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Unemployment rate and economic growth in Nigeria: An empirical analysis, 1980–2016

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Abstract

This study investigates the impact of unemployment on economic growth in Nigeria using the OLS multiple regression analytical method in analyzing annual time series secondary data obtained from the Central Bank of Nigeria, statistical abstract from National Bureau of Statistics, as well as the World Development Indicators from the period 1980 – 2016. This study established that unemployment, population and labour force have significant impact on Nigeria's economic growth, while minimum wage does not have a significant impact on the country's economic growth. The underlying principle for such a result is rooted in the Keynesian theory of unemployment which is applicable to the Nigerian economy that is trying to come out from the economic recession. Based on this, the following recommendations were proffered: the government should ensure there is job creation in the economy especially in the real sector; private sector employers should be given subsidies so as to encourage them to employ more people; and the labour market should be deregulated.

Keywords: Unemployment, Labour Force, Economic Growth, Minimum Wage, Population, Job Creation

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1. Introduction

The unemployment rate is vital in any economy as it is one of the determinants of economic growth and development in developed and developing nations; thus necessitating government round the globe to examine its impact on their economies. In Nigeria, the unemployment situation has become more severe due to the laying off of workers in the banking sector, fall in outputs of most companies, civil service retrenchment and the fact that large-scale employment creation has not occurred in spite of the non-oil sector impressive growth rates of over 7% since 2002 (Billetoft et al., 2008). Furthermore, this situation is worsened by the high rate of population growth as well as the rising number of people entering into the labour market for the first time. Also, in Nigeria the problem of youth unemployment has been aggravated by the global financial crisis. As a result, the increasing unemployment rate amongst the Nigerian youths has discouraged most of them from taking part in labour market activities thereby increasing the pool of unemployed youths.

In 2011, an analysis on the unemployment situation in Nigeria shows that of the total number of unemployed individuals, 43.7% were university graduates, 23.8% were polytechnic graduates and 15.5% were college undergraduates (CBN, 2012). The continuous rise in the unemployment rate in Nigeria is disturbing; according to the National Bureau of Statistics (NBS), the unemployment rate rose from 4.9% in 2007 to about 29.5 % in 2013; which is a sign that policies to tackle unemployment in the country are usually inefficient due to rigid and weak labour market institutions. Though, Nigeria is not the only nation facing the problem of unemployment; but its rising levels shows that the phenomenon has become precarious. Thus, urgent attention on policies designed to tackle unemployment in Nigeria need to be properly reviewed. Actually, the deteriorating employment crisis in the nation is partly an indication of government's inability to formulate policies that will create more jobs, or provide a conducive environment that would encourage the private sector to increase employment opportunities without restrictions.

The present trend of unemployment rate in Nigeria is frightening, and foretells a nation that would be plagued with negative outcomes such as crimes, high level of poverty, migration, low domestic industrial output, youth restiveness, kidnapping, conflict and lawlessness if immediate action is not taken.

Over the years, the Nigerian government has initiated various policies aimed at reducing the rate of unemployment in the economy. These policies include the Structural Adjustment Programme (SAP), welfare to work scheme, tax reduction etc. In spite of these policies introduced by the Nigerian government, the youths from 18-24 years are experiencing great hardship in securing employment. This is partially due to the fact that macroeconomic policies introduced by the government to ensure market stabilization are not efficient due to numerous economic and social malaises in Nigeria.

Since the early 1980s, Nigeria's economic growth in spite of several years of economic reforms has remained sluggish averaging 2.8% in the decade of 1990s. This poor growth performance certainly causes developmental challenges including macroeconomic volatility that impact negatively on low per capita GDP; investment; and high level of unemployment (NEEDS, 2004; NEEDS2, 2007). Anecdotal data illustrates that the volatility and lull in growth might account for the slow progress in creating employment opportunities, the capacity to increase income and alleviate poverty. In addition, the Nigerian economy has been typified by

incidents of oil price shocks as well as world commodity prices which have brought about a slight dysfunction in the labour market. Over the years, the result of these continuous macroeconomic shocks has created structural imbalances within the Nigerian labour market, thus, producing a disparity between the rising rate of the labour force and corresponding rise in job opportunities. In the long run, this problem will impede the swift performance of the labour market towards creating employment opportunities. Consequently, the ratio of persons employed to the unemployed are relatively small, so much that the persons employed are compensated with low wages for services rendered. The inadequate employment situation has numerous extensive socio-economic, political and moral consequences. Ogwumike et al. (2003) illustrated that persons in paid employment and those with insufficient skills are most susceptible when a macroeconomic shock takes place in the labour market. As part of efforts to overcome the problems caused by chronic unemployment in the economy, this study is designed to identify its impact on selected macroeconomic variables and to proffer recommendations on how this problem can be tackled by the government.

2. Literature review

Economics literature is full with numerous studies that look at how unemployment rate affects economic growth. Hence this section shall begin with a review of various theories on unemployment and followed by empirical literature.

2.1. Theoretical literature

This section shall look at some theories of unemployment. These include:

2.1.1. Classical theory of unemployment

Pigou (1933), McDonald and Solow (1981) examined the classical theory of unemployment and made a case that the labour market comprises of the demand for and supply of labour. Demand for labour is a derived demand, gotten from the falling off of the marginal product of labour. The demand curve is an inverse relationship of the real wage in the sense that if real wages increase, the quantity demanded for labour will fall and vice versa. The supply of labour is gotten from employee's decision whether to spend part of their time working or not working. Supply of labour has a direct relationship with the real wage, because if the real wage increases, employees supply more labour hours. At equilibrium, the demand for and supply of labour intersects at a point that determines the equilibrium real wage rate as well as full employment.

The classicalists were of the view that involuntary unemployment was a short term occurrence stemming from a discrepancy between the wage level and the price level. Unemployment was the outcome of excessive high real wages.

The classicalists opined that occasionally wages would decrease and there would be no unemployment except for frictional unemployment which is caused by time delay between leaving one job and starting

another. This school of thought proposes that urban unemployment problem can be traced to the fault of employees and the numerous trade unions power. They believed strongly in market forces. Thus, insisting that urban unemployment is caused by inadequate supply of labour of more than the capacity of the economy. As a result, the classicalist school contended that demand for excessive high wages of workers without a corresponding productivity increase makes the product expensive in that way discouraging competitiveness amongst indigenous industries and foreign industries. The impact of these trends is sales reduction, which inevitably leads to mass employees' retrenchment resulting to unemployment.

2.1.2. Keynesian theory of unemployment

Cyclical, demand deficient unemployment or Keynesian unemployment happens when there is inadequate aggregate demand in the economy. It derives its name because it varies with the business cycles, although it can also be lasting as during the great depression of the 1930s. Cyclical unemployment increases during economic down turns and reduces when the economy improves. Keynes opines that this type of unemployment occurs as a result of inadequate effective demand. When demand for most goods and services falls, less production is required; wages do not fall to meet the equilibrium level and mass unemployment results.

The Keynesian framework, as assessed by Thirwill (1979), Grill and Zanalda (1995) and Hussain and Nadol (1997), suggest that increase in capital stock, employment and technological change are mainly endogenous. Therefore, the growth of employment is demand determined and that the basic determinants of long term growth of output also have an impact on the growth of employment.

According to Keynes (1936), employment relies upon effective demand which brings about increased output, output generates income and income creates employment. He considers employment as a function of income. Effective demand is determined by aggregate demand and supply functions. The aggregate supply function depends on the technical or physical state which in the short run does not change, thus remaining stable. Keynes focused on aggregate demand function to deal with depression and unemployment. Therefore, employment relies on aggregate demand which in turn is influenced by consumption and investment demand respectively.

Keynes (1936) was of the opinion that an increase in employment can occur by increasing consumption and/or investment. Consumption depends on income and when income increases, savings increases. Consumption can be raised by increasing the propensity to consume so as to increase income and employment. Thus, if the propensity to consume is stable, employment will depend on investment.

2.1.3. Efficiency wage theory

This is a macroeconomic method of explaining unemployment. According to Schlicht (2011) Efficiency wage theory plays a part in understanding the range of diverse and empirically significant labour market phenomena in a unified manner The underlying principle behind the theory is as follows; Suppose employees have different qualities, not only abilities but in the likelihood to shrink, in other words, some employees are more lazy than others and thus are less probable to work harder. The effort is a function of costly monitoring

that is when you are monitored closely than when you are not. An employer is concerned about labour cost (the wage rate), though the cost depends upon worker's productivity. Thus, the goal is to reduce the wage divided by productivity (wage per unit produced). To accomplish this, there are at least two options:

First, you can raise productivity by raising wages. The basis for this is that as wages rise, the cost of shrinking becomes high since if you are caught, you are sacked and loose your wages and the higher the wage, the more you loose by being sacked. A higher wage therefore signifies that you work even harder since it is more important for you not to be sacked.

Thus, there is a link between employees' quality and wage rate. The higher the wage the more expensive it is to be sacked and the less probable is it that the employees will shrink. An additional line of reasoning is that turn over itself is expensive (sacking, employing and training) and as a result the employer would want to pay higher wages to stop high quality employees from leaving.

The way out to this dilemma lies in the formation of a lasting group of unemployment. The high real wage level generates an excess supply of labour. The excess supply does not bring about a cut in the wage rate since the firms recognize they require some unemployment to offer incentives for the employees not to shrink. The incentive is created by making the cost of being unemployed high which is what a high unemployment rate indicates.

At this point, wage performs two functions, firstly, as payment for utilization of a resource and secondly as an incentive not to shrink. Due to the second function of wage, unemployment becomes a lasting equilibrium phenomenon.

2.1.4. The job search theory

According to Faggian (2014), job search theory became well known in the 1970s as a substitute for the standard neoclassical theory of labour supply. He stated further that ever since the 1970s, this theory has been modified and extended in numerous directions and a variety of articles has been published on this theory. The job search theory of unemployment contends that unemployment occurs because of employers resigning from their job to look for a new and better-paying job. This involves spending a specific optimum time looking in order to find the best paid job while looking, the worker is employed. This appears to be a theoretical explanation on unemployment because only less than 10% of the unemployed in fact quitted their own job.

2.1.5. Endogenous growth theory

The long-run rate of growth in neo-classical growth models is exogenously determined either by the savings rate (the Harrod–Domar model) or the rate of technical progress (Solow model). Though, the savings rate and rate of technological progress remain unexplained. The endogenous growth theory tries to overcome this deficiency by constructing macroeconomic models beyond microeconomic foundations. Households are presumed to maximize utility subject to budget constraints whereas firms maximize profits. Key importance is generally given to the manufacture of new technologies and human capital. The engine for growth can be

as simple as a constant return to scale production function (the AK model) or more complicated systems with spillover effects (spillovers are positive externalities, which are credited to costs from other firms), rising numbers of goods, increasing qualities, etc.

Frequently, the endogenous growth theory presumes constant marginal product of capital at the aggregate level, or at least that the maximum value of the marginal product of capital does not lean towards zero. This does not mean that bigger firms will be more productive than small ones, since at the firm level the marginal product of capital is still reducing. Thus, it is likely to build endogenous growth models with perfect competition. Nevertheless, in lots of endogenous growth models the assumption of perfect competition is rested, and some degree of monopoly power is believed to exist. Normally monopoly power in these models occurs from patent holdings. These are models that include two sectors, producers of final output and an R&D sector. The R&D sector builds up ideas that are granted monopoly power. R&D firms are capable of making monopoly profits, by selling ideas to production firms, but the free entry situation signifies that these profits are squandered on R&D spending.

Endogenous growth theory maintains that economic growth is mainly the outcome of endogenous and not external forces (Romer, 1994). Also, it maintains that investment in innovation; knowledge and human capital are important contributors to economic growth. In addition it focuses on positive externalities and spillover impacts of a knowledge-based economy which leads to economic development. Primarily this theory maintains that policy measures determines long run growth rate of an economy. For instance, education or subsidies for research and development increases the growth rate in a few endogenous growth models by raising the incentive for innovation.

In the mid 80s, there was an increasing dissatisfaction by a group of growth theorists with the idea of exogenous factors determining long-run growth. They preferred a model that substituted the exogenous growth variable (unexplained technical progress) with a model where the significant determinants of growth were explicit in the model. The work of Arrow (1962), Uzawa (1965), and Sidrauski (1967) formed the foundation for this research. Romer (1986), Lucas (1988), and Rebelo (1991) left out technological change – in its place, growth in these models is as a result of unspecified investment in human capital which had spillover impact on the economy and decreases the diminishing return to capital accumulation (Lucas, 1988; Rebelo, 1991; Carroll, 2011).

The simplest endogenous model, the AK model offers a constant-saving-rate of endogenous growth and assumes a constant, exogenous, saving rate. It models technological progress with a single parameter (usually A). It makes use of the assumption that the production function does not show diminishing returns to scale to lead to endogenous growth. Numerous justifications for this assumption have been provided, such as positive spillovers from capital investment to the economy as a whole or advancements in technology which leads to further improvements. Nonetheless, the endogenous growths theory is supported further with models in which agents optimally determine saving and consumption, maximizing the resources allocation for research and development leading to technological progress. Romer (1987, 1990), Aghion and Howitt (1992) and Grossman and Helpman (1991), included R&D and imperfect markets to the growth model (Barro and McCleary, 2005).

2.2. Empirical Review

Numerous researches have been devoted to explaining the causes of unemployment and its impact across countries and regions. Petrin and Sivadasan (2006) examined the impact of employment protection legislation (EPL) on manufacturing firms in Chile from 1979-1996 using plant-level production data. Their result showed little evidence of a negative effect of EPL on demand for labour; nonetheless, they discovered that EPL brought statistically significant costs to the economy. They opined that firing costs enforced a wedge between the marginal revenue product and its marginal cost. In addition, their result showed a huge and important increase in both the mean and the variance of the within-firm gap between wages and the marginal product of labour, both for white and blue collar workers.

Botero et al. (2003) in an inclusive cross country study examined the economic impact of employment, collective bargaining, social security and industrial laws for 85 countries. They discovered that wealthy nations regulate labour less often that the poor ones, in its place they offer more social securities. In addition, they opined that severe regulation of labour is harmful to labour force participation and creates higher unemployment. This result was supported (Elmeskov et al., 1998). Though, in a different study by Cesar and Chong (2003) for 76 countries, they opined that economic growth is affected badly by broader labour codes. Therefore, they argued that economic growth could be encouraged by less labour regulations, particularly in less developed countries.

Micco and Pages (2006) employing difference-in-difference methodology opined that employment protection legislation (EPL) decreased job flows, mostly in more volatile sectors. Though, they concluded that labour regulations do not strongly affect productivity of labour – this result was in opposition to results from a research by Cingano et al. (2010), which discovered harmful effects of EPL on productivity of labour especially in sector with high rates of labour reallocation. In a panel data analysis for the period 1980-2001 by Boeri and Macis (2008), they examined if unemployment insurance has made allowances for more and better structural changes to happen. They used job turnover, job creation, job destruction, and sector reallocation to measure structural change. Their findings showed that the launch of unemployment insurance was connected with higher rates of turnover and labour reallocation across sector. In addition, it was noticed that amongst developing nations, trade unions and minimum wages were the main outlets through which higher labour regulations adversely affect growth. Griffith et al. (2006) in their own research examined the effect of product market competition on wages and unemployment, and how this relies on labour market institutions. They utilized differential alterations in regulations across OECD countries over 1980s and 1990s to discover the effects of competition. They opined that increased product market competition decreases unemployment, and that it does so more in nations with labour market institutions that raise worker bargaining power. Furthermore, they opined that increased competition on real wages could be helpful to workers, but reduced when they have high bargaining power.

Blanchard and Wolfers (2000) examined the joint impact of macroeconomic shocks and protective labour market in European nations and discovered that in the existence of adverse shocks, protective labour market institutions added to higher unemployment rate; the result was consistent with that of Fitoussi et al. (2000). In a similar research, Nickell et al. (2002) studied OECD from 1961-1995 and opined that changes in labour

market institutions accounted for around 55% of the increase in European unemployment from the 1960s to the first half of 1990s. In a research which investigated the impact of institutions and regulations on unemployment in OECD, Baccaro and Rei (2007) fell short to discover any robust proof of either direct or indirect impact of labour market institution on unemployment. Though, they discovered proof of a strong positive impact of union density on unemployment. Schindler (2009) argued that both labour market reforms structure and sequence are vital for labour market outcomes and the related costs of reforms. Tvrdon (2015) in his research of EU countries discovered two major institutional factors that significantly affect labour market performance and they are: tax wedge on labour activities and active labour market polices. It illustrates that higher tax has direct correlation with unemployment, but effective labour market polices have the propensity to counterbalance the negative impact of high taxation.

In the meantime, Fabio and Scharler (2011) examined labour market institutions and macroeconomic volatility in a panel of OECD nations with a precise empirical examination on how labour market institutions impact business cycle volatility in a sample of 20 OECD nations. The findings implies that nations typified by high union density are likely to go through more volatile changes in output, while the level of organization of the wage bargaining system as well as strictness of employment protection legislation seems to play a limited role for output volatility. Their result also discovered several proofs implying that highly organized wage bargaining systems have a reduced effect on inflation volatility.

Aminu (2010) investigated the effect of institutions and regulatory structure on Nigeria's labour outcome, employing static and dynamic analytical techniques involving co-integration and Error Correction Model (ECM) techniques with time series data covering 1970 to 2012. The research illustrates that minimum wage index has important positive effect on unemployment. Furthermore it illustrated that union density has insignificant impact on unemployment and employment across public and industrial sectors. Also, union density is discovered to have positive but insignificant impact on wage both in industrial and public sectors, whereas minimum wage has insignificant negative impact on both aggregate and public sector employment. Conversely, union density has non-significant positive impact on employment across sectors. The effect of minimum wage on industrial sector wage is positive and highly significant, but the impact on public sector wage is minimal.

3. Research methodology

This section looks at the methodology used to achieve the objectives of the study. Also discussed in this section are the research design, data types and sources, and the model specification important to the objectives of the study. The estimation techniques used to ascertain the likely causal relationships were also addressed.

3.1. Research design

The research design and statistical methods employed in this study made use of inferential statistics. The inferential statistics used mostly the ordinary least squares (OLS) method of multiple regression model in analyzing the impact of unemployment on economic growth in Nigeria.The ordinary least squares (OLS) is a

method for estimating the unknown variables in a linear regression model, with the aim of minimizing the differences between the observed responses in some random data set and the responses predicted by the linear estimation of the data (visually this is seen as the sum of the vertical distances between each data point in the set and the corresponding point on the regression line - the smaller the differences, the better the model fits the data).

3.2. Data types and sources

The data employed for the study is mainly secondary data. The data used to represent these variables are annual time series secondary data from the period 1980 to 2016 obtained from the Central Bank of Nigeria statistical bulletin, National Bureau of Statistics, as well as World Development Indicators.

3.3. Model specification

The main focus of this study is to determine the impact of unemployment on economic growth in Nigeria. From the literature reviewed and in line with Albrecht et al. (2009), the model is hereby specified as follows:

$$\ln \mathrm{GDP}_t = \alpha_0 + \alpha_1 \ln \mathrm{UNEMP}_t + \alpha_2 \ln \mathrm{MinW}_t + \alpha_3 \ln \mathrm{LF}_t + \alpha_4 \ln \mathrm{POP}_t + \mu_t \quad (1)$$

Where,

GDP = Gross Domestic Product

UNEMP = Unemployment rate

MinW = Minimum Wage

LF = labour force

POP = population

Apriori Expectation

Model *1:* $\alpha_0>0, \alpha_1<0, \alpha_2>0, \alpha_3>0, \alpha_4>0$

4. Data presentation and analysis

This section looks at data presentation and empirical analysis of variables in the model in the form of multiple regression with the use of an inferential method of analysis as regards the impact of unemployment on economic growth in Nigeria from 1980 to 2016.

4.1. Descriptive statistics

The descriptive statistics that is the mean and median are measures of central tendency for all the variables. The Gross Domestic Product has the highest standard deviation (deviation from the mean) while Unemployment has the lowest standard deviation. Specifically, Gross Domestic Product, labour force and

population are more volatile than minimum wage and unemployment rate in Nigeria for the period under review as shown in the Table below

Table 1. Summary Statistics

	GDP	UNEMP	MINW	LF	POP
Mean	9288664.	6.588899	5895.714	56587134	129.3132
Median	2708431.	2.199600	1200.000	46221550	126.5618
Maximum	38876544	16.52483	18000.00	93321259	180.0047
Minimum	47619.66	0.054678	200.0000	30578274	82.94453
Std. Dev.	12610352	6.375022	6692.955	22125065	30.64601
Skewness	1.229321	0.273035	0.987749	0.412605	0.150547
Kurtosis	3.112435	1.277303	2.467338	1.486322	1.727408
Jarque-Bera	8.833942	4.762737	6.105057	4.334449	2.493966
Probability	0.012071	0.092424	0.047239	0.114495	0.287370
Sum	3.25E+08	230.6115	206350.0	1.98E+09	4525.961
Sum Sq. Dev.	5.41E+15	1381.791	1.52E+09	1.66E+16	31932.06
Observations	35	35	35	35	35

Source: Eviews 7.1 (Note: The suffix E+n where 'n' is any positive number denotes the exponent 10^n. On the normality of the distribution if the skewness deviates from 0 and the kurtosis from 3 then non-normality occurs.)

The Jarque Bera is a test for normality of the distribution where the null hypothesis is that the distribution of the sample is a normal one. If the probability value of the Jarque bera test is significant, then the null hypothesis is rejected and the alternative is accepted which says that the sample is not normally distributed. If each variable is statistically significant, then the series is not normally distributed. Thus, the farther the probability statistic of a variable is to zero, the lower the value of its Jarque Bera statistic and the more normally distributed it is (and vice versa). From the result above, the Jarque Bera test illustrates that the null hypothesis is clearly accepted for all the distribution. Thus, population and labour force are most normally distributed of the variables.

4.2. Unit root test

The Augmented Dickey-Fuller test is used to test for unit root. A variable is stationary if its absolute ADF value is higher than any of the absolute Mackinnon values. The result of the unit root test with intercept term is shown in Table 2.

Table 2. ADF Test Statistics Results

Variable	ADF Test Statistical Value	MacKinnon Critical Value at 1%	MacKinnon Critical Value at 5%	MacKinnon Critical Value at 10%	Order of Integration
LnGDP	-6.086	-4.535	-3.671	-3.274	I(1)
LnMinW	-3.352	-4.553	-3.653	-3.266	I(1)
LnUNEMP	-6.113	-4.442	-3.637	-3.258	I(0)
ln POP	-4.581	-4.462	-3.649	-3.261	I(1)
ln LF	-3.738	-4.42	-3.637	-3.255	I(1)

Source: E-views 7.1

This table illustrates that Gross Domestic Product, minimum wage, population, and labour force are stationary at first-order difference. Only Unemployment rate is stationary at level.

4.3. Analysis of model result and interpretation

The estimated error term model and appropriate statistics for evaluation are shown below. Coefficients of explanatory variables are estimates of model parameters. Estimation is based on data in Table 3 while evaluation is based on relevant statistics.

The coefficients of the explanatory variables are consistent with the ap*riori* expectations except for the coefficient of population (POP). The estimated model implies the likelihood of a positive growth when each of the explanatory variables assumes zero value.

Coefficients of lnLF, and lnMinW respectively have a positive impact on economic growth. The t-test result shows that the effects of unemployment, labour force and population are statistically significant as shown by the t-statistic values of -2.36, 1.97 and -5.44 and their corresponding probabilities of 0.03, 0.05 and 0.00,

respectively. The minimum wage shows insignificant effects on economic growth in Nigeria judging from its t-statistic values and its corresponding probabilities.

Table 3. Presentation the GDP Model Result

Dependent Variable: lnGDP
Method: Least Squares
Sample: 1980 2016

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	7.678162	0.192355	39.91664	0.0000
ln POP	-0.097197	0.017869	-5.439411	0.0000
ln UNEMP	-0.041709	0.017655	-2.362397	0.0256
ln LF	0.006868	0.004122	1.966214	0.0472
ln MinW	0.000602	0.000621	0.969867	0.3407
R-squared	0.961897	Mean dependent var		9.462111
Adjusted R-squared	0.954841	S.D. dependent var		0.321256
S.E. of regression	0.068269	Akaike info criterion		-2.367745
Sum squared resid	0.125839	Schwarz criterion		-2.095652
Log likelihood	45.06779	Hannan-Quinn criter.		-2.276194
F-statistic	136.3200	Durbin-Watson stat		1.981286
Prob(F-statistic)	0.000000			

Source: E-views 7.1

The negative and significant effect of population on GDP is baffling and very vital in this study. Though, the joint impact of the independent variables on the dependent variable is fairly robust and statistically significant at 1% level of significance as the value of F-Statistic (136.32) with corresponding probability (0.00) indicates.

The R-Square of 0.96 signifies that the independent variables explain about 96.20% of changes in the dependent variable. The explanatory power of the model still remains high at about 95.50% after adjusting

for degrees of freedom as indicated by the adjusted R-Square value of 0.95. The other effect of about 4% shows some combination of measurement errors, random fluctuations, temporary disequilibria, and the net effect of other factors that are not in the model but affect economic growth in Nigeria. The goodness of fit of the regression result is high.

At 1.98, the Durbin Watson statistics does not show proof of serious auto–correlation. This implies the absence of autocorrelation. Thus, we reject the null hypothesis of the presence of autocorrelation among the disturbance terms in the model and accept the alternative hypothesis that there is no autocorrelation between the error terms.

Therefore, the result can be deemed good and reliable as the general impact of the independent variables on the dependent variable is statistically significant. This is so, because the variables explain greater part of the changes in economic growth in Nigeria over time. Thus, the result is reliable for policy formulation and forecasting purposes.

5. Conclusion and recommendations

Empirical analysis was carried out in testing the impact of unemployment on economic growth in Nigeria, using the OLS multiple regression analytical method. Gross Domestic Product (GDP) as a proxy for economic growth (dependent variable) was regressed on unemployment rate, minimum wage, labour force and population (independent variables) between 1980 – 2016. Thus, it is established by the study that unemployment, population and labour force have significant impact on Nigeria's economic growth, while minimum wage does not significantly impact economic growth in Nigeria. The underlying principle for such a result is rooted in the Keynesian theory of unemployment which is applicable to the Nigerian economy that is recovering from economic recession. The outcome of this result is in harmony with and strongly upheld the Keynesian's view that a surge in economic activity reduces unemployment and deflation. Based on this, the following recommendations were proffered:

1- The government should ensure there is job creation in the economy especially in the real sector, i.e. agriculture and manufacturing sector – The agriculture sector in Nigeria employs about 70% of the population, though mostly at subsistence level. If the government can support this sector by making loans accessible and affordable for those involved in agriculture, it will boost agricultural output, increase GDP and reduce unemployment rate in the country. The same applies to small and medium scale enterprises, with accessible and affordable loans; output from this sector will increase and thus, raise employment opportunities from this sector.

2- Private sector employers should be given subsidies so as to encourage them to employ more people – Taxes paid by private sector employers can be subsidized. In addition, the government can provide unemployment emoluments for those that are unemployed as it is done in many developed countries. The unemployed could use part of their unemployment emoluments to provide vouchers for firms that employs them. A different way of looking at

the matter is to observe that generalized recruitment subsidies should have the same impact as payroll tax reductions since payroll taxes are eventually borne largely by workers themselves although they may be paid by employers. Therefore, much of the reduction in such taxes is likely to be consumed in the long run by pay increases which do not change the employment level.

3- The labour market should be deregulated – labour market regulations are numerous. The minimum wage policy is one of the most obvious. Economic theories envisage that the establishment of an effective minimum wage policy will likely reduce employment; on the contrary, the rejection of a minimum wage policy, likely increases it. The threat with the establishment of a minimum wage policy is that it pushes up wages nly for the lowly paid but for all groups as workers bargain to restore relativities.

An additional feature of labour market deregulation involves trade unions. Normally, European Unions benefit from legal privilege which improves their bargaining arrangement that is, shft the wage-setting curve to the left. In Nigeria, it is understood that an extremely centralized system of collective bargaining could provide labour market outcomes as effective as those created by a decentralized system where trade unions played a minimal role.

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