Re-Examination of the Impact of Unemployment on Economic Growth of Nigeria: An Econometric Approach

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Abstract

The study has examined the impact of unemployment on economic growth of Nigeria using time series data between 1982 and 2014. Secondary data were sourced from Central Bank Statistical Bulletin. An exploratory research design was conducted using OLS, Phillips-Perron unit root test and Pair-wise Granger causality test. The major objective of this paper is to analyse the impact as well as direction of causality between unemployment and economic growth in Nigeria. The result of the OLS shows a negative relationship between unemployment and real GDP proxy for economic growth which is in line with Okun's law. Also, granger causality test shows absence of causality between the unemployment and Nigerian economic growth. Government expenditure and capacity utilization that are incorporated in the model portrays positive relationship with economic growth. The existence of a negative relationship between unemployment and economic growth in Nigeria. The study also recommends provision of skills acquisition centres and transformation of the educational system so that youths will be job creators rather than job seekers. **Keywords:** Unemployment, Economic growth, Granger causality, Okun's law and OLS.

1. Introduction

Unemployment is a social phenomenon. It is one of the most persistent and unmanageable problems facing Less Developed Countries of the world. Nigeria is not an exception in this regard. In recent times, the incidence of unemployment in Nigeria has been deeply and widely spread cutting across all facets of age groups, educational strata and geographical entities. This negative development will partly explain the level of economic activities in countries of the world. The problem of unemployment is one of the serious impediments to social progress in Nigeria, apart from the huge waste of resources; it generates human welfare loss in terms of lower output thereby leading to lower income (Yesufu, 2005).

Unemployment is seen as a great problem to global economic development. In recent years, both developed and developing countries have witnessed this problem, though the developed countries have been curtailing the rate of their unemployment significantly especially in the recent years. However, in developing countries, especially in Africa, unemployment has been on a continuously accelerating rise, culminating in reduction of household income and living standards and concomitant rise in the level and incidence of poverty (Iyoha, 2002).

In Nigeria, Unemployment is growing at an alarming proportion with up to about 70% of the youth jobless (Yesufu, 2005). This problem is exacerbated as institutions of learning turn out large number of graduates without the absorptive capacity in the labour market. These armies of jobless youths parade the society thereby constituting socio-economic problems to the society. Apart from representing a colossal waste of country's manpower resources, the upsurge of crime and criminality, social and political tension like cultism, armed robbery, prostitution, thuggery, drug addiction, among oth ers, that are prevalent in almost all parts of the country is largely attributed to the incidence of unemployment. According to Iyoha (2002), Obadan and Odusola (2005), Unemployment generally reduces national output and aggregate income. It creates inequality and erodes human capital. It causes misery, poverty, social unrest and hopelessness for the unemployed, and with resultant effects on the economic growth.

Since independence, the history of economic growth and social change in Nigeria has continued to demonstrate that macro-economic planning tools have been deficient in the management of the domestic labour market. The fundamentals problems that face a labour surplus economy have always been assumed away in the national macro-economic planning framework.

It is hardly appreciated that a large proportion of the new entrants into the labour market today is graduates for whom the country has invested a lot of resources through education and training. The problem of labour market disequilibrium persists for the fact that empirical research evidence has continued to prove the unworkability of many government policies. In spite of the continued labour market management failure, the development of human resources at all educational levels has continued to attract investments from successive government, enrolment have grown astronomically overtime but there have been very limited complementary

investments in those sectors that can generate employment for the graduates.

Agriculture has suffered from years of mismanagement, inconsistent and poorly conceived government policies, and the lack of basic infrastructure. Still the sector accounts for over 26.8% GDP and two-thirds of employment (CBN Statistical Bulletin, 2010).

Nigeria's oil and gas wealth has done little to alleviate poverty by way of creating employment to the populace. The economy's reliance on oil for export earnings and government revenue has hurt the poor in several ways. First, Oil income has increased economic volatility in growth, inflation and the exchange rate and the poor are the least able to protect themselves against the fluctuations. Reliance on oil export also causes instability in government revenues, which of course affects government policies and services. The oil industry is not labour intensive and employs few unskilled workers.

In the early 1950's and 1960's, agriculture played a crucial role in Nigeria's economic development as a nation. It provided employment to millions of Nigerians and over 75% of the labour force was from the rural areas. In those golden agricultural years, contribution from this sector accounted for about 70% of the gross domestic product (GDP), but the share of agriculture to GDP declined to only 34.6% in 2003 (FOS, 2005). Agriculture was the largest employer of labour but from 1979 to date, it has witnessed a rapid deterioration, negligence, poor government policies which led to mass unemployment in Nigeria.

Unemployment is an issue that worries policy makers in Nigeria. Various programs have been initiated by the government at various levels in order to address the problem. Nigeria National Economic Empowerment and Development Strategy (NEEDS) has been a classical example to yield the desired result. Despite the fact that unemployment is said to have impact on economic growth it is important to study the rate as well as the level of unemployment in the country and observe its impact on economic growth.

Besides that, achieving high growth of Gross Domestic Product (GDP) requires a reduction in the level of unemployment. The goal of achieving high economic growth with minimum level of unemployment has a very high sounding electioneering promises of political leaders in Nigeria for decades.

Therefore, a study of the impact which unemployment has on economic growth is timely. The major gaps observed in literature are first, the fact that the available studies reviewed in Nigeria did not include capacity utilization and government expenditure in their empirical model. Secondly, recent study in Nigeria by Abiodun S. Bankole and Basiru Oyeniran Fatai (2013) did not use Granger causality test, in their research work. Thirdly, previous studies revealed unclear relationship between unemployment and economic growth (real GDP) in Nigeria. All these, triggered interest in this research work. Thus, the research included real GDP, unemployment rate, capacity utilization, government expenditure in the empirical model and investigated the relationship between unemployment and economic growth in Nigeria, from 1982 to 2014.

This study is particularly important for three reasons. First, it will contribute to the existing literature on the relationship between unemployment and economic growth. Secondly, a study of this nature will provide a useful guide for policy makers in their effort to reduce unemployment. Thirdly, it will provide necessary insight about unemployment in Nigeria.

Following the introduction, the study is divided into six sections. Section two contains literature review, methodology and hypothesis were treated in section three and four respectively. Section five contains data analysis accompanied by conclusion and recommendations in the last section.

2.0 Literature Review

2.1 Empirical Review

In an attempt to analyse the relationship between unemployment and economic growth, a lot of studies have been c to find out the nature of the relationship. Teboho (2013) investigated the effect of unemployment on GDP in South Africa. The annual time series data used for the study covers the period 1980 to 2011, using Augmented Dickey Fuller Stationary test, and the variables prove to be integrated of order one. Also, Granger causality test was a pplied. It was found that there is no causality found between unemployment and economic growth. The study encourages all policies of economic growth with the idea that growth will reduce unemployment in South African economy.

Revoredo-Giha. Leat and Renwick (2012) studied the relationship between output and unemployment in Scotland. Their study was influenced by a decline in Scottish labour market conditions. The finding of their study shows that the differences in the composition of the economy of rural and urban areas lead to a strong relationship between growth and employment in urban areas.

In another study conducted by Maria (2012) to find out the relationship between unemployment and economic growth in Peru and Lima for the period of 1992 to 2012 using Ordinary Least Square (OLS) techniques. The results confirmed a negative relationship between unemployment and economic growth in both cases. Qazi (2011) got negative relationship between unemployment and economic growth of Pakistan. The result confirmed with Okun law. Okun's law states that if unemployment moves above from normal point by one percent, GDP growth falls by two percent and vice-versa. It is estimated that real GDP and unemployment has

direct relationship. The range of the study covers 1980 to 2008. Econometric models were used to ascertain the relationship between unemployment and economic growth.

Meidani and Zabihi (2011) studied the dynamic effect of unemployment rate on GDP in Iran. Their study covered the period 1971 to 2006, using Auto-regressive Distribution Lag (ARDL). The results of ARDL long run coefficients revealed that unemployment rate is statistically significant in determining GDP in long run. Based on the results of short run and long run, unemployment is positively related with GDP.

Rigas et al (2011) examined whether the Okun's law continues to be valid in today's economic environment. Their study uses data with regard to the unemployment and GDP of three countries, Greece, France, and Spain. From the findings the study concludes that the reaction of GDP to change in unemployment and, more generally to Okun's coefficient differ substantially among three counties. Furthermore, based on the causality findings, a two way causal relation between GDP and rate of unemployment does not exist for any of the three countries.

Kreishan (2011) used annual data covering the period 1970 to 2008, to ascertain the relationship between unemployment and economic growth of Jordan. The empirical results revealed that Okun's law have not been confirmed for Jordan, Thus, it can be suggested that lack of economic growth does not explain the unemployment problem of Jordan. Therefore, economic policies related to demand management would not have an important effect in reducing unemployment rate. Accordingly, implementation of economic policies oriented to structural change and reform in labour market would be more appropriate by policy makers in Jordan. The result of this study is in line with other studies in Arab countries.

Noor and Ghani (2007) engaged in a study to examine the relationship between output and unemployment in Malaysia during 1970 to 2004. Their study applied basic econometric analysis of testing stationary using ADF and Phillip-Perron test. The result confirmed that there is a negative relationship between unemployment and economic growth. The coefficient of the regression result is -1.75 and it is significant at 1% level. It means that a 1% decline in unemployment will increase GDP by 1.75%. Furthermore, they confirmed that there is a two-way causality between unemployment and GDP in Malaysian economy.

Caraiani (2006) uses regression analysis in order to derive Okun's coefficient for the period 1970-2004. The result shows that there is a consistency with regards to employment and unemployment cyclical behaviour irrespective of the frequency. The study further indicates that Korean labour market is of the heaviest regulated among the developed countries. The author suggested that the rationale for a labour market reform, in terms of making hiring and firing to be much more flexible.

Prachowny (1993) extends the previous approaches by taking into account some of the factors that were neglected in the previous estimates of Okun's coefficient. When he runs a regression between the output gab and the unemployment gab, he finds much smaller values for the impact of a 1% unemployment reduction upon the output growth than in the case of Okun's law.

In Nigeria, there have been a lot of studies that examined unemployment and economic growth nexus. For instance, Abiodun and Fatai (2013) found positive relationship between unemployment and economic growth of Nigeria. The study covers the period 1980 to 2008. Using Engel Granger and Co integration test and Ordinary Least Square (OLS) techniques.

Obadan and Odusola (2005) discovered that unemployment and growth are inversely related. They also discovered that growth response to unemployment varied among sectors of the economy. For example, employer in industrial sector use less labour to accomplish high volume of production thereby leading to unemployment.

From the study reviewed above, it appears that there seems to be more empirical evidence of a negative relationship between unemployment and GDP in both developed and emerging economies.

2.2 Theoretical Review

It is important to know that a lot of theories on unemployment have been propounded by different scholars and school of thought from different disciplines. This implies that there exist considerable theoretical debate on the causes, consequences and solutions for unemployment. Classical, neoclassical and Australian school of economics focuses on market mechanisms and relies on the so-called invisible hand of the market to resolve unemployment. Keynesian economics emphasizes the cyclical nature of unemployment and potential interventions by government to reduce unemployment during recessions. This is direct opposite to classical view. Marxism focuses on the relations between the controlling owners and the subordinated proletariat whom the owners pit against one another in a constant struggle for jobs and higher wages. For Marxists the causes of and solutions to unemployment require abolishing capitalism and shifting to socialism or communism. This suggests a comprehensive theoretical and empirical analysis of unemployment to determine the true nature of the problem. Therefore, Arthur Okun (1962) was the first economist who studied the empirical relationship between unemployment and economic growth. He postulated that a 1% increase in the growth rate above the trend rate of growth would lead only to 0.3% in the reduction of unemployment. Reversing the causality a 1% increase in

unemployment will mean roughly more than 3% loss in GDP growth. This relationship implies that the rate of GDP growth must be equal to its potential growth. Just to keep the unemployment rate constant. To reduce unemployment, therefore, the rate of GDP growth must be above the growth rate of potential output (Tatom, 1978). Generally, economic theory that can be used in explaining the relationship between growth and unemployment is Okun's law. In this study, attempt will be made to test the applicability or otherwise of Okun's law on Nigerian economy.

3.0 Research Hypothesis

In order to achieve the stated objectives outlined earlier, the following hypotheses will be tested.

H_o: Unemployment has negative relationship with economic growth.

H_I: Unemployment has positive relationship with economic growth.

4.0 Methodology and Sources of Data

Given the nature of the research design, the study employed secondary data. The data were obtain from the Central Bank Statistical Bulletin, National Bureau of Statistics (NBS), Federal Office of Statistics (FOS), Journals, textbooks, internet findings, Term paper etc. based on the perceived causal relationship of the variables of research interest, a multiple regression model will be used to forge the link between unemployment and economic growth in Nigeria. Estimation of the model is via the Ordinary least Square (OLS) techniques facilitated by the application of E-views econometric software. The regression output includes other relevant statistics that enhance further analysis and evaluation. Unit root test using Philips-Perron and Pairwise Granger casualty tests will be used.

According to the economic theory it is expected that an increase in the level of GDP will greatly influence the level of employment in the economy.

5.0 Data Analysis

5.1 Test for Unit Root

The Philip Perron test in table 1.below shows that all the variables are non- stationary at level except RGDP. They became stationary after taken the first difference.

Table	1:	Philip-	Perron	test
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Variables	PP Test Statistics	Mackinnon critical values
RGDP[5.148238	-3.670170*
UNEMP	-5.817002	-3.679322*
CAP-UT	-5.434305	-3.679722*
GOV EXP	6.814933	-3.814933*

Source: author's calculation using E-Views software

Note: * denoted rejection of the null hypothesis at 1% level of significance.

From the table 1 above, it can be seen that all the variables (Real GDP, Unemployment, Capacity utilization and Government expenditure) are stationary at 1% level of significance respectively.

5.2 Formulation and Specification of the Model

The model comprises of one equation which is given below.

 $GDP_t = \beta_0 + \beta_1 UE + \beta_2 CU + \beta_3 GE + U_{lt}$

With priori expectation of $\beta_1 < 0, \beta_2 > 0, \beta_3 > 0$

Where:

 GDP_t = Real Gross Domestic Product

UE = Rate of Unemployment

CU = Capacity Utilization

GE = Government Expenditure

 U_{1t} = Error term that captures the other variables not included in equation

In the equation above β_2 is a constant while β_1, β_2 and β_3 are the parameters of the explanatory variables to be estimated. The equation represents the growth in unemployment, capacity utilization, and government expenditure.

5.3 Presentation of Model and Test of Parameter Estimates

Here, an attempt is made to estimate the parameters in the equation as obtained after running a multiple regression analysis. The equation is assumed to be linear, with the value estimated using the data for the years under review (1982 - 2014), applying the ordinary least square (OLS) techniques we obtained the result below.

TABLE 2: OLS Regression Result, real GDP as the dependent variable.

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Variables	Coefficient	Std. Error	T-statistics	Probability
С	134848.0	76651.07	1.759245	0.0899
UNEMP.	-3239.806	3700.045	-0.875613	0.03890
CAP UT.	3813.879	1841.488	2.071085	0.0480
GOV EXP	0.720506	.099175	7.225687	0.0000
R-square	0.823739	Mean Dep Var	374679	
Adj R-square	0.804155	S.D Dep Var	192772.5	
DW	0.856654			
Sum square	1.97	F-stat	42.06072	
SE of Reg.	85310.32			
Log likelihood	-393.82	Prob (F-stat)	0.000000	

Source: author's calculation using E-views Econometrics software

The parameter estimates for the equation are as follows:- $GDP_t = 134848.0 - 3239.806 + 3813.879 + 0.720506 + U$ SEE = (76651.07) (3700.045) (1841.488) (0.099715) $T^* = (1.759245) (-0.875613) (2.071085) (7.225687)$ $R^2 = 0.823739$ Adj $R^2 = 0.804155$ DW = 0.856654

DW = 0.85005 $F^* = 42.06072$

Recalled our equation

 $GDP_t = \beta_0 + \beta_1 UE + \beta_2 CU + \beta_3 GE + U_{1t}$

From the estimated regression line, it can be seen that slopes of the coefficients are in line with our prior expectations. It can be observed that a unit increase in unemployment decreases GDP by 3239.806%; similarly, a unit increase in capacity utilization increases GDP by 3813.879%, also a unit increase in government expenditure increases GDP by 0.720506%. This shows that change in dependent variable i.e. GDP depends on the changes in the explanatory variables (UE, CU and GE).

In an attempt to test either or not, these parameters estimates are statistically significant, both standard error test and t-statistics test were employed.

Firstly, the standard error test enables us to determine the degree of confidence in the validity of the estimates. This is to say that either the estimate is significantly different from zero. Here, we begin by stating the null hypothesis ($H_0:b_0 = 0$) against the alternative hypothesis ($H_i: b_i \neq 0$).

For us to accept or reject the null hypothesis, the following condition must be fulfilled:

If SE $b_1 < b_1/2$, we reject the null hypothesis and accept the alternative hypothesis, concluding that b_i is statistically significant.

If on the other hand, SE $b_1 > b_1/2$, we accept the null hypothesis that true population parameters is equal to zero (i.e. $b_i = 0$) hence we conclude that the estimate is not statistically significant, therefore, we are rejecting the alternative hypothesis.

With respect to our regression equation above, we can test for β_1 , β_2 and β_3 as follows:

For β_1 SET = $b_1/2$ = -3239.806/2 = -1619.903 in our regression result, the SE of β_1 = 3700.045. This shows that the SE estimate is greater than half of b_1 (i.e. 3700 > 1619.903) when negative sign is ignored. We accept the null hypothesis and reject its alternative. Concluding that β_2 is statistically significant.

For β_2 SET = $b_2/2$ =3813.879/2 = 1906.9395. Here, the SET for β_2 depicts that the SE of β_2 (1841.488) as demonstrated from the regression results less than the half of b_2 (i.e. 1841.488 < 1906.9395).we reject the null hypothesis and accept its alternative, concluding that β_2 is statistically significant.

For β_3 SET = $b_3/2 = 0.720506/2 = 0.360253$. Here, the SET for β_3 (0.099715) as demonstrated from the regression result is less than half of β_3 (i.e. 0.0099715 < 0.360253), we reject the null hypothesis and accept its alternative concluding that β_3 is statistically significant.

Further, using t-statistics the empirical t* value (t calculated) is compared with t-tabulated with n-k degree of freedom at a specified level of significant. Where;

n = sample size

k = number of explanatory variables in the model

5.4 Decision Rule

If t-calculated (t*) is less than the t-tabulated (i.e. t-cal < t-tab) with n-k degree of freedom, after choosing level of significance, we accept the null hypothesis and conclude that our estimate bi is not statistically significant at a level of significance.

If on the other hand, t-cal is greater than t-tab, we reject the null hypothesis and accept the alternative, concluding that the estimate b1 is statistically significance.

In the regression result above, the parameter estimates in the model can be tested at 5% level of significance as follows:

n = 31

k = 3

Therefore, n-k degree of freedom

31-3 = 28. The t-tab at 5% level of significance with 28 degree of freedom is found to be 1.70. Given our null and alternative hypothesis as:

H_o: $\beta_I = 0$

H₁: $\beta_I \neq 0$

The t-calculated value of β_1 is given as -0.875613 from our regression result. This is less than the tabulated value (i.e. 0.875613 < 1.70) when negative sign is ignored. This makes us to accept the null hypothesis (Ho: $\beta_1 = 0$). Hence, we conclude that β_1 is not statistically significant at 5% level of significance. This means that there is negative relationship between unemployment and economic growth.

In DW statistics, we test the existence of serial correlation between the variables. DW is equal to 0.856654. This implies that there is existence of serial correlation. This is because the closer the DW value is to two (2) the better the evidence of the absence of serial correlation.

For the F – statistics, we formulate our hypothesis as:-

 $H_0: \beta_I = 0$

 $H_1: \beta_l \neq 0$

Given our calculated F value as 42.06072 and F-tab value at 5% level of significance with $v_1 = (k - 1 = 3 - 1 = 2)$ and $v_2=N-K=31-3=28$ degree of freedom as 5.45. Therefore, since F* = 42.06072, F-tab = 5.45, we reject the null hypothesis and accept the alternative that not all the slope coefficients are simultaneously zero. This means that the difference between the mean is significant.

 R^2 test is used to show the total variation of the dependent variable that can be explained by the independent variable. From our results, the R^2 is equal to 0.823739 that is 82.373% of the dependent variable (GDP) is explained by the change in unemployment, capacity utilization, and government expenditure in the economy within the period under review. While the remaining 17.626% account the error term (U). This shows a "good fit".

Adjusted R^2 is the adjusted coefficient of the multiple determinations and from our result presented above, it shows that 0.804155 that is 80.4155% of the variation in the GDP is explained by variation in the independent variables while the remaining 19.5845% account for the stochastic error term (U).

The implication of this is that, they help to explain the fact that explanatory variables included in the model account to a large extent for exchanges in model.

5.5 Causality Test

	Table 3:	Pair	wise	Granger	causality	test
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Lag 2			
Null hypothesis	OBS	F-Statistics	Probability
UNEMP does not Granger Cause GDP	31	0.83473	0.0172
GDP does not Granger Cause UNEMP		0.74680	0.0384

Source: extracted from E-Views econometrics software.

The Granger causality test from table 3 above shows the direction of causality between variables used. The result shows absence of causality between UNEMP and GDP. This is in line with Okun's law (1962) which stated that each additional 1% of unemployment translated into a loss of 3% in real output.

5.6 Discussions of the Findings

From our result, GDP is taken as a proxy to economic growth. The findings have shown that there is negative and insignificant relationship between unemployment and economic growth. In light of the above therefore, some economic interpretation can be made. The negative relationship that exists between unemployment and GDP implies that for any increase in the rate of unemployment there is economic loss in terms of total output that unemployed could have produced if employed. It therefore, follows that unemployment is the phenomenon that affects the overall performance of the economy. In this case, policy prescription for increasing GDP should definitely include in curtailing unemployment level.

Based on findings, every 1% increase in unemployment will lead to a decrease in GDP by 3239.806%. With respect to the negative relation, the result conforms to the theory.

Also, the coefficient of capacity utilization and government expenditure portrayed a positive value implying that a kind of direct relationship exists between capacity utilization, government expenditure and

economic growth. The outcome of the study shows that a percentage increases in capacity utilization and government expenditure increased GDP by 3813.879% and 0.720506% respectively. These conform to the theory with high statistical significance.

In the same vein, positive relationship that exists between capacity utilization and government expenditure will necessitate the employment of productive factors. Here, we consider the productive factors to be labour and capital.

The findings of this research is in line with the findings of Teboho (2013), Iyoha (2002), Obadan and Odusola (2005), Zaleha et al (2007), Baker (1997), Downess (1998), that there is negative relationship between unemployment and economic growth. On the other hand, the findings are in contrast with that of Abiodun and Basiru O. Fatai (2013), Arewa and Nwankanma (2012), that there is positive relationship between unemployment and economic growth.

The Granger causality test shows the direction of causality between the variables used. The result shows absence of causality between unemployment and GDP. This is in line with Okun's law (1962) which stated that each additional 1% of unemployment translated into a loss of 3% in real output.

6.0 Conclusion and Recommendations

The study critically examines the impact of unemployment on economic growth of Nigeria using time series data between 1982 and 2014. The relationship between unemployment and economic growth was found to be negative, which clearly demonstrate that curtailing the level of unemployment will guarantee economic growth of Nigeria. Also, it is a well-established fact that reducing the level of unemployment will increase the economic growth, but it could only be possible if the labour productivity is enhanced by the way of training and acquiring sophisticated skills necessary for modern production.

However, unemployment has far reaching consequences on the Nigerian economy. From the study, employment generation has been seen as a means of alleviating poverty, increasing the level of economic activities which will translate into economic growth. The situation of unemployment in Nigeria has been on increase which has resulted in increase in social vices, terrorist activities, brain drain, and increase in the level of poverty, social alienation and weak purchasing power among other consequences.

Although, Nigerian government in previous time had put in place policies and programmes which are meant to combat this canker worm, but they have not yielded up to expectation because of corruption, lack of continuity, poor funding, etc.

Based on the findings of the study, the following recommendations proffered:

- 1. Formulation of effective unemployment policies and programmes that will absorb the unemployed youth especially into the informal sector of the economy.
- 2. There should be more investment in agricultural sector which today is the largest employer of labour in Nigeria. Effort should be made by government to modernize agriculture through provision of fertilizer, pesticides, and insecticides, improve seedlings and modern agricultural implements at subsidized rate.
- 3. Government should make loanable funds available to young school leavers through Bank of Industry, Bank of Agriculture, National Directorate of Employment (NDE), etc.
- 4. Government should ensure change in the educational system so that young school leavers and the graduates alike would be job creators rather than job seekers.
- 5. Nigeria should also diversify the economy so as to save the country from the ill of over dependence on crude oil.

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