



Effects of Steady Population Growth on Nigerian Economic Performance

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ABSTRACT

This study effect of steady population growth on Nigerian economic performance (1985 - 2021)". The objective of this study aimed at investigating the causal relationship between steady population growth and economic growth in Nigeria, examining the effect of population growth rate on unemployment in Nigeria, investigating the effect of fertility rate on Nigeria's economic growth and development and to determine the effect of savings as a determinant for population transition on economic growth in Nigeria. For this study, the choice of the design was informed by the objectives of the study as outlined in chapter one. This research design provides a quickly efficient and accurate means of assessing information about the population of interest. The Augmented Dickey Fuller model and Granger Causality Model are used in analysing the variables in this research. The main issues of Nigeria include a steadily increasing population, a rising unemployment rate, and a low-income per capita index. Therefore, a number of crucial investments in health, gender parity, education, and institutional development would be needed for Nigeria's demographic dividend to be achieved. None of them are probably enough to support growth on their own. The simultaneous significance of all the macroeconomic, demographic, and economic development indicators discovered in this study provides evidence that none will be long-term sustainably viable without the others. Given the results, it would be more suitable for Nigeria to concentrate on measures that raise living conditions rather than actively regulating population growth. To enable female involvement in the labor force, contraceptive use should be promoted.

Keywords: steady population growth, economic growth, fertility rate& unemployment

I. Background of the Study

The importance of human capital in promoting growth and development has been demonstrated throughout history. This is due to the fact that human capital is necessary for achieving the productivity needed to promote economic growth. In this sense, a growing population might be seen as a good thing, particularly if it includes young people who are engaged in economic activities. However, the consequences might be negative when population expansion outpaces economic growth, especially for per capita income. (Galore, 2005).

Through three main mechanisms, a population boom can lower per capita incomes. First off, it puts more population pressure on natural resources, particularly land. Second, it may result in a shortage of goods and services, which frequently raises prices. Finally, it results in a fall in capital accumulation and savings because a family's tendency to save declines as its expenses increase. Additionally, population expansion has a negative impact on food, migration, the environment, health, employment, education, poverty, and inequality. All of these factors contribute to economic growth. Age, geographic, and social mobility are other characteristics of the population besides numbers that affect economic outcomes for individuals and society as a whole. In the context of population issues, a large portion of contemporary economics has focused on the issue of what size the population should be and how that might affect economic growth and development (for example, National Research Council (1993); Bloom and Williamson (1998); United Nations (1999); FAO (2000); UNDP (2001); and Onwuka (2003). Malthus (1803) questioned whether food production



could keep up with the demand of a growing population and said that the strength of population is endlessly larger than the capacity of the earth's resources to supply the necessary nourishment for humanity.

As can be seen from the aforementioned, agriculture appeared to be the main source of subsistence, and as a result, population growth and output were formerly strongly correlated. Since more workers or laborers working efficiently would be expected to greatly improve production and the overall output of the nation, it was believed that more people meant better productivity and security (Tartiyus, Dauda and Peter, 2015). With a productive agricultural sector and a huge population, civilizations and economies were thus able to flourish. In this manner, the economy inevitably grew, and society benefited financially from more productive labor. As a result, the high conception rates contributed to an increase in labourers, increased productivity, enabled economic activity, and reduced the previously noted extraordinarily high death rates brought on by the combined effects of famine, disease, malnutrition, plague, and conflict (Latimer and Kulkarni, 2008).

Today's cultures are in control of diseases that were once common and killed substantial percentages of the population because to modernity and technical advancement. Nowadays, societies are better able to combat famine, starvation, and other serious illnesses. Global mortality rates were significantly decreased by quick technological advancements in sanitation and modern medicine. Technology advancement also increased labor productivity. Even though it has been concluded that population expansion accounts for long-term economic development, there are other conflicting viewpoints in theories and literatures, which together created the circumstances for remarkable booms in global population growth. For instance, researchers like Tartiyus, Dauda, and Peter (2015) claimed that the world's natural resources are under tremendous strain as the global fertility rates continue to outpace death rates and the present population is close to 7 billion. The various facets of human life that are impeded as a result, particularly in developing countries, have negative effects.

In repeated endeavours to raise the standard of life for her people in order to promote sustainable economic growth and development, Nigeria, like many other emerging nations worldwide, has implemented a variety of economic policies. It is obvious that Nigeria is not only gifted with a great supply of different natural resources (including bitumen, crude oil, and lumber, among many

others), but it is also extremely fortunate in terms of the size of the human population, which has been rising since the beginning of time. Consequently, the nation currently has the highest population in Africa, according to the World Bank (2014). According to the Central Bank of Nigeria, Nigeria is one of the nations with the fastest population growth rates in the world, with a population growth rate of roughly 2.44% as of 2016. (CBN, 2016). As an illustrative example, the population of Nigeria increased from 142 million in 2006 to 146 million in 2007, then to 150 million in 2008, 154 million in 2009, and 158 million in 2010. According to additional study, the population of Nigeria has continued to grow steadily, lately reaching the eye-catching number of 206 million in 2020, which increased to 211 million in 2021. (World Bank, 2021).

It is challenging to predict Nigeria's future economic growth possibilities as a result of its expanding population because existing theories have not offered a clear-cut generalization regarding the effect of population growth on economic growth of developing nations like Nigeria. Some theories began with the Malthusian Population trap in their assertions that high population growth puts pressure on the natural resources available, reduces private and public capital formation, and directs additions to capital resources to maintaining rather than increasing the stock of capital per worker, thereby impeding economic growth. Other theories, on the other hand, believed that high population would result in high labor force numbers, productivity, and economic growth. As a result, there is disagreement about whether population expansion is desirable; some scholars believe that it is a serious problem, while others claim that it is not (Afzal, 2009).

While it is true that countries with a high population would have a larger labor force, this does not necessarily imply that the economy would develop or that it would grow more quickly than the economies of countries with lower populations. A study of the global population trend reveals that while some sparsely populated nations, like France, are already developed, many densely populated ones, like Nigeria, are still underdeveloped or developing. It should be noted that there are nations that are both heavily populous and developed; China and India immediately spring to mind. Likewise, there are less populous nations that are still developing, like Togo (Olukemi, 2016). It is a serious issue that Nigeria's population is expanding at a rate that has never before been seen in history. A nation's economic development can be negatively impacted by population expansion, and population



growth is a major factor in a nation's economic development (AMADI, 2015).

Nigeria's enormous population not only makes planning for development there challenging, but it also poses serious risks to the nation's overall economic growth. Although a large population does indeed result in a large labour force, the difficulty with a large labour force in Nigeria is the high unemployment rate. About 21.1% of the population in 2010, 12.3% in 2016, and 22.8% in 2020. (NBS, 2021). The population's standard of living does not rise when the population rises faster than the GNP. In fact, sustained population increase has stifled economic expansion in developing nations like Nigeria, where the population has been expanding steadily since 1960.

It has become clear that the nation's formal education is driving unemployment, crime, and the cycle of poverty as the number of graduates cannot be absorbed due to the rising population growing at a geometric proportion relative to job placement that is growing at an arithmetic progression. There is a clear need for more research on the trends and impact of population growth on economic development, as evidenced by the reality of high poverty and unemployment in Nigeria, which as of 2015 were 7.2% and 7.8%, respectively, as highlighted by the Central Bank of Nigeria (2015) and the National Population Commission (2015), and in spite of this, the announcement of Nigeria as the largest economy in Africa in 2014 due to Nigeria's GDP rebasing in 2014. This is especially true given that Nigeria continues to suffer rapid population expansion with no real indication that economic growth rates are about to pick up (Kulu, 2021). This research aims to answer the following questions: to investigate the causal relationship between steady population growth and economic growth in Nigeria. To examine the effect of population growth rate on unemployment in Nigeria. Examining the impact of steady state population increase on Nigeria's economic performance is the goal of this study. With a view to determining how it has impacted both the average population of the Nigerian economy and how it has impacted the growth and development of the Nigerian economy, the study analyses the impacts of constant population expansion in Nigeria. It includes how changes in the population have an impact on per capita income and GDP in Nigeria. The study's dimension or time frame is 1985–2021.

II. Theoretical Literature Review

The first of Malthus' two guiding principles holds that the human population increases

geometrically, or exponentially, with each generation. His second premise demonstrates the distinction between the arithmetic growth rate of food production and this geometric growth rate for human populations. This implies that the amount of food available will only rise by a fixed amount with each succeeding generation (Orji, Ogbuabor, Nwanosike & Anthony-Orji, 2019). The founding principle of the hypothesis put out by Julian Simon and Gunter Steinmann is that as population grows, so does the rate of technological advancement, increasing per capita wealth. A concept from Boserup (Simon 1977) that distinguishes between knowledge that is used for production and knowledge that is currently in use is known as the population push model. The additional notion that technology may and does evolve independently of population increase (learning-by-doing), and as a result, technology builds upon itself, balancing the pull and push models of technological advancement, underlies the population push model of technological development. Therefore, even with a static population, technology will improve to some extent, albeit more slowly than in cases when the population is expanding. Just like it always has been, invention is mostly driven by necessity. To create a model with endogenous technological advancement based on population increase and learning-by-doing, this technological progress function is added to the Douglas-Cobb production function. Another thing to take note of in his model is the usage of the terms population and labor supply interchangeably because he considers the influence of the dependency ratio and age structure on economic growth to be secondary to that of the savings rate. He gives the US and Japan as examples of the discrepancy between the savings rate and its impact on output (Simon 1977).

According to the Harrod-Dommar growth model, which assumes constant marginal return and fixed factor input proportions, there is an indirect correlation between population increase and per capita income growth. Since the level of capital investment completely controls the overall output growth, the constant return to scale is regarded as neutral in the current relationship between population growth and total production growth. Solow separated growth into steady-state and transitory impacts in the neoclassical growth model. He claimed that in the steady-state, rapid population expansion results in low income per capita, however it has no impact on the growth of income per capita. In the steady state, an economy expands together with population increase, taking into account technological improvement. On the other hand,



income per capita growth is proportional to population growth. Population growth has a negative transitional effect on income per capita growth. The Harrod-Domar model's submission is that population growth has an inverse relationship with steady-state income per capita and transitional per capita income growth. (Alimi, Fagbohun, and Abubakar, 2021).

Demographers have recently studied population trends using the linked hypothesis of demographic transition theory. Demographic Transition theorists believe that countries around the world will follow the trends of the developed world. As a result, developing economies will eventually achieve demographic stability (Orji, Ogbuabor, Nwanosike & Anthony-Orji, 2019).

The theory suggests that societies pass through the following stages in the process of change. These transition stages are explained as follows:

(A) Pre-transition stage characterized by high and fluctuating birth and death rates with little population growth.

(B) **Stage I:** High birth rates and declining death rates with rapid population growth.

(C) **Stage II:** Low birth and death rates with slow population growth.

(D) **Stage III:** Birth and death rates both declines appreciably leading to zero population growth.

The theory holds that pre-industrial societies were characterized by stable populations which had both a high death rate and birth rate (Orji, Ogbuabor, Nwanosike & Anthony-Orji, 2019).

III. Empirical Literature Review

Other countries' empirical economic studies have found that population growth has a positive, negative, or neutral effect on economic development. Several studies have found a positive relationship between population growth and economic development. Alimi, Fagbohun and Abubakar, (2021) analysed population is an asset or a liability to Nigeria's economic growth? Using the Fully Modified least squares (FM- OLS) and Autoregressive Distributed Lag (ARDL) approach to cointegration. The FMOLS method is used to further test the sensitivity of the ARDL bound approach's long-run coefficients. The FMOLS use a semi-parametric approach while estimating the long-run parameter estimates. The result confirms that population growth has a positive and significant impact on the overall economic growth measured by both real income growth and income per capita growth. Ogunleye, Owolabi and Mubarak, (2018). These researchers noted the Population Growth and Economic Growth in Nigeria. The ordinary least

squares (OLS) regression was employed to estimate our model specified. The OLS regression under ideal conditions results in coefficients of independent variables which are unbiased, consistent and have minimum variance. The study's findings show that population growth has a positive and significant effect on Nigeria's economic growth, whereas fertility has a negative and significant effect on Nigeria's economic growth. However, the exchange rate and crude death rate are insignificant for Nigeria's economic growth. Kuhe (2019) empirically measured the impact of population growth on economic growth and development in Nigeria from 1960 to 2015 using dickey-fuller generalized least squares (DF GLS) unit root test, Engle-granger residual-based co integration test, the error correction model (ECM), linear regression model specification and the error correction model (ECM). The findings revealed that the variables under study are integrated of order one and hence co-integrated thereby providing evidence in support of the existence of a long-run relationship between population growth and economic growth in Nigeria. The result also finds total population growth, urban population growth and rural population growth as having positive and significant impacts on economic growth in Nigeria in the long-run while in the short-run the impact of population growth on economic growth is found to be temporal and not long lasting.

Kamarudin, Mohamad, Wahab and Saudi (2018) analysed Population Growth and Economic Development in Developing and Developed Countries using secondary data on past records, authoritative reference books on population and economy and referral through the internet based on economic growth in Singapore from 1996 until 2016. The conclusion of this research states that the focus on alleviating poverty in developing countries relates directly to economic growth because of the realization that simply redistributing incomes and resources will not lead to long run solutions to poverty.

Peter and Bakari (2019) analysed the impact of population growth on economic growth in Africa 1980 -2015. The impact of Population Growth on Economic Growth is still largely controversial at national and regional levels. The study used annual secondary data of fifty-three (53) African countries sourced from the World Development Indicators database. Data were collected for economic growth, proxy by GDP, population growth, fertility rate, crude death rate and inflation rate. The data were analysed using descriptive statistics, as well as dynamic panel models of difference and system GMM. The results of the difference and system



GMM suggest that population growth exerts a positive impact on economic growth of Africa while fertility has a negative impact on economic growth of Africa. The paper concludes and recommends that population growth impacts positively on economic growth and thus African countries should adopt and implement pragmatic policy measures that will enhance the productivity of its population so as to reap more demographic dividends.

Orji, Ogbuabor, Nwanosike & Anthony-Orji (2019) in their study: Demographic Changes and Economic Performance in Nigeria: An Empirical Investigation from 1970 to 2016 using the Ordinary Least Squares (OLS) method and Autoregressive model (VAR) found that fertility rate and mortality rate as the true determinants of population changes in the economy. It revealed that high population growth in Nigeria is not proportional to economic performance and growth in the country. Finally, the outcome unveiled that the country's current level of population growth seems to be a problem to development instead of benefit to the economy as postulated by Neo-classicalists that population growth is correlated to technological advancement and positive economic outcomes.

Vincent, and Udeorah, (2020) studied the Changes in Demography and Its Effect on Economic Growth in Developing Economies: Evidence from Selected African Countries using a scope of 1981-2017. Panel (cross-section and time series) data were pooled to investigate the relationship between different demographic components and economic growth. Thelm, Pesaran and Shin (IPS, hereafter), which is based on the well-known Dickey-Fuller procedure was chosen in determining the unit root. Their findings suggest that total age dependency ratio of the entire population of lower-middle income African countries reduces growth; and that age dependency ratio of the young population spurs growth than age dependency ratio of the aged among lower-middle income African countries.

Bawazir, Aslam, & Osman (2019). Demographic change and economic growth: empirical evidence from the Middle East from 1996 to 2016. The study employs static linear panel data model and its findings suggest that young workers, middle-aged workers, senior workers, population growth rate, and old dependency ratio positively affect economic growth, while the youth dependency ratio negatively affects economic growth. Analysis by gender reveals that the male working-age population contributes more to economic growth than the female working-age population. Vincent and Udeorah (2020)

Demographic changes, human capital and economic growth in Nigeria from 1982 to 2013. The adoption of vector error correction model proved suitable to discover the direction of causality among the selected variables evidenced from unit root test which was integrated of $I(1)$ and co-integration test. Result shows that long run and short run causality could not be established from 15-64 years, gross fixed capital formation, life expectancy and primary school enrolment to GDP, an indication that Nigeria has been experiencing jobless growth.

A number of intriguing findings in the literature on population growth and economic growth have emerged from the review of empirical literature. In most countries, population growth has been found to have a positive effect on economic growth. On the surface, this appears to indicate positive projections for Nigerian economic growth due to the country's large and still growing population, and a significant number of studies on Nigeria have found a positive effect of population growth on economic growth. Conversely, some studies by a few researchers, such as Orji, Ogbuabor, Nwanosike, and Anthony-Orji (2019), show that population growth may have a negative effect on economic growth, which should be taken seriously.

This is because previous research has suggested that population growth contributes to increases in unemployment, poverty, environmental complications (such as increases in atmospheric carbon dioxide, global warming, and pollution), and other socially related misfortunes, allowing economic growth to regress. The discovery of a long-run relationship between population growth and economic growth by a number of studies using cointegration tests underscores the importance of considering the long-term implications of population growth for economic growth. Although these findings are accurate, it does not rule out the fact that most of these are outdated. This research aims at bridging this gap.

IV. RESEARCH METHODOLOGY

For this study, data collection through the internet was adopted as a form of research design. The choice of the design was informed by the objectives of the study as outlined in chapter one. This research design provides a quickly efficient and accurate means of assessing information about the population of interest. Secondary data, for a time series design which involves a critical analysis of consequences of Nigeria steady population growth on economic growth was also employed. It intends to study the effect of steady population growth on



Nigerian economic performance (2006 - 2021). Model specification is frequently required when a researcher wishes to mathematically define the relationship between independent and dependent variables. To analyse and interpret data using the E-

views application program, the ordinary least square method and regression model were used. To investigate the impact of population growth on Nigeria's economic growth.

MODEL 1:

This model places emphasis on the first objective of the study which is to investigate the causal relationship between steady population growth and economic growth in Nigeria. For this, we will adopt the grander causality model.

This model aims to ascertain the causal relationship between the population growth and economic growth.

The model is thus represented as:

$$\text{GDPGR}_t = \beta_1 + \beta_2 \text{PGR}_t + \beta_3 \text{GDPGR}_{t-1} + \beta_4 \text{UNR}_t + \mu_{1t} \dots (3.1)$$

$$\text{PGR}_t = \alpha_1 + \alpha_2 \text{GDPGR}_t + \alpha_3 \text{PGR}_{t-1} + \alpha_4 \text{UNR}_t + \mu_{2t} \dots (3.2)$$

Where:

GDPGR represents growth rate of real GDP; UNR represents unemployment rate.

PGR represents growth rate of population; μ represents the stochastic variable or error term.

MODEL 2:

The model places emphasis on the second objective of the study which is to examine the effect of population growth rate on unemployment in Nigeria. For this, we will use Ordinary Least Squares (OLS).

$$\text{UNR}_t = \alpha_0 + \alpha_1 \text{PGR}_t + \alpha_2 \text{FER}_t + \alpha_3 \text{LF}_t + \mu_t \dots (3.3)$$

Where: UNR represents unemployment rate; PGR represents growth rate of population.

FER represents fertility rate; LF represents Labour force; μ represents the stochastic variable or error term.

To examine the effect of steady population growth on economic growth, we adopted the use of OLS (Ordinary Least Squares) because of its advantages over other economic models. We also adopted grander causality model to examine the causal relationship between steady population growth and

economic growth in Nigeria because it is the perfect model for examining causal relationships. The use of OLS (Ordinary Least Squares) is used to analyse the time series data gathered. We also establish the relationship between the regressor and the regresand. This research is based on secondary data collected.

Mostly from the Central Bank of Nigeria (CBN) statistical bulletin, World Bank and United Nations - World Population Prospects.

V. RESULTS AND DISCUSSION

We intend to test stationarity using Augmented Dickey Fuller (ADF) to determine the order of integration in order to avoid estimating spurious regression using OLS assumptions. The ADF test result is shown in table 4.1.2, which summarizes the order of integration of each variable at the 5% level of significance.

Table 5.1 Unit Root Test

Variables	ADF – Test Statistic	Critical Value 5%	Probability	Order of Integration
GDPGR	0.342948	-2.948404	0.9773	1(0)
UNR	1.712449	-2.945842	0.9995	1(0)
LF	-2.558585	-2.945842	0.1108	1(0)
SAV	9.409218	-2.945842	1.0000	1(0)
FER	1.044451	-2.948404	0.9962	1(0)
LFE	-0.710597	-2.948404	0.8311	1(0)
PGR	-0.414094	-2.951125	0.8956	1(0)

Source: E – view computation by the researcher

From the above table, it should be observed that value of the ADF test statistic for population growth rate (PGR), growth rate of real GDP (GDPGR), unemployment rate (UNR), labor force (LF), total savings (SAV), fertility rate (FER) and total life expectancy rate (LFE) are greater than the critical value 5% level of significance at their respective absolute value. This indicates that the variables are co-integrated at order one.



Table 5.2: Estimated Result for Model 1 (Granger Causality Model)

Pairwise Granger Causality Tests

Date: 09/01/22 Time: 07:14

Sample: 1985 2021

Lags: 2

Null Hypothesis:	Obs	F-Statistic	Prob.
PGR does not Granger Cause GDPGR	35	13.5485	6.E-05
GDPGR does not Granger Cause PGR	35	1.94755	0.1602
UNR does not Granger Cause GDPGR	35	0.37890	0.6878
GDPGR does not Granger Cause UNR	35	9.16738	0.0008
LF does not Granger Cause GDPGR	35	0.21865	0.8049
GDPGR does not Granger Cause LF	35	0.03932	0.9615
UNR does not Granger Cause PGR	35	2.93630	0.0685
PGR does not Granger Cause UNR	35	3.41419	0.0461
LF does not Granger Cause PGR	35	5.54390	0.0089
PGR does not Granger Cause LF	35	1.54641	0.2295
LF does not Granger Cause UN	35	0.20360	0.8169
UNR does not Granger Cause LF	35	0.10422	0.9014

Source: Researchers E – View compilation 2022

From the above e-view analysis, we observe that population growth rate (PGR) does not Granger Cause economic growth (GDPGR) and economic growth GDPGR does not Granger Cause population growth rate PGR. This shows the negative effect population growth has on economic growth. The reason behind this result can be the gross underemployment or under-utilization of the available human capital in Nigeria. The lack of

adequate quota of the productive populace due to poor educational facilities. Therefore, this study can conclude that there is no positive relationship between population growth and economic growth in Nigeria.

These findings correspond with theories of population growth and its negative impact on economic growth.

Table 5.3: Estimated Result for Model 2 (OLS Estimation)

Dependent variable (UNR)

Variable	Coefficient	T - Statistic	Prob
C	44.65508	13.65571	0.0000
PGR	-8.399151	-7.986845	0.0000
FER	-4.127803	-12.92646	0.0000
LF	0.221531	3.991430	0.0004



$R^2=0.923533$	Adj. $R^2=0.915340$	Prob (f- statistic)=0.000000	F-stat.=112.7240
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Source: Researchers E – View compilation 2023

The coefficient of the constant is 44.65508. This implies that holding all the explanatory variables (PGR, FER, LF) constant, unemployment rate (UNR) would be equal to 44.65508. This indicates a double-digit increase. The coefficient of the population growth rate (PGR) is -8.399151. This shows a negative relationship between PGR and UNR. This further implies that assuming other variables remain constant, a unit change in PGR would negatively affect and bring decrease to UNR at the rate of 8.399151. Thus, this does not conform to the a priori expectation of the positive relationship between unemployment rate and population growth rate.

Furthermore, the coefficient of fertility rate (FER) is -4.127803. The negative coefficient of FER indicates an inverse relationship between FER and UNR. This means that a decrease in fertility rate by -4.127803 will result in a decrease in unemployment rate by approximately 4.1278, holding all other variables constant. This does not conform to the a priori expectation of the positive relationship between fertility rate and unemployment rate. The coefficient of labour force (LF) is 340.0423. The positive coefficient of LF shows a positive relationship between UNR and LF. This entails that an increase in labor force by 340 units would result to an increase in unemployment rate by 340 units.

The result further indicates that population growth rate (PGR) conforms to a priori expectation. This is because lower PGR would lead to lower UNR. It also indicates that fertility rate (FER) conforms to the a priori expectation and this means that shows that a reduction in FER would cause a corresponding decrease in unemployment rate (UNR). The conformity of labor force to a priori expectation also suggest an increase in labor force would cause an increase in unemployment rate.

From model 2, R^2 is 0.923533. This shows that the coefficient of determinant (R^2) which measures how well the regression line fits the data is considered high (0.923533), showing that about 92% of the regression model was explained by the explanatory variables. The R^2 statistic indicates that the percentage of variation in the dependent variable UNR that the independent variables PGR, FER, LF explained. The R^2 yielded 92% of the variations in dependent variable UNR is explained by the overall independent variable (PGR, FER, LF). This indicates that the regression

model has been well explained. The adjusted R^2 0.915340 indicates that R^2 is adjusted to the degree of freedom associated with the sum of square in the model (the explanatory variables).

The t- statistic of the independent variables show that population growth rate (PGR), fertility rate (FER) and labour force (LF) are all greater than 1.697 and have significant influence on unemployment rate (UNR) at 5% level of significance. For model 2, the f- statistic probability is 0.000000 which is less than the 5% level of significance. This shows that the independent variables give sufficient evidence to ascertain that the regression model is statistically significant.

5.1. Summary of research findings

The study investigated the effect of steady population growth on Nigeria economic performance between the period of 1985 to 2021 using data from World Bank and Central Bank of Nigeria. The study argued that economic performance is a multifaceted process embracing economic growth, structural changes in the economy, improving the conditions, and quality of life of the population. The study adopted econometric models to investigate the four objectives adopted in the work. After the Econometric analysis, the research findings emanating from the study shows that:

1. The study revealed that a significant and bi-directional relationship exists between population growth and economic performance in Nigeria from 1985 to 2021.
2. This study discovered that the rising population growth rate in Nigeria would lead to a significant impact on the unemployment rate in the country. This rising population can be attributed to the significant rise in fertility rate in Nigeria.
3. Furthermore, the study found fertility rate as a major component of population growth within the period under review. These findings could be attributed to an improvement in the countries care system as well as massive health awareness. It therefore found that population growth has negative effects on economic growth. This conforms to the a priori expectation. It also found that population growth does in fact affect unemployment in Nigeria. This means a rising population growth rate in Nigeria would lead to a significant impact on the unemployment rate in the country.



5.3. Recommendations

Following the research findings, the study makes the following recommendations:

I) Policy makers should formulate policies that would encourage human capital development and entrepreneurship (skill acquisition) so as to reduce the unemployment rate in the country which is already counting against economic growth. This would help to boost economic growth and development because it would make population favourable to economic growth.

II) This study recommends compulsory family planning so as to tackle steady state population growth rate. This would also equally help reduce fertility rate in the country.

5.2. Conclusion

The relationship between population growth and economic performance has long been a topic of discussion in economics. The high population growth caused by a high fertility rate places strains on both limited natural and capital resources, resulting in an increase in unemployment. Although a high life expectancy rate appears to have a positive impact on promoting economic growth, and increased savings appears to have a positive impact on boosting economic growth through investment creation, other positive effects of steady population growth, such as economies of scale and specialization, appear to be insignificant or contribute too little to the country's economic growth. In Nigeria, there appears to be a significant relationship between population growth and economic growth. According to various theories, population growth can help, hinder, or even have no effect on economic growth. According to this study, population growth has a significant impact on economic growth.

REFERENCES

- [1]. Afzal, M. (2009). Population Growth and Economic Development in Pakistan. *The Open Demography Journal*, 2, 1-7.
- [2]. Amadi, M. (2015). Critical Analysis of the Impact of Rapid Growing Nigerian Population on Economic Development, 1. 150474
- [3]. Orji, A., Ogbuagbor, J., Nwanosike, D. U. and Anthony-orji, O. (2019). Demographic Changes and Economic Performance in Nigeria: An Empirical Investigation. *VOLUME 11, ISSN 2066-0855, PAGES 230-248.*
- [4]. Bawazir, A.A.A., Aslam, M. & Osman, A.F.B. Demographic change and economic growth: empirical evidence from the Middle East. *Econ Change Restruct* 53, 429–450.
- [5]. Bloom, David & Finlay, Jocelyn. (2009), Demographic Change and Economic Growth in Asia. *Asian Economic Policy Review*, 4: 45-64. <https://doi.org/10.1111/j.1748-3131.2009.01106.x>
- [6]. Central Bank of Nigeria (2016), Central Bank of Nigeria Statistical Bulletin, Vol. 14, Abuja, Central bank of Nigeria.
- [7]. Central Bank of Nigeria (CBN) Volume 23, 2012.
- [8]. Coale, A. and Hoover, E.M., (1958), Population growth and economic development in low-income countries, Princeton, New York: Princeton University Press.
- [9]. Kuhe, D. A. (2019). The Impact of Population Growth on Economic Growth and Development in Nigeria: An Econometric Analysis. Volume 3, Issue 3, Pages 100-111, ISSN (Online): 2581-5059.
- [10]. Esu, G. & Udonwa, U. (2016). Determinants of Economic Growth in Nigeria: Population Perspective: Science Publishing Group. Vol 5, Issue 4. Pp 31-42. Doi:10.11648/j.jwer.20160504.12
- [11]. Federal Office of Statistic/UNICEF (2000), Multiple Indicators Cluster Survey, Abuja, Federal Office of Statistics.
- [12]. Federal Republic of Nigeria (2004b), Background Paper on Employment and Poverty Alleviation in Nigeria Presented to the African Union Extraordinary Summit on Employment and Poverty Alleviation in Africa, Ouagadougou, 8th-9th September, 2004, Abuja, Federal Government Press.
- [13]. Federal Republic of Nigeria (2004c), Millennium Development Goals Report 2004: Nigeria, Abuja, Federal Government Press.
- [14]. Fischer-Kowalski, Marina & Krausmann, Fridolin & Mayer, Andreas & Schaffartzik, Anke. (2014). Boserup's Theory on Technological Change as a Point of Departure for the Theory of Sociometabolic Regime Transitions. 10.1007/978-94-017-8678-2_3.
- [15]. Guga, K & Serjanaj, L & Zeneli, F (2015). Population, Economic Growth and Development in the Emerging Economies. *European Scientific Journal*. 11. 367-374.
- [16]. Hakeem, A, Emecheta, C & Ikenna M.N. (2016). Population and Economic Growth in Nigeria: is there an Empirical Evidence of



- Causality? International Journal Advances in Social Science and Humanities. Pp 4. 59-66.
- [17]. Hakeem, A., O, Emecheta, C.Ikenna N.M (2016). Population Dynamics and Economic Growth in Nigeria. ISSN 2222-1700(Paper) ISSN 2222-2855(Online), Vol.7, No.15, pp. 16 – 24.
- [18]. Human Resource Development: The Case of Education,” in Ahlburg, K. and Mason, (eds). (1996).The Impact of Population Growth on Well-Being in Developing Countries, 67-137.
- [19]. JAMB (1991), Annual Report of the Joint Admissions and Matriculation Board into Nigerian Universities for 1990, Abuja, Joint Admissions and Matriculation Board.
- [20]. JAMB (2001), Annual Report of the Joint Admissions and Matriculation Board into Nigerian Universities for 1990
- [21]. Kamarudin, M., Mohamad, M., Wahab, N. & Saudi, A. (2018). Population Growth and Economic Development in Developing and Developed Countries. 7 (4.34), 123-127.
- [22]. Kulu, S. (2021). Population Growth and Economic Development in Nigeria in Assessment of the Role of National Population Commission.
- [23]. Lawanson O. I., Ph.D (2016). Rapid Population Growth and Economic Development in Nigeria. Volume: 01, Issue:04. ISSN: 2455-8834. Page 440-453.
- [24]. Merriam-Webster, 2007. “Collegiate Dictionary”. Eleventh Edition Springfield, Massachusetts, USA.
- [25]. National bureau of Statistics. (2021). Labor Force Statistics: unemployment and underemployment. Pp 1-6. 020125
- [26]. Ogunleye, O. O., Owola, O. A., & Mubarak, M. (2018). Population Growth and Economic Growth in Nigeria: An Appraisal. International Journal of Management, Accounting and Economics, 5(5), 282-299.
- [27]. Ogunro, T. &Aderinto, E. (2016). Demographic changes, human capital and economic growth in Nigeria.
- [28]. Olayiwola, S. &Adedokun, A. (2021). Demographic Transition and Economic Growth in Nigeria. 1-14.
- [29]. Olukemi, L. (2016). Rapid Population Growth and Economic Development in Nigeria. Pp 441. Vol 01. 2455-8834
- [30]. Peter, Amade and Bakari, Ibrahim, Impact of Population Growth on Economic Growth in Africa: A Dynamic Panel Data Approach (2019). Available at SSRN: <https://ssrn.com/abstract=3432263> or <http://dx.doi.org/10.2139/ssrn.3432263>
- [31]. Sakiru O. A (2017).The Dynamics of Population and Economic Growth in Nigeria. Vol. 5, No. 3, pp. 79-86, ISSN: 2334-2382 (Print), 2334-2390 (Online), DOI: 10.15640.
- [32]. Tekilu, T and Deresse, D (2020). The Impact of Rapid Population Growth on Economic Growth: Evidence from Ethiopia. Vol.11, ISSN 2222-1700 (Paper) ISSN 2222-2855 (Online), Page 1 – 14.
- [33]. Ukpolo, V. (2002). Population Growth and Economic Growth in Africa. Vol: 18(issue: 4), page: 315-329. <https://doi.org/10.1177/0169796X0201800402>
- [34]. Vincent, O. &Udeorah, F. (2020). Changes in Demography and Its Effect on Economic Growth in Developing Economies: Evidence from Selected African Countries.04(06), Pages 403 - 412. ISSN 2454-6186.
- [35]. World Bank, World Development Indicators: 2021.