

# **Military Expenditure, Oil Revenue and Economic Growth in Nigeria: A Joint-Interactive Term Approach**

**Wasiu O Abimbola**

*Department of Economics, Federal College of Education (special), Nigeria  
abimbola.wasiu@fcesoyo.edu.ng*

**ABSTRACT:** The role of the Nigerian military in ensuring smooth operation and exportation of crude oil cannot be overemphasized. This is owing to the fact that the chunk of Nigeria's foreign exchange earnings comes from crude oil exportation. Boris (2015) confirms that oil is arguably the livelihood of the modern economy and it has now become the most essential commodity in the world. It is a statement of the fact that oil revenue is the major source at which governments at all levels in Nigeria finance their budgets. This is why the Nigerian military would leave no stone unturned in protecting the nation's source of living. However, while some scholars believe military expenditure plays a positive role in the economies of developing countries, others view the role as detrimental. One of the reasons why the analysis of military expenditure has not led to a conclusive result might be due to the non-identification of the correct channel. Investigating the role of the military sector on economic growth via the Nigeria oil sector may therefore be a good channel of analysis. Therefore, this paper tries to mainly investigate the joint nexus between military expenditure and oil revenue, and economic growth in Nigeria. To achieve this, time series data were gathered and analyzed using OLS technique with the aid of EVIEWS 10 package. The model used included a joint-interactive term. The result of the analysis reveals that military expenditure is individually statistically and significantly positive with economic growth. Though, as a joint interactive term with oil revenue, it is negatively statistically insignificant but this might be due to the oil revenue being individually statistically insignificant. The study, therefore, recommended military expenditure as one of the factors the Nigerian government should employ in influencing her economic growth.

**KEYWORDS:** Defense Spending, military expenditure, oil revenue, economic growth

## **Introduction**

The role of the Nigerian military in ensuring smooth operation and exportation of crude oil can not be overemphasized. This is owing to the fact that the chunk of Nigeria's foreign exchange earnings comes from crude oil exportation. Boris (2015) confirms that oil is arguably the livelihood of modern economy and it has now become the most essential commodity in the world. It is a statement of the fact that oil revenue is the major source at which governments at all levels in Nigeria finance their budgets. Infact, Adenugba and Dipo (2013) assert that Nigeria's growth depends majorly on one export commodity which they identified as crude oil. Aregbeyen and Komolafe (2015) put the daily exploration of crude oil in Nigeria at 2.3 million barrels per day from about 37.2 billion barrels oil reserves with additional endowment of 187 trillion (ft<sup>3</sup>) of natural gas. There is no gainsaying that crude oil is an important vehicle driving the Nigerian economy as it accounts for about 90% of the nation's exports while also contributing about 80% of total government revenues (Budina, Pang and Wijingergen, 2007). This is why the Nigeria's military would leave no stone unturned in protecting the nation's source of living. Abimbola (2019) corroborated this statement by stating that without the defense sector, there might not be a desired enabling environment and institutions required for the growth of the Nigerian economy to be achieved. The role of the Nigerian defence sector in tackling the activities of oil bunkerers, vandals and smugglers sabotaging the growth of the oil sector together with its contribution to the nation's

GDP is what guarantees the stable operations of the nation's source of wealth. Abimbola and Onazi (2018) opine that the Nigerian military system is an internal mechanism that protects and ensure smooth operations, distribution and exportation of this important commodity. It is on record that militants such as the Niger-Delta Avengers (NDA), Movement for the Emancipation of Niger-Delta (MEND), Movement for Actualisation of Sovereign State of Biafra (MASSOB) and a host of others have been successfully tackled by the Nigerian Military. Between 1999 and 2017, when democratic rule returned in Nigeria, many Oil workers and expatriates were continually kidnapped for ransom while many were even killed with oil facilities shut down by dissidents. These militants have targeted oil facilities disrupting smooth operations and consequently leading to drops in oil output. For instance, in the year 2016, oil outputs significantly dropped from 2.2 million barrels per day to 1.4 million, hitting the Nigerian economy badly when oil facilities such as that of Chevron were shut down by the Niger-Delta Avengers (Maclean, 2016). This partly contributed to the recession the country experienced thereafter. It is worth noting that increased military engagement implies increased military expenditure which is majorly financed from oil revenue. An instance of this is the withdrawal of \$496 million from the excess crude account in the year 2018 which was made to purchase military hardware from the United States (Busari, 2018). Therefore, investigating the nexus between military expenditure and economic growth on the Nigerian economy via oil revenue is the task this study sets out to perform.

### **Statement of the Problem and Justification**

Debate on the role of military expenditure on economic growth is still a burning issue. The analysis of the impact of the defence spending in relation to economic growth and development, security and governance is a complicated issue that is still open to debate (Deger and Sen, 1995). While Benoit (1978) finds that military expenditure plays a positive role in the economies of developing countries some other scholars believe the role is negative (see Deger and Sen, 1983). One of the reasons why the analysis of military expenditure on growth has not led to conclusive result might be due to the identification of the correct theoretical channel through which military expenditure exerts positive role on economic growth (Abimbola, 2019). Focusing on the sector where the bulk of the military operation is engaged in Nigeria might give a clue and lay to rest the raging debate on the role of the defense spending on growth. The oil sector, which contributes about 90% to Nigeria's foreign earnings and where the military operates majorly to protect and provide manageable environment in order to ensure non-internal interruptions, might be a good channel. Abimbola (2019) asserts the role of the Nigerian military as he states that Nigeria has been experiencing high military presence in all corners of her domestic economy due to violence and terrorism threats especially in the North-East and South-South geo political zones of the country which are very strategic in ensuring growth in the nation's outputs. Abimbola and Onazi (2018) corroborated this assertion as they stated that it is sufficing to say that economically, crude oil revenue is greatly important to the Nigerian economy while its exploration takes place in a highly violence volatile region of the country – the Niger-Delta. Therefore, using an approach where the two sectors are jointly analysed with the inclusion of an interactive term might lead to a right conclusion the defense spending-growth nexus, and the right channel- the oil revenue. This justifies the gap that has been left unfilled as no study to the best of knowledge of this research work has been able to investigate the role of defense spending on growth in Nigeria via her oil resource.

### **Objectives of the Study and Scope**

The main focus of this research work is to investigate the nexus between defense spending captured by the military expenditure and economic growth in Nigeria through oil revenue.

Some other specific objectives are to investigate the individual roles military expenditure and oil revenue exert on Nigeria's economy. The scope covers a 43-year timeseries data from 1977 to 2019.

### **Empirical Literature Review**

Grober and Porter (1989), in their work, reviewed Benoit's (1978) study in which he finds positive cross-country correlation of 0.55 between defense spending and economic growth in less developed countries. Their review only critically compared and contrasted the theoretical linkage between military spending and economic growth used by Benoit and his findings. Furthermore, their study also compared model specification in terms of single and structural models and analysis with those of other authors such as Deger (1986), Deger and Sen (1983) and Deger and Smith (1983) who also conducted their studies on LDCs. However, their study did not on its own carry out any analytical research, but it was just a critique of others.

In a related review, Dunne and Tian (2015) used a multiple regression analysis with panel data divided into sub-samples. Their study used exogenous growth model with a data set across 104 countries covering a period of 22 years from 1988 to 2010. Dunne and Tian (2015) concluded that the effect of military expenditure is adverse and detrimental as they study revealed a significant negative nexus between defense spending and economic growth. However, even though the researchers tried to be wholistic in the series of data used, they failed to adopt or explicitly state the theoretical framework employed for their work. Adopting a theory of defense could have shown the mechanism through which military defense could influence growth and build their apriori expectation.

Cappelen, Gleidtsch and Bjerkholt (1984) used "pooled cross sectional and longitudinal data" on 17 OECD countries covering a period of 20 years from 1960 to 1980 with 2-Stage Least Squares (2SLS) method to estimate the structural form of the model while the reduced form was estimated using OLS. The findings of their model revealed defense spending has crowd-out effect on investment and a small positive impact on growth.

As a corollary to Aizenmang and Glick (2006), Pieroni (2009) using endogenous growth model examined the nexus between defense spending and economic growth with cross country sectional data. He modelled defense spending as a production function on its own and then specified its nexus with growth as non-linear relationship with the application of Cobb-Douglas production function. The result of the model shows a significant negative direct impact of defense spending on growth though only with the inclusion of an interactive factor. The result is opposite with insignificant positive effect with countries with low military burden.

Yildirim, Sezgin and Ocal (2005), in determining the effects of defense spending on economic growth, used crosssectional sample data gathered from some developing countries in the Middle East, including Turkey. Their data covers a ten-year period from 1989 to 1999. The researchers then used panel estimation technique specifically called the fixed effect model to estimate their models. The result of their analysis showed a positive significant relationship between defense spending and economic growth. Therefore, they concluded that "military expenditure enhances economic growth in the Middle Eastern countries and Turkey as a whole".

It needs to be noted however, that none of the empirical studies so far touched oil revenue in their investigation of military expenditure and growth. Some of the studies that focus on this observation are reviewed as below:

### **Model Specification and Methodology**

This study adopts the model used by Dunne, Smith and Wilenbockel (2005). The model was also used by Abimbola and Onazi (2018) to investigate the relationship between oil revenue and economic growth. It is an augmented Solow growth model but with some modifications to include an interactive term, military expenditure and oil revenue. and economic growth. The model is as presented below:

$$\ln y = \alpha_0 + \alpha_1 \ln l + \alpha_2 \ln k + \alpha_3 \ln m + \alpha_4 \ln o\_r + \alpha_5 \ln m\_or + \alpha_6 \ln s + \alpha_7 \ln m\_f + \alpha_8 \ln crp + \alpha_9 \ln x + \varepsilon$$

Where  $\ln y$ ,  $\ln m$ ,  $\ln o\_r$ ,  $\ln m\_or$ , are the key variables of the model respectively implying log of real GDP, labour force, military expenditure, oil revenue and the interactive term (that is, military expenditure\*oil revenue) with control variables  $s$ , standing for gross savings,  $\ln m\_f$ , manufacturing sector,  $crp$ , domestic credit to the private sector,  $\ln x$ , exports, and  $\ln k$ , capital stock while  $\varepsilon$  is the error term. The parameters  $\alpha_1, \alpha_2, \alpha_3, \alpha_4, \alpha_6, \alpha_7, \alpha_8$ , and  $\alpha_9$  are all expected to be greater than zero. The estimation technique employed by the study is ordinary least square such as used by Aizenman and Glick (2006) and Abimbola and Onazi (2018). The data for the analysis were all sourced from World Bank World Development Indicator (WDI).

### Preliminary Analysis

The analysis of correlation matrix carried out on the data set shows low positive correlation of 0.4, 0.2, 0.14, 0.05 and 0.4 respectively between military expenditure, oil revenue, the interactive term, labour force and capital formation with GDP.

The descriptive statistic check carried out on the data indicates the variables have their mean and median within the minimum and maximum values implying high level of data consistency with low standard deviations. In addition, the unit root test for the data revealed that none of the series is stationary at 5% significance level using both ADF and Philip Peron but however integrated at I(1) after first difference while long run relationship was established among the variables using Johansen cointegration test with 6 cointegrating equations at 5% level of significance.

### Result and Interpretations

Variables	Coefficients	Standard Error	Others
C	-68.99900**	10.17940	
Ln l	3.394974**	0.707611	R <sup>2</sup> 0.998797 Adjusted R <sup>2</sup> 0.998324
Ln k	0.080863	0.120020	Ser 0.102738
Ln m	0.236282**	0.054350	Durbin Watson 2.033242
ln o_r	-0.002250	0.004303	Number of Observation 43
ln m_or	-2.93E14	5.12E14	level of significance: 5%
Ln s	0.036641	0.047807	(**p<.05 implies significant at 5% level)
Ln x	0.300095**	0.079113	The dependent variable is real GDP
ln m_f	-0.033670	0.189761	represented by ln y
Crp	-0.011528**	0.004779	

The result above indicates that the coefficient of military expenditure is positively statistically significant and conforms with its apriori criteria and the findings of Deger and Sen (1983). However, the coefficient of oil revenue ( $\ln o_r$ ) and the interactive term ( $\ln m_{or}$ ) are both negative but statistically insignificant. Since oil revenue itself is statistically insignificant and negative, then it means that it is not a good channel through which military expenditure could exert positive relationship with growth. It also implies that the interactive effect of oil revenue and the military sector does not enhance economic growth in Nigeria. The above results imply that the impact of the military sector on the Nigerian economy is independent of its oil sector. This could be due to the socio-political efforts of the military in Nigeria. For instance, the Nigerian military has schools and hospitals well accessible to the public. They established a university that is 70% civilian driven. They also train and conduct orientation to citizens such as the empowerment training and education of former militants both locally and abroad through the amnesty office. Politically, they have also governed the country for about 24 years (1976-1999) within the sample period of this study. All these could yield a high positive direct or spinoff effect of military expenditure on economic growth in Nigeria.

### Conclusion and Recommendation

The main aim of this study was to examine the impact of military expenditure on Nigeria's economy through oil revenue. The OLS result revealed that defense spending is a significant factor determining economic growth in Nigeria as the finding of the analysis indicated a positive relationship between military expenditure and economic growth which is significant at 5% critical level. This relationship, which conforms to a priori expectation, implies that the more the Nigerian government spends on its military sector, the more economic growth is influenced in the economy. However, analysis of the result also revealed that military expenditure is insignificantly and negatively related with economic growth when captured via oil revenue using an interactive term which is the product of military expenditure and oil revenue. Consequently, it can be concluded that military expenditure exerts positive impact on Nigeria's economy but its role via oil sector is negatively insignificant using joint interactive term. Therefore, this study recommended military expenditure as one of the factors Nigerian government should employ in influencing her economic growth.

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