, 2012).

The model adopted by the research is expressed below:

$Pgdp = \beta_0 + \beta_1 URBAN + \beta_2 urb + \beta_3 pop + \beta_4 pop2 + \beta_5 young + \beta_6 old + \beta_7 mortality + \beta_8 TFR + \beta_9 pop<1.2 + \varepsilon$

Where;
Pgdp = Per capita GDP growth rate, 2007-2008.
URBAN = Urban population as a percent of total population, in 1990.
urb = Average annual growth rate of the urban population, 1990-2008.
pop = Average annual population growth rate, 1990-2008.
young = Young people as a percent of working-age population, in 2008.
old = Old people as a percent of working-age population, in 2008. mortality = Crude death rate, per 1,000 people, in 2008.
TFR = Total fertility rate, in number of births per woman, in 1990. pop<1.2 = Dummy variable, taking on the value of 1 if the country's average annual growth rate is below 1.2 and 0, otherwise

The research noted that in very poor countries like Côte d' Ivoire, Democratic Republic of Congo, Ethiopia, Kenya, Madagascar, Nigeria, Pakistan, Sudan, Uganda, Tanzania and Yemen, agriculture still

accounts for a significant part of the overall economy and it continues to be very hard to increase the productivity at rates that are faster than those of the population. In view of that, the apriori expectation of the coefficient of the population growth variable was a negative sign.

The results of the research were consistent with the apriori expectation of the research. The coefficient of the population (-6.81) implies that a one-percentage point decline in population growth is expected to lead to 6.81 percentage point increase in per capita GDP, likewise a one-death per 1,000 people decrease is expected to result in an increase of 0.31 percentage point in per capita GDP growth cetaris paribus. The findings of the research reveal that the effect of population growth on per capita GDP growth is linear and everywhere negative (Dao, 2012).

Afzal (2009), carried out a research titled- Population Growth and Economic Development in Pakistan (1981-2005). He used the following simple model expressing the relationship between real GDP growth as a proxy for economic growth and important macroeconomic variables having bearing on the economic growth. In equation form, we have

$$\gamma_G = \beta_0 + \beta_1 POP + \beta_2 INVG + \beta_3 FIG + \beta_4 EXG + \beta_5 CA + \varepsilon \ldots\ldots\ldots(1)$$

Where;

γ_G	= Real GDP growth
POPG	= Population growth
INVG	= Real gross domestic investment growth
FIG	= Real foreign investment growth
EXG	= Export growth
CA	= Private consumption a percentage of GDP
ε	= White noise error term

The expected sign of all coefficients is positive except population growth.

The coefficients have expected and correct signs. The coefficient for population is negative and significantly different from zero, meaning that population growth adversely affects the economic growth. This does not support the view that population growth is not a real problem. High population growth has become an important limiting factor for achieving the overall development goals.

Gap in the Literature

Researches have been conducted on the impact of population growth on economic growth in various countries, most of them European or Asian countries. The literature hold a reservoir of these researches, however, such researches are rare in the Nigerian case. This paper intends to fill the gap in literature on the impact of population on economic growth in Nigeria for the period 1980 -2010.

III.   Methodology

This paper therefore adopts the following simple model expressing the relationship between GDP growth as a proxy for economic growth and important macroeconomic variables having bearing on economic growth.

$$GDPG = \beta_0 + \beta_1 POP + \beta_2 FER + \beta_3 LEX + \beta_4 CDR + \beta_5 EXT + \varepsilon_t \ldots\ldots$$

GDPG	=	Real Gross Domestic Product
POP	=	Population growth rate
FER	=	Fertility Rate
LEX	=	Life Expectancy at Birth.
CDR	=	Crude Death Rate
EXT	=	Export Growth Rate

Apriori Expectation: $\beta_1 > 0;\ \beta_2 > 0;\ \beta_3 < 0;\ \beta_4 < 0;\ \beta_5 > 0$

This paper employed the use of various econometric tools of data analysis. The Augmented- Dickey Fuller (ADF) Unit root test was carried out to test for the stationarity of the data, the Granger causality Test and Co-integration tests were also carried out, to test if there are co-integrating equations, the Error Correction Mechanism was also used to correct the short run dynamics of the data, and finally the Ordinary least squares (OLS) estimation technique was adopted in estimating the equation.

IV.   Results And Discussion
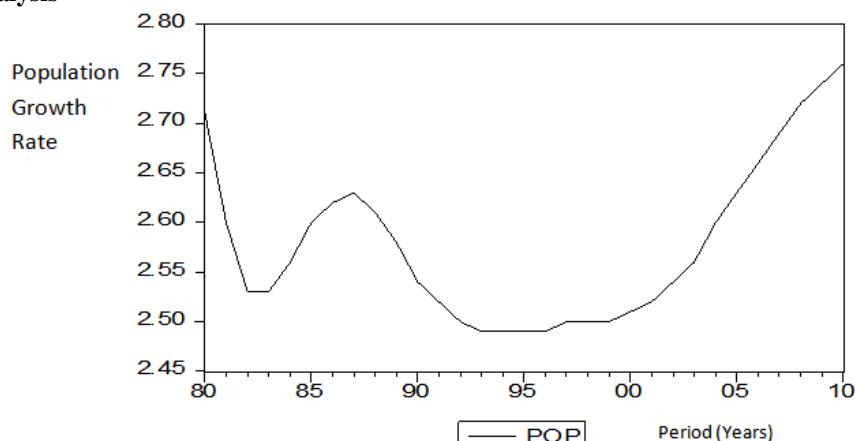
Descriptive Analysis

Figure 1: Line graph showing the trend of population growth rate in Nigeria 1980 -2010.

Figures 1 clearly shows the trend of population growth rate in Nigeria, during the period under study (1980-2010). The graph shows that the period 1980-1983 was characterised by a declining rate of population in Nigeria. This period was immediately followed by a rise in the population growth rate of Nigeria in the period 1984 – 1987. The period 1987-1992 is characterised by a steady decline in the growth rate of the Nigerian population. The period 1993-1995 was characterised by an unchanging growth rate in the Nigerian population.and finally, the period 1999-2010 is characterised by a steep increase in the growth rate of the Nigerian population.
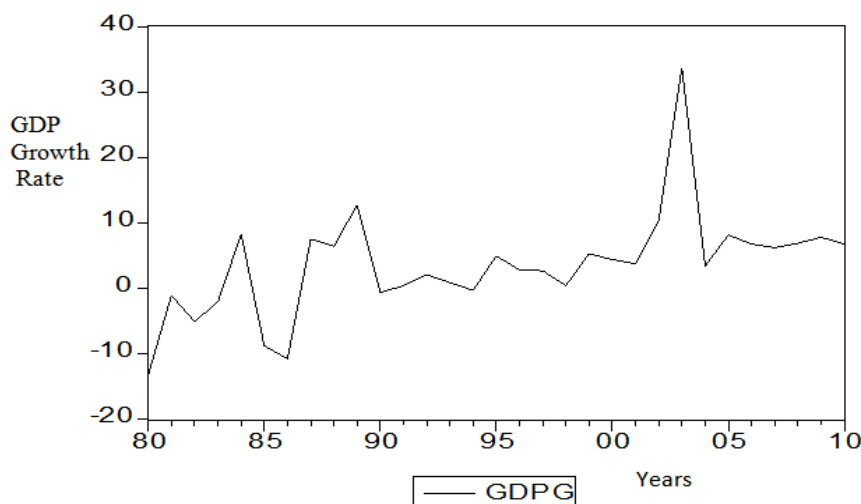

Figure 2: Line graph showing the trend of GDP growth in Nigeria 1980 -2010.

Figures 2 above is a line graph showing the trend of the GDP growth rate of Nigeria for the period under study (1980-2010). A look at the graph will reveal that the GDPG of Nigeria is characterized by upward and downward movements. However, the period 2001-2004 was characterized by a step increase in GDPG of Nigeria, which was immediately preceded by a sharp decrease in the GDPG of Nigeria in the period (2004-2005).

4.2 Descriptive Statistics

The results of the descriptive statistics suggest that the average rate of GDP growth is 4.16. The maximum rate and minimum rates of GDP growth are33.73 and -10.75 accordingly. The maximum of 33.75 was obtained in the year 2003; just before the global meltdown was about to set in, presumably because economic activities were booming. The minimum (-10.75) was obtained in the year 1986 when Nigeria was faced with serious structural problems, which later led to the adoption of the famous Structural Adjustment Programme (SAP) in the same year. The probability of the Jarque-Bera statistics (0.00000) suggest that the data are normally distributed.

The population growth rate statistics shows that the average population growth rate of Nigeria is 2.57. The maximum, which is 2.76 was obtained in the year, 2010, while the minimum (2.49) was obtained in the year (1993-1996). However, the probability of the Jarque-Bera statistics suggests that the variable does not follow the normal distribution line.

The fertility statistics suggest that the average fertility per woman in Nigeria within the study period is 6.28, the maximum of which is 6.76 was in the year 1981, the minimum (6.01) was obtained in the year (2005-2007). The probability of the Jarque-Bera statistics suggests that the variable are not normally distributed.

The statistics of the Life Expectancy at Birth (LEX) variable shows that the average LEX of Nigeria during the period under study is47.36 the maximum, was 51.71 which was in the year (2010). The minimum (46.07) was obtained in the years 1991 and 1992. The probability of the Jarque-Bera statistics suggest that the variable is normally distributed since its probability is not greater than 0.05.

The statistics of the Crude death rate (CDR) shows that the average CDR of Nigeria during the period under study is (17.27). The maximum is 18.75, which was obtained in the year 1981, the minimum was obtained in the year 2010 (13.76). CDR trend seems to follow the pattern suggested by the demographic transition theory, which suggest that there will be continuous decline in death rates due to advancement in medical sciences. The probability of the Jarque -Bera statistics suggest that the variable is normally distributed.

The export growth statistics shows that the average growth of export in Nigeria during the period under study is 7.27. The maximum is 60.21 which was obtained in the year 2005. The minimum (-30.70) which was obtained in the year 2008. The probability of the Jarque-Bera statistics suggest that the variable is not normally distributed.

Correlation Matrix

Based on the results of the correlation matrix, it can be observed that the variable Crude Death Rate has a strong negative correlation with Life Expectancy and Population; and weak negative correlations with Export and GDP Growth. However, it has a strong positive correlation with Fertility, which is understandable.

The variable Export has a negative correlation with Crude Death Rate and Fertility; however, it has weak positive correlations with GDP Growth, Life Expectancy and Population.

The variable Fertility has a strong positive correlation with Crude Death Rate, while it has negative correlation with Export, GDP Growth, Life Expectancy and Population.

GDPG has negative correlations with Crude Death Rate and Fertility, while it has positive correlations with Export, Life Expectancy and Population.

Life Expectancy has a strong negative correlation with Crude Death Rate and Fertility, while it has positive correlations with Export, GDP Growth and a strong positive correlation with Population.

Population has negative correlations with Crude death Rate and Fertility while it has positive correlations with Export, GDP Growth and Life Expectancy.

Unit Root Test

Variables	ADF test for variables at (5% Critical Value: -3.5731).	1st difference stationarity at (5% critical value -3.5796)	2nd difference stationarity test ADF (5% critical value: -3.5867)	Order of Integration
GDPG	-4.0604	-6.0271	-7.5734	I(1)
POP	-0.8539	-4.9194	-4.243	I(1)
FER	-0.8920	-2.7632	-1.8288	I(2)
LEX	-7.076	-2.318	-7.573	I(0)
CDR	-7.6924	-2.954	-1.194	I(0)
EXT	-4.7780	-6.110	-7.559	I(0)

Source: Author's computation, 2014.

From the results of the Augmented Dickey Fuller (ADF) test statistics presented in table 4.1 , it can be observed that the variables Life Expectancy (LEX); Crude death rate (CDR); Export growth rate (EXT) are stationary at levels, (see table 4.1); the variables GDP growth (GDPG) and population growth (POP) become stationary at 1st difference and the variable Fertility (FER) is assumed to be stationary at 2nd difference.

4.5 Co-integration Test

Given the non-stationarity of some of the variables in the model, Johanson co-integration test was carried out. The co-integration test results suggest that there are at least 4 co-integrating equations at 5% level of significance. Therefore there is evidence of existence of long run equilibrium relationship between population, economic growth and other variables in Nigeria from 1980-2011.

4.6 Error Correction Mechanism
   Because of the presence of co-integrating equations as shows by the results of the co-integrations test, the Error Correction Modelling was carried out to examine the co-movements of the variables or to examine short-run dynamic and long run equilibrium in the variables. The ECM was carried out and the results showed that short-run disequilibrium in two variables were corrected.

4.7 Ordinary Least Squares Results
$$GDPG = 4107.964 + 4.781POP + 81.44FER - 66.201LEX - 86.352CDR + 0.079\ EXT$$
  (2938.256) (51.5630) (69.5645) (48.0781) (0.626934) (0.06742)
   1.3980* 0.0927* 1.1707* -1.3769* -1.3773*   1.1806*
$R^2 = 0.34$
D.W. = 2.13

Note:
Standards errors in parenthesis
t -statistics in asterisk
   From the estimates of the variables in the model, it can be inferred that Population, Fertility, and Export have positive relationships with GDP Growth, while Life Expectancy at Birth and Crude Death Rate have negative relationships with the dependent variable. The results of the estimates are consistent with the apriori expectation of the model. The variables population, fertility and export growth have positive relationships with the dependent variable and this is expected since they are theoretically positively related with economic growth. From the partial slope parameters, it can be inferred that if Population should increase by a percentage point, GDP Growth will increase by 4.78 units. Similarly, if Fertility should increase by 1 percentage point, GDP Growth will increase by 81.444 units, and if Export should increase by 1 percentage point, GDP Growth will increase by 0.07 units.
On the other hand, if Life Expectancy should increase by 1 percentage point, GDP Growth will reduce by 66.2 units, economically, this may be due to the fact that as life expectancy increases, the dependency ratio of a population increases, which has little impact on GDP growth. On the other hand, if Crude Death Rate should increase by 1 percentage point, GDP Growth will decline by 86.35 units. This is understandable as crude death rate causes decline in population which is positively related to GDP growth.
   However, the standard errors of the variables in the model suggests that all the variables are not statistically significant in influencing economic growth. The R^2 of the model suggest that 34% of variation in GDP Growth are explained by the variables in the model. The Durbin Watson (D.W) statistics (2.13) also suggest the absence of autocorrelation in the model since it is greater than 2.

Granger Causality Tests
   From the results of the causality test, it can be observed that Population does not granger cause GDP Growth and GDP Growth does not granger cause Population at 0.05 level of significance. Hence no causal relationship between population and economic growth. Fertility does not granger cause GDP Growth and GDPG does not granger cause Fertility 5% level of significance, but Fertility granger cause GDP Growth at 10% level of significance.
   Life Expectancy does not granger cause GDP Growth but GDP Growth granger cause Life Expectancy at 5% level of significance. Therefore there is a unidirectional causal relationship from economic growth to Life Expectancy. Crude Death Rate does not granger cause GDP Growth and GDP Growth does not Granger cause Crude Death Rate at 5% and 10% levels of significance. Export does not granger cause GDP Growth and GDP Growth does not Granger cause Export at 5% and 10% levels of significance. No causal relationship between Export and GDP growth. Fertility granger causes Population at 5% level of significance and Population granger cause Fertility at 10% level of significance. There is a bidirectional causality between Fertility and Population.
   Life Expectancy granger cause Population and Population granger cause Life Expectancy at 5% level of significance. Therefore there is a bidirectional causality between Life Expectancy and Population
   Crude Death Rate granger cause Population and population granger cause Crude Death Rate at 5% level of significance. Hence there is a bidirectional relationship between Crude Death Rate and Population.
   Export does not ganger cause Population and Population does not Granger cause Export at 5% level of significance. Therefore there is no causal relationship between Export and Population. Life Expectancy granger cause Fertility at 5% level of significance but Fertility granger cause Life Expectancy at 5% and 10% levels of significance. There is bidirectional causality between Life Expectancy and Fertility at 5% level of significance. Crude Death Rate granger cause Fertility at 5% level of significance but Fertility does not granger cause Crude Death Rate. There is a unidirectional causality from Fertility to Crude Death Rate.

Export does not granger cause Fertility at 5% and 10% levels of significance but Fertility Granger cause Export at 10% levels significance. There is a unidirectional causality from Fertility to Export.
Crude Death Rate does not granger cause Life Expectancy and Life Expectancy does not granger cause Crude Death Rate at 5% and 10% levels of significance. Therefore there is no causal relationship between Crude Death Rate and Life Expectancy. Export does not granger cause Life Expectancy but Life Expectancy granger cause Export at 10% level of significance. There is a unidirectional causality from Life Expectancy to Export
Export does not granger cause Crude Death Rate but Crude Death Rate granger cause Export at 10% level of significance.

V.   Conclusion

The conclusion that there is a positive relationship between population growth and economic growth in Nigeria compares with the experience of the advanced countries. For instance, China has the largest population, and its trend of economic growth has recently rendered the earlier views of more population – less economic growth fallacious. The Chinese experience has allayed the fears of countries with high population growth rates like Nigeria. Consideration of economic growth must be holistic and comprehensive, to think that our world has unlimited resources is unrealistic. However, population growth in the case of Nigeria is a factor that perpetuates the rate of economic growth as evident in the results of the analysis obtained in this paper.

VI.   Recommendations

In light of the findings of the study, the research has the following recommendations.
(i)   It is recommended that the average population growth rate of Nigeria should be maintained since it is found to impact positively on economic growth in Nigeria within the period of study.
(ii)   It is recommended that the average rate of fertility in Nigeria should be maintained since it is found to impact positively on economic growth within the period under study.
(iii) It is recommended that policies to enhance export should be adopted to promote export growth in Nigeria since it enhances the rate of economic growth in Nigeria.
(iv) It is recommended that the Nigerian economy should be diversified to enhance productivity of labour and economic growth as life expectancy increases.
(v)   it is recommended that measures should be adopted to check the crude death rate of Nigeria as it affects economic growth negatively.

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