Unemployment and Economic Growth in Nigeria in the 21st Century: VAR Approach

Olawunmi Omitogun¹, Adedayo Emmanuel Longe²

Abstract: This study investigates the impact of unemployment on economic growth in Nigeria in the 21st century using a Vector Autoregressive (VAR) approach using a secondary data spanning from 1986 to 2015. It aims at examining the dynamic effect of unemployment on growth in the context of Nigeria using the VAR approach to analyse the variations. Different methods such as the Augmented Dickey Fuller (ADF) test, johansen cointegration test, VAR model, impulse response test and variance decomposition test were employed to analyse the data. It was observed that the impact of unemployment vary over time as effort towards eradicating it are been made by the government in the country. The implication of the study is to inform researchers on the VAR model as an appropriate approach for dynamic analysis, to urge academicians to be more informative on the dynamic effects of unemployment in the economy, and to provide guidance to the government on the appropriate policy to adopt to tackle the issue of unemployment and inflation in the country. This study recommends increase in government expenditure towards the enhancement of individual skills in order to reduce unemployment and inflation.

Keywords: unemployment; inflation; economic growth

JEL Classification: E24

1. Introduction

Unemployment and rising inflation are some of the major problems currently being faced in the 21st century and the Nigerian government is not an exemption. Unemployment is a situation whereby people who are physically fit, capable, qualified and ready to work at any time are without jobs. The issue of unemployment is one of the macro economic problems of a nation. Currently, in developing countries, the problem of unemployment has been increasing as a result of different economic problems facing most countries. The issue of unemployment is highly different compared to other nations. This is due to high level of corruption, mismanagement of public funds, among others over the years. Feridum

¹ Department of Economics, Tel.: +2348033511139, Corresponding author: omitogun.olawunmi@oouagoiwoye.edu.ng.

² PhD, Department of Economics, Olabisi Onabanjo University, Nigeria, Address: Ago-Iwoye, Ogun State, Nigeria, Tel.: +2348152525328, E-mail: longeemmanuel28@gmail.com.

and Akindele (2006) identified unemployment as one of the major challenges confronting the Nigerian economy. The social impacts of unemployment are less prevalent in economies that are able to support unemployed class with subsidies and social security allowances. Udabah (1999) noted that the main reason for low standard of living in underdeveloped countries is the relative inadequate and inefficient utilization of labour compared with advanced nations. Fadayomi (1992), Osinubi (2006), argued that unemployment is as a result of the inability to develop and utilize the nations manpower resources effectively especially in the rural sector.

Interestingly, every government regime comes with its own economic growth increase strategy, but none has been able to achieve the desired goal. Since the continuous increase in population begun, developing nations have been characterized by unemployment. The issue of unemployment brought about some social and economic consequences such as; increase in crime rate, loss of respect and identity, reduction in purchasing power, psychological injuries, corruption among others. Muhammad, Inuwa, and Oye (2011) submitted that unemployment constitutes a series of serious development problems and is increasingly more serious all over Nigeria. Alanana (2003) argued that unemployment is potentially dangerous as it sends disturbing signals to all segment of the economy.

Since the change in governance from military to democratic rule of government in 1999, the major policy of the government and international agencies is targeted at reducing the rate of unemployment in the 21st century, in other to devoid the country of more dangerous acts than existing ones. Various programmes such as the Youth Empowerment Programme (YEP) and National Economic Empowerment Programmes (NEED) were established to reduce rate of unemployment in the country, but the issue of unemployment still remains unchanged as observed in studies such as Ejiekeme (2014) in the 21st century. This study therefore investigates the extent at which unemployment has impacted on economic growth in Nigeria in the 21st century.

The rest of this paper is divided into four sections. Section two contains the literature review. The source of data and methodology is presented in section three. Section four holds the results, while section five is devoted to conclusion and recommendations.

2. Literature Review

The Marxist theory noted that unemployment is as a result of unstable capitalist system via which unemployment rate perpetuates causing labourers to settle for fair wages. They argued that to eliminate unemployment completely, capitalism must be abolished completely, replacing it with socialism. The Keynesian economist holds that increased unemployment is as a result of fall in the aggregate demand in an economy. Phillips (1958) in his study on unemployment and rate of money wage in the British economy noted that increase in unemployment in the economy causes inflation to drop which he referred to as a trade-off between the variables. He concluded that as employment level increases, inflation rises, but as unemployment increases, inflation falls as the purchasing power of the economy becomes weaker. Okun (1962) propounded that as unemployment falls by 1%, gross domestic product increase by 3%, but this was criticized because it holds for the United States only. Terry (1998) noted in his theory "Search Theory of Unemployment" that as an individual is searching for job, firms are also searching to fill a vacant space. He concluded that wages therefore decides for both the individual and the firm.

Bhattarai (2016) examined the relationship between inflation and unemployment in 35OECD countries using a panel VAR model to analyse the quarterly data used from 1990:1 to 2014:4. He submitted that the Phillip's curve is still significant in 28 out 35 OECD countries and the coefficients of Okun curve for growth on unemployment were significant only in 13 of these countries. He concluded that as the natural rate of unemployment results from the balance between job creation and destruction processes, reductions in unemployment rates require complementing macro stimulations by microeconomic structural and institutional reforms.

Sadiku, Ibraimi & Sadiku (2015) empirically examined unemployment relation with growth in FYR Macedonia using VAR approach with a quarterly based data from 2000-2012. It was observed that no negative relationship between unemployment and economic growth as propounded by Okun's Law and also no direction of causality between unemployment and economic growth.

Abdul-Khaliq, Soufan, & Shihab (2014) investigated the relationship between economic growth and unemployment rate in Arab countries between 1994 and 2010 adopting the Pooled EGLS (Cross-section SUR). It was found that economic growth had a negative and significant impact on unemployment rate, which implies that 1% increase in economic Growth will decrease the unemployment rate by 0.16%.

Amassoma and Nwosu (2013) examined the impact of unemployment on productivity growth in Nigeria using an error correction modeling approach and co-integration technique to analyse the data used from 1986 to 2010. The regression estimate based on the short run and long run models showed that unemployment rate had an insignificant influence on productivity growth in Nigeria over the study period.

Ozei, Sezgin, and Topkaya (2013) investigated the relationship between economic growth and unemployment relationship in seven industrialized countries (G7) countries. Panel regression analysis was used to analyse data from 2000-2011. The

results of the study revealed that while the productivity and economic growth variables have significant and strong effects on the reduction of unemployment in three-crisis period, this effect of productivity becomes insignificant and small after the crisis whereas the effect of economic growth as a decreasing effect over unemployment continues and its impact level rises.

Muhammad, Inuwa, and Oye (2011) examined the implication of unemployment on gross domestic product in Nigeria over the period of nine years (2000-2008) using a regression analysis. Findings showed that unemployment has an enormous effect (over 65%) on the making of the Nigerian GDP and there exist an inverse relationship between unemployment and gross domestic product, which implies that as unemployment increases, gross domestic product falls.

Ejikeme (2014) assessed the link unemployment and poverty has on security in Nigeria. His study underscores that unemployment and poverty are universal phenomena, and not necessarily a peculiar characteristic of any particular segment of the society. The research revealed that unemployment and poverty have direct links to security challenges in Nigeria.

Holden and Sparman (2013) examined the effect of government purchases on unemployment in 20 OECD countries for the period 1980 to 2007. They observed that a one percent increase in government purchases of GDP reduced unemployment by about 0.3 percent in the same year. The effect was observed to be greater in downturns than in booms, and also under a fixed exchange rate regime than a floating regime.

Akeju and Olanipekun (2014) validated the Okun's law in Nigeria using the Error Correction Method and Johansen cointegration technique. The findings showed that there is both a short and long run relationship between unemployment rate and output growth in Nigeria. Hence, there is need to incorporate fiscal measures and increase the attraction of foreign direct investment (FDI) to reduce the high rate of unemployment in the country.

Onwanchukwu (2015) examined the impact of unemployment on the economic growth in Nigeria from 1985 to 2010, using ordinary least squares regression technique. His findings revealed that unemployment does not have a significant impact on the economic growth of Nigeria. Inflation, however, was found to significantly impact on the economic growth of Nigeria.

Muhammad (2014) studied the effect of inflation and unemployment on the growth of Pakistan from 1980 to 2010 using the Auto regressive distributed lag. He firstly noted that inflation effect varies from economy to economy, but most of the studies indicate that there is a positive relationship between inflation and economic growth or GDP. The result showed that there is a long run relationship between the variables. Furthermore, the results of White's Heteroskedasticity, Ramsey reset and Breusch-Godfrey Serial Correlation LM test shows that there is no problem of heteroskedasticity, misspecification of model and serial correlation respectively. It was recommended that self-employment/entrepreneurship should be encouraged to overcome the unemployment.

Madito and Khumalo (2014) examined unemployment nexus in South-Africa form 1971Q1 to 2013Q4 using the Error correction mechanism as a result of the dynamic inter-relationship between the variables used to check the speed of adjustment of economic growth to unemployment crisis. It was observed that about 62 percent of economic growth is corrected each quarter. The overall results showed that there is a negative relationship between economic growth and unemployment in South Africa.

Taylan (2012) investigated the relationship between macroeconomic variables and economic growth in Turkey from 2000Q1 to 2010Q2 using Vector Auto-Regressive Model (VAR). From his findings, it was revealed that positive shocks to growth, growth in export and inflation reduced unemployment. Also, shocks to exchange rate, interbank interest rate and money supply increased unemployment. The conformity of the results is found to go in line with Phillips curve and Okun's Law suggestion. Namely, negative relationship between output and unemployment and positive relationship between unemployment and inflation.

Babalola, Saka and Adenuga (2013) validates Okun's law in Nigeria using a different approach of the VAR Cointegration to compare the two models (Short-run and Long-run) from 1980-2012. It was observed that unemployment rate as an independent variable was positive and also positive for real GDP growth as an independent variable. These findings are contrary to Okun's law of unemployment–output relationship.

Ekrame, Dramane, and Christophe (2012) investigated the relationship between Immigration, Growth and Unemployment in 22 OECD countries using panel VAR technique to analyse data spanning from 1987 to 2009. Their result provided evidence that migration contributed to host economic prosperity (positive impact on GDP per capita and negative impact on aggregate unemployment, native and foreign-born unemployment rates). It was also found out that migration is influenced by host economic conditions (migration responds positively to host GDP per capita and negatively to host total unemployment rate).

Imran and Iba (2014) examine the relationship between macroeconomic variables and unemployment in Pakistan from 1980-2010 using the VAR Approach. From their findings, it was revealed that the variables have more variance contribution to themselves when compared to other variables in the system. Inflation rate contributed to unemployment variance more as compared to economic growth, unemployment contributes more to economic growth as compared to inflation and unemployment rate has also more variance contribution to inflation as compare to economic growth. In other words, unemployment rate has more variance contribution in both inflation and economic growth rate.

3. Data Source and Methodology

Data is sourced from the World Development Indicators (2015) edition. The data includes gross domestic product (GDP), Unemployment rate (UNEMP), Inflation rate (INFLR), Exchange rate (EXR), and Government expenditure (GEXP). The VAR model is employed to analyse the data used in this study. The VAR model is a dynamic multivariate model which allows variables to be treated equally, and allows one to model macroeconomic data informatively without imposing very strong restrictions on the model. Papapetrou (2001), Li & Liu (2012) and Imran & Iba (2014) used VAR model to establish the short-run dynamic disequilibrium among these variables (Unemployment, Inflation and Economic growth). Also, developing a long-run relationship, the cointegrating vectors were assessed using Johansen's cointegration technique and long-run relationship by using VEC model as was used by Beyer and Fermer (2002), Ekrame, Dramane, and Christophe (2012) and Babalola, Saka & Adenuga (2013) to compare two models (short-run and long-run model of their study). In line with these studies, the model for this study is adapted and presented below;

$$X_{t} = \Gamma_{o} + \Gamma(L)Y_{t} + Z_{t} + \epsilon_{t}; \text{ where } X_{t} = \begin{pmatrix} GDP \\ UNEMP \\ INFLR \\ EXR \\ GEXP \end{pmatrix}$$

X_{it} is a 5x1 vector matrix of the endogenous variables (GDP, UNEMP, INFLR, EXR, and GEXP). GDP represent gross domestic product annual growth rate, UNEMP represents unemployment rate, INFLR represents inflation rate, EXR denotes exchange rate, and GEXP denotes government expenditure. $\Gamma(L)Y_t$ is a matrix polynomial in the lag operator with $\Gamma(L) = \Gamma_1 L^1 + \Gamma_2 L^2 + \ldots + \Gamma_p L^p$, Z_t is a vector of country specific effects and ϵ_t is a vector of idiosyncratic errors. The study adopts the impulse response to capture the reactions of one variable in the system to another. The model specification holds that unemployment, inflation rate, exchange rate, and government which are some of the major macroeconomic variables are a strong determinant of the country's growth. The study at first subjected all the variables to a unit root test to avoid a spurious result. The unit root test tests whether a time series variable is non-stationary and possesses a unit root. The null hypothesis is generally defined as the presence of a unit root and the alternative hypothesis is either stationary, trend stationary or explosive root depending on the test used. After words, we went forward to test for the long-run co-movement using the Johansen Cointegration technique. Cointegration means 160 that, while many developments can cause permanent changes in the individual variable, there is some long-run equilibrium relation tying the individual variables together, represented by some linear combination of them.

4. Results

4.1. Unit Root Test

The result of the unit root showed that all the variables are stationary at first difference at none and trend and intercept at 1%, 5% and 10% respectively. This implies that there exists a unit root among the variables. The johansen cointegration test is therefore carried out to test if a long-run co-movement relationship exists among the variables. The unit root result is presented below in table 1.

		AT LEVE	LS	1st Difference		
					Trend	&
GDP		None	Trend & Intercept	None	Intercept	
T.Stat		6.369533	-1.979498	-2.75537	-5.603133	
C.V	1%	-2.64712	-4.309824	-2.65015	-4.323979	
	5%	-1.95291	-3.574244	-1.95338	-3.580623	
	10%	-1.61001	-3.221728	-1.6098	-3.225334	
Prob.V		1.0000	0.5877	0.0077	0.0005	
					Trend	&
UNEMP		None	Trend & Intercept	None	Intercept	
T.Stat		-1.04459	-2.26995	-5.50881	-5.315738	
C.V	1%	-2.64712	-4.309824	-2.65015	-4.323979	
	5%	-1.95291	-3.574244	-1.95338	-3.580623	
	10%	-1.61001	-3.221728	-1.6098	-3.225334	
Prob.V		0.2601	0.4360	0.0000	0.0010	
					Trend	&
INFLR		None	Trend & Intercept	None	Intercept	
T.Stat		-1.60994	-3.335878	-4.79813	-4.643165	
C.V	1%	-2.64712	-4.309824	-2.65015	-4.323979	
	5%	-1.95291	-3.574244	-1.95338	-3.580623	
	10%	-1.61001	-3.221728	-1.6098	-3.225334	
Prob.V		0.1	0.0804	0.0000	0.0048	
					Trend	&
EXR		None	Trend & Intercept	None	Intercept	
T.Stat		1.748877	-2.250128	-4.14472	-4.844135	
C.V	1%	-2.64712	-4.309824	-2.65015	-4.323979	
	5%	-1.95291	-3.574244	-1.95338	-3.580623	
	10%	-1.61001	-3.221728	-1.6098	-3.225334	

Table 1

Vol 13, no 5, 2017

Prob.V		0.9778	0.4461	0.0002	0.0030
					Trend &
GEXP		None	Trend & Intercept	None	Intercept
T.Stat		6.92391	-1.675634	-2.33055	-4.774027
C.V	1%	-2.64712	-4.309824	-2.65015	-4.323979
	5%	-1.95291	-3.574244	-1.95338	-3.580623
	10%	-1.61001	-3.221728	-1.6098	-3.225334
Prob.V		1.0000	0.7362	0.0216	0.0035
C.V- 0	Critical				
Values					
T.Stat- T-Statistics					
Prob.V- Pro	baility V	alue			

Source: Authors (2017)

4.2. Johansen Co-integration Test

4.2.1. Co-integration Result

The johansen co-integration test result revealed that the trace and maxi-eigen value has one co-integrating factor, which necessitates the conclusion that a long-run co-movement relationship exists among the variables employed in this study. That is, there is a long-run relationship between GDP and unemployment, inflation rate, exchange rate, and government expenditure. These variables affect the GDP of the country through the macroeconomic systems. The result is presented below in table 2.

Unrestricted Cointegration Rank Test (Trace)							
Hypothesized		Trace	0.05				
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**			
None *	0.748899	76.96459	69.81889	0.012			
At most 1	0.493126	38.27143	47.85613	0.2903			
At most 2	0.339826	19.24562	29.79707	0.4754			
At most 3	0.202573	7.618562	15.49471	0.507			
At most 4	0.044696	1.280333	3.841466	0.2578			
Trace test indicates	1 cointegrating eqn(s)) at the 0.05 level					
* denotes rejection	of the hypothesis at th	e 0.05 level					
**MacKinnon-Hau	g-Michelis (1999) p-v	values					
Unrestricted Cointe	egration Rank Test (M	aximum Eigenvalue)					
Hypothesized		Max-Eigen	0.05				
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**			
None *	0.748899	38.69315	33.87687	0.0123			
At most 1	0.493126	19.02582	27.58434	0.4125			
At most 2	0.339826	11.62706	21.13162	0.5847			
At most 3	0.202573	6.338229	14.2646	0.5702			

Table 2

At most 4	0.044696	1.280333	3.841466	0.2578		
Max-eigenvalue test indicates 1 cointegrating eqn(s) at the 0.05 level						
* denotes rejection	* denotes rejection of the hypothesis at the 0.05 level					
**MacKinnon-Haug-Michelis (1999) p-values						

Source: Authors (2017)

4.3. Selection of Optimal Lag

In order to carry out vector autoregression estimation, the choice of lag length is vital. There is various lag length criteria, among them are; Sequential modified LR test statistic with each test at 5%, the Final prediction error (FPE), Akaike information criterion (AIC), Schwarz information criterion (SC) and the Hannan-Quinn information criterion (HQ). However each of these has different penalty factors. For the purpose of this study, we therefore limit the selection to Akaike information criterion (AIC) and Schwarz information criterion (SC). The Akaike Information Criterion (AIC) and Scharwz Information Criterion are employed because according to Yahaya, Salisu and Umar (2015) they are the most popular used selection criteria for models. From the result, the two criteria revealed 4 optimal number of lag to be used for the VAR analysis. The result is presented below in table 3.

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-324.8812	NA	72134.08	25.37548	25.61742	25.44515
1	-231.0404	144.3705	377.2732	20.08003	21.53168	20.49805
2	-209.5836	24.75778	630.6626	20.35259	23.01395	21.11896
3	-172.0362	28.88263	502.498	19.3874	23.25847	20.50213
4	-21.04396	58.07394*	0.254852*	9.695689*	14.77646*	11.15877*
* inc	licates lag orde	er selected by th	e criterion			
LR:	sequential mod	lified LR test st	atistic (each tes	t at 5% level)		
FPE	: Final predicti	on error				
AIC: Akaike information criterion						
SC: Schwarz information criterion						
HQ:	Hannan-Quinr	n information cr	iterion			

 Table 3. Lag Length Selection

Source: Authors (2017)

4.4. VAR Test Estimates

From the result below in table 4, it was revealed that unemployment in the 1st, 3rd and 4th period has a positive impact on the growth on the economy, but negative in the 3rd period. Inflation rate throughout the periods has a positive and significant impact on the growth of the economy. Exchange rate has a positive impact in the 1st and 4th period and negative in the 2nd and 3rd period. Government expenditure has a similar impact related to that of exchange rate on the growth of the economy

as it positively relates to growth in the 1^{st} and 4^{th} period and negatively in the 2^{nd} and 3^{th} period.

	LGDP		LGDP		LGDP		LGDP
		INFLR(-					
UNEMP(-1)	0.025215	1)	0.013505	EXR(-1)	0.010496	L(GEXP(-1)	0.924556
	(-0.01737)		(-0.00599)		(-0.00558)		(-0.8627)
	[1.45139]		[2.25293]		[1.88258]		[1.07167]
		INFLR(-					
UNEMP(-2)	-0.000813	2)	0.001514	EXR(-2)	-0.00292	L(GEXP(-2)	-0.17877
	(-0.01652)		(-0.00728)		(-0.00591)		(-0.6960)
	[-0.04922]		[0.20801]		[-0.49369]		[-0.2569]
		INFLR(-					
UNEMP(-3)	0.001517	3)	0.008431	EXR(-3)	-0.0025	L(GEXP(-3)	-0.25832
	(-0.01802)		(-0.00505)		(-0.00781)		(-0.7630)
	[0.08417]		[1.67004]		[-0.32013]		[-0.3386]
		INFLR(-					
UNEMP(-4)	0.003798	4)	0.003534	EXR(-4)	0.00324	L(GEXP(-4)	0.451186
							(-
	(-0.01987)		(-0.00595)		(-0.00571)		0.88975)
	[0.19114]		[0.59444]		[0.56732]		[0.50710]
R-squared	0.975272		0.815322		0.997651		0.997455
Adj. R-							
squared	0.876359		0.076611		0.988256		0.987275
F-statistic	9.859897		1.10371		106.1911		97.97939

Table 4. VAR Result

Source: Author (2017)

Note: Standard Error in (), T-statistics in []

4.5. Impulse Response Test

The impulse test revealed that the GDP of the economy respond positively to itself throughout the periods. Between the 1st and 3rd period, GDP response to unemployment was positive, from the 4th to 7th period, there was a negative response to unemployment, and from the 8th to 10th period, there was a positive response. GDP response to inflation rate was positive till the 7th period before it responds negatively from the 8th to 10th period. Between 1st and 4th, 8th and 10th, GDP positively respond to Exchange rate but negatively relate in the 6th and 7th period. However, there is a dichotomy response of GDP to government pattern of expenditure as the positive and negative respond has a flattened shape. The result is presented below in Figure 1.

ŒCONOMICA



4.6. Variance Decomposition Test

1

5

10

8.232458

12.79092

46.65184

57.61496

It was revealed that the variations in the GDP to itself is 100% in the 1st quarter, but reduces in the 5th and 10th period to 78% and 73% respectively (See table 5). Unemployment rate in the 1st period captures about 54% changes in economic growth; 47% in the 5th period and 58% in the 10th period (See table 6). Inflation rate in the 1st period accounts for 27% changes in the growth of the country, in the 5th and 10th period, an increase in variations captured by the variable is 35% and 44% respectively (See table 7). In the 1st period of the variations in the GDP through exchange rate, 27% was accounted for, while in the 5th and 10th period the percentage of variations falls heavily to 4% and 6% respectively (See table 8). The contribution of the expenditure pattern in the country was observed to be very low. In the 1st period, 0.24% of the variations in the GDP was captured, while in the 5th and 10th period, 0.06% and 0.11% was captured (See table 9).

Variance Decomposition of @LOG(GDP):						
Period	S.E.	LOG(GDP)	UNEMP	INFLR	EXR	LOG(GEXP)
1	0.200135	100	0.00000	0.00000	0.00000	0.00000
5	0.447144	78.47196	1.461424	14.69103	5.317945	0.057644
10	0.538438	73.33642	2.079768	18.16401	6.310994	0.108812

Table 5

	Source. Autors (2017)										
	Table 6										
Variance	Decomposition	n of UNEMP:									
Period	S.E.	LOG(GDP)	UNEMP	INFLR	EXR	LOG(GEXP)					
1	2.576378	53.85114	46.14886	0.00000	0.00000	0.00000					

Source · Authors (2017)

13.03998

13.37639

35.24426

25.75029

4.896733

3.178561

0.167183

0.079795

Source: Authors (2017)

Vol 13, no 5, 2017

Table 7

Variance Decomposition of INFLR:						
Period	S.E.	LOG(GDP)	UNEMP	INFLR	EXR	LOG(GEXP)
1	17.38639	72.31828	0.305853	27.37587	0.00000	0.00000
5	24.21599	55.60048	1.994306	35.43335	6.811634	0.160223
10	30.89558	39.74937	6.905192	44.38886	8.706415	0.250158

Source: Authors (2017)

Table 8

Variance Decomposition of EXR						
Period	S.E.	LOG(GDP)	UNEMP	INFLR	EXR	LOG(GEXP)
1	6.543369	17.66853	9.904697	43.31233	29.11444	0.00000
5	26.1633	64.22176	5.182243	26.96582	3.589859	0.040315
10	35.37424	50.70896	5.919466	37.42995	5.825116	0.116504

Source: Authors (2017)

Table 9

Variance Decomposition of @LOG(GEXP):						
Period	S.E.	LOG(GDP)	UNEMP	INFLR	EXR	LOG(GEXP)
1	0.204592	78.67653	0.110497	10.09586	10.8679	0.24921
5	0.515694	72.35433	0.667075	23.53266	3.385097	0.060846
10	0.583479	68.93911	2.023313	23.9996	4.926912	0.111068

Source: Authors (2017)

5. Conclusion and Recommendations

The study investigates the impact of unemployment on economic growth in Nigeria in the 21st century using the VAR model. From the findings, it was revealed that the impact of unemployment, inflation rate, exchange rate and government expenditure varies over the periods. Unemployment and inflation, among other variables were found to have contributed mostly to the variations in the growth of the economy over the period. This is because the price and sustainability means of the economy is a factor which needs full attention to avoid a downturn growth. In line with Babalola et al (2013) and Muhammad et al (2014), the study concludes that the existence of the Okun's law and Phillips curve is in reality not the case of Nigeria. This is because the effect of unemployment and inflation from the findings is dynamic in nature (varies over time). The following is therefore recommended.

The Nigerian government should employ a monitoring team to monitor and ensure that funds released by the government to all the sectors of the economy are well appropriated in the sectors program or budget. This will help checkmate corrupt government officials and or politicians who embezzle and loot government funds for their personal welfare in the name of executing projects or facilities to aid growth in the country.

The government should also concentrate on cautioning the rising unemployment rate in Nigeria. This could be achieved by the establishment of programs that will encourage the unemployed populace in skill development which invariably leads to self-employment irrespective of their locations. If this is done, a reduction in waste of manpower will be observed and this will contribute the buoyancy of the nation's growth.

Furthermore, government spending should tend toward local production to caution inflationary condition in the economy.

6. Bibliography

Abdul-Khaliq, S.; Soufan, T. & Shihab, R.A. (2014). The relationship between unemployment and economic growth rate in Arab Country. *Journal of Economics and Sustainable Development*. 5(9), pp. 56-59.

Akeju, K.F. & Olanipekun, D.B. (2014). Unemployment and economic growth in Nigeria. *Journal of Economics and Sustainable Development*, 5(4), pp. 138-144.

Alanana, O.O. (2003). Youth unemployment in Nigeria: some implications for the third millennium. *Global Journal of Social Sciences*, 2(1), pp. 21-26.

Amassoma, D. & Nwosu, P.I. (2013). The impact of unemployment rate on productivity growth in Nigeria: an error correction modeling approach. *International Journal of Economics and Management Sciences*, 2(08), pp. 01-13.

Babalola, S.J.; Saka, J.O. & Adenuga, I.A. (2013). The validity of Okun's law in Nigeria: a difference model approach. *Asian Economic and Financial Review*, 3(12), pp. 1598-1608.

Beyer, A. & Farmer, R. (2002). Natural rate doubts.

Bhattarai, K. (2016). Unemployment–inflation trade-offs in OECD countries. *Economic Modelling*, pp. 58, 93–103.

Ejikeme, J.N. (2014). Unemployment and Poverty in Nigeria: A Link to National Insecurity. *Global Journal of Politics and Law Research*, Vol. 2, No. 1, pp. 19-35.

Ekrame, B.; Dramane, C. & Christophe, R. (2012). Immigration, growth and unemployment: panel VAR evidence from OECD Countries. *IZA Discussion Paper*, No. 6966.

Fadayomi, T.O. (1992). Migration development and urban policies in Sub Saharan Africa, Ibadan: Codesria Book Series.

Feridun, M & Akindele, S.T. (2006). The crux of the matter, in Nigerian Economy: essays on economic development ed. (Feridun and Akindele), Munich Personal RePEC Archive. *MPRA*, pp. 1-13.

Holden, S. & Sparman, V. (2013). *Do government purchases affect unemployment?*. http://folk.uio.no/sholden/wp/fiscal-u.pdf. (Accessed August 28, 2013).

Imran. A. & Iba. S. (2014). Examining relationship between macroeconomic variables using VAR Approach. *Proceedings of the 2014 International Conference on Industrial Engineering and Operations Management*. Bali, Indonesia, January 7–9.

Li, C. & Liu, Z.J. (2012). Study on the relationship among Chinese unemployment rate, economic growth and inflation. *Advances in Applied Economics and Finance*, 1(1), pp. 1-6.

Madito, O. & Khumalo, J. (2014). Economic growth - unemployment nexus in South Africa: VECM Approach. *Mediterranean Journal of Social Sciences*. 5(20), pp. 79-84.

Muhammad, S. (2014). Effect of inflation and unemployment on economic growth in Pakistan. *Journal of Economics and Sustainable Development*. 5(15), pp. 103-106.

Muhammad, S.A.; Oye, N.D. & Inuwa I. (2011). Unemployment in Nigeria: implication on the gross domestic product (gdp) over the years. *Int. J. ECO. RES*, 2(1), pp. 66-71.

Okun, A.M. (1962). Potential GNP: Its measurement and significance, American Statistical Association, *Proceedings of the Business and Economics Statistics Section*, pp. 98–104.

Onwanchukwu, C.I. (2015). Does unemployment significantly impact on economic growth in Nigeria? *Global Journal of Human-Social Science: E Economics*, 15(8), pp. 23-26.

Osinubi. (2006). The political crisis & solution Vanguard July 19.

Ozei, H.A.; Sezgin, F.H. & Topkaya, O. (2013). Investigation of economic growth and unemployment relationship for G7 Countries using panel regression analysis. *International Journal of Business and Social Science*.4(6), pp. 163-171.

Papapetrou, E. (2001). Oil price shocks, stock market, economic activity and employment in Greece. *Energy Economics*, 23(5), pp. 511-532.

Phillips, A.W. (1958). The relationship between unemployment and the rate of change of money wages in the United Kingdom 1861-1957. *Economica*, 25(100), pp. 283–299.

Sadiku, M.; Ibraimi, A. & Sadiku, L. (2015). Econometric Estimation of the Relationship between Unemployment Rate and Economic Growth of FYR of Macedonia. *Procedia Economics and Finance*, pp. 19, 69 - 81.

Taylan, T.D. (2012). Macroeconomic variables and unemployment: the case of Turkey. *International Journal of Economics and Financial Issues*, 2(1), pp. 71-78.

Udabah, S.I. (1999). Basic Economics Theory and Practice. Enugu, Linco Press Nigeria Limited.

Yahaya, Y.; Salisu, B.M. & Umar, B. (2015). Electricity supply and manufacturing output in Nigeria: Autoregressive Distributed Lag (ARDL) Bound Testing Approach. *Journal of Economics and Sustainable Development*, 6(17), pp. 7-19.