MILITARY EXPENDITURE AND ECONOMIC GROWTH IN NIGERIA

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Abstract
The study investigated the relationship between military expenditure and economic growth in Nigeria from 1981 – 2019. Secondary data from CBN statistical bulletin and World Bank database for real GDP (gross domestic product), Gross fixed capital formation, military expenditure was applied were analyzed using the Vector Error Correction Model (VECM). Two dummy variables were also used to model the period of military regime and Boko-Haram terrorist activities in Nigeria. Military expenditure has a negative effect on economic growth in Nigeria. The study also revealed that Boko-haram activities in Nigeria have drastically reduced growth in Nigeria. Results also showed that when Nigeria was under military regime affected economic growth negatively. The study, recommends strategic ways of spending funds allocated for military activities and ways to ensure security in Nigeria to enable economic growth. Nigeria should also try to start producing armament so that importing of military wares to save resources for development of other sectors of the economy. The military should stay out of Governance role and focus on protection of Nation boundaries from internal and external confrontation.
Keywords: VECM, Economic growth, GDP, Boko-Haram. Military regime

Introduction

The influence of military spending on the macro economy has remained a research issue among economists. There are several channel by which military expenditure exert its influence on the economy as different channel lead to diverse conclusion and ambiguous in some instances. There is still no uniform conclusion that the influence of military expenditure on economic growth is positive, negative or insignificant (Alptekin and Levine 2012).

Substantial studies have emerged since the late 1970s. There is a general view that the positive influence of military spending on the economy is offset by the negative influence and thus, military expenditure does not have any influence on the economy. A broader perspective to this visualized a security related positive effect of military spending on economic factors and supply side spill-over. There is a negative effect as a consequence of diversion of productive resources away from the civilian economy. For instance, the rise of terrorist activities of the radical Islamic group, Boko=Haram in Nigeria has channelled resources away from civilian related expenditure to military spending. Prio to this period, the Nigerian economy has witnessed frequent change in power from civilian to military regime and from one military regime to another military regime.

This study modelled the influence of Boko-haram terrorist activities and military to civilian government in investigating the relationship between military spending and economic growth in Nigeria. As a time of writing this paper, there was no similar literature in Nigeria. The rest of this paper is as follows. Section 2 presents literature; section 3 and 4 presents the data methodology respectively while section 5 is conclusion.

Literature review

The research article by Saadet Deger and Ron Smith (1983) explores the relationship between military spending and economic development in developing countries using cross-sectional data in a macro statical context. They discovered that military spending has a detrimental impact on economic growth, slowing production.

Ayodele F Odusola (1996) used the simultaneous equation model and the two-stage least square estimation technique   This paper examines the impact of military spending on Nigeria's economic development from 1970 to 1994. According to the findings of this report, cutting military spending would boost productivity.

Julide Yildirim, Selami Sezgin, and Nadir Ocal (2005) carried out a research using Cross-section and dynamic panel technique used to analyse the relationship between military spending and economic development. Defence spending aids economic recovery in Middle Eastern nations, according to empirical analysis.

The relationship between military spending and economic increase using Granger's causality technique is examined in an article by Hsin-Chen Chang, Bwo-Nung Huang, Chin Wei Yang (2006). The results suggest that the economic performance of low-income countries is negatively impacted by military spending.

The study carried out on the effect of military spending on economic development through non-linear approaches by Albert J. F Yang and William N. Trumbull (2011). It was discovered that military expenditure has a negative effect on economic growth.

Sam S Enimola and Akungba Akoko (2011) used the supply model and the development function suggested by Feder and Ram to show empirical evidence on the relationship between the pace of economic growth and defence spending in Nigeria from 1977 to 2006. The Granger causality tests reveal that there is a unidirectional causal relationship between

economic development and military spending. This study suggests that increasing the military budget to support economic development growth in Nigeria is ineffective, and that the same funds can also be channelled into other government programs.

Sarah Anyanwu and John Olu-Coris Aiyedogbon (2011) used the vector-error correction model to achieve their goal. The paper looks at the relationship between military spending and Nigerian economic development. The findings suggest that both variables have a long-term relationship. In the long and short term, there is a good connection between military ties and economic development. The current level of military spending should be maintained, according to the report.

Na Hou and Bo Chen (2013) conducted a study that used a solow growth model to look at the impact of military spending on economic growth in 35 developed countries. According to the empirical findings, defence has a detrimental and important impact on economic development in the countries studied.

A study was conducted by Olumuyiwa Tolulope Apansile and Olalekan Charles Okulola, (2014). The autoregressive distributive lag is used (ARDL). The report suggests that the government should cut defence expenditures and focus more on human capital growth, since military spending has little immediate impact on production.

Autoregressive distributive lag (ARDL) was used by Ourania Dimitraki and Sander Win (2015) to investigate the association between military spending and economic development. The findings of this study reveal that military spending has a detrimental effect on economic development.

Data and methodology

Annual data crossing from the year 1981 to 2019 for military expenditure, gross fixed capital formation and real gross domestic product were gathered from the central bank of Nigeria (CBN) statistical bulletin. Dummy variables were also used to represent the Boko-haram activities and military regime in Nigeria.

The study will apply Johansen co-integration and the vector error correlation model (VECM).

Model Specification

The linkage between military expenditure and economic growth has occupied a central position in the development literature.

The model in its functional form is presented as follows:

$Y= f(x)$…………………………(1)

$RGDP = f(MIEX)$.....................(2)

Introducing other control variables that have been shown in the literature to have significant influence on economic growth, such as gross fixed capital formation (GFCF) and labor force (LF) then equation (1) becomes

$RGDP = f(MIEX, GFCF, DUM_{MilitaryRule} \ DUM_{BHaram})$........................(3)

Where:

RGDP = real gross domestic product

MIEX = Military expenditure

GFCF = gross fixed capital formation

$DUM_{Military\ Regime}$ = Dummy variable for the period of Military rule in Nigeria

DUM_{BHaram}= Dummy variable for Period of intense terrorist activities of Boko Haram.

The model in its econometric linear form can be written as:

RGDP = $\beta_0 + \beta_1 MIEX + \beta_2 GFCF + DUM_{Military\ Regime} + DUM_{BHaram} + \mu$........ (4)

The model in the log form can be expressed as:

lnRGDP = b0 + $\beta_1 lnMIEX + \beta_2 lnGFCF + DUM_{Military\ Regime} + DUM_{BHaram} + \mu$........ (5)

Where

DUMM is dummy variable. It takes the value of 0 before an event occurs and 1 after event occurred. The event in this case is the Military regime/civilian government (where dummy variable takes the value of 0) and DUMM Boko-haram as dummy for book-haram activities (zero before the rise of Boko-Haram and 1 after emergence of Boko-Haram).

Results

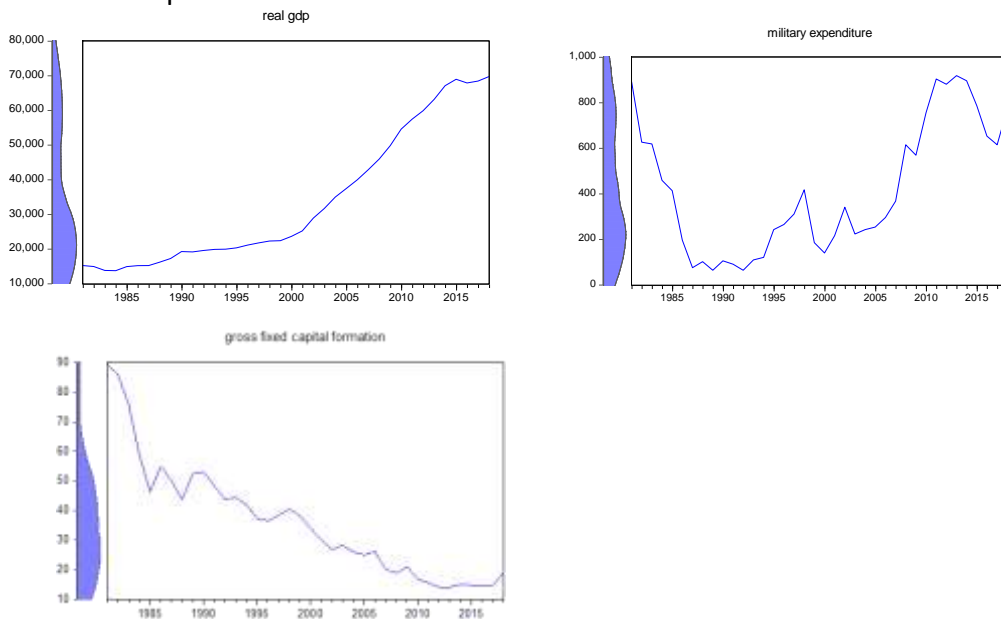Figure1: time series plot for military expenditure, gross fixed capital formation, and real gross domestic product.

Table 1. Descriptive analysis:

	LREAL_GDP	LMILEX	LGFCF
Mean	10.26893	5.742393	3.450916
Median	10.04588	5.788266	3.563678
Maximum	11.15339	6.823939	4.492965
Minimum	9.530920	4.168214	2.651037
Std. Dev.	0.561188	0.831639	0.538446
Skewness	0.344391	-0.366711	0.344391
Kurtosis	1.630020	1.949720	1.991764

Table 2: Tabular Representation of the Augmented Dickey Fuller Test Result

Level	First Difference

Variable	Coefficient	Variable	Coefficient
Lgfcf	-2.31	Lgfcf	-5.62**
Lmilex	-2.77	Lmilex	-5.83**
Lreal_Gdp	-0.29	Lreal_Gdp	-3.31**

Where *, **, *** Represent Statistically Significant At 10%, 5%, 1%

In the table above we can see the results whereby log of gross fixed capital formation, log of military expenditure and log of real GDP are stationary at first difference which made us reject the null hypothesis because their respective absolute test statistic is greater than their 5% critical values therefore, we can accept the alternative hypothesis

Table 3: Result of Heteroscedasticity Using Breusch-Pagan-Godfrey

F-statistic	0.276715	Prob. F(4,33)	0.8909
Obs*R-squared	1.233201	Prob. Chi-Square(4)	0.8726
Scaled explained SS	0.934471	Prob. Chi-Square(4)	0.9196

Table 4: Johansen Co-integration - Trace Statistics.

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.490136	38.96476	29.79707	0.0034
At most 1	0.328797	14.71473	15.49471	0.0653
At most 2	0.010008	0.362120	3.841466	0.5473

Table 5: Johansen result based on Maximum Eigenvalue

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.490136	24.25003	21.13162	0.0176
At most 1 *	0.328797	14.35261	14.26460	0.0484
At most 2	0.010008	0.362120	3.841466	0.5473

Table 6: Results of the Estimated VECM Long-Run

Cointegrating Eq:	CointEq1
LREAL_GDP (-1)	1.000000
LMILEX(-1)	0.317067 (0.12789) [2.47919]
LGFCF(-1)	2.666108 (0.29387) [9.07226]
DUM_REGIME(-1)	0.564445

	(0.23831)
	[2.36851]
DUM_BK(-1)	0.486056
	(0.31744)
	[1.53115]
C	-21.71317

Table 7: Results of the Estimated VECM Short-Run

Error Correction:	D(LRGDP)	D(LMILEX)	D(LGFCF)	Dum_regime	Dum_bk
CointEq1	-0.023733**	-0.081924	-0.092319***	-0.313864	-0.006882
	(0.01211)	(0.13651)	(0.03837)	(0.06516)	(0.05728)
	[-1.95973]	[-0.60015]	[-2.40600]	[-4.81667]	[-0.12014]
D(LREAL_GDP(-1))	0.543748***	-1.065341	0.249702	0.178299	1.533322*
	(0.17693)	(1.99439)	(0.56059)	(0.95202)	(0.83692)
	[3.07319]	[-0.53417]	[0.44543]	[0.18729]	[1.83211]
D(LMILEX(-1))	-0.023412*	0.077560	0.038167	-0.189494	-0.139809*
	(0.01805)	(0.20348)	(0.05719)	(0.09713)	(0.08539)
	[-1.29692]	[0.38117]	[0.66732]	[-1.95093]	[-1.63736]
D(LGFCF(-1))	-0.056720	-0.109351	0.005114	-0.152686	0.159699
	(0.05826)	(0.65675)	(0.18460)	(0.31350)	(0.27560)
	[-0.97351]	[-0.16650]	[0.02770]	[-0.48704]	[0.57947]
D(DUM_REGIME(-1))	-0.021905	0.385055	-0.018040	-0.272154	-0.126261
	(0.02901)	(0.32703)	(0.09192)	(0.15611)	(0.13724)
	[-0.75502]	[1.17741]	[-0.19625]	[-1.74334]	[-0.92003]
D(DUM_BK(-1))	-0.000567	0.112839	0.003042	0.077994	-0.098871
	(0.03775)	(0.42548)	(0.11960)	(0.20310)	(0.17855)
	[-0.01501]	[0.26520]	[0.02544]	[0.38401]	[-0.55375]
C	0.016989*	0.042517	-0.051745*	-0.019213	-0.026874
	(0.01004)	(0.11318)	(0.03181)	(0.05402)	(0.04749)
	[1.69208]	[0.37567]	[-1.62658]	[-0.35563]	[-0.56585]

Standard error in () & t-statistics in []
*, **.***, represents statistical significance at 10%, 5%, and 1% respectively

Johansen co-integration tests show that there is a long-run relationship among variables.Regression analysis was conducted using Vector Error Correction Model. Result obtained showed that gross domestic product has a significant positive effect on economic growth both on the long-run and on the short-run. The result further observed that there is a negative effect of military expenditure, gross fixed capital formation, and military regime and Boko-haram activities on economic growth in Nigeria.

Table 8:
Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	0.276715	Prob. F(4,33)	0.8909
Obs*R-squared	1.233201	Prob. Chi-Square(4)	0.8726
Scaled explained SS	0.934471	Prob. Chi-Square(4)	0.9196

Table 9:

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	12.94579	Prob. F(1,32)	0.0011
Obs*R-squared	10.94518	Prob. Chi-Square(1)	0.0009

Figure 2: normality test
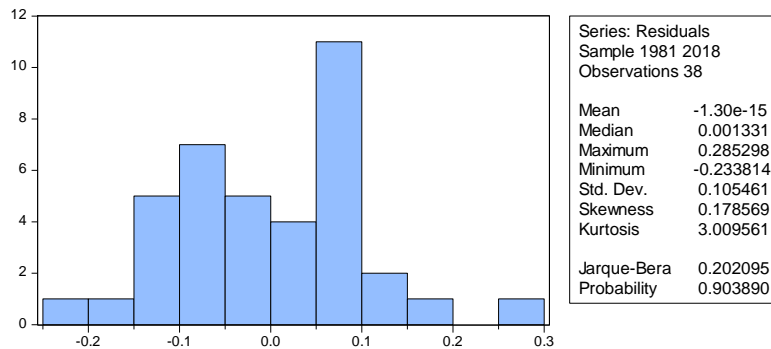
Discussion

The econometric tool used for this study was the VECM test which was used to determine the level of impact that one variable has on the other. The result indicates that economic growth has no significant effect on military expenditure in Nigeria. Regression analysis was conducted using the vector error correction model. The real GDP coefficient relating to the VECM term is negative at -0.023733 but it is statistically significant (0.0519). In lag (1) period of GDP has a positive and statistic significant impact of 0.543748 on GDP on autoregressive effect. GDP has an impact on itself.

GDP and MILEX -0.023412 and -1.29692 shows that there is a negative relationship between GDP and MILEX. This is because most of the funding's provided by government to fight Boko-haram have been syphoned by corrupt leaders. The terrorist has more sophisticated arms than the military. The military is not provided with weapons that can match those of the terrorist. Thus, military spending has not been effective in combating terrorist. The relationship between Dum_Bk and MILEX shows a negative relationship which indicates that as the Boko-Haram activities reduces military expenditure will also decrease. GDP and Dum_regime has a negative relationship -0.021905 and -0.75502. This was the period Nigeria was under military rule and spent a lot of funds on arms, and exportation of locally made products reduced because foreign countries did not want to associate with Nigeria. GDP and Dum_Bk also have a negative relationship because of the high level of insecurity in Nigeria which discouraged a lot of investors from investing in the economy and also brought about high level of migration and high death rate in Nigeria.

Recommendation

Nigeria military should focus on tackling the terrorist activities of Boko-haram. Adequate training of military personnel should be ensured so that they can be ready for war at any given time. In order to ensure security for citizens. Appointing of leaders who are not corrupt to make sure the funds spent on military will be efficiently used.   Nigeria should also try to start producing armament so that importing of military wares will be decrease and increase economic growth. Once these are done and the citizens can move freely to do their jobs or trades, economic growth will be guaranteed.

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