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Population Growth and Unemployment Rate in Nigeria: An Empirical Analysis

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Abstract

The study examined the effect of population growth on unemployment in Nigeria from 2002-2022. The core objective of the study was to evaluate the empirical influence of population growth on unemployment in Nigeria by using econometrics model. While the specific objectives were centred on the examination of the effect of each of rural population growth and urban population growth on unemployment in Nigeria, by using the Error Correction Model and the Johansen Co-integration testing techniques from 2002-2022. The time series data showed stationarity and long run relationship between the variables. Findings in the model showed that a positive and non-significant relationships exist between rural population growth and unemployment. However, the model's findings on the relationship between urban population growth and unemployment proved to be negative and significant at 5% level. The ECM results showed that the overall model was significant at 5% level, giving a negative coefficient value of -1.040246, implying a speed of adjustment that indicates the convergence of the variance and short run disequilibrium at a speed of 104% annually. Collectively, the highly significant and negatively signed ECM coefficient indicates that a long and stable relationship exists between the dependent variable (unemployment) and independent variables (rural population growth and urban population growth) in Nigeria. The implication of this finding is that population growth has helped to propel unemployment growth in Nigeria, leading to widening income gap and rising poverty among the populace from 2002-2022. The study therefore recommends that authorities in Nigeria should tackle unemployment problem with a focus on addressing high rate of population growth through education and other measures, while creating functional and effective skill acquisition centres, as well as a favourable climate to attract investments in the country, among others

Keywords*:* Population Growth; Unemployment Rate; Impact; Nigeria.

Introduction

Nigeria is one of the fastest growing countries in the world with an estimated population of over 220 million and an annual population growth rate of 2.8% (NPC, 2022). Nigeria's population has been increasing rapidly for at least the last 5 decades due to very high birth rates, quadrupling its population during this time. Growth was fastest in the 1980s, after child mortality had dropped rapidly, and has slowed slightly since then as the birth rate has declined slightly. According to the 2017 revision by the World Population Prospects, the total population of Nigeria was put at 185,989,640 in 2016, compared to only 37,860,000 in 1950. The proportion of children under the age of 15 in 2010 was 44.0%, 53.2% was between 15 and 65 years of age, while 2.7% was 65 years or older. Nigeria is the most populous nation in sub Saharan Africa and the seventh most populous in the world (NPC, 2022). 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 is living in the rapidly expanding urban areas and estimated at over 51% (UNDP, 2019). Considering the rate of population growth in Nigeria, there is the likelihood of rising restlessness among the population particularly the youth population who are the energetic section of the population, if they are not productively engaged (Aminu and Akah, 2012). Therefore, the government must device means of channeling the energy of the rising population into productive activities in order to impact meaningfully on the

Population influences the level of unemployment in a nation in either way i.e. positively or negatively. While a rising population without a correspondence rise in national output, productivity and capital formation could lead to a rise in unemployment, poverty, social unrest and negative economic growth, the ability of a country to plan ahead of its rising population by equipping it with the necessary skills for positive inputs into economic growth and development could go a long way to checkmate the problem of unemployment, poverty and social unrest (Almani, 2022; Yemisi 2015).

The contribution of population growth to Nigeria's economic development has been an issue of debate over the years. Issues have been raised concerning the impact of a rapid population growth on unemployment and the general wellbeing of Nigerians. Nwosu, Dike and Okwara (2021), Adediran (2012), Olusogo, Oluwarotimi and Muazu (2018), Ejirefe and Aminu (2016), Abdullah et al (2015), laid emphasis on the role of population growth on the Nigerian economy with conflicting results. On the other hand, Imoisi et al (2022), Hillel (2011), Eze (2022), Ehrlich and Ehrlich (1968), Hugu (2010), Andrewatha and Birch (1984), are of the view that excessive population growth breeds unemployment which impacts negatively on the economic performance of a nation., contrary to the views of Kuznet, (1960) and Boserup, (1981). As shown above, different experts have aired their opinions on the subject matter. Hence, the need for this study to establish the actual relationship existing between population growth and unemployment focusing on rural and urban population growth rate and unemployment in Nigeria. This study therefore intends to lay emphasis on population growth and unemployment rate in Nigeria from 1992 to 2022.

Literature Review

Conceptual Framework

Population

A population is a group of individuals of the same species that live together in the same place, and that possess an average set of properties, such as birth rates and death rates (Nwaimo, 2009). This definition recognizes that populations are made up of individual organisms but does not require that we know which individuals give birth or die, or where they are located in space. Instead the population is characterized by average birth and death rates, and variability in these averages is treated as a statistical property of the population.

Most definitions of population have some kind of spatial reference. The simplest and least restrictive of these is

that a population is a group of individuals of the same species that live together in a particular area (Roughgarden, 1989). However, even though this definition is widely used by ecologists, it gives rise to serious difficulties and misinterpretations. A more rigorous definition should define the spatial dimension more precisely; for example, a group of individuals of the same species that live together in an area of sufficient size that all the requirements for reproduction, survival and migration can be met (Huffaker et al. 1984). The problem is, defining an area of sufficient size. Sometimes this area can be quite obvious as, for example, a population of elk inhabiting a particular drainage. In others, it is less so. It may be helpful to conceive of an area of sufficient size such that the rates of emigration. Out of the area and immigration into the area are roughly balanced. Another approach is to imagine a circle large enough that an organism placed near its center would have a very low probability of exiting the circle during its lifetime. Whatever method is used to define the appropriate size of an area within which the population of a particular organism exists, it is important that most of the change in population size or density is due to births and deaths rather than immigration and emigration because the theory of population dynamics is based on this assumption, for a detailed discussion of the population concept (Andrewartha & Birch, 1984).

Two centuries ago, the Reverend Thomas Malthus put forward a theory of the relationship between population growth in this essay on the principle of population and drawn from the concept of diminishing returns. Malthus postulated a universal tendency for the populations of a country, unless checked by dwindling food supplies, to grow at a geometric rate, doubling every 30-40 years, at the same lime due to the diminishing returns to the fixed factors of land, food supply could expand only at a roughly arithmetic rate. As each number of the population would have less land to work, his or her marginal contribution to food production would actually start to decline. For the fact that the growth in food supply could not keep pace with the rising population, per capita income would fall so low as to lead to a stable population existing barely at or slightly above the subsistence level. Malthus therefore contended that the only ways to avoid this condition of chronic low levels of living or absolute poverty was for people to engage in moral restraint and limit the number of pregnancy. Hence we might regard Malthus indirectly and inadvertently as the father of the modern birth control movement.

Factors Influencing Population Growth in Africa

Population growth, notably in Africa has grew tremendously since 1950 from 228 million to 1.341 billion in 2020, averaging of recent 2.4% growth annually (Kaba, 2020). However, in African and other developing countries population growth rates which were once very high have been steadily declining; and even at that, they continue to be substantially higher than many regions of the world leading to population explosion or overpopulation in these parts of the world. There are so many factors that are said to be responsible for this development according to ILO (2024), kaba (2020) and Almani (2022). These factors according to them include declining mortality rates; decline in overall deaths rates associated with

investments in modern health institutions; intra-continental migration mainly associated with conflicts and wars as happened in Libya, Chad, Democatic Repulic of Congo, Central Africa Republic and many more. Similarly, Imoisimi, Amba and Okon (2022), while making their own contribution, identified many more factors that contribute to rapid population growth in Africa and elsewhere in the world. Some of such factors identified include high birth rates; high fertility rates; childbirth at a young age; low rates of contraceptive use; decline in maternal mortality rates; increase in life expectancy; and decline in HIV/AIDS related deaths. These interrelated demographic, social, and economic factors provide a comprehensive explanation for Africa's rapid and massive population growth in the post-World War II era. The study of Kaba (2020), cited a number of positive implications for this phenomenon, including increase in GDP and GDP per Capita in Africa; increase in the numbers of billionaires and millionaires in Africa; increase in political influence of Africa in the international community; and increase in the number of educated Africans, including those enrolled in college and college graduates growth of Africa's population from 1950 to 2020. Many of these interrelated factors are demographic, while others are educational.

Unemployment

Unemployment refers to the total number of people who willing and able to work in return for income but cannot be gainfully employed (Abu et al 2020). On the other hand, Akutson, Messiah and Araf (2020) conceptualized the term unemployment as the total number of people who are willing and able to work, and make themselves available for job at the prevailing wage but no work for them. This therefore, implies that unemployment is a state of joblessness in the country. According to Almani (2022) unemployment is conceptualized as a situation where by a worker is or workers are involuntarily out of work. This means that workers are willing and able to work but cannot find any work. Similarly, unemployment has been defined by the classical economists as the excess supply of labour over the demand for labour which is cause by adjustment in real wage. The Classical or real wage unemployment occurs when real wages for job are set above the market-clearing level, causing number of job-seekers to exceed the number of vacancies.

In the same vein, unemployment was defined by International Labour Organization (2019) as a state of joblessness which occurs when people are without jobs and they have actively sought work within the past four weeks. The unemployment is a measure of the prevalence of unemployment and it is calculated as a percentage by dividing the number of unemployed individuals by individuals currently in the labour force.

The International Labour Organization (2024), indicated that labour markets have shown surprising resilience despite deteriorating economic conditions globally, but recovery from the Covid-19 pandemic remains uneven as new vulnerabilities and multiple crises are eroding prospects for greater social justice. The ILO's World Employment and Social Outlook Trends (2024) finds

that both the unemployment rate and the jobs gap rate – which is the number of persons without employment who are interested in finding a job – have fallen below pre-pandemic levels. The 2023 global unemployment rate stood at 5.1 per cent of approximately 200 million people a modest improvement from 2022 when it stood at 5.3 per cent at 207 million.

Moreover, working poverty is likely to persist. Despite quickly declining after 2020, the number of workers living in extreme poverty (earning less than US$2.15 per person per day in purchasing power parity terms) grew by about 1 million in 2023, while the number of workers living in moderate poverty (earning less than US$3.65 per day per person in PPP terms) increased by 8.4 million in 2023 (ILO, 2024).

Theoretical Framework

The Malthusian and Alarmist Theoretical Views

The Revered Thomas Robert Malthus (1766-1834) from Cambridge school wrote an essay on the Principle of Population as it affects the Future Improvement of Society in 1798. The main idea was that demographic growth exceeds the capacity of agriculture to sustain a growing population (geometric vs arithmetic growth). He further argued that any increase in income was likely to be absorbed through higher population growth, leading to constant wages at survival levels in the long-run, leading to demo-economic cycles with adjustments through famine, epidemics and wars. Salvation could eventually come from abstinence and late marriages.

Fears of population explosion were widespread in the 1950s and 1960s. Ehrlich and Ehrlich (1968) predicted worldwide unemployment, poverty and drop in productivity in the 1970s and 1980s due to overpopulation, as well as other major societal upheavals, and advocated immediate action to limit population growth. They were heavily criticized for their alarmist tone, and in recent decades for its inaccurate predictions.

Unemployment is of course, one dimension of a rising population problem (Todaro and Smith, 2015). A nation whose economy is not generating jobs at a fast enough rate to absorb a growing population is a nation where unemployment is likely to be increasing. It has long been recognized that unemployment is not the only response to a sluggish growth in the number of jobs but also, the result of population explosion (Hillel, 2011). Consequently, those without gainful employment may not be able to meaningfully contribute to the wellbeing of the society and may eventually turn to theft, beggary, or marginal pursuits, such as selling matches, flowers, or candy on street, in a desperate attempt to generate enough income to survive.

The Kuznets – Boserup Theoretical Views

Economists have long been skeptical about the alarmist view associated with Malthusian view, for instance, the Kuznets – Boserup theoretical views which argued that the notion that people have zero productivity is incompatible with the principle that people respond to incentives. In addition

they believed that people are not just labor, they are also creators and innovators. In other words, technical progress is endogenous to population size. On the supply side, the genius principle is considered: the higher the population, the more likely for another Mozart or Einstein to come, raising the stock of ideas; and since ideas can be shared at zero cost, new ideas are used more effectively in large than in small populations. This principle was initially put forward by Julian (1977) and Kuznets (1960). On the demand side, the population pressure principle: population growth spurs technological innovation precisely because it puts pressure on scarce resources (necessity is the mother of invention). This was initially put forward by the Danish, UN-based economist Esther Boserup. If this is true, this should apply to first and foremost agriculture, the sector which has the task to feed a growing population. Boserup (1981) classified countries into five groups of increasing population density, and showed that high-density countries have more irrigation, use chemical fertilizers, practice multiple cropping, etc. which shows that high population densities go hand in hand with technologically more intensive farming.

Empirical Literature

Rabiu, Saidu, Muktari, and Nafisa, (2020) empirically examined the impact of population growth on unemployment in Nigeria. The study applied annual time series data from 1991 to 2017. The data on population, unemployment, consumer price index, exchange rate and foreign direct investment were tested for unit root using ADF, PP and KPSS unit root tests. The Dynamic Ordinary Least Squares (DOLS) were used in the process of estimating the model. The main results disclosed that population and exchange rate impacted positively with unemployment. Whereas consumer price index, GDP per capita and foreign direct investment impacted negatively thereby reducing the rate of unemployment in the long-run. It was suggested that the government should focus more on attracting foreign direct investment, increasing GDP per capita and the desired rate of consumer price index in order to control the rate of unemployment in the country.

Akutson, Messiah and Araf (2020) examined the relationship between unemployment and economic growth in Nigeria using annual secondary data sourced from the Central Bank Statistical Bulletin and National Bureau of Statistics covering the period 1986 to 2015. Data collected include unemployment rate and growth rate of Gross Domestic Product. Data collected were analyzed using the ARDL Bound Testing and the Parsimonious Error Correction Model (ECM) of the ARDL The findings showed that there is no long- runs relationship between unemployment rate and Economic growth in Nigeria; also, results from the short-run Parsimonious Error Correction Model indicate that a 1% increase in unemployment lead to 20.6% increase in real output. The study recommends among others, the need to formulate policies to ensure entrepreneurship development such as the deregulation of the labour market which is likely to reduce unemployment and improve the growth and welfare of Nigerians

Ball, Leigh and Loungani (2012) in their study of short-run unemployment

movements in the United States since 1948 and in twenty advanced economies since 1980 using panel data approach, concluded that Okun's Law shows a strong and stable relationship in most countries studied. They also concluded that the coefficient in the relationship, for instance, the effect of a one percent change in output on the unemployment rate varies substantially across countries. This variation is partly explained by idiosyncratic features of national labor markets, but it is not related to differences in employment protection legislation.

Imoisi, Amba and Okon (2018), investigated the impact of unemployment on economic growth in Nigeria using the OLS multiple regression analytical method in analyzing annual time series secondary data from the period 1980 – 2016. This study established that unemployment, population and labour force have significant impact on Nigeria's economic growth.

Adediran, (2022), examines the effect of population on economic development in Nigeria between 1991 and 2020. The study adopted ordinary least square method of analysis and the time series properties using the Phillips-Perron (PP) non-parametric unit root test. 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.

Similarly, Olusogo, Oluwarotimi amd Muazu (2018) explored the effect of population growth on the economic growth of Nigeria over the period of 1981 to 2015. The findings of the study reveals that population growth has a positive and significant effect on economic growth of Nigeria, while fertility rate was negative and significant for economic growth in Nigeria. Death rate was however insignificant for economic growth of Nigeria.

Abdullai, Tariq, Ghulum, Asad and Waseen (2021), examined the impact of population growth on economic growth for Bangladesh using data from 1990 to 2020 by employing multiple linear regression model. The result indicates that economic growth and population are both negatively correlated and that an increase in population will have a negative impact on the economic growth of Bangladesh

Methodology

The study used annual secondary time series data covering the period 1992 – 2022.Time series data on unemployment and population growth were sourced from the Central Bank of Nigeria (CBN) statistical bulletin and the National Bureau of Statistics.

Analytical Technique

Econometrics analysis applied involved the following processes.

1. Adjusted Dickey – Fuller (ADF) was employed for unit root test and order of integration test.
2. Johansen was used for co – integration test and Error Correction Model (ECM) for the correction of any possible error, as all the variables are stationery at first difference; the cointegration results also showed that long run relationships exist among the variables; another reason for the use of the ECM.

Model Specification and Analytical Techniques

For the purpose of this study, a conventional mathematical functional framework in which Population Growth is proxy by Annual Rural Population Growth Rate and Annual Urban Population Growth Rate and the impact on Unemployment Rate in Nigeria is illustrated as follows:

$UR_t = F(AR_t, AU_t)$……..(1)

By appropriately manipulating or re-arranging equation (I) more technically, we shall arrive at equation 2.

$UR_t = \beta_0 + \beta_1 AR_t + \beta_2 AU_t + U_t$…….. (2)

Where: β_0 = Intercept

β_1 - β_2 = Regression Coefficient

U_t = Stochastic error term

UR_t = Unemployment Rate

AR_t= Annual Rural Population Growth Rate

AU_t= Annual Urban Population Growth Rate

aproari expectation: $\beta_0 > 0$, $\beta_1 > 0$, $\beta_2 > 0$

. The general form of (ADF) for the unit root test is estimated by equation (3).

$$\Delta y_t = a_0 + a_1 y_{t-1} + \sum a \Delta y_t + \mu \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (3)$$

While for the cointegration test, the estimation model or Johansen's method is shown in Equation 4.

$$y_1 = A_1 Y_t \ldots\ldots + A_p Y_{t-P} + \beta_{Xt} + \in_t \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (4)$$

Error Correction Model (ECM)

The ECM is basically a system that builds on Johansen's test for co integration. Indeed the error correction model is designed to correct the long and short run disequilibrium observed among the variables used in the series The estimation incorporate the short run coefficients and the error correction term (ECT) which measure the speed of adjustment of the model from short run towards the long run equilibrium, therefore-the short run errors of the model will automatically be correcting themselves to the degree of ECT term. More so, the coefficient of ECM is expected to be negative.

The regression equation form for the ECM is represented by equation (5).

$$\Delta Y_t = \alpha_0 + \sum_{t=1}^{n} \beta_{1i} \Delta Y_{t-i} + \sum_{i=1}^{n} \Lambda_{1i} \Delta X_{t-i} + \varphi ECM_{t-1} + U_T \ldots\ldots\ldots\ldots\ldots (5)$$

Pair Wise Granger Causality Test

The Granger causality test is used to detect the presence and the direction of the causality between each pair of the variables. Causality is said to exist when the values of a variable, say X, has explanatory power in a regression of Y_t on lagged values of Y_t, and X_t. The null hypothesis states that X does not granger cause Y, and Y does not granger cause X. The granger causality general specification test in a context of (X, Y) can be expressed in equation 6.

$$Y_t = \alpha_0 + \alpha_1 Y_{t-1} + \ldots\ldots \alpha_i + Y_{1-i} \beta_1 X_{t-1} + \ldots\ldots \beta_i X_{t-i} + \in_t \ldots\ldots\ldots\ldots (6)$$

Data Presentation and Results

Unit Root Test

The test for stationary was conducted using the Augmented Dickey-Fuller Test which is normally done on level series and difference series. A variable is said to be integrated at order 1 if it must be differentiated once to become stationary. See the order of integration and ADF level of the variables of study in the table below.

Table 1: Results of Unit Root Test at Levels

Variable	At level	Critical value at 5%	Order of integration	Remark
UR	2.423063	2.60411	1(0)	Not Stationary
ARg	2.957646	2.960411	1(0)	Not Stationary
Aug	2.623770	2.963972	1(0)	Not Stationary

Source: computation from E-view 9

Table 2 Results of Unit Root Tests at First Difference

Variable	At first difference	Critical value at 5%	Order of integration	Remark
UR	6.200194	2.967769	1(1)	Stationary
ARg	26.79239	3.587527	1(1)	stationary
Aug	5.001766	2.2967767	1(1)	Stationary

Source: computation from E-view 9

Evidence from the unit root test above shows that all the variables are stationary at first difference only, while also being significant at 5%

The Long Run Relationship (Johansen Co Integration Test)

Co-integration means that there is correlation or long run relationship among the variables (Gujarati, Porter and Gunasekar, 2012). This was carried out on the residuals of the model. The table below shows the result.

Table 3: Unrestricted Co-integration Rank Test (Trace)

Hypothesized NO of CE(S)	Eigen value	Trace Statistics	0.05 Critical Value	Probability
None *	0.472626	42.79799	29.79707	0.0009
At most 1*	0.421806	23.60263	15.49471	0.0024
At Most 2 *	0.212513	7.167249	3.841466	0.0074

Source: Computation from E-view 9

*Trace test indicate three co-integrating equations at the 0.05 level

*Denotes rejection of hypothesis at the 0.0-5 level

Table 4: Unrestricted Co-integration Rank Test (maximum Eigen value)

Hypothesized NO of CE(S)	Eigen value	Max Eigen value	0.05 Critical Value	Probability
None	0.472626	19.19536	21.13162	0.0913
At most 1*	0.421806	16.43538	14.26460	0.0223
At Most 2 *	0.212513	7.167249	3.841466	0.0074

Source: Computation from E-view 9

*Max – Eigen value test indicates 2 co – integrating equations at the 0.05 level *Denotes rejection of the hypothesis at 0.05 level.

Error Correction Model

The results of the Error Correction Model (ECM) tests are shown in the table below. The tests were necessitated by error in the co-integrated variables.

Table 5: Error Correction Model Test Results

	Coefficient	Std Error	T-Stat	Prob
ARg	211.187	5277.472	0.400227	0.6920
Aug	9982.109	3509.031	-2.844691	0.0082
ECM (-1)	1.040246	0.176530	-5.892733	0.0000
C	1141595	1200237	-0.951141	0.3494

Source: Computation from E – view 9

R – Squared = 0.590714
Adjusted R^2 = 0.561479
Durbin Watson = 1.863142
F- Statistic (value) = 3.595742
Prob. F = 0.040921

Interpretation of Results

Analysis of Regression Coefficients and the Economic Aprori Criteria

The regression line has a negative intercept as presented by the coefficient value of -11.41595. The apriori expectation provides that the intercept could either be positive or negative.

However, annual rural population growth has positive relationship with unemployment with a coefficient magnitude of 2112.787. This implies that a unit change in rural population growth would result to a rise in unemployment by 2,112.2 units. This is also in line with the aproiri expectation.

The regression further indicates that urban population growth rate has a negative relationship with unemployment contrary to economic expectation with a negative value of -9982.109. This implies that a unit rise in urban population growth rate would negatively impact on unemployment by 9,982.1 units, and vice versa.

However, urban population growth has the greatest coefficient value, followed by rural population growth and the intercept. This implies that urban population growth has the greatest impact on the unemployment.

Statistical Criteria

Analysis was done here with reference to the t statistics, the F Statistic and the Durbin Watson Statistic.

F- Statistic

The Probability (F Statistic) has a value of 0.040921 which is under the 0.05 significant value; this implies that the F – Statistic is significant, meaning that the data used for the regression analysis are reliable, making the regression analysis to be statistically significant.

T- Statistics

The t-statistics indicates how significant the parameters in this study are. For a variable to be significant in this study its probability value must fall under the 0.05 significant values,
Therefore significant in this study are:

- Urban population growth rate: 0.0082< 0.05
- The error correction model (ECM) 0.0000 < 0.05.

From the above we can conclude that a significant relationship does exist between urban population growth rate and unemployment in this study. However, no significant relationship exists between rural population growth and unemployment as the (t statistic) probability value of 0.6920 is far above 0.05 significant value.

- **Durbin – Watson Statistic**

The Durbin Watson statistic gave a value of 1.86 which implies that there could be no autocorrelation in the series since it is approximately 2.

The Adjusted Coefficient of Determination (R^2)

This explains the explanatory power of the independent variables. The result gave an adjusted R^2 value of 0.5614. This implies that the 56% of the behavior of the dependent variable unemployment is explained jointly by rural population growth rate and urban population growth rate, while the rest is accounted for statistic errors.

- **Analysis of Standard Errors**

The standard error of the intercept is huge with a magnitude of 12002.3 implying its unreliability to predict the behavior of unemployment. The standard error of rural population growth rate (5277.47) is also fairly high showing its unreliability to predict the behavior of unemployment. The standard error of urban population growth rate is a little low at 3509.03 which suggests that urban population growth rate is more reliable to predict the behavior of unemployment. However of the standard error of ECM is the least value of 0.1765 which implies that the overall result given by the ECM is reliable.

Discussion of Findings

The results of the indicated the existence of a long rung relationship among the variables as proved by the trace and max- Eigen statistics. This paved way for the use of Error Correction Model (ECM) to correct the errors in the co-integrated variables. The error correction model is properly signed and highly significant in this study.

The variables coefficients showed that a positive relationship exists between annual rural population growth and

unemployment on one hand, and the existence of a negative relationship between annual urban population growth rate and unemployment on the other hand. However the impact of urban population on unemployment is higher.

The above result on rural population growth and unemployment supports the alarmist opinion of Hillel (2011), Ehrlich and Ehrlich (1968) on population growth and economic performance. However, the negative relationship between urban population and unemployment is in line with the views of Kuznets (1955) and Boserup (1981).

Conclusion

The ECM used in the study showed a cleared relationship between the dependent variable (unemployment) and independent variables (rural population growth and urban population growth). There exists a positive relationship between rural population growth and unemployment. However, the relationship between urban population growth and unemployment is negative.

The significant variable in this study is urban population growth rate which shows a significant relationship with unemployment. This implies that emphasis should be laid more on tackling the unemployment challenges of Nigeria by checkmating population growth in urban and rural areas that will generate much impact on output/production and services that will tackle unemployment.. The adjusted R^2 gave a value of 0.56 which implies that 56% of the behaviour of unemployment is determined by the movements of rural and urban population growth, while stochastic errors account for the remainder

Recommendations based on Findings

The recommendations made in line with the findings are as follows:

i. Unemployment problem in the country should be addressed with a focus on addressing high rate of population growth through education and other measures.
ii. Other issues that impact on unemployment relating to skill acquisition and creating a favourable climate to attract investments should also be addressed.
iii. The population, particularly the youth population should be encouraged to be productive in order to impact more on Nigeria economic development.

Policy Recommendations

i. The government should evolve policies to overhaul the educational system in the country to focus on turning out graduates who are job creators rather than job seekers.
ii. Similarly, tax policies should be deployed to expand investment and production in the economy through tax holidays this will in turn generate employment opportunities for the growing population, thereby creating the much needed impact on the economy.
iii. Infrastructural planning and policy should also be made to overhaul and expand the existing infrastructures in the country in order to encourage investment into the economy. This will aid in promoting employment and the same time provide Jobs

opportunities for growing youth population that will in turn impact positively on the overall economic performance of the nation.

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