DEFENCE SPENDING AND ECONOMIC GROWTH, 1970-2015: Empirical Evidence

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ABSTRACT

This paper investigates the relationship between defence expenditure and economic growth in Nigeria 1970-2015 proxied by gross domestic product (GDP), social sector expenditure (SSE) and gross capital formation (GCF). Defence expenditure being a major concern to any economy world has become a major tool in accessing the level of economic growth, particularly in Nigeria where defence expenditure is higher than that of education and capital expenditure. The result indicated that the coefficient of interaction between social sector expenditures (SSE) and defence expenditure in the long run is negative and significant, given the coefficient of about -0.09 with corresponding p-values of 0.0372, which is less than 5% critical value. The implication of this is that the interaction of DEXP with SSE produced significant effect on the national output, GDP. It crowded out investment in the social sector, such as education and healthcare in the long run. In this case, the price of insecurity is the dearth of infrastructure. Based on the findings, the paper recommended government should reduce expenditures on the military to discourage the crowding out of funds for local investments.

JEL Classification: E62, H56, O47

1. Introduction

DEFENCE expenditure has been a major concern to any economy in the world; this is because of the need to defend the territorial integrity of a country against any external aggression and to maintain internal security of the country. To maintain their independence and a sense of self-preservation, countries like North Korea has over the years spent huge amount of their resources building military might in the face of ravaging poverty. Though countries have begun stepping up their defence expenditures (as seen in the case of China, Japan and, lately, the United States), announcing more budgetary allocations to their respective defences, the impact or otherwise of such spending on the economy is not certain. There is a lot of conflicting research findings on the subject matter. Yildrim (2002) and Hannah Galvin (2003) reported negative contribution of defence expenditure on the economy, while Sezgin (1997) reported positive impact.

Nigeria has had its fair share of internal conflicts such as the civil war of the 1960s' ethno-religious conflicts in different parts of the country at different times in history, and Nigeria has since 1970 steadily increased defence sector budget in

absolute terms as indicated in the yearly statistical bulletin of Central Bank of Nigeria (CBN). In 1970 Federal Government in its budget allocated the sum of N135.6m, N63.3m in 1971, N108.8 in 1972 and subsequently N348.91b in 2013 N968.127b in 2014 and N934billion in 2015. There was an astronomical increase from 2013 to 2015. That is, within a period of one year, the defence budget had skyrocketed by177% almost gulping a quarter of the total national budget of about N4trn in 2014 as against 220 % increase from 1972 to 2013 a period of about 42 years. This development generated a lot of debate amongst economists, policy makers and public policy commentators that the amount was too large when compared with other critical sectors of the economy such as agriculture, education and health among others, which are said to be in bad shape. This view aligns with the view of some global bodies as expressed thus: The United Nation (UN) Committee for Development Planning states that the single and most massive obstacle to development is the worldwide expenditure on national defence activity. A joint study analysis of the research departments of the World Bank and International Monetary Fund (IMF) in 1999 also noted that, for an average country, doubling military expenditure caused reduction in growth rate for a period, and later reduced the level of income of 20%.

An alternative Keynesian approach on the other hand, saw a proactive state using military spending as one aspect of state spending to increase output through multiplier effects in the presence of ineffective aggregate demand. Military spending can then lead to increased capacity utilisation, increased profits and hence increased investment and growth (Faini, 1984) as cited in (Dunne and Mohammed, 1995). To maintain a position with respect to this ragging controversy of growth-induced or recession-induced defence expenditure, this work will contribute to knowledge by empirically investigating the crowding out effect or otherwise of defence expenditures (DEXP) on social sector expenditure (SSE) such as education and health and on domestic capitals needed for investment. This will be done by measuring the impact of the interaction between defence expenditure and social sector expenditure on the economy and the impact of the interaction between defence expenditure and domestic capital on the economy. This work wriggles into the argument of rise in defence expenditure and the controversy among researchers and by empirically investigating the impact of the interaction between defence expenditures (DEXP) and gross capital formation (GCF)and between defence expenditures and social sector expenditures (SSE) to determine the crowding out effect or otherwise. To satisfactorily carry out research in the direction of this work, the following questions are asked: What is the impact of defence expenditures on

Nigerian economic growth? Does defence expenditure crowd out gross capital formation and social sector expenditure? Is there causality between gross domestic product and defence expenditure, gross capital formation and social sector expenditure?

This research work is significant going by the fact that government expenditure in Nigeria has continue to rise due to huge receipt from sales of crude oil and the increased demand for public utilities which has not translated to meaningful growth and development. This study is not the first of its kind using the Nigeria data. However, it shall go a little further than earlier works to correctly recapture policy, practice and theories and other composition of government expenditure on defence during the years under review and to assess the causal relationship of defence expenditure effects on the economic growth. The relationship is especially important for developing country like Nigeria, most of which have experienced increasing levels of government expenditures over time. This has tended to be associated with rising fiscal deficit, suggesting their limited ability to raise sufficient revenue to finance higher level of expenditure. Rising deficit tends to retard economic growth in developing countries because of the inability of such country to check inflation during deficit years. The study covers the period of 1970 to 2015 (46 years) using evidences from Nigeria. The reason for this duration is that it covers periods of major crises in Nigeria.

2. Literature Review

Defence expenditure has been explored for more than 50years by researchers from many different perspectives (Masoud and Munadhil, 2015). According to Hirnissa (2009), in their study of inter-relationship between military expenditure, education expenditure and health expenditure in eight selected Asian countries namely Malaysia, Indonesia, Singapore, Philippines, Bangladesh, Nepal, Sri Lanka and South Korea. Autoregressive Distributed Lag-Restricted Error Correction Model (ARDL-RECM) procedure was utilized in the analysis. The empirical results suggest that, except for the case of Malaysia and Sri Lanka, whereby no meaningful interrelationship was detected between these three variables, the results for the rest of the countries are mixed, with differing granger causality being detected among these variables. The mixed results obtained in the study is an indicator of differing policy being implemented and will result in varying implication. Generally the error correction term is significant. Implying there is long-run relationship between defence spending, education and health expenditure.

Yildrim and Sezgin (2002) investigate the possible trade-off between Turkish defence spending on health and education expenditure during the Turkish republican era. The study cover the period from 1924-1996 using a multi-equation framework employing the Seemingly Unrelated Regression Estimation (SURE) method. They claimed that while defence spending decisions are made independently of health and education expenditure, there is a trade-off between defence and welfare spending. While the trade-off is negative between defence and health, it is positive between defence and education. They conclude that there is a competition between education and health expenditure in the budgeting process.

In Nigeria, for instance Oyinlola (1993) reported that there is a positive impact of government expenditure on defence and economic growth. Also, study by Ogiogio (1995) showed a long term effect of government expenditure on economic growth. He also found out that recurrent expenditure has more influence than capital expenditure. Akpan (2005) used a disaggregated approach to determine the components (that include capital, recurrent, administrative, economic service, social and community service, and transfers) of government expenditure that enhances growth, and those that do not. The author concluded that there was no significant association between most components of government expenditure and economic growth in Nigeria.

Ighodaro and Okiakhi (2010) used time series data for the period 1961 to 2007 and applied Cointegration Test and Granger Causality test to examine government expenditure disaggregated into general administration and community and social services in Nigeria. The results revealed negative impact of government on economic growth. Moreover, Abu and Abdullahi (2010) showed that total capital expenditure, total recurrent expenditure and government expenditure on education have negative effects on economic growth. Also, on the contrary, expenditure on transport and communication and health result in an increase in economic growth in Nigeria.

Taiwo and Agbatogun (2011), in their study of government expenditure in Nigeria: a sine qua non for economic growth and development found out that total capital expenditure, inflation rate, degree of openness and current government revenue affect economic growth significantly while total recurrent expenditure and exchange rate are statistically insignificant to economic growth. In the same vein, Loto (2011) investigated the impact of sectoral government expenditure on economic growth in Nigeria for the period 1980-2008 and applied Johansen cointegration technique and error correction model. The results inferred that in the short run expenditures on agricultures and education were negatively related to

economic growth. However, expenditures on health, national security, transportation, and communication were positively related to economic growth, though the impacts were not statistically significant.

Joerding (1986) test for granger causality between defence and economic growth on 57 Less developing countries (LDCs) and show that there is an empirical evidence of causality running from economic growth to defence spending and vice versa. Chowdhury (1991) applies granger causality test for 55 developing countries. The results reveals that 15 countries defence spending causes economic growth and there is a unidirectional granger causality running from economic growth to defence spending in 7 counties while in 3 countries, there is a feedback relationship between these variables. Huang and Mintz (1990) estimate a three sector Feder-Ram model using ridge regression techniques to overcome multi-collinearity problems using annual data for the USA over the period 1952 to 1988. They do not find any relationship between defence and growth.

Assery (1996) examines the granger causality between defence spending and economic growth for Iraq over the period (1950-1980). Firstly, he tested the time series stationarity and then he examines the cointegration of the variables using two methods. Both methods result in the rejection of null hypothesis where there is no cointegration, while the granger causality test suggests that defence spending causes economic growth.

Kollias and Markrydakis (1997) analysed the relationship between growth rate in GDP and the share of the military expenditure in GDP for Turkey (1954-1995) and came up with the conclusions that there is no causal relationship between military expenditure and growth rate of GDP. Sezgin (2001), analyze the defence-growth relationship in Turkey from 1956 to 1994 and conclude that Turkey's economic growth is stimulated by its defence sector, while defence spending has no significant effect on saving and balance of trade. Dakura et al. (2001) evaluate the relationship between defence spending and economic growth in 62 developing countries. The result of their study showed that a unidirectional causality was found in 23 countries, from either defence spending to economic growth or vice versa, while a bi-directional causality existed in 7 countries. Causality did not exist in 18 countries that were integrated,

Brauer (2002) presents comprehensive critical review of the entire literature in examining the relationship between defence spending and economic growth of Greece and Turkey and find that large amount of money that Greece and Turkey spend for their defence sector both in absolute and relative terms (percentage of GDP), is an inhibitory factor in the growth process of the two countries. Gerace

(2002) uses a spectral analysis type methodology to investigate movements in US military expenditure, US non-military expenditure and US GDP. He finds evidence that non-military expenditure is used as a counter-cyclical stabilization tool, but that military expenditure is not. The availability of external loans increases the propensity of governments to spend on the military (Hewett, 1991). It is not uncommon for military spending and payments on foreign debt to absorb 40–80 percent of current government revenue. For example, in 1987 these two items accounted for 55 percent of government revenue in Sri Lanka, 61 percent in Pakistan, 64 percent in the Philippines, 65 percent in Colombia and 85 percent in Jordan (Deger and Sen, 1990). Indeed, as Olaniyi (2002) notes 'the existence of multiple paradigms illustrates the lack of theoretical consensus on the impact of military spending on the economic and social sectors'.

Galvin (2003) used 2 Stages Least Square and 3 Stages Least Square to estimate a demand and supply side model for 64LDCs using cross sectional data. He concludes that defence spending has negative effects for both economic growth and the savings income ratio. Korhan and Mohammed (2015) applied Johansen cointegration and granger causality tests to examine the long run equilibrium relationship and the causality between military expenditure (ME) and economic growth (GDP) for the case of Turkey, with annual data covering 1988-2013. The findings show that in the long run military spending and economic growth are cointegrated. The results of granger causality test suggest that there is unidirectional relationship running from economic growth to military spending.

Agbonkhese and Asekome (2014), assessed the impact of public expenditure on the growth of Nigerian economy, it covers the period 1981-2011 and employed ordinary least square (OLS) method of econometric technique. The result indicates that although there is a positive relationship between the dependent and independent variables, the adjustment of the economic growth or gross domestic product was a fair one which made it difficult to reject the null hypothesis. Moreover, Korhan, and Mohammed (2015), investigated on economic growth, defence expenditure and threats in Nigeria 1980-2013, the study adopts the robust ARDL and result revealed that there is significant long run relationship between defence expenditure and threats on economic growth in Nigeria both in the short run and long run condition. The result further indicates bidirectional positive relationship between defence expenditure and economic growth in Nigeria while threat has unidirectional negative impact running from threat to economic growth. Masoud and Munadhil (2015) also investigated the interactional impact of defence expenditure and arms importation on economic growth in Nigeria, the study

employed autoregressive distributed lag model. The result reveals that defence-arms interaction in Nigeria exerts negatively on the economic growth.

Furthermore, Masoud and Alhaji Bukar (2014) in their study employed ARDL to test the long run and short run relationships while granger causality techniques used to examine the direction of causation. The result however indicates there is an inverse relationship between economic growth and military spending in the short run, while long run suggest that correlation among variables is inconclusive.

3. Methodology

Taking cognizance of the theoretical frame work within which this paper is situated, that is Keynesian demand side growth model, which stipulates the stimulation of any of the components of aggregate demand to achieve growth in the economy, the relationship between government expenditures on defence and economic growth, is therefore drawn, since expenditure is key to Keynesian economics, this paper also disaggregated it into defence expenditures, social sector expenditure and private domestic investment (gross capital formation). To take care of the crowding out effect or otherwise of defence expenditure, the effect of the interaction between DEXP and SSE and between DEXP and GCF on GDP was also taken to account as shown in equation (1).

$$GDP = f(DEXP, SSE, GCF, DEXP*SSE, DEXP*GCF) \quad (1)$$

$$GDP = \beta_o + \beta_1 DEXP + \beta_2 SSE + \beta_3 GCF + \beta_4 DEXP*SSE + \beta_5 DEXP*GCF + \mu_t \quad (2)$$

To measure the partial elasticity of the dependent variables with respect to each of the explanatory variables, both sides of the model had to be logged as shown in equation 3.

$$Log(GDP) = \beta_o + \beta_1 Log(DEXP) + \beta_2 log(SSE) + \beta_3 Log(GCF) + \beta_4 Log(DEXP*SSE) + \beta_5 Log(DEXP*GCF) + \mu_t \quad (3)$$

Where:
GDP = Gross domestic product a proxy for economic growth
f = function
DEXP = Total Annual Defence Expenditures
SSE = Total Social Sector Expenditures (Education, Health and others)
GCF = Gross Capital Formation i.e. Gross Domestic Investment which is the total change in the value of fixed assets plus change in stocks
SSE = Total Social Sector Expenditures
β_1 to β_5= Slope coefficient
β_o= Intercept

μ_t = Stochastic error term in time t.

DEXP*SSE= the interaction between defence expenditure and social sector expenditure. It measures the crowding out or otherwise of increased defence expenditures on social sector expenditure. Negative coefficient implies crowding out while positive coefficient implies complimentarity.

DEXP*GCF= this is the interaction between defence expenditure and gross capital formation. It measures the crowding out or otherwise of increased defence expenditures on gross capital formation. Negative coefficient implies crowding out while positive coefficient implies complimentarity, Oladoyin and Dauda (2007) also applied this method.

A priory expectation

$\beta_1>0, \beta_2>0, \beta_3>0, \beta_4>0$ and$\beta_5>0$

4. Data Analysis

Table 1: Unit root test statistics (augmented Dickey-Fuller and Philips-Perron)

	ADF and Philip Peron unit root tests					
Variables	*ADF test*			*Philip Peron Test*		
	1ST Diff	*P-Value*	*I(d)*	*1ST Diff*	*P- Value*	*I(d)*
GDP_t	-12.513	0.0000	I(1)	-13.094	0.0000	I(1)
$DEXP_t$	-9.379	0.0000	I(1)	-9.008	0.0000	I(1)
GCF_t	-5.823	0.0000	I(1)	-5.828	0.0000	I(1)
SSE_t	-6.926	0.0000	I(1)	-6.967	0.0000	I(1)

Source: Author's Computation. Eviews 8.0 was used in the estimation * stationary at 5%

Table 1 shows both the ADF and Philips-Perron unit root tests summary. All the variables are non-stationary at levels but when differenced once, they become stationary. That is, all are integrated of order one I(1) irrespective of the method used—ADF or Philips-Perron. This conclusion is arrived at because, at first difference, the probability values (*p-value*) of all the variables are less than the usual 5% (0.05) level of significance, which means stationarity. The stationarity attained among all variables at first difference, therefore, paves the way for cointegration test, which measures the long run relationship among the variables.

From the result of trace test of table 2, cointegration is determined by comparing the trace value with the critical value. Cointegration is established if the trace value is greater than the critical value in at least one rank, otherwise we do not reject the null hypothesis of no cointegration. By using the no deterministic trend model based on Akaike and Schwarz information criteria, the trace test result presents us with 1cointegrating equation at 5 per cent level of significance because, trace values are greater than the critical values at the first rank coupled with the

probability value that is less than 0.05. This is an evidence of a long run relationship between the explained variables GDP and the explanatory variables (DEXP, GCF,and SSE). Hence, the null hypothesis of no cointegration is rejected at 5% level of significance and based on the P-value. As such, we conclude that, cointegration does exist among the variables.

Table 2: Johansen tests

Trace test						
Hypotheses No of CE(s)		*Eigenvalue*	*Trace statistic*	*Critical values*		
H_0	*H_1*			*5% critical value*	*P-value*	*Decision*
r=0	r=1*	0.531583	70.14087	63.88 42.92 25.87 12.52	0.0135	Reject
r≤1	r=2	0.398389	36.77142		0.1795	Accept
r≤2	r=3	0.205803	14.41305		0.6234	Accept
r≤3	r=4	0.092576	4.274402		0.7021	Accept

Source: Author's computation. Eviews 8.0 was used in the estimation.

Table 3: Maximum Eingenvalue tests

Maximum Eigen value test						
Hypotheses No of CE(s)		*Eigenvalue*	*Max-Eigen*	*Critical values*		
			Statistic	*5% critical value*	*P-value*	*Decision*
H_0	H_1					
r=0	r=1*	0.531583	33.36944	32.12	0.0350	Reject
r≤1	r=2	0.398389	22.35837	25.82 19.39	1.1344	Accept
r≤2	r=3	0.205803	10.13865	12.52	0.6040	Accept
r ≤3	r=4	0.092576	4.274402		0.7021	Accept

Source: Author's computation. Eviews 8.0 was used in the estimation.

In table 3, the number of cointegrating equations in the maximum eigenvalue test. Following the same process as in trace test, maximum eigenvalue test presents us with one cointegrating equations at 5 per cent level of significance and based on the probability values less than 0.05. This result equally presents empirical ground to reject the null hypothesis of no cointegration among the variables. Therefore, these series do have common long run relationship in Nigeria considering the period under review, hence the null hypothesis of no cointegration among GDP and the explanatory variables (DEXP, GCF, and SSE) is rejected and the alternative hypothesis of cointegration relationship is upheld. This result, therefore, justifies the deployment of Error Correction Model (ECM) in the analysis of this work, which helps to measure the speed of adjustment to long run equilibrium any time there is a shock to the system.

Table 4: Result of short-run parsimonious dynamic model

Dependent Variable: DLOG(GDP)
Method: Least Squares
Sample (adjusted): 1971 2015

Included observations: 45 after adjustments

Variable	*Coefficient*	*Std. Error*	*t-Statistic*	*Prob.*
C	0.243813	0.218180	1.117486	0.2708
DLOG(DEXP)	-1.180959	1.597879	-0.739079	0.4644
DLOG(GCF)	1.588911	0.553036	2.873070	0.0064
DLOG(SSE)	0.634990	0.254390	2.496125	0.0167
DLOGD(EXP*GCF)	-0.074376	0.035887	-2.072498	0.0445
DLOGD(EXP*SSE)	-0.110113	0.145958	-0.754413	0.4553
ECM(-1)	-0.129122	0.182169	-6.417782	0.0000

R^2 = 0.72; Adj.R = 0.70; F-Stat = 7.07.563 (P-value 0.0000041)

Source: Author's computation. Eviews 8.0 was used in the estimation.

Table 4 shows the result of error correction model (ECM). The data show that the R^2 of 0.72 is about 72 percent of the GDP and is explained by the explanatory variables, while the remaining 28 percent are exogenous to the model. The F-statistics of 7.07 with corresponding statistics of 0.0000 indicates that the entire model is statistically significant. That is, all independent variables have joint significant impact on the dependent variable. The ECM was estimated with lag of 0 based on Akaike information criterion (AIC). Aiyedogbon (2011) and Baghebo and Atima (2013) adopted this procedure in their works.

Apart from not complying with the a priori expectation of positive coefficient, the result shows DEXP has no short-run statistically significant impact on the GDP. The coefficient of DEXP is -1.18 with the corresponding probability value of 0.4644. Since the P-value is greater than the 5% (0.05) level of significance, the null hypothesis that defence expenditure does not have significant impact on the Nigerian economy is upheld and the alternative is rejected. The implication of this is that, in the short term, no matter the amount government commit to the military, the impact is not felt on the GDP. This may be due to the fact that time lag is key between expenditure and its actual impact.

The coefficient of gross capital formation (GCF) at level is positive and significant given the coefficient of about 1.59 with corresponding P-values of 0.0064, which is less than 5% critical value a condition for upholding the alternative hypothesis of significant relationship. The outcome complies with the a priori expectation. By implication, a 1% rise in GCF leads to 1.5% rise in GDP. This means GDP is GCF elastic. Increase in GCF, which is domestic investment, leads to a more than proportionate increase in GDP through the Keynesian multiplier process.

Social sector expenditures (SSE) is positive and significant in the short run given the coefficient of about 0.64 with corresponding P-values of 0.0167, which is less than 5% critical value a condition for upholding the alternative hypothesis of significant relationship. The outcome complies with the a priori expectation. By implication, a 1% rise in SSE leads to 0.6% rise in GDP. This means the partial elasticity of GDP with respect to SSE is equal to 0.6. Increase in SSE, leads to a less than proportionate increase in GDP also through the multiplier process.

The coefficient of interaction between Gross capital formation (GCF) and Defence Expenditure in the short run is negative and significant given the coefficient of about -0.07 with corresponding P-values of 0.0445, which is less than 5% critical value—a condition for upholding the alternative hypothesis of significant relationship. The outcome complies with the a priori expectation that increase in defence expenditures may result to the neglect of investment in civilian production. This becomes obvious, as the chunk of our national budget in the recent years has been committed to the military. For instance, in 2014, about a quarter of the national budget was for defence expenditure. Though on its own GCF has both positive and significant impact on GDP, but when it interacts with DEXP, its effect turns negative. This buttresses the crowding out assertion. By implication, a 1% rise in DEXP*GCF leads to 0.074% decrease in GDP.

The coefficient of interaction between Social Sector Expenditures (SSE) and Defence Expenditure in the short run is negative though not significant given the coefficient of about -0.11 with corresponding P-values of 0.4553, which is more than 5% critical value a condition for upholding the null hypothesis of no significant relationship. The outcome complies with the a priori expectation though not significant. The implication of this is that the interaction of DEXP with SSE does not produce any effect on the national output, GDP. It neither crowds out nor complement.

Finally, the ECM coefficient of (-0.129122) complies with a priori expectation of negative sign and it is statistically significant since its p-value 0.0000 is also less than the critical value of 5% (0.05). The implication of this is that, whenever the system is out of equilibrium, it is corrected with a speed of about 12percent annually. This percentage shows that the system moderately corrects itself and returns to equilibrium. The coefficient also shows that there is a long run causality running from all the explanatory variables to the dependent variables since it is negative and significant.

Table 5 is the result of long-run analysis of the research model. From the table, R^2 of 0.73 shows that about 73 percent of the GDP is explained by the

explanatory variables, while the remaining 27 percent are exogenous to the model in the long-run. The F-statistics of 21.56 with corresponding statistics of 0.0000 indicates that the entire model is statistically significant. That is, all independent variables have joint significant impact on the dependent variable in the long run. Though statistically significant, the long run coefficient of DEXP did not comply with the a priori expectation of positive coefficient, the result shows DEXP has long-run negative significant impact on the GDP. The coefficient of DEXP is -0.54 with the corresponding probability value of 0.019. Since the P-value is less than the 5% (0.05) level of significance, the alternative hypothesis that defence expenditure does have significant impact on the Nigerian economy is upheld and the null is rejected. The implication of this is that, in the long term, increase in defence expenditures actually decreases national output.

Table 5: Result of long-run static model

Dependent Variable: LOG(GDP)
Method: Least Squares
Sample: 1970 2015
Included observations: 46

Variable	*Coefficient*	*Std. Error*	*t-Statistic*	*Prob.*
C	4.330966	3.306632	1.309781	0.1976
LOG(DEXP)	-0.542824	0.222419	-2.440547	0.0190
LOG(GCF)	0.843660	0.317702	2.655504	0.0112
LOG(SSE)	0.834970	0.254390	2.496125	0.0237
LOG(DEXP*SSE)	-0.073292	0.039605	-2.380563	0.0174
LOG(DEXP*GCF)	-0.074376	0.035887	-2.072498	0.0445

R^2 = 0.73; Adj. R = 0.70; F-Stat = 21.563 (P-value 0.0000)

Source: Author's computation. Eviews 8.0 was used in the estimation.

The coefficient of Gross capital formation (GCF) in the long run is positive and significant given the coefficient of about 0.84 with corresponding P-values of 0.0112, which is less than 5% critical value a condition for upholding the alternative hypothesis of significant relationship. The outcome complies with the a priori expectation. By implication, a 1% rise in GCF leads to 0.8% rise in GDP. Increase in GCF, which is domestic investment, leads to a less than proportionate increase in GDP through the Keynesian multiplier process. This outcome in contrast with the short run outcome shows that in the immediate, GCF have more impact on the economy than the long term as the impact wanes as time progresses.

Social Sector Expenditures (SSE) is positive and significant in the long run given the coefficient of about 0.83 with corresponding P-values of 0.0237, which is less than 5% critical value—a condition for upholding the alternative hypothesis of significant relationship. The outcome complies with the a priori expectation. By

implication, a 1% rise in SSE leads to 0.83% rise in GDP. This means the partial elasticity of GDP with respect to SSE is equal to 0.83 in the long run. Increase in SSE, leads to a less than proportionate increase in GDP also through the Keynesian multiplier process.

The coefficient of interaction between Gross capital formation (GCF) and Defence Expenditure in the long run is negative and significant given the coefficient of about -0.13 with corresponding P-values of 0.035, which is less than 5% critical value a condition for upholding the alternative hypothesis of significant relationship. The outcome complies with the a priori expectation that increase in defence expenditures may result to the neglect of investment civilian production. This becomes obvious, as the chunk of our national budget in the recent years has been committed to military funding. For instance, in 2014, about a quarter of the national budget was for defence expenditure. Though on its own GCF has both positive and significant impact of GDP, but when it interacts with DEXP, its effect turns negative. This buttresses the crowding out assertion. By implication, a 1% rise in DEXP*GCF leads to 0.13% decrease in GDP.

The coefficient of interaction between Social Sector Expenditures (SSE) and Defence Expenditure in the long run is negative and significant given the coefficient of about -0.09 with corresponding P-values of 0.0372, which is less than 5% critical value a condition for upholding the alternative hypothesis of significant relationship. The outcome complies with the a priori expectation. The implication of this is that the interaction of DEXP with SSE does produce significant effect on the national output, GDP. It actually crowds out investment on the social sector such as education and healthcare in the long run. In this case, the price of insecurity is the dearth of infrastructure.

5. Conclusion and Recommendations

The effects defence expenditure on economic growth has been debated for long in the literature. The major conclusion that can be drawn from this study is that defence expenditure significantly reduces economic growth and development in Nigeria. If Nigeria really expects to grow, defence expenditure is not really the priority. Nigeria being a technologically backward economy has to import all its military hardware from abroad and this has no tickling down on the local economy but rather create employment for the exporting country. The hard-earned foreign exchange and the tax payers money that should be spent on revolutionizing the health sector and present healthy local work force in the country is spent on importing military hardware. Money that should be used to fund the education

system in the country whose dearth bred the Boko-Haram insurgent who now see education as forbidden is used to fund the military. While the neglect of defence is not being advocated here, prioritizing education, health sector in Nigeria will propel Nigeria towards its desired level of growth rather than waiting to fight the consequences of lack of education, which will and has been a conduit pipe through which Nigerian resources are drained. Based on the findings, the following recommendations are made:

1. Government should scale down expenditures on the military because increase in military expenditures crowds out funds for local investments as government competes with entrepreneurs in raising funds from the public. It also crowds out social sector expenditures, which in the long run have positive impact on the economy.
2. Government should also step up spending on social sector such as education and healthcare as this will increase the GDP through the multiplier process
3. Government should also help to stabilize macroeconomic variables such as inflation so that the cost of living can reduce and people will be able to save more and when they save more the surplus unit can be mobilized for investment and hence economic growth.

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