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Defence Expenditure And Economic Growth In Nigeria: A Vector-Error Correction Model (VECM) Approach

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Abstract

This paper investigates the relationship between defence expenditure and economic growth proxy by gross domestic product (GDP). In addition to these variables, a number of macroeconomic variables, which include exchange rate (EXRT),inflation rate (INF),lending rate(LR),gross capital formation (GCF) and unemployment (UN}, were included in the model. The period of Structural Adjustment Programme (SAP) was also included as dummy variable to capture the impact of policy changes. Cointegration and vector error correction mechanism were employed to model the series. Results show that all the variables have a long run relationship. There is a positive relationship between milex and economic growth in the long run, as well as in the short run. However, the variance decomposition results reveal very little contribution of the military sector to the variables employed. The paper recommends that the present level of funding of the military should be sustained.

Introduction

There has been an alarming expansion in defence expenditure in developing countries in the last three decades. This is evident in Nigeria and such a trend is capable of stifling domestic developmental needs. For example, defence expenditure accounts for one of the highest sectoral budgetary allocations in Nigeria. In the Federal Government budget, between 1986 and 1992, during Babangida's administration, allocation to defence sector ranked first. In absolute terms, the total defence expenditure during this period stood at N14,584.10m, while allocation to the education sector followed closely with N12,359.40m. The agricultural sector and transport/communication had N6, 595.70m and N6,176.20m respectively, showing that there was a keen competition between these two sectors (agriculture and transport) in terms of budgetary allocation.

In Africa, as everywhere else, military expenditure not only competes with other public spending programmes, but also affects the allocation of available public goods and broader socio-economic conditions (Egwaikhide and Ohwofasa, 2009). As a result, the long standing research interest in Third World defence spending has been primarily concerned with 'gun versus butter' issues that centre on promoting or hindering economic growth and socio-economic development. Empirical studies have tended to give conflicting results concerning defence expenditure, but most of these studies have demonstrated that, Third World defence spending has either insignificant or somewhat negative effects on growth and socio-economic performance. Even though increase in military expenditure has aroused great interest among defence economists, few studies have been devoted to the empirical underpinnings of country-specific data on the impact of military expenditure on economic growth. According to Egwaikhide and Ohwofasa (2009), the bulk of the existing studies have focused on cross-sectional research, often bedeviled with data discrepancies. This is the reason why it is difficult to say categorically whether military expenditures in Nigeria is growth enhancing or retarding.

The objective of this paper, therefore, is to empirically assess the relationship between economic growth (proxy by the GDP) and military expenditure. The paper is divided into five sections. Section two is concerned with literature review both theoretical and empirical. In section three, the model specification of the study is unveiled, while section four focuses on presentation of results, and finally in section five, the paper is concluded.

Review of Related Studies

An analysis of the impact of defence expenditures on macroeconomic performance is rooted in the theoretical understanding of the role of public sector

in economic development. Economic theory does not offer obvious predictions and postulations on the determinants of defence expenditure, because the existing theories do not provide a unique role for defence expenditures as a distinctive economic activity. Defence is generally accepted as a classical example of a pure public good which is characterized by non-rival, non-exclusive and non-appropriable consumption (Olanrewaju, 1990). Therefore, it is inevitably provided for exclusively by Government through the budget.

The existing theories, so far, have mostly been in the classical tradition concerning the scope and limits of state action. They represent, at their best, some sort of attempts at demonstrating how aggregate public expenditures and their compositions are determined if a given utility or social welfare function were to be maximized. Almost invariably, little or no attention is paid to the manner in which public expenditure decisions are, in practice, made. Recourse can hardly, therefore, be made to them as a given framework of explanation of public expenditure growth.

Adolf Wagner Theory

Several theories exist in the literature on the growth of public expenditures. The first of which was by the German Economist, Adolf Wagner (1958). Briefly interpreted, the essence of Wagner's well-known 'law of ever-increasing state activity among progressive peoples' is that governments inevitably grow larger and larger, and that the collective sector of the economy harbours an inherent tendency to increase more than proportionately with economic growth. On the possible criticisms and objections to such an "iron law", so much has been written. It is necessary to note that the dissatisfaction with Wagner's conclusions arise mainly from the uniqueness of his political and philosophical assumptions in the interpretation of history, as well, his claim of the universal validity of his hypotheses based on partial observations from unique structural and historical epochs. The correctness of his predictions is well underscored by the contemporary facts of the public finances of most countries.

Defense Spending and Displacement Hypothesis

Although the influence of income, price, and population have undoubtedly had some effect on the level and composition of defense expenditure, there are still large unexplained variations in the time patterns. A possible explanation is the displacement effect. In defining the Displacement Effect, Peacock and Wiseman (1961) first pointed out that, although public expenditures in monetary terms have clearly grown, the time pattern of this growth has been highly irregular, and for the most part, different from the corresponding growth of community output. With respect to the United Kingdom, it was observed that public expenditures took the form of a series of peaks, which increased in amplitudes as time series progressed. The highest of these peaks were to be noted during the years of the two World Wars. This phenomenon should not be too startling though, since the share of government activity in the economy as a whole can usually be expected to rise during the periods of the two major wars.

From the Peacock-Wiseman study, however, it was found that the increased role of the government in wartime was not the sole reason for the jump in public expenditures. This was illustrated by the fact that, although government expenditures did fall in the postwar years, they did not return to the pre-war level. Peacock and Wiseman (1967) based their explanation of the Displacement Effect on the observation that under periods of violent social disturbance, people will tend to revise their previous feelings toward tax levels and revenue-raising methods. After a social disturbance has subsided, however, the people have usually accepted a new set of norms concerning public finance and expenditure levels. The displacement in the Peacock-Wiseman study was always upward, but there is no reason to believe that movement in the other direction would not be possible under certain alternate conditions. The findings of Peacock and Wiseman (1967) for the United Kingdom. Clearly relate the displacement to two major phenomena, namely wars and the Great Depression. While developing countries are not immune to such social upheavals, they are also likely to experience major expenditure shifts as a result of social, political, and economic characteristics peculiar to developing nations.

Empirical Literature

Wilkins (2004), used pool data model: fixed and random effect models respectively, to examine the relationship between defense spending and economic growth with a sample of 85 countries. His study was based on using defense expenditure data on an aggregated basis with labour, capital and defense with GDP as variables. The result showed that there exists no consistent relationship across countries. While the few countries in the sample did have a negative coefficient for the most part, he maintained, that defense has a positive coefficient within the growth framework and therefore would not be considered to have a detrimental effect on growth. Yakovlev (2007) discovered that military expenditure negatively related to economic growth. Given such

heterogeneity, he argued that care was needed in the interpretation of the result. Karagol and Palaz (2004), applied Granger Causality technique to estimate the relationship between defense spending and GDP for Turkey in the years from 1955 to 2000. However, they also used impulse response functions to indicate long-run causality. The result was that defense expenditures had a negative impact on GDP in Turkey.

Hassan et. al. (2003), examined the impact of military expenditure on economic growth and foreign direct investment, covering five of seven South Asian Regional Cooperation Council (SARCC) nations using panel data over the 1980 to 1999 period. Interestingly, the result suggested positive relationship between military expenditure and economic growth, and, thus, supporting the view that military expenditure can bring positive impact on growth. Galvin (2003), used a multi-equation, multivariable approach to investigate the impact of defence spending on economic growth. Using a model similar to that of Deger (1986), three equations were postulated, one each for growth, saving and defence expenditure. With a cross-sectional data for 64 countries, he used OLS, 2SLS and 3SLS to derive overall estimates and separate estimates for middle and lower income countries. The results indicate that military spending has a negative impact on growth for the middle income countries but is insignificant for the low income countries. Klein (2004), applied a Deger type model to estimate the effects of military spending in Peru. After some unit root testing and difficulties with estimation results from the different system, adjustments were made and the three equation models were estimated with OLS, 2SLS and 3SLS. The resulting estimates revealed a negative relationship between defense spending and economic growth in Peru.

Cuaresma et al. (2004) estimated threshold regressions and showed that there was a level dependent effect of military spending on growth i.e. positive externality effect for low levels of military spending, but negative for high levels of military spending. Solomon (2005) employed distributed lag approach to investigate the demand for military spending in Canada. The resulted indicates that the most important determinant of military spending in Canada was European North Atlantic Treaty Organization (NATO) spending and that GDP was found to be insignificant with military spending.

Aizenman and Glick (2006) studied the long-run impact of military expenditure on growth. They argue that military expenditure induced by external threats should increase growth, while military expenditure induced by rent seeking and corruption should reduce growth. Yildirim and Ocal (2006), examined the issue of arms race between India and Pakistan and its relation to each country's economic growth. They found that there is a unidirectional causal relationship between military expenditure of India and Pakistan. Reitcchuler and Looney (2004), studied Guatemala, and they employed Feder-Ram model to determine linear versus non-linear function. They suggest that the linear model show insignificant effect on growth. However, conclusion changes when using non-linear model. They found that at low threshold there is positive effect on growth and beyond the threshold, it turns negative. However, defense is less productive than the civilian sector. Abu-Bader and Abu-Qarn (2003) found negative effect between military burden and economic growth in Egypt, Israel and Syria. They also found that civilian expenditure caused positive economic growth in Israel and Syria. Sezgin (2001), studied Turkey for the period between 1956 and 1994, and argued that defence spending benefited growth, thus, a positive impact. Moreover, the results for Turkey and Middle Eastern countries (1989-1999) studied by Yildirim et. al. (2005), indicated that the defence sector is more productive than the civilian sector, and defence spending enhances growth.

In a more recent study, Egwaikhide and Ohwofasa (2009) investigated the relationship between milex and economic growth. Military expenditure was disaggrgated into recurrent and capital components and were estimated against saving, investment and economic growth proxied by the GDP. The results revealed a positive relationship in all cases.

The Structure of Defence Expenditure and Economic Performance in Nigeria

Defence expenditure as a share of the total federal government expenditure, has changed considerably within the period of 1980 to 2010. In 1986 budget, only 5.69 percent of government expenditure was devoted to defence sector. This share dropped during period between 1987 and 1998. At the inception of democratic dispensation, what grew to 6.12 percent in 1999, and this upswing trend continued till 2006, before it fell to 4.40 percent, 1.00 percent and 0.90 percent in 2007, 2008 and 2009 respectively.

The relationship between GDP and defence expenditure shows that defence expenditure constituted 1.38 percent of the GDP in 1986; and it witnessed a drop to 0.70 percent in 1987 and 0.50 percent in 1989. However, it increased to 0.60 percent in 1990, 0.72 percent in 1991, fell in 1992 to

0.41 percent and rose again to 0.61 percent in 1993/94 while it dropped to 0.45 percent in 1995. In 1996, it peaked again to 0.50 percent, a level which it maintained. prior to the inception of democratic dispensation in 1999, when it reached its peak of 1.82 percent and maintained the average of 1.11 percent, 1.35 percent and 1.32 percent in 2000, 2001 and 2002 respectively. It fell again to 0.73, 0.76, 0.64, 0.49 0.52, 0.13, and 0.13 percents respectively during the years between 2003-2009. It can thus be summarized that defence expenditure, as a percentage of GDP, fluctuated during the period 1980 to 2010, but did not exceed 1.82 percent throughout the period. While the lowest level of percentage of 0.13 percent was witnessed in 2008 and 2009 respectively. It can be concluded that after its rise in 1999 to 1.82 percent, defense expenditure accounted for only one percent of the GDP in Nigeria.

Model Specification

The study adopted the model developed by Deger (1986) and used by Odusola (1996), as well as Egwaikhide and Ohwofasa (2009), in which they emphasized the structural simultaneity of all the variable relationships. The functional form of the model is as follows:

GDP = f(MILEX, EXRT, INF, SAP, LR, GCF, UN)…….. (1)

In log stochastic form, equation (1) can be rewritten as:

LogGDP = f1 + f2 LogMILEX + f3 LogEXRT + f4 LogINF + f5 LogSAP + f6 LogLR + f7 LogGCF + f8 LogUN + Vt
…… (2)

Where:

GDP	=	Gross Domestic Product
MILEX	=	Military Expenditure
EXR	=	Exchange rate of the Naira to US Dollars
INF	=	Inflation rate
SAP	=	Structural Adjustment Programme
LR	=	Lending rate
GCF	=	Gross Capital Formation
UN	=	Unemployment rate
f1	=	Intercept
– f8	=	other parameters to be estimated

Vt is error term that is supposed to satisfy the usual econometric assumption. f1 is intercept, f2 and f7 >0 while f3 – f6 and f8 <0. However, the value of exchange rate can either be positive or negative.

Data Sources

Data for the study were culled from World Bank Database, Central Bank of Nigeria (CBN) Statistical Bulletin Vol.21 (December, 2009) and CBN Annual Report and Statement of Accounts (December, 2010) which span the period 1980-2010; while Eview 4.0 was used for the analysis of the data.

Unit Root Test

The Dickey-Fuller (DF) and Augmented Dickey-Fuller (ADF) tests were employed. Adopting the simple economic relationship of random walk with drift, the DF test is based on the following equation:

$$\Delta X_t = \alpha + \beta X_{t-1} + \mu_t \quad \text{…….. (3)}$$

Under the null hypothesis of unit root, the coefficient of Xt-l will not be statistically different from zero (i.e. $\beta = 0$). If there is no unit root, the series Xt is said to be stationary in levels or integrated of order zero (denoted as I(0)). If there is a unit root, but differencing the series once makes it stationary, then it is said to be integrated of order one (denoted as I(1)) .

In addition to testing for the unit root, equation (3) is used to establish if there is a drift. The error term, ut, should be white noise. If, Xt is a first order autoregressive process (AR(l), then the single lagged value of the variable will be sufficient to ensure this condition. If the process is not AR(1), then additional difference terms will need to be added to equation (3) is used to make Ut white noise hence, the Augmented Dickey-Fuller (ADF). The ADF test is therefore based on the equation (4).

$$\Delta X_t = \alpha + \beta X_{t-1} + \sum_{j=1}^{p} \delta_{t-j} X_{t-1} + \mu_t \quad \text{……. (4)}$$

The null hypothesis of non-stationary is rejected if the t-statistic is less than the critical t-value (i.e. if estimated â is significantly negative). The results of the unit root tests are reported in Table 1.

Cointegration Test

One of the objectives in time series is to investigate the long run dynamics relationship among the variables. Engle and Granger (1987) stated that a linear combination of two or more non-stationary series may be stationary, and if such a stationary linear combination exists, then the non-stationary time series are said to be cointegrated. The stationary linear combination is called the cointegrating equation and may be interpreted as a long-run equilibrium relationship among the variables. Cointegration test was implemented by Johansen and

Juselius (1994). The method involves estimating the following unrestricted vector autoregressive (VAR) model.

$$y_t = \beta_0 + \sum_{j=1}^{p} \beta_j y_{t-1} + \varepsilon_t \quad \text{..... (5)}$$

Where yt is an n×1 vector of non-stationary I(1) variable, Bo is an n×1 vector of constants, p is the number of lags, Bj is a n× n matrix of estimable parameters, and εt is n×1 vector of independent and identically distributed error terms. We may rewrite this VAR as following:

$$y_t = \beta_0 + \sum_{j=1}^{p} \Gamma_j y_{t-1} + \Pi y_{t-1} + \varepsilon_t \quad \text{..... (6)}$$

where:

$$\Gamma_j = -\sum_{i=j+1}^{p} \beta_i \text{ and } \quad \Pi = \sum^{p} \beta_i - I$$

Δ is the difference operator, and I is an n× n identity matrix. The rank of matrix Π determines the number of cointegration vectors which is equal to the number of independent number of cointegrations. If the rank of Π equals r and r < n then there exists r cointegrating relationships in the above model.

Presentation of Results and Discussions

Unit Root Results

Table 1 below reveals ADF test results and it shows that the variables are non-stationary at level but became stationary after first difference at 5 percent confidence level. However, SAP was not log for the test.

Cointegration Results

The tables-2 present the results of the long run cointegration of both the trace and max-eigen values for all the variables employed for the study. The results show that the variables have a long run relationship. Consequently, the long run regression results and its short run vector error correction dynamics are presented below.

The results evaluated the impact of seven explanatory variables on the growth rate of the economy proxy by the gross domestic product (GDP) at least during the study period. 1980 – 2010, with very high elasticity coefficients. Other variables which include exchange rate (EXRT), inflation rate (INF), structural adjustment programme (SAP), gross capital formation (GCF) and unemployment (UN) observed negative coefficients and are at tandem with a priori expectations except GCF which is expected to be positive. Its negativity, however, reveals that the level of capital formation in Nigeria is still at a low ebb and, therefore, next to nothing in boosting the growth rate of the Nigerian economy. However, military expenditure (MILEX) and lending rate (LR) impacted positively on economic growth. All the variables are statistically significant in explaining GDP growth rate in Nigeria. The log likelihood is also relatively high to buttress the theoretical argument.

With confirmation that the residuals from the cointegration regression are stationary, the dynamic version of the long run model was specified with the residuals from the cointegration regression as error correction model (ECM). The parsimonious ECM with the optimal lag of one period is therefore depicted in table 4.4 above. In the short run, the past value of gross domestic product (GDP), EXRT , INF and UN have negative impact on GDP, while only EXRT is statistically significant in explaining growth rate in Nigeria. This means that a one percent increase in exchange rate reduces the country's growth by over 1.3 percent. On the contrary, military expenditure (MILEX), SAP, andLR are statistically significant in explaining growth in Nigeria. Though. MILEX is the most significant, its coefficient of elasticity of 0.99 is the smallest positive coefficient. For instance, a one percent increase in MILEX increases growth in Nigeria by 0.99 percent. Thus, apart from the past value of GDP and LR whose signs contradict a prori expectation, the signs of other variables are in line with economic theory. The adjusted R2 of 0.09 is relatively low as it shows only about 9 percent of GDP is explained by all the explanatory variables but, all the same, the model is well specified as the ECM coefficient indicates.

The coefficient of the error correction model i.e. ECM(-1) shows the speed at which aggregate growth rate adjusts in the long run to its main driving force. Table 4.4 shows, that the variable is well defined as it observes the usual negative signs that enable it to adjust to equilibrium position whenever the system is out of equilibrium, and more so as the ECM coefficient is significant. For instance the ECM coefficient shows that whenever the system is out of equilibrium, it is restored back with a speed of about 11 percent.

Table-1: The Unit Root Results

Variable	ADF Test Statistic	Order of Integration	Nuisance Factor	Significance level
LMILEX	-6.2455	I(1)	C	5
LEXRT	-6.7754	I(1)	C	5
LGCF	-6.5955	I(1)	C	5
LGDP	-6.6031	I(1)	C	5
LINF	-4.1792	I(1)	TC	5
LLR	-6.3205	I(1)	C	5
LUN	-4.4431	I(1)	C	5
SAP	-8.5244	(I)	C	5

Table-2: Cointegration Results

Hypothesized No of CE(S)	Trace Statistic	Max-Eigen	5 Percent Critical Value	1 Percent Critical Value
None	343.9164	118.0154	182.82	196.08
At Most 1	225.9010	78.35375	146.76	158.49
At Most 2	147.5472	60.28579	114.90	124.75
Note: Trace test indicates at least 3 cointegrating equations at both 5% and 1% levels.				

Table-3: Long-run and Short-run Regression Results

Dependent Variable: LGDP		
Variable	Coefficient	t-value
Constant	1.00	0.00
Log MILEX	16.69	15.2
Log EXR	-19.58	-14.0
Log INF	-7.51	-4.2
SAP	-19.8	-12.4
Log LR	58.9	20.3
Log GCF	-1.26	-6.3
Log UN	-2.70	-3.9
Short Run		
Constant	0.131	0.630
Log GDP (-1)	-0.173	-0.504
Log MILEX (-1)	0.99	2.034
Log EXR (-1)	-1.358	-2.394
Log INF (-1)	-1.098	-0.599
SAP (-1)	1.678	1.803
Log LR (-1)	1.154	1.568
Log GCF (-1)	0.124	0.819
Log UN (-1)	-0.227	-0.989
ECM (-1)	-0.110	-1.546
R2	0.38	
Adj R2	0.09	

A residual problem is not present as both the normality and LM tests for serial correlation reject the alternative hypotheses and conclude that there is no serial correlation. Worthy of note in the results is the coefficient of unemployment (UN) which has negatively affected the GDP over the period. This is not surprising because the high unemployment rate in Nigeria is capable of posing a deleterious effect on the country's growth rate. On the other hand, the coefficient of MILEX, like the long run, shows that military spending is beneficial to the economy in the short run. The results further reveal that excessive military expenditure in the short-run is growth enhancing. These results contradict the current debate which advocate a reduction in military expenditure and for such funds to be diverted to other essential social services such as education, health, housing etc which they opined will increase the citizen's welfares. The findings here is contrary to the works of authors such as Egwaikhide and

Ohwofasa (2009)'s findings on Nigeria, and Yakovlev's (2007).

Variance Decomposition

The variance decomposition in the table below shows that most of the variations in military expenditure is due to its own shock in the ten year horizon. Similarly, its contributions to other variables in the same period is 0.75 percent for EXRT, 2.47 percent for INF, 1.73 percent for SAP, 1.04 percent for LR, 2.99 percent for GCF and 0.56 percent for GDP. On the other hand, the shock explained by other variables in milex is 92 percent in GDP, 0.05 percent in EXRT, 0.22 percent in INF, 4.42 percent in SAP, 0.04 percent in LR, 0.11 percent in GCF and 0.45 percent in UN. Thus, the rate of variation in all the variables explained in milex is rather insignificant. Consequently, GDP is the most exogenous variable in this equation. For example while MILEX explains 0.56 percent variation in GDP, the latter explains over 92 percent variation in MILEX.

Conclusion and Recommendations

The study of military expenditure and its impact on macroeconomic variables is vital to economic development. Thus, in this study, impact of military expenditure on economic growth was examined employing, annual data of 1980 – 2010. The econometric methodology encompasses cointegration and VECM to examine the long-run and short-run relationship between economic growth and some macroeconomic variables in which MILEX is the explanatory variable of interest. The study considers analysis of short-run as important alongside long-run approach due to the understanding of relevant economic theory.

Table-4.3: Variance Decomposition

1. Variance Decomposition of DLog(GDP) Equation									
Explaining by Shocks in									
Period (Year)	S.E	LGDP	LMILEX	LEXERT	LINF	SAP	LLR	LGCF	LUN
2	3.37	91.36	0.35	0.17	1.50	6.13	0.17	0.09	0.23
4	4.25	91.04	1.14	0.12	0.05	6.17	0.13	0.18	0.17
6	5.01	92.57	0.87	0.15	0.92	4.88	0.17	0.22	0.23
8	5.68	93.60	0.68	0.14	0.78	4.19	0.14	0.25	0.21
10	6.25	94.34	0.56	0.14	0.67	3.72	0.13	0.25	0.19
2. Variance Decomposition of DLog(MILEX)									
2	2.90	90.93	2.05	0.04	0.52	5.98	0.01	0.08	0.40
4	3.79	90.30	2.61	0.03	0.41	6.19	0.01	0.09	0.35
6	4.48	91.23	2.56	0.04	0.33	5.24	0.04	012	0.42
8	5.10	91.96	2.33	0.05	0.27	4.76	0.04	0.12	0.47
10	5.64	92.48	2.20	0.05	0.22	4.42	0.04	0.11	0.48
3. Variance Decomposition of DLog(EXRT)									
2	3.10	82.33	0.24	5.11	1.58	7.65	2.15	0.21	0.71
4	3.89	81.87	1.11	6.26	1.26	6.84	1.93	0.18	0.55
6	4.61	82.69	1.01	6.87	0.98	5.59	2.18	0.19	0.49
8	5.22	83.67	0.84	7.01	0.77	4.97	2.15	0.18	0.41
10	5.75	84.24	0.75	7.17	0.63	4.54	2.16	0.17	0.35
4. Variance Decomposition of DLog(INF)									

2	0.12	5.08	1.54	5.07	83.87	0.21	3.92	0.03	0.29
4	0.18	2.96	2.18	2.79	87.10	0.44	3.98	0.17	0.38
6	0.23	2.30	2.35	2.19	88.31	0.47	3.93	0.12	0.33
8	0.26	1.92	2.42	1.90	88.98	0.51	3.87	0.10	0.31
10	0.30	1.72	2.47	1.73	89.33	0.52	3.86	0.08	0.30
5. Variance Decomposition of D(SAP)									
2	0.58	54.74	0.47	17.09	2.98	5.64	15.53	3.08	0.47
4	0.78	43.33	1.79	21.90	4.65	9.08	13.97	2.39	2.89
6	0.85	42.57	1.91	24.27	3.69	7.64	14.95	2.29	2.67
8	0.94	42.41	1.75	25.47	3.35	7.36	14.94	2.17	2.55
10	1.03	41.70	1.73	26.45	3.13	7.19	15.13	2.12	2.54
6. Variance Decomposition of DLog(LR)									
2	0.48	25.03	0.93	45.07	0.52	11.30	13.97	3.18	0.00
4	0.62	19.54	1.35	50.59	1.30	9.91	14.20	2.40	0.72
6	0.74	19.47	1.09	52.54	1.10	7.27	15.55	2.14	0.84
8	0.83	19.36	1.09	53.80	1.03	6.03	15.93	1.96	0.80
10	0.92	19.06	1.04	54.77	0.99	5.17	16.31	1.85	0.81
7. Variance Decomposition of DLog(GCF)									
2	3.59	80.64	3.73	0.08	1.08	3.46	3.61	6.90	0.50
4	4.63	79.34	3.85	0.11	0.72	4.11	4.09	7.38	0.39
6	5.45	80.21	3.30	0.09	0.62	3.22	4.11	7.97	0.47
8	6.20	80.70	3.11	0.11	0.52	2.73	4.13	8.20	0.50
10	6.84	80.99	2.99	0.11	0.45	2.39	4.20	8.38	0.49
8. Variance Decomposition of DLog(UN)									
2	0.80	15.22	18.85	6.85	0.24	7.91	4.72	3.64	42.52
4	1.05	13.48	21.67	4.78	2.00	7.36	6.79	2.62	41.31
6	1.27	13.88	22.20	3.78	2.10	7.52	7.49	2.10	40.93
8	1.44	13.77	22.91	3.31	2.37	7.46	7.67	1.88	40.64
10	1.60	13.73	23.23	2.98	2.51	7.46	7.89	1.72	40.48

This particular methodology employed marked a major contribution to knowledge in the nexus between MILEX and economic growth. It was discovered that the impact of MILEX on economic growth is significantly positive in both the short- and long-run. Although, the results of the variance decomposition reveal that MILEX contribute very little to the expansion of the other variables employed in the study, however, according to Keynes (1936), the impact of short-run on economic welfare is more important than the long-run. Keynes argued that, "in the long-run, we are all dead" and considering that MILEX impact on economic growth is positive in the short run, we shall be fair to say that the contribution of the military sector to the economy had been beneficial.

Therefore, we recommend that the federal government sustains the current expenditure to the sector, or increase it marginally in view of other sectors such as education, health and transportation which are also considered very important to the development of the economy. Similarly, there should be adequate utilization of available funds made to the military to further justify their contributions to the country development drive. Increased allocation of funds to the defense sector is premised on the vital role the military is playing at the moment in maintaining peace in "hot spots" of the northern and eastern parts of Nigeria.

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