Relationship between Military Expenditure and Economic Growth in Nigeria

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Abstract
This study examined the relationship between military expenditure and economic growth in Nigeria. The econometric method that the study used was the Autoregressive Distributive Lag Bound approach to cointegration. It also employed time series data from 1981 to 2021. Findings from the empirical result indicate that military expenditure exerted positive and insignificant relationship with economic growth. The result also show that gross fixed capital formation and labour force is negative and insignificantly related to economic growth both in the long and short run but gross fixed capital formation is significant in the short–run. While trade openness exerted positive and significant relationship with economic growth both in the long and short run. The empirical findings for Nigeria imply that the country can purse the policy objectives of defence and economic growth together. And that funds budgeted for military sector should be judiciously utilized not only for the growth of that sector but also for the private sector of the economy**.**
Keywords: Military Expenditure, Economic Growth, Cointegration, ARDL

Introduction

Military expenditure is a vital issue for the international economy. It has influence beyond the resources it takes up, especially when it facilitates conflict. Every country need some level of security to deal with internal and external aggression, but resource use have an opportunity cost in that it prevents money and other inputs from being alternatively employed for purposes that might directly improve the rate of economic growth.This is particularly important for developing countries.

How military expenditure relates to economic growth of a country remains a contradictory question and a debatable issue among economists and policy makers. Question pertaining to the nature of the relationship between military expenditure and economic growth in literature is still accountable. Since 1970s, advent of the debate, there is lack of consensus, whether military expenditure is related to economic growth and if yes, is it positive or negative (Benoit 1973, 1978; Sandler and Hartley, 2007) in (Amna,Shabib& Ghulam 2017). According to Ram (1995) the disagreement is due to differences in theories, methodologies and estimation techniques employed in the research work.

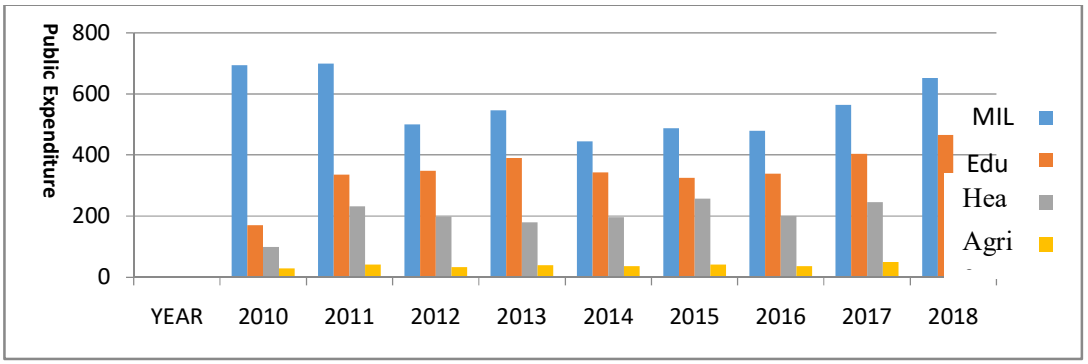
Dunne, Smith & Willenbockel (2005) opined that literature has identified three channels through which military-growth relationship can be explained. These include demand, supply and security. Demand channel stipulate that an increase in military expenditure increases the aggregate demand and capital utilization and employment. Thus, an increase in military expenditure accelerates economic growth due to improvement in infrastructure and human capital. But in developing countries, it depends on the availability of resources (Looney and Frederiksen, 1986). Resource rich nations have positive effect of military expenditure on growth and reverse is found in the case of poor countries. However, an opportunity cost is also associated with military expenditure as it might crowd-out investment in human or physical capital. The extent of the crowding-out effect depends on how the additional military expenditures are financed, as stated by Dunne et al. (2005). In case of a limited government budget, military expenditure can only be increased at the expense of reducing budget for other social projects, increasing taxes, higher debt or some combinations of all these financing strategies. Thus, different financing strategies of military expenditure have different growth consequences.

The supply channel involves opportunity cost of military expenditure in the form of fewer resources available for the civil purposes. Labour and capital used by military is not available to civilians. Economies with accelerating military burden have to pay opportunity cost in the form of crowding out of investment in both public & private sector, deficit in balance of payment due to arms import, limited services in the public sector, fewer research and development projects, and hence become inefficient economies (Mylonidis, 2006). On the contrary, research and development spending in the military sector might have some spill-over effects on civilian sector thereby influencing economic growth positively.

The last channel through which military expenditure and growth relationship can be explained is security which is a crucial factor for the survival and operation of any economy. According to Adam Smith (1776) the primary duty of any country is to ensure the protection of its citizens against any internal or external threats. Thus, increase in military expenditures against war & security threat lead to higher economic growth. However, if this increase in spending is not driven by valid security concern but as a result of rent-seeking behavior then the consequences might be adverse due to national involvement in arms race and destructive wars (Yakovlev, 2007).

Nigeria spent huge amount of its annual budget on military sector in order to maintain a credible level of security due to the country's vital role in Africa as a watch dog of the continent and also because of the security threat facing the country. Every year Nigeria set aside greater percentage of its annual income for the maintenance of military sector. For that reason, military expenditure is regarded as the major components of public expenditure in the country. It is assumed that low economic growth in the country can be traced to huge amount of money the country budgets for military sector every year. Non- Pro military expenditure school of thought argue that increase in military expenditure decreases resources that would have been employed in other sectors of the economy like education, health, Agriculture etc. As we can see from figure 1.1 below that military expenditure have been taking a lion share of the country's annual budget from 2010 -2018 while health, education and agriculture received little amount of resources from the budget.

Figure 1.1: Trend of Public Expenditure on Military, Education, Health and Agriculture in Nigeria from 2010-2018 in #' Billion



Sources: Central Bank of Nigeria Statistical Bulletin (2019), Plotted by the author.

Relationship between military expenditure and economic growth remains a burning issue in Nigeria especially given the growth in military expenditure in recent years and the current financial crisis and recession facing the country. The steady rise in military expenditure for many years in Nigeria caused by importation of military equipments, foreign exchange constraint, terrorism and decline in the growth of the economy demonstrates a commanding link between military expenditure and economic growth in the country (Korman and Brahmasrene, 2007). Nigeria's total military expenditure increased from #224bn in 2009 to #369bn in 2011 (SIPRI, 2019). In contrast, the country's economic growth rate increased from #m718977 in 2009 to #m834000 in 2011.

According to Shadare (2011) in Amana, Aigbedion and Zubair (2020) Nigerian economy is faced with increasing fiscal operations and military expenditure is also increasing. Budgeting for military sector in the country in order to equip and make military personnel combatant ready to confront the growing insecurity in the country is very important to policy makers. In addition military expenditure is one of the resilient spending and any reduction in it at the moment may have adverse effect on the economy. In view of this observation, it is important to empirically examine the relationship between military expenditure and economic growth in the country.

To achieve this purpose, the study applies Auto Regressive Distributive Lag Bound Approach to cointegration (ARDL) to test the long run and short run relationship between the two concepts. The remainder of the paper is organized as follows: Section two considers the theoretical channels and empirical studies of military expenditure and economic growth. Section three describes the data and explains the empirical model used in the study. Results are discussed in section four while section five concludes the study.

Literature Review and Theoretical Framework

Theoretical Literature

The Classical and Neo classical Economists believed that state intervention in economic management distorts economic activities. And that the invisible hand of the market allocates resources optimally in the economy. The Keynesian Economists on the other hand posits that visible hand of the state through its fiscal policies can be used to fine tune economic fluctuation. Their view is contrary to that of the classical economists for they believed that allocation of resources by the market will make the society worst off. Hence they advocated for expansionary fiscal policy during recession and tight fiscal policy during boom.

According to Enimola and Akoko(2011), government activities can affect economic growth in many ways and that such effect can be beneficial/detrimental. They posit that the beneficial effect of state action on the economy can lead to first, the supply of pure public goods that may constitute a good proportion of aggregate demand. Second the use of fiscal policy instrument like income taxes and transfer payments can lead to more equitable income redistribution. Third, state often acts as a facilitator in the market with asymmetric and imperfect information. On the other hand, government intervention can impede economic growth because of competition between the less efficient public sector and the private sector in the credit market which may trigger an increase in interest rate. In the same way, taxes imposed by the state can also distort market prices and effective resource allocation. From the foregoing discussion, military expenditure can be included in the logic of explaining government expenditure. Military expenditure can have negative effect on economic growth by crowding out investment in the private sector. It can also distort resource allocation by diverting resources away from the productive private sector to an unproductive arms import and other military logistics.

Military expenditure can also influence economic growth positively through aggregate demand and multiplier effects. This will accelerate utilization of idle capital, higher employment and investment. As a result, the economy will grow and develop.

Review of Empirical Literature

Available empirical evidence on the relationship between military expenditure and economic growth have revealed that the subject matter is still very open to more discussion as existing results vary from one place to another. The variation in the evidence could be explained by various factors ranging from the peculiarity of the series of fiscal policy reforms that each country implemented over a period of time to the choice of the methodology that researchers adopt in their studies (Taiwo et. al, 2020). For illustration, Apanisile And Okunlola (2014) used time series data from 1989-2013 and ARDL Bound Testing approach to conintegration to examine the relationship between military expenditure and economic growth in Nigeria and employing gross domestic product, labour force, gross fixed capital formation, military expenditure and inflation as their variable

of interest. Findings from their study showed that military expenditure has positive and significant effect on the country's output.
Likewise, Fumitaka, Mikio and Mohd (2014) empirically evaluated the relationship between military expenditure and economic growth in China with the application of Johansen cointegration test and ARDL econometrics method from 1989-2011 and also included gross domestic product and military expenditure variables in the model of their study. The results showed that there existed long-run relationship between China's military expenditure and economic growth. Furthermore, the Granger causality test showed a unidirectional causality from economic development to military expenditure. Their results were further confirmed by the findings from the impulse response function. This means that China represents an example of a developing economy where the size of military expenditure expands in the process of economic transformation.

Also, investigation of the relationship between military expenditure and economic growth in Nigeria by Odiba (2015) using data spanning between 1981 and 2015 and employing Augmented Dickey Fuller and Error Correction Model technique for data analysis. He included gross domestic product, military expenditure, gross fixed capital formation and foreign direct investment variables in his model. The findings of his study indicate that the two variables are positively related.

Similarly empirically examination of the relationship between military expenditures, political instability and economic growth in Nigeria by Umar and Abu (2016) and adopting the robust Toda and Yamamoto (1995) dynamic Granger causality test. The study employed the following variables in its model i.e. gross domestic product, military expenditure, arms import and political instability. The findings of their study reveal that the interaction of military expenditures and political stability causes economic growth in Nigeria, while frequent political instability hampers it. They suggested that Nigeria should provide more solid military structure to deter sabotage subversion and terrorism.

The submission of Umar and Abu (2016) was supported by the work of Mile and Abachi (2017) that empirically examined the relationship between fiscal expansion on defence and economic growth in Nigeria for the period 1981-2011. Their method of analysis was Augmented Dickey- Fuller and Engle- Granger Co-integration Tests as well as the Granger Representation Theorem. It is bore out of the fact that it is difficult to say whether the ever increasing rate of defence expenditure over the years has impacted positively or negatively on the economic growth in Nigeria. They used a number of macroeconomic variables such as RGDP (Real Gross Domestic Product, proxy for Economic Growth), LA for (Labor Force), DEXP (Defence Expenditure), GFCF (Gross Fixed Capital Formation) and FDI (Foreign Direct Investments) in the study. The major finding of the study is that there exist a positive and significant relationship between defence expenditure and economic growth in Nigeria; As a result, the study recommended increased government spending on productive defence expenditure, adequate utilization of funds meant for the defence sector and reduced spending on protective defence expenditure without wastage.
In a related study Ajmair, Hussain, Abbassi and Gohar (2018) used time series data ranging from 1990-2015 and the ARDL Bound technique to cointegration to examine the short-run and long-run nexus between military expenditure, number of persons in military and economic growth in Pakistan. The study included gross domestic product, military expenditure, gross fixed capital formation and labour force in its model. The result revealed that military expenditure in Pakistan had a positive and insignificant relationship with economic growth. However, number of persons in the military exerted a positive and significant relationship with economic growth in the long run. The short- run result showed that military spending and the number of persons in the military had a positive and significant link with economic growth.

Similarly, empirical examination of the impact of military expenditure on Nigeria economic growth carried out by Akume , Jelilov and Akanegbu (2019) with data collected from 1988 to 2017 using the Autoregressive

Distributed Lag (ARDL) bounds testing approach to co-integration and incorporated the following variables in their model i.e. gross domestic product per capita, military expenditure , inflation and exchange rate. The empirical results of their study revealed that there is a positive relationship between military spending and economic well-being in Nigeria. But the impact on citizens' wellbeing is not instantaneous as the variable is only significant after the current year spending.

In the same way, Mohammad and Zobayer (2019) re-investigated the existing evidences of India, Pakistan and China using cointegration and causality test with updated data on the effect of military expenditure on economic growth. The time series data used for the study spanned from1980-2017. While their variable of interest was gross domestic product and military expenditure, the result of their study showed that positive long run relationship exists between military expenditure and economic growth in those countries and that there is no short run relationship between the two variables of interest

Almajdob, and Marikam (2021) empirical study explores dynamics of expenditures on military and economic growth in four major Arab spring countries by using data from a balanced panel in a period from 2000 to 2014. The following variables were included in their model i.e. gross domestic product and military expenditure. The study adopted panel vector error correction mechanism (P-VECM) Granger causality test. The results of their empirical work revealed a significant positive effect of military expenditure on economic growth of all the four North African Arab countries (Libya, Egypt, Tunisia Yemen and Iraq).

Examination of the relationship between military outlay and economic growth in the Lake Chad Basin countries of Nigeria and the Republic of Chad respectively by Duru, Eze, Okafor, Yusuf, Ede and Saleh (2021) with data spanning from 1981-2019 and employing Autoregressive Distributed Lag Bounds approach to cointegration and Toda-Yamamoto Dynamic Granger Causality Test and incorporating the following variable of interest in their model: real gross domestic product per capita, gross fixed capital formation , military expenditure and trade openness. The result of their empirical study revealed that Nigeria's military outlay exerted a positive and insignificant relationship with economic growth. However, the Republic of Chad's military outlay had a positive and significant link with the country's economic growth.

Furthermore, Laniran and Ajala (2021) investigated the relationship between military expenditure and economic growth in Nigerian using annual time series data spanning from 1981 -2017 and Auto Regressive Distributive Lag Bound Approach to cointegration (ARDL) for their data analysis. Their variable of interest was gross domestic product, investment, human capital, government expenditure and military expenditure. The results of their empirical work indicated that the two concepts are positively and significantly related in the long-run.

In a related study Susilo , Sari , Putra , and Pratiwi (2022) analysed the relationship between military expenditure and economic growth during the COVID-19 pandemic using Cross-section data for 40 countries with upper-to-middle income levels to analyze the evolution for the periods 2010-2019 and 2019-2020.Their variables of interest was gross domestic product, military expenditure, gross fixed capital formation, labour force and political stability. The econometrics method that they employed for their data analysis was ordinary least squares (OLS). Their findings indicated that military expenditure is positively related to economic growth in those sample countries

The relationship between military expenditure and economic growth were found to be negative by some scholars Hassani (2020; Eromosele and Adele,2020; Mohamed,2021).

Some studies also found no relationship between military expenditure and economic growth (Estek,2016; Manchester and Colin,2017; Mert and Lihan, 2017; Dirga and Evi, 2021; Li, Zia, Shoukat and Mohammad,2022; Seemab, Alina, Atif and Altaf,2022)

Theoretical Framework

Theoretical frame work adopted for this study was that of Feder (1983) for the analysis of the link between exports and economic growth in developing countries adopted by Biswas and Ram (1986) for the cross country examination of the relationship between military outlay and economic growth. The model is a two sector model comprising of the output of the military sector (M) and the output of the civilian sector (C). Capital (K) and labour (L) allocation in these two sectors such that

$$K = Km + Kc \quad (1)$$

And

$$L = Lm + Lc. \quad (2)$$

M was incorporated into the output equation of the civilian sector C in equation 3 below to capture the externalities associated with the military sector. This externality effect can either be in form of a positive marginal product for military sector in Equation 3 or as a relative factor productivity differential for capital and labour in both sectors.

$$C = C(K_C, L_C, M) \quad (3)$$

$$M = M(K_M, L_M) \quad (4)$$

Where K_C, K_M, L_C, L_M are inputs of capital and labour allocated to civilian and military production sectors respectively.

Method and Model Specification

Our empirical estimation will start with a modified version of Ram (1986) model, with trade openness included as inputs into the production function.

This study would build on Saba and Ngepah (2019) model with some modifications. On the basis of modified growth model of Ram (1986), an empirical model for the analysis of the relationship between military expenditure and economic growth in Nigeria is specified as:

$$\text{RGDPpc} = \text{f}(\text{MILEXP}, \text{GFCF}, \text{LF}, \text{TOP},)$$

Econometrically, the linear relationship between the dependent and independent variables is transformed from mathematical form into econometrics form below because there is no exact relationship between economic variables and that was captured by the disturbance term ε_t

$$RGDPpc_t = \propto_0 + \propto_1 MILEXP_t + \propto_2 GFCF_t + \propto_3 LF_t + \propto_4 TOP_t + \varepsilon_t$$

Where

$\text{RGDPGpc} = \text{Real Gross Domestic Product per capita}$

$\text{MILEXP} = \text{Military outlay as a share of GDP}$

$\text{GFCF} = \text{Inflation}$

$\text{TOP} = \text{Trade openness}$

LF = Labour Force

$\varepsilon = \text{The disturbance term}$

Restating the empirical model as an ARDL model in line with the frame work of the study gives:

$$\Delta RGDPGpc_t = \propto_0 + \sum_{i=1}^{\rho} \propto_{1,i} \Delta RGDPGpc_{t-i} + \sum_{i=1}^{\rho} \propto_{2,i} \Delta MILEXP_{t-i} + \sum_{i=1}^{\rho} \propto_3 \Delta GFCF_{t-i} + \sum_{i=1}^{\rho} \propto_4 \Delta LF_{t-i}$$
$$+ \sum_{i=1}^{\rho} \propto_5 \Delta TOP_{t-i} + \beta_1 RGDPGpc_{t-i} + \beta_2 MILEX_{t-i} + \beta_3 GFCF_{t-i} + \beta_4 LF_{t-i} + \beta_5 TOP + \mu_t$$

Where p denotes the lag length, Δ represents the difference operator, α_0 is the drift, μ_t is the disturbance term, α_1, α_2, α_3, α_4, α_5, are coefficients of short-run dynamics while β_1, β_2, β_3, β_4, β_5, are coefficients of the long-run relationship. Hence, ARDL model is the base equation for estimating the short-run and long-run relationship among the variables.

The null and alternative hypotheses of no cointegration and cointegration can be evaluated by comparing the computed F-statistic with the tabulated F-statistic for the lower bound 1(0) and the upper bound 1(1) respectively. In ARDL model the coefficients that would be verified under the null hypotheses of no cointegration and cointegration between economic growth and the causal factors are stated as shown below:
H_0: $\beta_1=\beta_2=\beta_3=\beta_4=0$
Against
H_1: $\beta_1\neq\beta_2\neq\beta_3\neq\beta_4\neq0$

If the computed F-statistic is below the critical value of the lower bound 1(0), we conclude that there is absence of cointegration among the variables and hence there is no long run relationship in the series. But if the computed F-statistic is above the critical value of the upper bound 1(1), the conclusion is that cointegration and long run relationship exists among the variables in the series. On the other hand, if the value of F –statistic falls between the lower 1(0) and the upper 1(1) bounds the test is inconclusive. The existence of cointegration will lead to estimation of short run and long run parameters and if there is no cointegration among the variables, the procedure would cease.

Table 3.1: Definitions, measures, sources and expected signs of variables used in this study.

Variables	Definition and/ or proxy	Sources of data	Expected sign
GDP per capita (GDPpc)	Real Gross Domestic Product per capital	World Bank Development Indicator (WDI)	Dependent variable
Military expenditure (MILEXP)	Military expenditure	WDI	-
Gross fixed capital formation (GFCF)	Gross fixed capital formation (proxy for Physical capital	WDI	+
Working age population(15-64 years)	Working age population (Proxy for labour force)	WDI	+
Trade openness (TOP)	Trade openness of the economy was measured by exports plus imports as a percentage share of GDP	WDI	+

The study used secondary data ranges from 1981-2021. The time frame for the study was based on the availability of data. The data for this study was sourced from World Bank Development Indicator (WDI), SIPRI year book 92019) and Central Bank of Nigeria(CBN) Statistical Bulletin. The study used Auto Regressive Distributed Lag (ARDL) Bound test to co integration popularized by Pesaran, Shin and Smith (2001). The

Augmented Dickey- Fuller and Phillips- Perron unit root test was used to examine the time series properties of the data before the economic growth equation was estimated. Definitions, measures, sources and expected signs of the variables used in this empirical work are shown in table 3.1 above:

Data Presentation, Analysis and Discussion of Results

This section gives an in-depth presentation of estimation technique, results and discussion of the empirical findings of the study. It presents a comprehensive synopsis of time series properties, pre estimation tests such as unit root test, Cointegration test, Bound test and Diagnostic test respectively.

Result Presentation

Unit Root Tests

Table 4.1: **ADF and PP Unit Root Tests Results**

Variable	Augmented Dickey-Fuller (ADF)			Phillips-Perron (PP)		
	Level	First Difference	I(d)	Level	First Difference	I(d)
RGDPPc	-0.6860	-3.8713***	I (1)	-0.4677	-3.7802***	I (1)
MLEX	-4.7652***	-	I (0)	-5.4617***	-	I (0)
GFCF	-3.7761***	-	I (0)	-3.6630***	-	I (0)
LF	-0.9270	-3.3293**	I (1)	0.8523	-3.3265**	I (1)
TOP	-1.3274	-5.9415***	I (1)	-1.3598	-5.9349***	I (1)

Note: *** indicate statistical significance at the 1% level of significance.

The Augmented Dickey Fuller (ADF) and Phillips Perron (PP) unit root tests results are shown in Table 4. 1. The results revealed that the variables were either I(0) or I(1). The variables (GFCF and MLEX) were integrated at the level I(0) whereas the remainder were integrated at the first difference I(1). Since the regressors showed a mixture of I(0) and I(1), the application of the ARDL approach is justified. The PP test for unit root confirmed the ADF results.

Diagnostic Tests for ARDL Model

Table 4.2 Diagnostic result for ARDL Model

Test	Test Statistic	P-value	Null Hypothesis	Conclusion
Breusch-Godfrey Serial Correlation LM Test	0.9318	0.4046	H_o: No serial correlation	Cannot reject H_o
Ramsey RESET test	0.0655	0.9482	H_o: Correctly specified	Cannot reject H_o
Jarque-Bera normality test	3.7773	0.1513	H_o: Normal distribution	Cannot reject H_o
Heteroskedasticity Test: ARCH	0.5837	0.7407	H_o: Homoscedasticity	Cannot reject H_o

Source: Author's Compilation

Table 4.2 revealed the diagnostic tests results for the ARDL model. The diagnostic test showed that the model specification was adequate and had a good fit. The results revealed that the ARDL model passed all the diagnostic tests. There was no presence of serial correlation in the ARDL model due to the non-significance of the F-statistic. Under the Ramsey Regression Equation Specification Error Test (RESET) test, the null hypothesis for linearity or correct specification was accepted due to the non-statistical significance of the f-statistic and t-statistic. Under the normality test, a Jarque-Bera value of 3.7773 which was less than 5.99 showed that the errors were normally distributed. Again, the non-significance of the Jarque-Bera statistic depicted in **4.2** in the appendix confirmed it. It resulted in the acceptance of the null hypothesis of normal distribution. Under the ARCH test, the null hypothesis of homoscedasticity was accepted as a result of a probability value of

0.7407.

Bounds Test for Cointegration

Table 4.3:Bounds Tests for the Existence of Cointegration

Test Statistic	**Value**	**Lag**	**Significance Level**	**Bound Critical Values***	
				Lower Bound	**Upper Bound**
F-statistic	7.5864	2		I(0)	I(1)
			1%	4.40	5.72
			5%	3.47	4.57
			10%	3.03	4.06
Critical value bounds for the F-statistic at 95% confidence level from Pesaran, Shin, and Smith (2001).					

Source: Author's Compilation

The result of the Bounds tests for the presence of cointegration was shown in Table4. 3. The calculated F-statistic for the combined test of the parameters in the empirical design for Nigeria was 7.5864. This F-statistic exceeds the upper critical value bounds at 1%, 5% and 10% critical values. Based on this, the null hypothesis of no cointegration was rejected. Hence, on the basis of this result a long run relationship exist among the variables.

The Estimated Long run Coefficient Results

Table 4.4: Results for Estimated Long-Run Coefficients

Dependent Variable : RGDPPc				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C	3265.4632	2836.1909	1.151355	0.2579
MLEX	53.7958	281.4273	0.1912	0.8496
GFCF	-23.3855	18.9119	-1.2365	0.2250
LF	-0.0000	0.0000	-0.3939	0.6962
TOP	0.0105	0.0044	2.3831**	0.0231
Note:** denote significance at 5% level.				

Source: Extract from E-views econometric software

Table4.4 depicts the estimated long-run results of the link between military out lay and economic growth. Gross fixed capital formation had a negative and insignificant relationship with economic growth contrary to expectation. The unfavourable investment climate in Nigeria is one of the likely reasons for this result. This finding contravenes the submissions of Duru and Ehidiamhen (2018) but agrees with the finding of Duru, Okafor, Adikwu and Njoku (2020) and Duru and Ezenwe (2020). In addition, military outlay exerted a positive relationship with economic growth. However, it was not significant. The non-significance of the military outlay variable may not be unrelated with the mismanagement and diversion of some of the military funds by military officials. This result contravenes the findings of Deger (1986), Deger and Sen (1995), Dunne, Nikolaidou and Smith (2002), Dunne (2010), Dunne (2012), Dunne and Tian (2015),Korkmaz (2015) and Arshad, Syed and shabbir (2017).

However, the finding conforms to the results of the studies of Benoit (1978), Tiwari and Shahbaz (2011), Chairil, Sinaga and Febrianti (2013), Apanisile and Okunlola (2014), Ajmair, Hussain, Abbassi and Gohar (2018) and Raju and Ahmed (2019).Furthermore, openness to trade had a positive and significant relationship with economic growth as expected. This means that a unit increase in trade openness would increase economic growth by 0.02 per cent. This indicates that trade openness promotes economic growth in Nigeria. This finding disagrees with the submissions of Rigobon and RohMdrik (2005), Rodríguez and Rodrik(1999), Adhikary(2011), Bibi(2014), Qazi(2015),Duru, Okafor, Adikwu and Njoku (2020) and Duru and Ezenwe

(2020). However, the result corresponds with the suggestions of Nduka (2013), Ali and Abdullah (2015), Yakubu and Akanegbu (2018). Also labour force proxied by working age population aged 15-64 years had a negative and insignificant relationship with economic growth contrary to expectation. The unfavourable working environment in Nigeria, brain drain, lack of on the job training and disagreement between the trade union and federal government of Nigeria might be the root cause of this anomaly that exist between labour force and economic growth in the country. It also implies that in the country, the number of people working is less than the number of the unemployed people in the economy. The finding is in agreement with the submissions of Arshad, Syed and Shabbir (2017), Enimola,and Akoko (2009), Mile and Abachi (2017),

However, the result disagrees with the findings of Chairil, Sinaga and Febrianti (2013), Cander, (2003), Apansile and Okunola (2014)

The Estimated Short-run Coefficients

Table4.5: Results of Estimated Short-run Error Correction Model

Dependent Variable: Log(RGDPPC)				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
D(MLEX)	8.0314	41.5355	0.1934	0.8479
D(GFCF)	-3.4913	1.7023	-2.0510**	0.0483
D(LF)	-0.0000	0.0000	-0.4774	0.6362
D(TOP)	0.0016	0.0007	2.3604**	0.0243
ECM_{t-1}	-0.1493	0.0815	-1.8319*	0.0760
ECM = RGDPPC + 53.7958*MLEX - 23.3855*GFCF - 0.0000*LF + 0.0105*TOP + 3265.4632*C + 40.9055*D				
Note:** and * denote significance at 5% and 10% levels respectively.				

Source: Extract from E-views econometric software

The result of the short-run dynamic estimates is shown in Table4.5.The short-run dynamic estimates to a great extent agree with the long-run estimates. Gross fixed capital formation of the previous one year had a negative and significant link with economic growth. This implies that economic growth would decrease by 3.49 per cent, should gross fixed capital formation be increased by one unit. Change in military outlay exerted a positive and insignificant impact on real GDP in the short-run. Change in trade openness exerted a positive and significant effect on economic growth in the short-run. This implies that economic growth would increase by 0.002 per cent, should trade openness be increased by one unit. The coefficient of ECM_{t-1}, which is 15% implies that 15% of the previous deviation in economic growth from equilibrium is corrected by it within one year. Furthermore, the negative sign and significance of the coefficient of the error correction term to long-run stable equilibrium further corroborates the existence of a long-run nexus between real GDP and the explanatory variables.

Conclusion, Recommendation and Suggestions for Further Studies

Conclusion

Relationship between military expenditure and economic growth has been debated in literature for many years without unanimous conclusions. What we can draw from that debate is that military expenditure is a double edged sword that cut both ways. This is because it can influence economic growth positively/ negatively depend on how it was utilized. It can spur growth when it was channeled for training of military personnel not only on tactical training but on other skill acquisition that have spillover effect on the private sector of the economy like computer technology, Engineering, building technology etc. On the other hand if the fund meant for military institution was misappropriated by top military officials, then its effect on the economy is better imagined. And since mismanagement of public resources is the norm in our public sector, reorientation of our public servants and top military officers on the need for selfless service to the country is imperative. It is only when there is judicious use of public expenditure in the country that we can expect military expenditure to become

significantly related to economic growth in Nigeria

Recommendations

Having established in our empirical analysis that military expenditure and economic growth are positively related, this study thus recommends that the policy makers of Nigeria should pursue the policy objectives of defence and economic growth together. And that funds budgeted for military sector should be judiciously utilized not only for the growth of that sector but also for the private sector of the economy. Furthermore, for Nigeria economy to attain high level of growth, government at all levels must invest in human capital development in order that labour resources will acquire the needed skills that drives growth in the emerging economies like the Asian Tigers, China and India. In addition, domestic savings should be given adequate attention by the policy makers because, for an economy to grow and develop, there must be investment but that will only be possible in the presence of abundant capital formation.

Suggestions for Further Studies

This paper has established a clear and concise relationship between military expenditure and economic growth in Nigeria thereby paving way for innovation future research in this field of study. From military expenditure and economic growth relationship nexus perspectives future researchers can examine the issue of endogeneity. Emphasis has always been on the exogeneity of military expenditure variable in the growth equation with researchers arguing that since expenditure in the military sector is part of public sector budget, it will always be influenced by variations in economic growth. The emphasis on this future studies should be on the creation of a sustainable instrument that will correlate with military expenditure but not with economic growth. Another area that future researchers should beam their touch light is the turning point of military expenditure. This turning point will represent the optimal amount of money needed in the military sector for security purposes in the country that will not hinder/ crowd out investment in the economy. While the long and short –run results in chapter four (Auto Regressive Distributive Lag results) found military expenditure, physical capital and labour force to be statistical insignificant, future studies should endeavour to unravel the cause of deviation of those three variables from apriori expectations in the growth equation. In addition, using non-linear Auto Regressive Distributive lag model to examine the endogeneity in military expenditure may yield an optimal result that will help the policy makers to know the areas in the military sector that employs its resource efficiently.

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