Nexus between Defence Expenditure and Economic Performance in Nigeria

Adewale E. Adegoriola
Department of Economics, Federal University Lafia, Lafia, Nigeria

Abstract
This paper investigates the nexus between defence expenditure and economic performance in Nigeria using data from 1981 - 2018. The methodology used for this study is Vector Autoregressive (VAR) Model. The variables used for the analysis include; gross domestic product, poverty rate and unemployment rate used as measurement of economic performance; other variables are defence expenditure, internal security expenditure and gross capital formation. The data was tested for stationarity test and the results were missed series that is I(0) and I(1). This was followed by Johansen's co-integration test. The result showed the existence of long-run relationship among the variables. The VAR results showed that Defence Expenditure has not contributed significantly to economic growth, poverty and unemployment while internal security expenditure contributed to economic growth, poverty reduction and unemployment. The study recommends that the government should address the insecurity by ensuring that allocated funds to defence and internal security are judiciously expended in order to achieve peace in Nigeria and this will be able to promote economic growth, poverty reduction and unemployment. Well utilized funds for internal security will foster peace and security in the country and help in the attainment of the goal 8 of the Sustainable Development Goals (SDG's) as well as setting the foundation for inclusive economic growth and development.

Keywords: *Defence Expenditure, Economic Performance, Sustainable Development*

JEL Classifications: *H56, F63, Q01*

Introduction

Defence expenditure has played and continuing to play important role in every economy. The defence expenditure is an extremely important part of any country. It is an indication how a nation is feels exposed to the external aggression. All over the world, there has been increase in the defense expenditure since after the World War II. In the last decades, defence spending has continued to increase

following the military incursion into politics and various security challenges Nigeria has experienced. Other critical sector of the economy like health, education, transportation, manufacturing, agricultural among other sectors of Nigerian economy has not been enjoying increase in allocation. The need for peace and stability in Nigeria and to put the economy into the part of prosperity where all other sectors can growth necessitate the need for continue increase in defence expenditure.

The Nigerian military have been drafted and involved in intense crime control and maintenance of peace and security for a long time in Nigeria. All these have led to sharp increase in defence expenditure. The Nigerian security agencies have been overstretched with insecurity across the country. These insecurity include; Boko Haram attacks in the North East region, Herdsmen attacks on farmers and their farm lands in the Middle belt and the Southern part of country, increasing activities of bandits in North west and North central regions, increasing kidnapping across the country and among others security challenges in Nigeria has led to increase in defense spending to reduce and put an end to the security challenges. Nigeria is a regional military power who engages in peace support operations not only in Africa but the whole world. Nigeria and United Nations are always being looked upon to maintain peace in West Africa region. Nigeria has been playing this role effectively and huge human and financial resources have been committed.

Defence expenditure is important in public budgets of all countries because defence sector is a major user of scarce resources. Although, there have been agitations for reduction in defence spending in recent years, most developed and developing countries in the last decade have high defense expenditures, implying the sacrifice of capital expenditures on the provision of infrastructural amenities to the country. In the views of Akpan (2005), developing economies are faced with increase size of government operations. This is particularly true of defence sector. Certainly, the past three decades have witnessed an alarming increase in defence expenditures in Nigerian. This situation has reduced the developmental needs of other sectors. Budgeting for defence in terms of the desire to adequately equip the defence sector and ensure a sustainable economic performance in Nigeria is of paramount interest to the government. Through defence expenditure, government protects the economy against external aggression and enhances the stability required for economic growth and development. Besides, defence expenditure adds to societal welfare.

Statistically, defence expenditure in Nigeria which was N3.206 million in 1980 increased rapidly to N3.939 million and 12.169 million in 1990 and 1994 respectively. In 1998, the expenditure on defense was about N23.08 million and rose to N111,868 in 2005. The structure of defence expenditure which comprises of recurrent and capital expenditures has been sustained. For example, defence recurrent expenditure was N88,053 million while capital expenditure was N22,093 million in 2002. In 2006, both defence recurrent and capital expenditures fell to N83,674.00 million and N14,636.0 but rose to N102,597.27 million and N144,17.24 million for 2007 respectively. In year 2000, defence expenditure rose to N43.40 billion and in average of ten years, the defense expenditure has increase to N198.71 billion. In 2018, Nigerian government expended N442.15 billion on defence (Central Bank of Nigeria [CBN], 2018). Although defence expenditure has been fluctuating there has been a rapid upward swing. And according to Na Huo (2009), increase defence expenditure would cause 'developmental failure' and have a negative effect on economic growth.

The cost of external and internal defence has increased considerably over last two decade in Nigeria, it result has had adverse effects on economic performance. There is availability of different resources that can be utilized for many developmental needs. Opportunity cost is conceptualized as the forgone alternative use of resources. The money used for military equipment cannot be used for building hospitals, schools and construction of roads and dams or for providing civilian goods. These foregone projects are regarded as the opportunity cost to the level an economy foregoes the opportunity give the available resources for useful alternatives. This position gained much recognition when (Pugh, 2005) argued that defence expenditure displaces other components of aggregate demand (consumption, investment and exports) especially in a situation of supply constrained economy or increase output if the economy is demand constrained.

Defence spending is an unproductive type of government spending, more so, it crowds out investment and civilian consumption. However, it cannot be denied that defence spending play a key role in the improvement of security of a nation and provision of a conducive environment where a nation's economy can growth and move to state of prosperity. This was the reason why Odusola (1996), submitted that military spending enhances economic growth through spin-offs. The acquisition of technical skills resulting from military expenditure can be

transferred to the society and which could increase GDP (Benoit, 1973, 1978). All these depict the conflicting views of the impact of defence expenditure which constitute a major reason for the inability of previous studies to arrive at a consensus on the impact of defense expenditure on economic performance.

In spite of the increase government expenditure on defence over the years, it is expected to translate Nigerian economy to an atmosphere where output, productivity, employment will increase with a reduction in poverty rate. This has not been the situation with the Nigerian economy. The question therefore is: Does defence expenditure has significant impact on economic growth, unemployment and poverty rate in Nigeria?

Empirical Review

In developed and developing countries, defence spending is a major claim on public resources. There are different opinions, theories and evidences regarding the consequences of defence expenditures. Smith (1776) in his popular work "An inquiry into the wealth of nations" opined that defence expenditures should be the first duty of any government as it seeks to protect and preserve its citizens from internal and external aggressors. He further maintained that defence sector expenditure is a remarkable one, such that it does not necessarily require considered opinion by the majority of the citizens as to what level of defense expenditure is needed in a particular situation. However, he was quick to conclude that defense expenditure does not yield any productive resources.

In the same vein, the study on link between military expenditure and economic growth conducted empirically from 1990 to 2015 in 35 African countries by Saba and Ngepah (2019). The study used bivariate heterogeneous panel causality, GMM and SGMM as techniques to estimate the data. The country-by-country results showed there is no causal link between military expenditure and growth in seven countries but there exist unidirectional causality from military expenditure to growth in two countries. In fourteen countries, there exists unidirectional relationship from growth to military expenditure and twelve countries have bidirectional relationship. The independent pursue of defense policy objectives from growth policy objectives can be implemented by the seven African countries with no causality. There need for vigorous implementation of defence policy objective by countries that have unidirectional causality from military expenditure to economic growth. Also, military expenditure should be implemented based on the level of growth of the economy for the countries where unidirectional

causality runs from economic growth to military expenditure because the defence sector success depend largely on the growth of the economy.

Kollias and Paleologou (2019) studied the nexus between military expenditures and two key macroeconomic variables which include growth rates and investment spending from 1971–2014 in 65 countries. The methodology for the analysis was panel vector autoregression (PVAR). The results showed no uniformity between three income groups which was unearthed by the empirical tests conducted. The study of Akume, Jelilov and Akanegbu (2019) on impact of military spending on the economic well-being (measured by GDP per capita) of Nigerians from 1988 to 2017 where they used Autoregressive Distributed Lag (ARDL) bounds testing approach for co-integration. The findings indicated that military spending has positive impact with economic well-being in Nigeria though the impact is immediate on the wellbeing citizens but the spending is significant after the current year. It is recommended that spending on defence should be well planned and strategic in order to improve the well-being of the citizens over a long period of time.

The asymmetric causality tests conducted by Hatemi, Chang, Chen, Lin and Gupta (2018) for six defense spending countries namely China, Japan, France, Russia, Saudi Arabia, and the United States showed that there is military expenditure growth led hypothesis in Japan and China while there is growth military expenditure-led hypothesis holds for the United States, Russia, France and Saudi Arabia. In another study conducted for six South Asian Association of Regional Cooperation (SAARC) countries of India, Nepal, Pakistan, Afghanistan, Bangladesh and Sri Lanka on defence spending by Mahapatra, Sinha, Chaudhury, Dutta and Sengupta (2018), the finding showed there is defence spending positive and significantly impacted on economic growth in the six countries.

Similarly, Oladipo, Olaniran and Akintunde (2018) examined the relationship between oil revenues, defence expenditure and macroeconomic stability relationships in Nigeria. The methodology used for the study is Autoregressive Distributed Lag (ARDL) and error correction model (ECM). From the result, there is a negative relationship between GDP per capita, macroeconomic indicators like unemployment and inflation; and military spending.

Also, Augier, McNab, Guo and Karber (2017) adopted the Feder-Ram and augmented Solow theories to examine China's defense and growth relationship. The findings showed that economic growth in China is poorly explained by Feder-Ram model. On the order hand, augmented Solow model indicated a 1% defense expenditure increase also increase the economic growth rate by approximately 0.15–0.19%. The study by Zhang, Liu, Xu and Wang (2017) conducted for BRICS countries (India, China, South Africa Brazil and Russia) and G7 countries namely (France, Italy, Canada, US, Japan, Germany and the United Kingdom) on whether military spending promotes social welfare in the BRICS countries. The result found that military spending enhances social welfare expenditures in developed countries, while the effect is not cleared in emerging economies. The comparative study for both G7 and BRICS indicated that the impact of the military spending on the growth of social welfare expenditures in the BRICS is negative and shorter while in G7 it is positive and longer.

Anwar (2017) studied the relationship development expenditures and economic growth, debt servicing and defence spending from 1988 to 2011 in Pakistan. The methodology used is the Toda Yamamoto-Modified Standard Granger Causality technique. From the result, there is one-way causality between economic growth-defence spending and debt servicing-economic growth while there is two-way causality development expenditure-economic growth and between current expenditure-economic growth. The study recommended that Pakistan should improve its domestic defence industry so that it can be self sufficient in order to reduce expenditure on defence equipment. The improvement in the local defence industry will create more job opportunities for the citizens and improve the economy.

Owuru and Farayibi (2016) in their study in Nigeria examined the fiscal policy-poverty reduction nexus from 1980-2011. The Autoregressive Distributed Lag and Error Correction Mechanism were used as methodology. The fiscal variables used are poverty rate as the dependent variable while government budget deficit, government recurrent expenditure and government capital expenditure as independent variables. They found that poverty rate in Nigeria is not being reduced by increase in government capital expenditures during the period of the study. The short-run result that the disequilibrium in the short-run can be brought back to equilibrium in the long-run. There is no improvement in the poverty rate in the Nigerian economy through the fiscal policy tools. They therefore recommended that Nigerian government should utilize effective fiscal policy instrument that can reduce poverty rate in Nigeria.

In another study conducted in the United States investigating the impact of military spending on economic growth from 1970 to 2011 by Khalid and Razaq (2015). They used Autoregressive Distributed Lag (ARDL) as methodology. It was found that military spending has negative impact on economic growth in both the long run and short run. The role of the military expenditure in US economy should be a non-productive role. The state can still benefit from the reallocation of military spending to the economy which will increase productive capacity of the economy. The study recommended that the US a reduction in military spending because the economy is negatively being affected by the increase in military spending. This is spending can led to downturn in the economy of the US.

Anfofum, Andow and Mohammed (2014) explored the link between military spending and external debt in Nigeria from 1986 to 2011. The study used vector autoregressive, variance decomposition and impulse response and granger causality techniques for the analysis. The results showed that there is long run relationship between military spending and external debt. Also, there is one-way causal between military spending and external debt. The first period to the fifth period response of the external debt due to random shock in military spending was positive and after the fifth period the response became negative. There is positive short run in the impulse response while negative in the long run horizon. The variance decomposition test revealed a increase in external debt to itself. This means that a further improvement in the military spending that does not also improve the economy will lead to increase in external debt burden in Nigeria.

An empirical study on the effect of military expenditure on output in Nigeria both in the short-run and in the long-run by Apanisile and Okunlola (2014) using ARDL bounds testing approach for co-integration showed that the military spending has negative effect on output in the short-run and effect is not significant but has positive effect in the long-run and the effect is significant. Capital and labour have positive relationship with output in both the long-run and short-run. The effects are also significant. The labour has the higher coefficient in the long-run more than caiptal. The study suggested that the government should reduce its expenditure on defense and in order to concentrate on the improvement in the human-capital development, since in the short-run, military spending does not impact on the level of output.

A study by Olofin (2012) examined nexus between defence spending and the reduction of poverty in Nigeria for the period 1990-2010. The study used Dynamic Ordinary Least Square (DOLS) method for four models. It was found that expenditure by military of soldier, military participation rate, output per capita square and trade have positive relationship with poverty reduction. The relationship was significant statistically but for output per capita square and trade. There is no significant relationship between population and poverty level in the fourth model. The secondary school enrolment, output per capita and military expenditure were negatively related to poverty level. It is the military expenditure that was significant statistically in model one and three while output per capita in model three significant and others variables were found to be insignificant. The study therefore showed the trade-off between capital intensiveness of the military in Nigeria and well-being of the citizens.

Shahbaz, Shabbir and Sabihuddin (2011) examined the effect of military spending on external debt from 1973 to 2009 in Pakistan. The method of data analysis was ARDL bounds testing approach for co-integration. The results showed that there exist a long-run relationship between investment, economic growth, external debt and military spending. It found also that an increase in military spending leads to external debt increase. There is also an inverse relationship between economic growth and external debt. Increase investment also increasing external debt in the country. It is recommended that the military spending should be reduced in order to reduce the external debt increase and it negative effects on the Pakistan economy.

Methodology and Theoretical Framework

Choosing a methodology for research depends on a number of factors ranging from the research questions, objectives as well as theoretical and recent empirical studies already conducted in an area. Therefore, the theoretical framework for this study is rooted in the work of Mankiw, Romer and Weil (1992), which state that aggregate output Y, at time *t*, is produced using defense expenditure (capital), H, other capital, K, and labour, L such that;

$$Y_t = f(H_t, K_t, L_t) \quad (1)$$

where Y is aggregate output at time *t*. The model is modified as follows:

$$Y_t = f(DEX_t, ISE_t, GCE_t) \quad (2)$$

Using macroeconomic models that permit the simulation of influence of macroeconomic variables on the performance of Nigerian economy, the models consist of three behavioural equations and three explanatory variables. The methodology to be employed for this Vector Autoregressive (VAR) Model for estimation of the time series data. We use VAR in order to investigate the impact of defence expenditure on economic performance in Nigeria. We adapt the model of Khalid and Razaq (2015) with the functional relationship to suite the purpose of this study. Thus, we specify the models as follows:

$$GDP_t = f\left(DEX_t, ISE_t, GCE_t\right) \quad (3)$$

$$POV_t = f\left(DEX_t, ISE_t, GCE_t\right) \quad (4)$$

$$UMP_t = f\left(DEX_t, ISE_t, GCE_t\right) \quad (5)$$

In order to capture the responsiveness of the dependent variables (GDP, POV and UEMP) to the explanatory variables (DEX_t, ISE_t, GCF_t), we express equations (3), (4) and (5) for the estimation of the parameters as follows:

$$GDP_t = \beta_0 + \sum_{j-1}^{m} \beta_{1j}\, DEX_{t-j} + \sum_{j-1}^{m} \beta_{2j}\, ISE_{t-j} + \sum_{j-1}^{m} \beta_{3j}\, GCF_{t-j} + \mu_{1t} \quad (6)$$

$$POV_t = \alpha_0 + \sum_{j-1}^{m} \alpha_{1j}\, DEX_{t-j} + \sum_{j-1}^{m} \alpha_{2j}\, ISE_{t-j} + \sum_{j-1}^{m} \alpha_{3j}\, GCF_{t-j} + \mu_{2t} \quad (7)$$

$$UMP_t = \lambda_0 + \sum_{j-1}^{m} \lambda_{1j}\, DEX_{t-j} + \sum_{j-1}^{m} \lambda_{2j}\, ISE_{t-j} + \sum_{j-1}^{m} \lambda_{3j}\, GCF_{t-j} + \mu_{3t} \quad (8)$$

Where: GDP is the Gross Domestic Product while POV stands for Poverty Rate and UMP Unemployment Rate. Gross Domestic Product, Poverty Rate and Unemployment Rate used in this study are measurement of economic performance. Other variables in the model are Defense Expenditure which is denoted DEX, while ISE and GCF are Internal Security Expenditure and Gross Capital Formation respectively. $\beta_0 - \beta_3$, $\alpha_0 - \alpha_3$and $\lambda_0 - \lambda_3$ are all parameter estimates while μ_t is error term.

Discussion of Findings

Result of Unit Root Test

To checking for the stationarity of the data, Augmented Dickey-Fuller (ADF) test was used if the variables considered are stationary or not as well as their order of integration. Table 1 below reports the result of the unit root test.

Table 1: Unit Root Stationarity Result

Time Series	ADF Statistics	Probability Value	Stationary Status
DEX	-6.2043	0.0001	I(1)
GCF	-3.5931	0.0038	I(0)
GDP	-3.8428	0.0034	I(1)
ISE	-11.4838	0.0000	I(1)
POV	-3.5402	0.0087	I(0)
UMP	-3.8428	0.0069	I(0)

The critical values for rejection of hypothesis of unit root were from MacKinnon (1990)
Source: Author's Computation, 2020.

The six variables (GDP, POV, UMP, DEX, ISE and GCF) underwent unit root test using the Augmented Dickey-Fuller (ADF) test. Only three variables (POV, UMP and GCF) were found to be stationary at levels I(0) while other three variables (DEX, ISE and GDP) were found to be stationary after first difference.

Co-Integration Test Result

The co-integration test is to test the long-run relationship among the variables under considered. Johansen co-integration test was employed to the co-integration among the variables.

Table 2: Johansen's Co-integration Result

Series: GDP ISE POV UMP GCF DEX

No. of CE(S)	Eigenvalue	Trace Statistic	Critical Value @ 0.05	Probability
None *	0.849692	170.2283	107.3466	0.0000
At most 1 *	0.669957	103.9008	79.34145	0.0002
At most 2 *	0.565454	65.10220	55.24578	0.0053
At most 3 *	0.462902	35.93136	35.01090	0.0397
At most 4	0.249516	14.17624	18.39771	0.1764
At most 5 *	0.111302	4.129937	3.841466	0.0421

Source: *Author's Computation, 2020*

As presented above, the result of trace test and maximum – eigen test both show existence of five co-integrating relationship in the system of equation which is a pointer to the fact that, there exist a long-run relationship among the variables

under consideration. The long run relationship exists at 5% level of significance according to the Trace test statistics and the Eigen value. Therefore, there is long run relationship among the variables. Having satisfied the above two conditions, we opt for estimating the model formulation using VAR Model.

Estimated Vector Autoregressive Model

The variance decomposition indicates the amount of information each variable contributes to the other variables in the autoregression. It determines how much of the forecast error variance of each of the variables can be explained by exogenous shocks to the other variables.

Table 3: Vector Autoregressive (VAR)

	LOG(GDP)	LOG(POV)	LOG(UMP)	LOG(ISE)	LOG(GCF)	LOG(DEX)
LOG(GDP(-1))	0.981369	0.003263	-0.524139	3.737197	3.428138	-1.160072
	(0.29859)	(0.51363)	(0.81034)	(3.03628)	(1.59689)	(1.51488)
	[3.28663]	[0.00635]	[-0.64682]	[1.23085]	[2.14676]	[-0.76579]
LOG(GDP(-2))	0.029179	1.108174	0.864744	-4.500916	-2.396285	4.664679
	(0.43682)	(0.75141)	(1.18547)	(4.44186)	(2.33614)	(2.21616)
	[0.06680]	[1.47479]	[0.72945]	[-1.01329]	[-1.02575]	[2.10484]
LOG(POV(-1))	-0.121656	-0.148333	-0.125992	-1.000688	0.534795	-4.817336
	(0.14984)	(0.25776)	(0.40665)	(1.52370)	(0.80137)	(0.76022)
	[-0.81188]	[-0.57547]	[-0.30983]	[-0.65675]	[0.66735]	[-6.33680]
LOG(POV(-2))	-0.017134	0.429301	-0.418898	0.929326	-0.198669	-3.502278
	(0.19253)	(0.33118)	(0.52249)	(1.95772)	(1.02963)	(0.97676)
	[-0.08900]	[1.29628]	[-0.80174]	[0.47470]	[-0.19295]	[-3.58562]
LOG(UMP(-1))	-0.081409	-0.020226	0.915502	0.340023	-0.651835	1.807045
	(0.10203)	(0.17551)	(0.27689)	(1.03748)	(0.54565)	(0.51763)
	[-0.79791]	[-0.11524]	[3.30640]	[0.32774]	[-1.19461]	[3.49102]
LOG(UMP(-2))	0.099397	0.217913	-0.289487	-0.684578	2.225421	-1.683703
	(0.13241)	(0.22777)	(0.35934)	(1.34641)	(0.70813)	(0.67176)
	[0.75068]	[0.95674]	[-0.80561]	[-0.50845]	[3.14269]	[-2.50641]
LOG(ISE(-1))	0.005818	0.026023	-0.029959	-0.100096	0.202674	-0.519476
	(0.03351)	(0.05765)	(0.09095)	(0.34077)	(0.17922)	(0.17002)
	[0.17362]	[0.45142]	[-0.32941]	[-0.29374]	[1.13085]	[-3.05542]
LOG(ISE(-2))	0.020416	-0.051570	-0.167163	0.164461	0.061017	-0.234258
	(0.03110)	(0.05349)	(0.08440)	(0.31622)	(0.16631)	(0.15777)
	[0.65652]	[-0.96402]	[-1.98070]	[0.52008]	[0.36688]	[-1.48478]
LOG(GCF(-1))	0.009931	0.034502	0.049281	0.013255	0.383870	0.244848
	(0.06106)	(0.10503)	(0.16569)	(0.62085)	(0.32653)	(0.30976)
	[0.16266]	[0.32851]	[0.29742]	[0.02135]	[1.17562]	[0.79045]
LOG(GCF(-2))	-0.057245	0.013740	-0.204085	-0.377288	-0.629447	-0.264310
	(0.06325)	(0.10879)	(0.17164)	(0.64312)	(0.33824)	(0.32087)
	[-0.90511]	[0.12630]	[-1.18903]	[-0.58665]	[-1.86094]	[-0.82373]
LOG(DEX(-1))	-0.011212	-0.063177	-0.091816	0.580617	-0.251259	0.489334
	(0.03738)	(0.06430)	(0.10145)	(0.38012)	(0.19992)	(0.18965)
	[-0.29992]	[-0.98247]	[-0.90504]	[1.52744]	[-1.25679]	[2.58014]
LOG(DEX(-2))	-0.016937	-0.006353	0.089123	-0.042066	-0.190801	-0.010295
	(0.03228)	(0.05553)	(0.08761)	(0.32825)	(0.17264)	(0.16377)
	[-0.52469]	[-0.11441]	[1.01732]	[-0.12815]	[-1.10520]	[-0.06286]
C	1.762517	-6.336511	-19.12764	28.61175	-31.00782	-73.22326
	(4.13895)	(7.11970)	(11.2324)	(42.0871)	(22.1352)	(20.9984)
	[0.42584]	[-0.89000]	[-1.70289]	[0.67982]	[-1.40084]	[-3.48709]

Standard errors in ( ) & t-statistics in [ ]

Source: *Author's Computation, 2020*

From the estimated VAR model, an increase in the first lag of gross domestic product, internal security expenditure and gross capital formation in the previous period will lead to increase in gross domestic product while an increase in the first

lag of poverty rate, unemployment rate and defence expenditure in the previous period will lead to decrease in gross domestic product at current period. An increase in second lag of the gross domestic product, unemployment rate and internal security expenditure will lead to increase in gross domestic product at current period while an increase in gross capital formation and defence expenditure in the second lag period will lead to decrease in gross domestic product at current period.

From the second model, an increase in the first lag of gross domestic product, internal security expenditure and gross capital formation in the previous period will lead to increase in poverty rate while an increase in the first lag of poverty rate, unemployment rate and defence expenditure in the previous period will lead to decrease in poverty rate in the current period. An increase in the second lag of the gross domestic product, poverty rate, unemployment rate and gross capital formation will lead to increase in poverty rate at current period while an increase in internal security and defence expenditure in the second lag period will lead to decrease in poverty rate at current period.

Result from the third model showed that an increase in the first lag of gross domestic product, internal security expenditure and gross capital formation in the previous period will lead to increase in unemployment rate while an increase in the first lag of poverty rate, unemployment rate and defence expenditure in the previous period will lead to decrease in unemployment rate in the current period. An increase in the second lag of the gross domestic product, internal security and gross capital formation will lead to increase in unemployment rate at current period while an increase in poverty rate, unemployment rate and defence expenditure in the second lag period will lead to decrease in unemployment rate at current period.

VAR Forecast Error Variance Decomposition

Table 4: Forecast Error Variance Decomposition

Variance Decomposition of LOG(GDP):							
Period	S.E.	LOG(GDP)	LOG(POV)	LOG(UMP)	LOG(ISE)	LOG(GCF)	LOG(DEX)
1	0.034474	100.0000	0.000000	0.000000	0.000000	0.000000	0.000000
2	0.049403	97.06013	1.358811	1.409721	0.009630	0.156984	0.004718
3	0.068392	94.59410	1.005919	1.231753	1.611352	1.548499	0.008380
4	0.075829	90.52970	0.965567	1.240553	5.616120	1.576438	0.071624
5	0.082900	78.39450	5.749107	2.569877	11.67385	1.518079	0.094582
6	0.090265	73.04021	9.160028	2.476134	12.47243	2.745830	0.105368
7	0.103222	60.34253	17.37329	4.646095	12.66303	4.893172	0.081890
8	0.116971	48.18243	17.42459	13.31251	14.45681	6.535673	0.087982
9	0.123253	43.64334	18.95073	15.67060	13.98482	7.614342	0.136163
10	0.127720	40.78199	21.20713	14.78824	13.29990	9.774710	0.148016
LOG(POV):	S.E.	LOG(GDP)	LOG(POV)	LOG(UMP)	LOG(ISE)	LOG(GCF)	LOG(DEX)
1	0.059301	1.570128	98.42987	0.000000	0.000000	0.000000	0.000000
2	0.061316	2.193464	95.51763	0.661380	0.010611	1.519655	0.097261
3	0.084565	21.38514	75.84930	0.957436	0.919550	0.832503	0.056073
4	0.101608	17.00489	52.54482	12.54659	5.829975	12.02426	0.049465
5	0.106291	22.57216	48.28761	12.04113	5.931500	11.09702	0.070571
6	0.119362	18.42391	38.37592	16.60617	17.54932	8.988205	0.056471
7	0.158873	15.67692	32.87948	29.14322	17.05143	5.200052	0.048892
8	0.183059	11.81691	28.89740	30.32519	21.79145	7.124256	0.044797
9	0.221278	10.26865	26.80449	29.61587	25.99131	7.272202	0.047477
10	0.258499	8.396431	24.54927	29.27963	28.51401	9.207877	0.052782
LOG(UMP):							
Period	S.E.	LOG(GDP)	LOG(POV)	LOG(UMP)	LOG(ISE)	LOG(GCF)	LOG(DEX)
1	0.093557	1.779394	7.092432	91.12817	0.000000	0.000000	0.000000
2	0.140376	10.87561	7.972034	78.28215	2.234056	0.596956	0.039194
3	0.153579	9.373590	6.660473	67.46346	13.05864	3.399005	0.044840
4	0.203565	8.047087	7.589525	57.57871	20.94329	5.769827	0.071559
5	0.246426	8.933798	5.686446	47.29574	32.42678	5.608034	0.049200
6	0.288597	8.002490	5.902968	34.89158	45.89376	5.271649	0.037551
7	0.331785	6.134117	7.051859	26.61868	55.23063	4.914288	0.050422
8	0.376686	5.074519	9.740220	23.52931	57.25692	4.339933	0.059096
9	0.418376	4.166541	11.25662	27.65457	52.90824	3.957901	0.056120
10	0.460652	3.756567	13.13280	28.91534	50.56735	3.570897	0.057047

Source: Author's Computation, 2020

From the result variation in GDP is explained only by GDP itself. In the second period GDP contributed 97.06 percent to variations in GDP while POV and UMP contributed 1.25 and 1.40 percent respectively. The contribution of GDP to its variation continues to decline from period 1 to 10. At the end of period 10, GDP

account for 40.78 percent variations in GDP, POV account for 21.20 percent, UMP account for 14.78 percent, ISE account for 13.29 percent, GCF account for 9.77 and the least DEX account for only 0.14 percent. For variations in POV, in period 1 POV contributed 98.42 to variation in itself while GDP account for 1.57 percent variations in POV. By the end of period 1 to 10, UMP contributed the most to variations in UMP which is 29.27 percent, followed by ISE which amount to 28.51 percent variations in POV, then POV itself which amount to 24.54 variations in POV, nest is GCF which contributed 9.20 variations in POV, GDP account for 8.39 percent variation in POV the last is DEX which account for just 0.05 percent variations in DEX. The variations in UMP is decomposed as follows, in period one UMP contributed 91.12 percent to variations in itself, followed by POV which account for 7.09 percent variations in POV and GDP which account for 1.77 variations in POV. By the end of period 10, ISE account for the most variations in POV with 50.56 percent the least variable that contributed to variations in POV is DEX which account for only 0.05 percent variations in POV. UMP, POV, GDP and GCF contributed 28.91, 13.13, 3.75 and 3.57 percent to variations in POV respectively.

Impulse Response Function

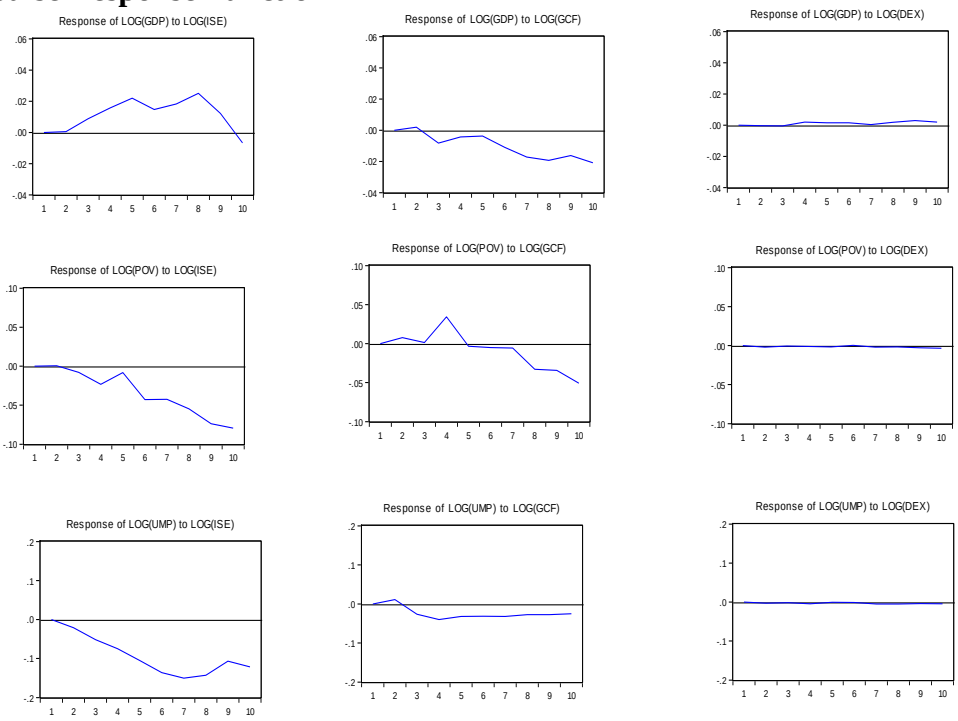

Figure 1: Impulse Response Function
Source: *Author's Computation, 2020*

From figure 1, GDP respond positively to changes in ISE in period 1 to 9 but become negative in period 10. GDP respond negatively to changes in GCF in period 1 to 10. GDP respond to changes in DEX fluctuate around 0 from period 1 to 10.POV respond negatively to changes in POV in period 1 to 10. POV respond positively to changes in GCF in period 1 to 5 negatively in period 6 to 10. POV respond to changes in DEX fluctuate around 0 from period 1 to 10. UMP responds negatively to changes in ISE in period 1 to 10. UMP respond positively to changes in GCF in period 1 and 2 and negatively from period 3-10. UMP respond to changes in DEX fluctuate around 0 from period 1 to 10.

Post Estimation

The VAR model was test for stability in to make valid the variance decomposition and impulse response function and results. The AR Root method was used to check for the stability. To declare a model stable, all roots must lie within the

polynomial bound and the roots must be less than one. This indicates that a value is less than unity for the roots. It also indicates that the values of the modulus are also less than unity and lie within the unit circle for the inverse roots of the AR characteristic polynomials. The model is good, stable and can be used for forecasting and policy decision since the laying of all the roots are within the polynomial.

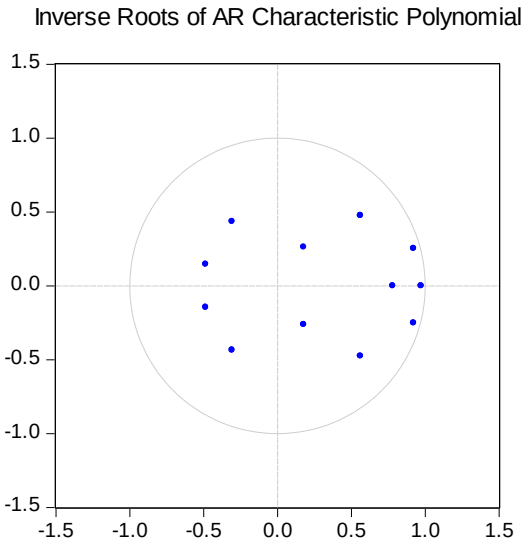

Figure 2: AR Stability Test
Source: *Author's Computation, 2020*

Conclusion and Recommendations

From the findings, it evident that Nigeria defense spending has continued to increase without a significant contribution to economic performance over the years. Presently, insecurity issues especially that of Boko Haram attacks in the North East region, Herdsmen attacks on farmers and their farm lands in the Middle belt and the Southern part of country, increasing activities of bandits in North west and North central regions, increasing kidnapping across the country and many other security challenges in Nigeria have affected economic performance in Nigeria. In spite of the continuous increase in defense spending, the empirical results have shown insignificant impact on economic growth, poverty and unemployment. On the contrary, internal security expenditure have contributed to key variables especially poverty reduction and unemployment as

indicated by the impulse response function and variance decomposition indicating that internal security spending have been able to encourage business activities and reducing unemployment and poverty level.

It is therefore recommended that the government should address the issue of insecurity by ensuring that allocated funds to defence and internal security are judiciously expended in order to put an end to the insecurity in Nigeria and this will be able to promote economic performance. The funds allocated to defense and internal security should be carefully monitored to ensure transparency and effective utilization to bring stability and will be to increase output across sectors increase employment and reduce poverty rate in Nigeria. The increase in defence expenditure will assist the government in achieving the goal 8 of the sustainable development goals (SDGs) which is targeting at the promotion sustain inclusive and sustainable economic growth, full and productive employment and decent work for all.

References

Akpan, N. I. (2005). Government expenditure and economic growth in Nigeria: A disaggregated approach. *Economic and Financial Review*, *43*(1), 51-69.

Akume, M. A., Jelilov, G., & Akanegbu, B. (2019). The impact of military spending on economic wellbeing in Nigeria. *International Journal of Business, Economics and Management, 6*(4), 186-200.

Anwar, S. (2017). What explains our slow economic growth? Causality analysis between economic growth and defense spending in Pakistan. *Journal of Economics Studies and Research*, 1-21. DOI: 10.5171/2017.280356

Anfofum, A. A., Andow, H. A., & Mohammed, A. N. (2014). Military spending and external debt burden in Nigeria. *International Journal of Education and Research, 2*(7), 611-626.

Apanisile, O. T. & Okunlola, O. C. (2014). Does military expenditure influence economic growth in Nigeria during 1989-2013? A bound testing approach. *Romanian Journal of Fiscal Policy, 5*(2&9), 56-71.

Augier, M., McNab, R., Guo, J., & Karber, P. (2017). Defense spending and economic growth: Evidence from China, 1952–2012. *Defense and Peace Economics, 28*(1), 65-90.

Benoit, E. (1973). Defence and economic growth in developing countries, Lexington, MA: Lexington Books, D.C. Health and Company.

Benoit, E. (1978). Growth and defence in developing countries. *Economic development and cultural change*, *26*(2), 271-280.

Central Bank of Nigeria (2018). *Statistical Bulletin.* Retrieved from: https://www.cbn.gov.ng/documents/statbulletin.asp

Hatemi-J, A., Chang, T., Chen, W. Y., Lin, F. L. & Gupta, R. (2018). Asymmetric causality between military expenditures and economic growth in top six defense spenders. *Quality & Quantity: International Journal of Methodology*, 52(3), 1193-1207

Khalid, M. A. & Razaq, M. A. (2015). The impact of military spending on economic growth: Evidence from the US economy. *Research Journal of Finance and Accounting, 6*(7), 183-190.

Kollias, C., & Paleologou, S. M. (2019). Military spending, economic growth and investment: a disaggregated analysis by income group. *Empirical Economics*, *56*(1), 935-958.

Mahapatra, S. S., Sinha, M., Chaudhury, A. R., Dutta, A., & Sengupta, P. P. (2018). Defense expenditure and economic performance in SAARC countries. In Das, R.C. Das (Ed.), Handbook of Research on Military Expenditure on Economic and Political Resources. Hershey, PA: IGI Global, 46-58.

MacKinnon, J. G. (1990). Critical values for cointegration tests. Queen's Economics Department Working Paper No. 1227.

Mankiw, G., Romer, D., & Weil, D. (1992). A contribution to the empirics of economic growth. *Quarterly Journal of Economics*, 107, 407-437.

Na Huo (2009). Arms Race, Military Expenditure and Economic Growth in India. A thesis submitted to University of Birmingham For the degree of Ph.D. Department of Economics, Business School, The University of Birmingham.

Odusola, F. A. (1996). Military expenditure and economic growth in Nigeria. Nigerian Journal of Economic and Social Studies, 38(1), 2 & 3.

Oladipo, A. D., Olaniran, O. D., & Akintunde, T. S. (2018). Oil revenues, defense expenditure and macroeconomic stability relationships in Nigeria (1980-2014). *Journal of Sustainable Development in Africa, 20*(1), 317-330.

Olofin, O. P. (2012). Defense spending and poverty reduction in Nigeria. *American Journal of Economics, 2*(6), 122-127.

Owuru, J. E., & Farayibi, A. O. (2016). Examining the fiscal policy-poverty reduction nexus in Nigeria. Munich Personal RePEc Archive. Online at https://mpra.ub.uni-muenchen.de/74184/ MPRA Paper No. 74184, posted 01 Oct 2016 15:46 UTC.

Pugh, M. (2005). The political economy of peace building: a critical theory perspective. International Journal of Peace Studies, 10(2). Autumn/Winter.

Saba, C. S., & Ngepah, N. (2019). Military expenditure and economic growth: evidence from a heterogeneous panel of African countries. *Economic Research Ekonomska Istraživanja*, *32*(1), 3586-3606.

Shahbaz, M., Shabbir, S. M. & Sabihuddin, B. M. (2011). Does military spending explode external debt in Pakistan? http://mpra.ub.uni-muenchen.de/30429/. DOI: 10.1080/10242694.2012.724878

Smith, A. (1776). An inquiry into the nature and causes of the wealth of nations, ed. Edwin A. Seligman (London: J. M. Dent, 1901), 12-15,400-401,436-437.

Zhang, Y., X. Liu, J. Xu and R. Wang, 2017. Does military spending promote social welfare? A comparative analysis of the BRICS and G7 countries. *Defense and Peace Economics, 28*(6), 686-702.