Innovations

Empirical Investigation of the Political Determinants of Defense Expenditure: Evidence from Sub-Saharan Africa

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Abstract : Problem: *Sub Saharan Africa (SSA) is a region that is very young in terms of democratic practices. This is due to the fact that most SSA countries fought for their independence which was given to the countries in the region by the Colonialists who are mostly from the United Kingdom, Portugal, France, Belgium etc. This independence was gotten within the period1960 to 1980. As a result, these new nations in SSA started forming political parties in other to form governments that will rule their country. However, SSA started witnessing large scale political instability since the reign of independence. This has led most SSA countries to have authoritarians as heads of state. In view of these problems, this research investigated the impact of political factors on defense expenditure in Sub-Saharan Africa (SSA).* ***Design/Methodology/Approach:*** *The study used data covering for the period 2000 to 2019. Variables used include previous defense expenditure, military in politics, ethnic conflict and external conflict. Descriptive statistics and unit root test were also carried out. The Generalized method of moment by Arrelano and Bond (1991) was used for estimation.* ***Findings:*** *The findings showed that apart from previous defense spending, other political factors determined defense expenditure remotely for the period of study.* ***Conclusion:*** *As a result of this, the study recommends that policy makers should always review previous military spending and their outcomes before carrying out any other expenditure on defense so as to avoid waste of scarce resources. Again, political factors should not be used as the only deciding factor when dealing with spending on defense so as to avoid arms importation which could be used to achieve political aims and for other negative purposes.*

Keywords: *Political, Determinants, Defense, Expenditure, Sub-Saharan Africa*
JEL Codes: *F52, H56, P26, P48*

1. Introduction

Sub Saharan Africa (SSA) is a region that is very young in terms of democratic practices. This is due to the fact that most SSA countries fought for their independence which was given to the countries in the region by the Colonialists who are mostly from the United Kingdom, Portugal, France, Belgium etc. This independence was gotten within the period1960 to 1980. As a result, these new nations in SSA started forming political parties in other to form governments that will rule their country. However, SSA started witnessing large scale political instability since the reign of independence (Dumitru and Hayat, 2007). This has led most SSA countries to have authoritarians as heads of state. Having authoritarians as leaders of most countries in SSA has led to having certain conflicts between the heads of states and rebel groups. Countries involved in this issue include Liberia, Sierra Leone, Congo, Uganda, Kenya, South Africa, Zimbabwe, Cameroon, Angola, Burundi, Chad etc. these countries have leaders who have ruled them for long periods of time and some other countries have been ruled by different rulers through coups. Such countries are Nigeria, Ghana, Burkina Faso etc.

These countries have had different rulers who rule without legitimacy. As a result, elections are rarely held in most of these countries. Political activities are not carried out regularly. About 70% of SSA citizens do not have access to basic civil liberties and human rights. Hitchcock (1993) traced these faults to colonial era where the Europeans were more interested in Africa's cash produce rather than developing Africa just as Europe is developed. Ethnic diversity is also another feature that is found in SSA countries. For example Nigeria alone has about 160 distinct ethnic groups. SSA countries are estimated to have over two thousand ethnic group. As a result of these large ethnic nationalities, it became very difficult to have just one state or nationhood and so conflicts arise in SSA countries especially within a country. African leaders though after independence, tried to provide national development as well as secure their territorial integrity by providing social services to the citizens; this was not enough to douse the growing tension of neglect within most countries in SSA. This may have also been supported by the extent of political ideology prevalent within the system within the period. Eriksen and Tedin (2003) as cited in Connolly and Mason (2016) observed that political ideology can simply be referred to as a well arranged belief system focused directly on a society's culture and the process through which beliefs are achieved. In explaining the meaning of political factors, Saez and Sinha (2009) includes phenomenon such as level of political competition, timing of election, margin of victory, the ruling party's political ideology or thought.

SSA has witnessed large levels of militarization as suggested by Mohammed (1999). During the cold war era, developed nations gave SSA large amounts of military weapons and aid. This led into serious violence within the African region such that over hundreds of thousands have lost their lives due to this violence. As a result, coups and counter coups have occurred as well as ethnic and tribal conflict.

Defense spending of SSA countries on the other hand, has been given a broader definition by UN as cited by Tekeoglu (2008) to including all expenditures done in purchase of military hardwares like AK49, Ak 49, gun trucks, heavy motar tanks, recruitment, boots etc, construction of barracks, daily operational expenses and continuous research and development. Mohammed (1999) identifies spending made on military equipment with sole aim of protecting the citizens both within and outside the country's territorial space. As captured by the Stockholm International Peace Research Institute (SIPRI, 2017), defense spending can be attributed to three phases namely; the first phase (1960-1976) which was mainly driven by increase in price of petroleum products making a country like Nigeria have large revenue which enabled purchase of military weapons. The

purchase of military hardware in SSA was put at $ 14.7 billion. The second phase (1977 -1996) which was pushed by the World Bank and the International Monetary Fund advised SSA countries to adopt democratic principles and structural adjustment programme. This caused a reduction in defense spending of SSA countries to about $7.7 billion dollars. While the third period which dated from 1997 to 2014 saw widespread democratic practices within SSA countries and defense spending increased only minimally ($10 billion). It therefore suggest that defense spending in SSA has different causes. This paper therefore, investigates the political factors that influence defense spending in SSA countries. The rest of the paper is structured as follows: Section 2 is on the review of the literature, while section 3 is on the methodology. The presentation of results and discussion is presented in section 4, while section 5 concludes the study.

2.1 Brief Review of Literature

Theoretically**,** Wagner's law suggests that all governments have a tendency to be involved heavily in spending for the economy. The author noted most of government owned firms are increasing their expenditure as fast as the economy is growing as well, thus a functional relationship is evident. Critics had noted that Wagner was so ambiguous **electoral** with his conclusion on government spending. Therefore, it is observed that the specific sector government was spending on was not known. There are also other public expenditure theories such as Musgrave (1959), Samuelson's public expenditure theory (1954) amongst others. On the other hand, the competition theory by Desai (2020), assumes that during election periods, persons seeking for votes tend to promise the voters as well as creditors so as to increase their chances during elections. The theory concentrates more on the impact of proportional representation. This shows that the number of elected individuals a party has in the assembly, represents the number of votes the party has in the election.

Empirically, **t**here are plethora of studies that have been conducted to investigate the relationship between growth and military expenditure. However, only very few studies have been devoted to analyse the political determinants of defense spending in Nigeria and in Sub-Saharan Africa. For example, Collier and Hoeffler (2002) experimented on world military expenditures through threats, arms race and aid. Data collected was from 1960 to 1990. Using a regression analysis, their results showed that spending by neighbor-country influences military expenditure strongly.

Batchelor, Dunne and Lamb (2002) focused on the demand for military spending in South Africa covering the year 1963 to 1997. The study employed a simple model based on the elementary theory of demand. The findings of the regression analysis showed that trends in military expenditure in South Africa within the period of study is explained by an autoregressive procedure in defense burden which is dependent on some country-specific reasons. The reasons include the United Nation's ban on arms in 1977 as well as a change in government. These factors had negative effects on military spending. Again, the Angolan War and the nascent age of independence in South Africa saw a positive impact.

Bernauer, Koubi and Ernst (2006) studied the pattern of military expenditure in Switzerland between 1975 and 2001. The study sought to know if a country becomes neutral or non-aligned in international matters that are in military partnerships, what would happen to their military spending. The findings showed that being neutral in international alliances results in reduced foreign threats. This in turn reduces burden on military expenditures. They concluded that even in future, when there is foreign threat, as far as Switzerland does not involve in such alliance, their military spending will not increase. Furthermore, Whitten and Williams (2011) pooled time series data from 19 developed democracies just after the post world war 11. Their findings suggested ideology of government, international security environment influence defense expenditures in

these developed economies. The paper recommended that government ideology can be looked from a multidimensional form.

The research conducted by Waszkiewicz (2016) examined what actually influences increase or decrease in military expenditures in Greece and Turkey, two neighbors in Europe. Having obtained data that covers 1996-2014, the granger causality test was used for estimation. The findings showed that for Greece, there is a positive impact of economic activities on military spending which is further supported by Greece's membership in the European Union. While for Turkey, both political and economic activities affect defense spending. That is Turkey national security and economic activities influence the demand for Defense Expenditures.

Solarin (2018) studied the impact of globalization on defense spending using dynamic panel model with data covering the period 1989-2012 for 82 countries. The findings showed that globalization impacts negatively on both defense burden and real defense spending. Again, Aslam, Sheikh, Abbas and Masood (2014) used the Johansen-Julius Cointegration technique with a times series data from the year 1972 to 2012 in Pakistan. Their results showed that determinants of defense expenditure includes; regular war between Pakistan and India, atomic explosions, political stability. The paper recommended the abolishment of military rule and strengthening of democracy discourages race of nuclear weapons superiority and restoration of regional peace.

Furthermore, Kauder and potrafke (2015) also did a study of government's ideology on military spending in Germany within the year 1951 to 2011. Using political ideology on defense expenditure, the effect was neither positive nor negative. The obvious fact was because the political ideology was based on Comparative manifesto project. Using the measure, there was an increase in military expenditure. This effect was only noticed between 1951 and 1960. Defense spending was only seen to be influenced by political parties. They decide on the increase, decrease or fixed level of military spending. Also, another dimension that determines military spending as opined by the authors is international threats and risks.

In another study, Nordvang (2018) examined political ideology in relation to periodic parliamentary elections and its effect on Defense Spending in Norway. The research also looked at the internal economy and outside security environment. Data used, ranged from 1962 to 2016 and the Autoregressive Distributed Lag approach to cointegration using the pesaran, Shin and Smith (2001). The outcome suggested military spending is a little bit higher under the regime of right-wing non socialist with the same political strength in the legislative arm of government. The effect of this political ideology occurs very slowly overtime which may fully take effect in 10 years' time. The results also showed that during election years, defense expenditures tend to be higher.

Bartels (2011) analyzed the influence of public's defense spending preference in America after the cold war period. The period studied was between 1980 and 1992. The findings showed that Americans preference for defense expenditures reduced. About 60% of the population prefers less expenditure on military spending since after the Cold War era. The model used for estimation was Multiple Regression Analysis. In another study, Eichenberg and Stoll (2017) investigated the factors that impacts citizens' support for military expenditures for the year 2004 to 2013.Logistic regression analysis was used as the econometric technique for estimation. The findings revealed that citizens support for military spending is traced to their elementary beliefs and values.

Zielinski, Fordham and Schilde (2017) investigated the asymmetric impact of economic growth and international threat on military expenditures. The authors employed the fixed effect and random effect model. The results showed that there is evidence of asymmetric effect between economic growth and

international threat on defense spending. George and Sandler (2018) investigated the demand for military spending in NATO using a spatial panel approach for the year 1968 to 2015. The spatial models provide defense demand estimates that are amazingly consistent with those of the standard spillover model. The findings showed that free riding is prevalent in all three sets of estimates for the three different sample periods. Other studies such as Odokoro et al (2022) and Isaac et al (2021) have also investigated other dimensions of political developments and their relation with other macroeconomic variables in different economies and found divergent results.

In summary, the extant literature reviewed focused on other combining factors affecting defense spending in other climes. This research work is directly looking at political factors affecting defense spending in Sub-Saharan African countries.

3. Methodology

3.1 Theoretical Framework

The Adolph Wagner's (1883) public expenditure theory will be used. Wagner (1883) posits that as the economy increases, government's responsibilities in the economy increases as well. Two growth methods were also introduced by Wagner (1883). The methods are absolute increase in size of government spending and the growth in public service in relation to growth of the economy.

3.2 Research Design

The Ex-post-factor research procedure will be adopted. This type of research design strictly looks at the cause-effect type of link. Secondary data will be used. Data will be sourced from International Country Risk Guide (ICRG 2020). The period of study will range from 2000 to 2019. Due to limited data, twenty SSA countries will be used as our sample size. the unit root test by Levin, Lin and Chu (2002) will be used. The dynamic panel model of Arrelano and Bond (1991) will be used as our model of estimation. The reason why the dynamic pane model is used is because of its robust and precise estimate which is unbiased and less collinear.

Model Specification

The model will be specified following Bel and Elias-Moreno (2009).

$$Defexp = f(milpol, ethncnft, extcnflt) \ldots..1$$

Where Defexp – defense expenditure

Milpol – military in politics

Ethncnft – ethnic conflict

Extcnflt – external conflict

The dynamic panel model is stated as follows

$$lnDefexp_{it} = llnDefexp_{it-1} + milpol_{it} + ethncnft_{it} + etcnflt_{it} + \mu_{it} \ldots.2$$

DEFEXP means defense expenditure which is same thing as military expenditure in our data; milpol stands for military in politics, ethncnft means ethnic conflict, while etcncflt also stands for Eternal conflict. The subscripts i and t shows the individual country and time respectively. While the ln shows the natural logarithm of a variable. Then again, the μ_{it} is the error term which contains the unobserved country effect and all other variables.

4. Presentation and Analysis of Results

This section looks at the results which are presented in tabular form and the analysis follows each of the table presented.

4.1 Descriptive Statistics

Table 1: Descriptive Statistics

	LNDEFEXP	LLNDEFEXP	MILPOL	ETHNICTNSN	EXTERNCNFLT
Mean	0.187903	1.079165	2.787778	3.356806	9.7043
Median	0.232121	1.098612	2.5	3.5	9.52
Maximum	1.549605	1.609438	6	5	11.5
Minimum	-1.34614	0.223144	0	1.708333	5.375
Std. Dev.	0.546724	0.263408	1.382547	0.903048	1.128709
Skewness	-0.20966	0.130754	0.326829	0.048602	-0.87098
Kurtosis	3.096996	2.607933	2.442764	2.038432	4.101906
Jarque-Bera	2.31549	2.776289	9.22226	11.67576	53.10768
Probability	0.314194	0.249538	0.009941	0.002915	0
Sum	56.37096	323.7495	836.3333	1007.042	2911.29
Sum Sq. Dev.	89.37311	20.74582	571.5198	243.833	380.921
Observations	300	300	300	300	300

Source: Authors' Computation using Eviews9

Table 1 shows the descriptive statistics of objective three. From the table, it can be observed that defense expenditure has an average value of 0.18% with a standard deviation of 0.54 and the values range from -1.34 to 1.54. The variable military in politics has a mean of 2.7878, a standard deviation of 1.38. The minimum value is zero while the maximum value is 6. Similarly, external conflict has a mean of 9.70, a standard deviation of 1.12 and the minimum and maximum value is 5.3 and 12 respectively. Ethnic conflict has an average value of 3.356 with a standard deviation of 0.90, a minimum and maximum value of 1.71 and 5.

The skewness of lndefexp, llndefexp and external conflict are negative while milpol and ethnictnsn are positive. The kurtosis and Jarque-Bera test for normality is also reported which shows that the data is normally distributed. The observations for all variables are equal.

Table 2: Abridged result of the Unit root test by Levin et al (2002)

variables	t-statistic	p-value	1st difference t-statistic	p-value	order of integration
Lndefex	-2.41694	0.0078	-	-	I(0)
llndefex	-3.59133	0.0002	-	-	I(0)
Milpol	-2.69618	0.0035	-	-	I(0)
Ethncn	-20.9452	0	-	-	I(0)
extcnflt	-5.26098	0	-	-	I(0)

Source: Authors' computation using Eviews 9

Table 2 is the result of the unit root test by Levin et al (2002). The result showed that all variables are stationary at level form. This shows that the variables can be used for further econometric analysis

Table 3 summarized results of GMM estimation for model 3

Variable	Coefficient	Standard error	t-statistic	p>|t|
Llndefexp	0.5715	0.0805	7.10	0.000
Milpol	-0.0075	0.0433	-0.17	0.861
Externcnflt	-0.0695	0.0624	-1.11	0.265
Ethnctsn	0.1107	0.2541	0.44	0.663
Constant	0.3993	1.0951	0.36	0.715
AR(2)	-0.7865			0.4316
Wald	123.85			0.000
Instruments	96			
Countries	20			
Observations	260			

Source: Authors' computation using Stata

In table 3, the variable defense expenditure is in its lag form which is also in its logarithmic form. The impact of the lag of defense expenditure on current defense expenditure is positive and statistically significant. This means that when previous defense expenditure increases by 1%, current defense expenditure will increase by 0.57%. This result supports the research of Tambudzai (2003) where previous values of defense expenditure, positively influences current defense spending and the impact is statistically significant. This further suggest that in SSA countries there is consideration to previous defense spending before making current defense expenditure.

From table 3, it can be observed that military in politics has a negative impact on defense expenditure. However, the impact is not statistically significant. This result suggests that the impact of military in politics does not affect the amount devoted to defense spending. This result is in contrast to Wang (1998) wherein the author used length of military rule as a proxy for military in politics and the result obtained is positive and also statistically significant. The cause of difference is due to the proxy used and also the years of study as well as the methodology applied. In contrast to Wang (1998), Bove and Brauner (2011) examined the demand for military expenditure in Authoritarian regimes, they found out that during military regimes, the

demand for military expenditure is positive but statistically insignificant. Based on this contrasting report, it is very clear that the approach used matters as well as the period of study.

The variable external conflict has a negative impact on defense expenditure. The impact on domestic defense expenditure is not statistically significant. This result corroborates the study done by Kauder and Potrafke (2015) where international peace was used as a proxy for external conflict. The result obtained is a negative impact on growth rate in military expenditure and this impact does not have significant impact on military expenditure.

The last explanatory variable in table 3 is ethnic conflict. As expected external conflict has a positive impact on defense expenditure, but the impact is not statistically significant. This means that in SSA countries, the impact of ethnic conflict does not influence the defense budget. This result is in support of Albalate, Bel and Elias (2012) whereby they used previous war as proxy for ethnic conflict. Their result showed a positive impact on defense expenditure but such impact is not statistically significant. This means that in determining defense expenditure, ethnic factor does not play a significant role in determining the amount that will be spent on defense expenditure.

The AR(2) is a test that proves if there is no autocorrelation in the data. As such, using the p-value as the basis to test for absence of autocorrelation, when the p-value is greater than 5% level of significance, the decision states that we do not reject the null hypothesis. Since the p-value is -0.7865 which is greater than 5%, it means we cannot reject the null hypothesis and conclude that there is no autocorrelation in the data. Number of instruments used totaled ninety six (96) and total number of countries used is twenty.

5. Conclusion and Recommendation

This study was done to investigate solely the political determinants of defense expenditure in SSA countries. Having subjected the study to econometric procedures such as the unit root test by Levin et al (2002) and the Generalized method moment (GMM) by Arellano and Bond (1991), the findings showed that apart from previous defense spending, no other political factors determined defense expenditure for the period of study. As a result of this, the study recommends that policy makers should always review previous military spending and their outcomes before carrying out any other expenditure on defense so as to avoid waste of scarce resources. Again, political factors should not be used as the only deciding factor when dealing with spending on defense so as to avoid arms importation which could be used to achieve political aims and for other negative purposes.

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