Unemployment and its Effect on the Growth of Nigeria Economy

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Original Research Article

ABSTRACT

Unemployment is known to be a worldwide economic problem which retards economic growth. It is found to be one of the serious impediments to colossal waste of a country's manpower resources; hence it generates lower output thereby leading to lower income and sluggish economic growth. This empirical study however investigated the effect of unemployment on Economic Growth in Nigeria. This study was carried out in Nigeria between the period of 1986 and 2008. The data were analyzed using the ordinary least square approach. This paper also employed the techniques of stationary test, co – integration test, and error correction model to estimate the dynamic relationship between dependent and the independent or explanatory variables.

The result shows $R2^{to}$ be 0.697 i.e. about 70 percent, Adjusted R^2 to be about 53 percent due to data transformation, F. statistic 3.709958, t. Statistics of each explanatory variables shows 2.361284 for UNEMPLR, 0.222837 for EMPL, 3.037337 for GCF, 1.938742 for UNEMPLOY, and 0.799706 for JCV, showing that the explanatory variables are statistically significant in explaining the economic growth in Nigeria. Nevertheless, the result give a coefficient of 11.56651 for Unemployment Rate (UNEMPLR), 0.014065 for Employed Labour (EMPL), 0.852883 for Gross Capital Formation(GCF), 3.982484 for Unemployed Labour (UNEMPLOY), 1.161745 for Job Vacancies (JVAC). The result of the Co-integration test shows the presence of long run relationship between employed labour and growth. This result corroborates the fact that unemployment rate

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retards Nigeria's economic growth thus, one percent increase in unemployment rate lead to about 11.56 percent decreases in Gross Domestic Product. It was also found that job vacancies have a negative relationship with growth.

Based on the finding, it is recommended that the Nigerian government has to be involved as major players in the establishment and management of economic and other forms of enterprises in order to promote job employment, and growth. To optimally raise the level of capital formation in Nigeria, government has to maintain a steady supply of energy (power) and other infrastructural supplies needed to raise employment level and boost economic growth. And being a reoccurring economic problem, this however needs further work to proffer solution.

Keywords: Unemployment; economic growth.

1. INTRODUCTION

1.1 Background of the Study

Countries all over the world have their own share of various economic problems associated with underdeveloped, developing, and developed economies. A major economic problem plaguing the under-developed or developing economies is unemployment. Indeed economists like sociologist, political thinkers and planners continue to have sleepless night on this seemingly outrageous problem which ends appear almost not in sight.

The Nigerian economy has unemployment as one of its dark spots since unemployment rate in the country had assumed a frightened dimension with its attendant socio-economic implications [1]. Unemployment, which indicates an underutilization of human resources and a failure of the economic system to use its resources efficiently calls for designing strategies that will minimize the economic waste that arises from it. Nigeria has been experiencing a high rate of unemployment because she has not given sufficient attention to, or has not even recognized the evil effects of unemployment on economic growth [2]. The increase in the number of the unemployed has far–reaching implication on planning and colossal effect on economic growth.

Importantly, unemployment has been taken to be a global catastrophe and it is already becoming a threat to Nigerian economic growth [1]. Unemployment is seen as generating some welfare loss. The inadequate income and physical deprivation plus the indignity and demoralization of having little or no productive role indicate that the fruits of economics growth are not reaching some people.

A consequence of lopsided, non – broad economic growth is the problem of unemployment, and this has become an endemic and almost a permanent feature of the Nigerian economy. However, the contention of this research paper is that Nigeria's unemployment problem is more serious than it is at its face value and this unemployment hampers the pace of economic growth [3].

1.2 Literature Review

There are rich empirical literatures on the effects of unemployment on economic growth. According to [4], unemployment has turn to be fever that grips the world economy as its rising profile and attendant consequences are something to worry about.

Omoyemi [5] affirmed that the major effect of unemployment is poverty and its fallouts. He went further that high level of unemployment leads to low per capita income, which implies low savings as well as low investment. And low investment drives low productivity and low output. [6], confirmed unemployment as an indication of underutilization of human resources and failure of the economic system to utilize its human resources efficiently, thereby hampering the pace of economic growth. But better utilization of idle existing resources can raise output levels substantially [4].

Calmforms and Holmlund [7] posited that unemployment in itself could reduce long-term growth. [8] Have also shown that high economic growth is often characterized by a very high capacity utilization (optimal use of resources), high standard of living, low rate of unemployment and social progress. "Economic growth basically refers to long – term overall improvements in the economy that is, an increase in the output of final goods and services produced within a nation's borders over a specific period of time (or an increase in a nation's real Gross Domestic Product (GDP) over time" [7]. Daveri and

Tabellini [8] Found empirical support for the hypothesis that unemployment affects economic growth negative, since higher employment means higher aggregate income in the economy.

Also, Chio [9] examined the unemployment effect of economic growth, which he called "employment intensity of growth". According to study, most countries have persistent job shortage and unemployment problem. Similarly, Agion and Howit [10], sees unemployment as one of the most pressing problem of our time, and argue that higher employment leads higher growth because it is more profitable to invest in human capital accumulation if this occurs mainly through learning – by- doing on the job. Employment generation is seen as means of alleviating poverty, increasing the level of economic activities which translate into economic growth.

In light of the opinions that have been expressed by various researchers above, one would quickly come to a realization that unemployment is not a new phenomenon. More so, many studies have shown that unemployment retards growth [7,8,9], but they did not consider Nigeria in their studies. Some Nigerian authors [2,4,6,3] have written on the concept unemployment however their studies only reflect types of unemployment [3], the magnitude, causes of unemployment problem [6] thus, despite the numbers of paper work on this discuss the link between labour employed and economic growth has remained contentious and debatable. Hence, this study proposes to consider the effects of unemployment on economic growth in Nigeria. And importantly, there should be well thought out policies to embrace the concept and minimize its risks on the economy.

1.3 Theoretical Framework

This section examines the Solow neoclassical growth model which relates labour and the productivity of labour to economic growth.

1.3.1 Solow growth theory

The Solow neoclassical growth theory postulates a continuous production function, linking output to the inputs of capital and labour which are substitutable. That is, the production function relates growth in output to increase in labour and other variables. However, Solow theory expanded on the Harrod – Domar (or AK) formulation by adding a second factor, labour,

and introducing a third independent variable, technology (which could be labour augmenting by increasing the effective amount of labour), to the growth. It allows for substitution between capital and labour [11].

The aggregate production function, $Y = f(K, L)$ is assumed characterized by constant returns to scale.

Given the Cobb – Douglas production function which is widely used in economic analysis,

$$Y = f(K, L)$$

More formally, the standard exposition of the Solow neoclassical growth model uses an aggregate production function in which we have

$$Y = K^\alpha (AL)^{1-\alpha}$$

At any time t we have

$$Y(t) = K(t)^\alpha \ A(t) L(t)^{1-\alpha}$$

Where Y is real gross domestic product, K is stock of capital (which may include human capital as well as physical capital), L is labour, and A (t) represents the productivity of labour which grows over time at an exogenous rate.

The Robert Solow theorem has shown that the basis for economic growth exists by increasing the employed labour force [11]. Since output is produced with capital and labour, technological possibilities are represented by the production function;

$$Y = f(K, L)$$

L represents total employment.

This is because population is growing exogenously, the labour force increases at a constant relative rate n.

Thus, $L(t) = Lo^{nt}$

Solow regards n as Harrod's natural rate of growth in the absence of technological change, and L (t) as the available supply of labour at time (t). Lo^{nt} shows the rate of the growth of labour force from period o to period t. Alternatively, the equation $L(t) = Lo^{nt}$ can be regarded as a supply curve of labour. The labour supply is a vertical line, which shifts to the right in time as the labour force grows, then the real wage adjusts simply put, unemployment declines due

to fall in real wages so that all available labour is employed, and the national output rises rapidly [11].

As postulated by the Solow growth theorem, growth in labour employed as a result of employment generation encourages economic growth [11]. The question is how much of a country's growth can be explained by labour force growth. According to Solow's model, a one percent growth in the labour force leads to a 0.64 percent increase in output. This alone tells how important employment of labour is to economic growth [11].

2. METHODOLOGY

This study use employed labour, unemployed labour, job vacancies rate, unemployment rate, and gross capital formation as independent variables while the real gross domestic product (GDP) as dependent variable. All data for this analysis were obtained from Bureau of Statistics statistical bulletin and Central Bank of Nigeria (CBN) statistical bulletin and annual report of various issues [12,13]. The relevant data spans from 1986 to 2008 covering a 23 year period.

This is to ensure that an appreciable period of time is covered, to expansively examine trend in our data over the above time frame and ensure our results is unbiased.

2.1 Real Gross Domestic Product (GDP)

This is the monetary value of Aggregate economic activities within a period of time. The GDP is an index of economic growth in a country.

2.2 Employed Labour (EMPL)

This refers to the total number of employees plus self – employed persons in the available labour force who are actually in work. The employed labour is captured as a percentage of the labour force. Based on the Solow growth theorem it is presumed that economic growth exist by increasing the employed labour force.

2.3 Unemployed Labour (UNEMPL)

Unemployed labour represents a subset of the labour force i.e. a fraction of the total labour force. The unemployed labour in the Labour Force Survey is defined as "job seekers without employment who can start work immediately[14].

2.4 Unemployment Rate (UNEMPR)

The unemployment rate has been the centre of interest of economic policies. As a matter of fact since early 1980s, Nigeria have been witnessing rising unemployment rate with an accompanied slower economic growth. Unemployment rate is calculated by the number of unemployed persons looking for job as a proportion of the total labour force. It is the main measure of unutilized labour. For any country, unemployment rate is the number of unemployed persons expressed as a percentage of the labour force in the same country.

That is, Unemployment Rate = Unemployed Labour ÷ Total Labour Force) × 100.

2.5 Job Vacancies Rate

Based on the job vacancies statistics collected in the NBS job vacancies survey define job vacancies as employee jobs available for immediate filling on the actual survey reference day and for which employers have undertaken recruitment action [13]. The job vacancy rate for a year is the average of the rates obtained at quarterly intervals in the year. This is simply the total number of job vacancies divided by the total demand for labour at the end of the reference quarter. Here, job vacancies are defined in such a way that the number of vacancies measures the unfulfilled demand for labour (shortage of labour) in the same way as the unemployed labour measures the unoccupied labour.

2.6 Hypothesis

The hypothesis is stated below:

Ho –Null Hypothesis
Hi – Alternative Hypothesis

Ho – Unemployment does not have significant effect on economic growth in Nigeria.
Hi – Unemployment has significant effect on economic growth in Nigeria.

2.7 Regression Analysis

The ordinary least squares (OLS) model will therefore be:

GDP = F (EMPL, UNEMPL, UNEMPR, JVAC, GCF)

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Log (Y) = βo + βı logEMPL + β2logUNEMPL + β3logUNEMPR + β4logJVAC + β5 logGCF + Ut

Where:

GDP (Y): Real Gross Domestic Product
EMPL: Employed labour
UNEMPL: Unemployed labour
UNEMPR: Unemployment rate
JVAC: Job vacancies rate
GCF: Gross capital formation
Ut: Stochastic or error term
βo is a constant intercept
βı, β2, β3, β4, β5 are coefficient of the independent variables

3. RESULTS AND DISCUSSION

3.1 The Unit Root Test

The Phillip Perron test is utilized to avoid spurious results i.e. to investigate whether variable used in this analysis has a unit root or not [15].

In the Table 1, all variables are non-stationary at level. This is because the Phillip Perron statistic value of each variable is less than the McKinnon value at 5% critical values. After first difference, all other variables became stationary.

In-order to incorporate stationarity test results into our modeling, our model equation has to be changed in such a way that all variables are used in their stationary level.

3.2 Co-integration Test

Also, there is need for Co-integration test in order to examine whether there is long run relationship between dependent and independent variables [16]. In this analysis Johansen's test of co-integration will be used.

Table 2 presents the result of Johansen co integration test. The result shows that there exist four (4) co integrating equations at 5% level of significance. This shows that the long run relationship between Gross Domestic Product (GDP) and all the independent variables. An important implication of findings is that there exist a long run relationship between dependent and independent variables. Thus, error correction model can be estimated.

Table 1. Results Phillip Perron unit root test

Variable	Level	1st difference	5% critical value	Order of integration
GDP	-1.352803	-3.240359	-3.6454	I(1)
EMPL	-0.093071	-3.778130	-3.6454	I(1)
GCF	-2.227335	-3.392534	-3.0114	I(1)
JVAC	-1.559799	-5.131437	-3.0114	I(1)
UNEMPL	-0.367913	-6.059301	-3.0114	I(1)
UNEMPR	-0.891232	-6.363565	-3.0114	I(1)

Table 2. Result of Johansen co-integration test

Date: 03/28/10 Time: 11:08				
Sample: 1986 to 2008				
Included observations: 22				
Series: GDP EMPL GCF UNEMPLOY UNEMPR JVAC				
Lags interval: 1 to 1				
Eigenvalue	Likelihood Ratio	5 Percent Critical Value	1 Percent Critical Value	Hypothesized No. of CE(s)
0.945373	168.0941	94.15	103.18	None **
0.893601	107.0422	68.52	76.07	At most 1 **
0.741255	59.99051	47.21	54.46	At most 2 **
0.596346	31.60032	29.68	35.65	At most 3 *
0.354455	12.54919	15.41	20.04	At most 4
0.147788	3.358319	3.76	6.65	At most 5

*(**) denotes rejection of the hypothesis at 5 % (1%) significance level.
L.R. test indicates 4 co-integrating equation(s) at 5% significance level.

3.3 Error Correction Analysis

The result of error correction model of the relationship between economic growth and unemployment is presented below.

Table 3. Result error correction analysis

Dependent Variable: D(GDP)				
Method: Least Squares				
Date: 03/28/10 Time: 10:03				
Sample(adjusted): 1987 to 2008				
Included observations: 21 after adjusting endpoints				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-5726.618	22213.35	-0.257801	0.8001
D(UNEMPR)	-11.56651	4.898397	-2.361284	0.0487
D(EMPL)	0.014065	0.061587	0.222837	0.9979
D(GCF)	0.852883	0.280800	3.037337	0.0083
D(UNEMPLOY)	-3.982484	2.054159	-1.938742	0.0716
D(JVAC)	-1.161745	1.452715	-0.799706	0.4364
ECM(-1)	-0.688208	0.246564	-2.791198	0.0137
R-squared	0.697421	Mean dependent var		27445.64
Adjusted R-squared	0.536389	S.D. dependent var		52259.90
S.E. of regression	39233.61	Akaike info criterion		24.24583
Sum squared resid	2.31E+10	Schwarz criterion		24.59298
Log likelihood	-259.7041	F-statistic		3.709958
Durbin-Watson stat	1.840730	Prob(F-statistic)		0.018330

3.4 Interpretation of Results

From the results in Table 3, there exist a negative relationship between unemployment rate and economic growth. One percent increase in unemployment rate lead to about 11.56 percent decreases in Gross Domestic Product. This result corroborates the fact that unemployment rate retards economic growth.

The result also shows that employed labour has a positive impact on economic growth in Nigeria. One percent in employed labour will, on the average, lead to about 0.014 percent increases in Nigeria's Gross Domestic Product.

This result finds basis in the Solow growth theorem, which stated that growth in labour employed as a result of employment generation encourages economic growth. The implication of this result is that increased employment improves national income.

The result also suggests that Gross Capital Formation has a positive relationship with economic growth in Nigeria. This result conforms to our economic expectation. One percent increase in Gross Capital Formation leads to about 0.86 percent increases in Nigeria's Gross

Domestic Product. The result shows that cheaper domestic price relative to foreign goods price promotes the performance of the agricultural export.

In the result, unemployed labour has a negative relationship with economic growth in Nigeria. One percent increase unemployed labour leads to about 3.98 decreases in Nigeria's Gross Domestic Product.

Lastly, job vacancies rate, according to the result above, have a negative relationship with GDP. One percent increase in job vacancies lead to about 1.16 percent decrease in GDP. From the result, ECM is negative -0.68 and significant at 5% per cent level. It shows that about 68 percent disequilibria in the performance of the GDP in the previous year are corrected in the current year.

3.5 Hypothesis and Statistical Testing

H_0: Unemployment does not have negative impact on economic growth in Nigeria.

H_i: Unemployment has negative impact on economic growth in Nigeria.

The t-statistic values from statistical table are 2.12 and 1.746 at 5% and 10% respectively.

From the result, it can be seen that the coefficients of unemployment rate and unemployed labour have a negative sign and are significantly different from zero at 5% and 10% critical levels respectively. And with these result, we reject the null hypothesis that unemployment does not have negative impact on economic growth in Nigeria.

The coefficient of determination (R^2) is 0.697. This indicates that about 70 percent of the total variations in Gross Domestic Product are explained by the variations in all the explanatory variables used in our model.

Adjusted R^2 shows actual variations in Gross Domestic Product captured by the independent variables introduced in the model after taking into considerations effect of additional explanatory variables on R^2. It can be seen that adjusted R^2, due to data transformation still explain about 53% of the total variations in the Gross Domestic Product.

The F-statistic is a test of significant of the joint variations of independent variables used in a model. The F- statistic is significant at 2 percent critical value (prob. 0.018). Also, the calculated F-statistic (3.709) is greater than the table value of F-statistic (2.74) with 6 and 16 degree of freedom. With this, we reject the null hypothesis that all the explanatory variables introduced in the model are not jointly significant in explaining the variations in Gross Domestic Product.

3.6 Stability Test

Also, the test for stability properties of the model was conducted using, Cumulative Sum of the residuals (CUSUM) and Cumulative Sum of Squares of the residuals (CUSUM Squares) tests. The critical lines for Cumulative Sum of the residuals and Cumulative Sum of the Squares of residuals are estimated at 5 percent critical level.

The existence of parameter instability is established if the cumulative sum of the residuals goes outside the area between the two critical (dotted) lines. From Fig. 1, it can be inferred that, for the period under review, stability is established for the model. However, Fig. 2 indicates instability of the model during the periods between 1998 and 2000. This implies the relationship between growth and unemployment changed during these periods. The change in this relationship can be attributed to the transition of power from the military rule to democratic system of government.

The Durbin Watson test of autocorrelation is a test that shows an absence of serial autocorrelation. This is because the calculated value of DW (1.84) falls between upper region Du critical value and 2. Where Du = 1.61 at 1% significant level. With this result we reject the hypothesis that there is presence of serial autocorrelation in our model. Therefore, parameter estimates from our model are stable and efficient. In addition, our estimates can be used for policy forecast predictions.
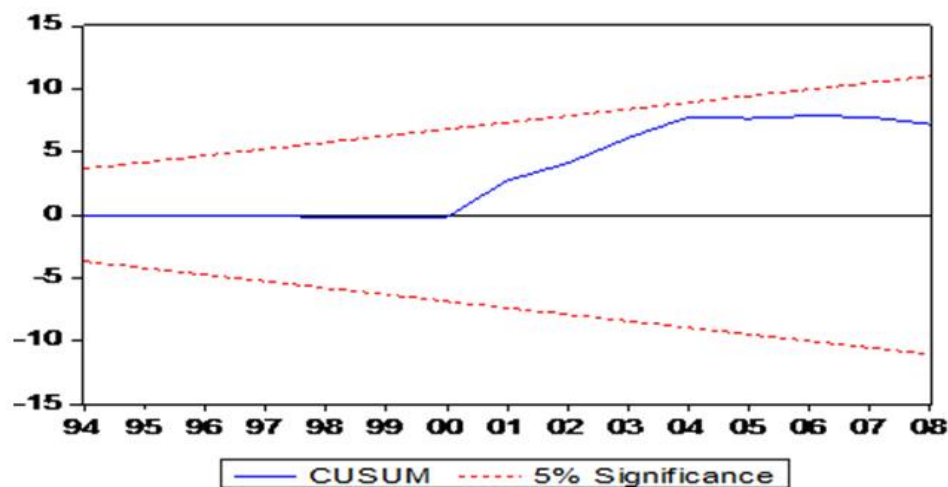

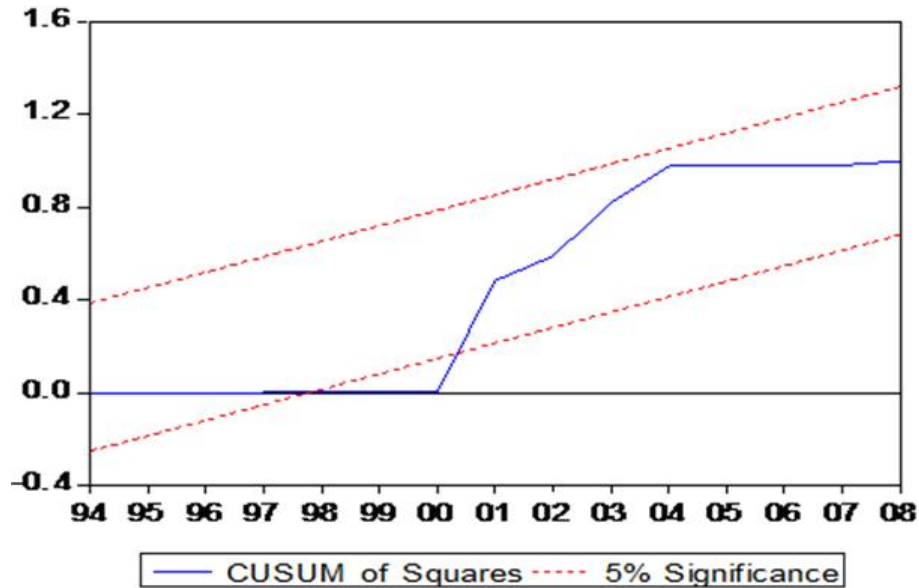**Fig. 1. Indication of stability of the model under review**

Fig. 2. Instability of the model during the periods between 1998 and 2000

4. CONCLUSSION

Based on the analysis carried out it is observed that unemployment has a negative impact on growth and high unemployment rate has created political instability and violence which invariable retards economic growth.

The analysis also shows that employed labour has a positive impact on economic growth in Nigeria. The implication of this result is that increased employment improves national income. And its implication is that the army of the unemployed labour remains a potential threat to the well-being of the economy. There should therefore be well thought out policies /strategies to avert the adverse effect of unemployment on economic growth in Nigeria through the employment summit, active and reliable regulatory organs and the creation of more jobs which actually will boost economic growth in Nigeria. Based on this finding, the way forward to creating massive employment is for government to lead the way rather than the private sector in the development process. The Nigerian government might be involved as major players in the establishment and management of economic and other forms of enterprises in order to promote job employment, and growth. For instance strategies should be designed to minimize the economic waste that arises from unemployment. A realistic employment promotion policy will contribute substantially to economic growth and reduction of unemployment. This simply implies that Nigerian government must recognize the fact that it is its duty to ensure employment of Nigeria human's resources just as it is its duty to ensure economic growth relatively stable general price level and equitable income distribution. It must be said that the achievement of the latter macroeconomic objectives cited above depends critically upon the extent to which the first has been achieved.

The conveyance of an employment summit by the government will underscore the address unemployment issues in Nigeria [17,18,19]. This study therefore recommends that Nigeria should have her own presidential summit on employment because such forum could provide an avenue where solution would be preferred to the mounting unemployment challenges confronting the nation's economic growth.

As one of the means of arresting unemployment, there is need for the mobilization of employment brigades in various sectors so as to establish and sustain viable project especially in agriculture, agro-allied industries and construction. And to optimally raise the level of capital formation in Nigeria, government has to maintain a steady supply of energy (power) and other infrastructural supplies needed to raise employment level and boost economic growth.

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We cannot raise gross capital formation and national productivity level especially that of the agricultural and manufacturing sector without maintaining adequate supply of energy (power) and other infrastructural supplies / facilities.

Industries should be encouraged to adopt labour intensive method in their production processes. This can be achieved by giving financial and marketing assistance to small-scale enterprises in Nigeria.

COMPETING INTERESTS

Author has declared that no competing interests exist.

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