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Nigeria: Does Terrorism Spring from Economic Conditions?

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Abstract
Over the last half-century, Nigeria has become one of Africa's three giants along with Egypt and South Africa, thereby gaining considerable clout on the regional and global arenas. It is Africa's largest oil producer and recent finds ensure Nigeria's significance in the energy market for the foreseeable future. But the country has an inability or an unwillingness to distribute economic resources and development programs equitably. The primary objective of this paper is to find out whether economic condition leads to domestic terrorism in the country, as the contemporary Nigeria society is engulfed by terrible acts of Terrorism. This paper uses annual data for the time period 1970-2016 and the multivariate regression results suggest that government expenditure hinders terrorism, whereas macroeconomic policies foster it. Possible reasons for the outcomes and the policy implications of the findings were discussed.

Keywords: Terrorism, Economic Deprivation, Nigeria.

1. Introduction

Nigeria is Africa's most populous country and the 9th most populous country in the world. With an estimated population of 150 million, one in every five Africans is a Nigerian (UNICEF Nigeria, 2007).The country has been undergoing explosive population growth and has one of the highest growth and fertility rates in the world. By UN estimates, Nigeria will be one of the countries responsible for most of the world's total population increase by 2050.Nigeria is home to four large ethnic groups: Fulani, Hausa, Igbo and Yoruba and there are as many as 350 languages spoken across the country. The country has a federal system of administration with a Federal Capital Territory (FCT), 36 States and 774 Local Government Areas.

Nigeria has one of the fastest growing economies in the world. Petroleum and oil resources play a large role in the Nigerian economy. The country is the 6th largest producer of petroleum in the world; it is the 8th largest exporter and has the 10th largest proven reserves (UNICEF Nigeria, 2007). While the revenues made from oil provide the largest source of income for Nigeria, the country has become overly-dependent on its oil sector whereas other areas of the economy such as agriculture, palm oil production and coconut processing are in decline. Nigeria possesses a stark dichotomy of wealth and poverty. In spite of the country's vast oil wealth, the majority of Nigerians are poor with 71 per cent of the population living on less than one dollar a day and 92 per cent on less than two dollars a day(UNICEF Nigeria, 2007).Although the country is rich in natural resources, its economy cannot yet meet the basic needs of the people. Such disparity between the growth of the GDP and the increasing poverty is indicative of a skewed distribution of Nigeria's wealth (UNICEF Nigeria, 2007).

Terrorism in Nigeria is going out of hand. Nigerians are generally religious inclined, hence the multiplicity of religious groups in the country, which in itself testifies to the sociopolitical and economic diversity of the Nigerian society (Naijagist, 2012). The main objective of this paper is to find out whether economic deprivation leads to terrorism in Nigeria, consequent on that, suggestions to reduce the incidence of terrorism can be made. Empirical studies investigating the root causes of terrorist incidents generally employ traditional cross sectional analysis, implicitly assuming the same economic, social and political environments for countries under consideration. This is a highly restrictive assumption and may result in heterogeneity bias. Resorting to country studies rather than cross-

country analysis may overcome such a heterogeneity bias. As such, following the introductory section, Section 2 of this paper provides some stylize facts on the economic situation of Nigeria and level of terrorist activities. A review of related literature is presented in Section 3. The methodology of the study is discussed in Section 4. An econometric analysis is presented in Section 5 while Section 6 presents the summary, conclusions and policy implications.

2. Economy of Nigeria and Terrorism: Facts And Figures

2.1 Overview of the Economy

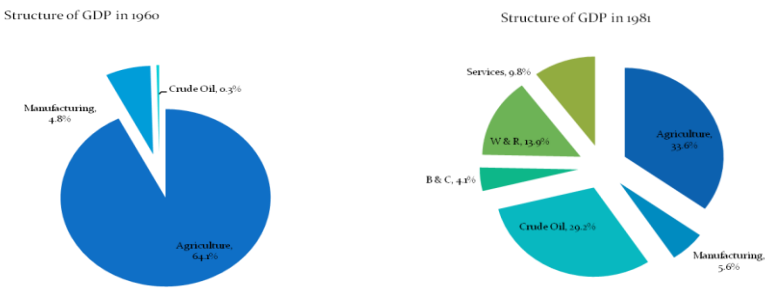
Nigeria's GDP (1990 constant price) rose from N9.9 trillion in 2003 to N18.6 trillion in 2007(Anyanwu, 2008). It was the 49th largest economy in the world in 2006 (Anyanwu, 2008). Table 1 shows the structural changes that have taken place since 1960.Overall; there was remarkable improvement in the economy in the nine years period, following the extensive reforms that were carried out by the government. Agricultural and oil production accounted for 65.8 per cent of the GDP in 2007(Anyanwu, 2008). Services, wholesale and retail trade, manufacturing, and building and construction accounted for 16.2, 16.2, 4.0 and 1.7 per cent, respectively (Anyanwu, 2008). The economy could therefore be regarded as agrarian and primary in nature. From the early 1970s, there was a shift from agrarian monoculture to dependence on another primary commodity – petroleum (Also, see Figure 1 for the structure of GDP)

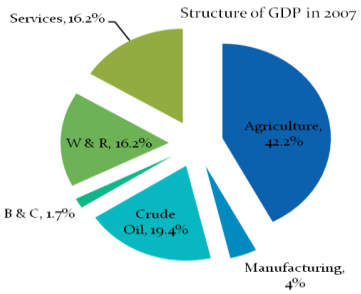
Data from the National Bureau of Statistics indicated that the average inflation rate, year on year, averaged 24.4 per cent for the decade 1980-1989; rising to 30.2 per cent over the following decade, 1990-1990; but fell sharply to 13.1 per cent during 2000-2007(Anyanwu, 2008). Indeed, inflation rate fell persistently from 2004, recording single digit in 2006 and 2007. The deceleration in inflation has been attributed to the fiscal restraint adopted by the Federal Government, tight monetary policy and good agricultural harvest, resulting from good weather conditions and the various agricultural initiatives of the government. See Table 2 for average growth rate of selected macroeconomic indicators for the period.

Table 1: Structural Change in GDP, 1960-2007

	1960	1970	1981	1990	2000	2003	2004	2005	2006	2007
Agriculture	64.1	47.6	33.6	37.9	42.7	41.0	41.0	41.2	41.7	42.2
Manufacturing	4.8	8.2	5.6	4.5	3.4	3.6	3.7	3.8	3.9	4.0
Crude Oil	0.3	7.1	29.2	30.6	26.0	26.5	25.7	24.2	21.8	19.4
Building & Construction	NA	NA	4.1	1.6	2.0	1.4	1.4	1.5	1.6	1.7
Wholesale & Retail	NA	NA	13.9	13.4	13.1	12.6	12.9	13.8	15.0	16.2
Services	NA	NA	9.8	8.2	11.2	12.3	14.7	15.2	15.7	16.2

NA = Not Available Source: CBN Annual Report, Various Issues
Source: Anyanwu(2008).





Source: Anyanwu(2008).
Figure 1: Structure of GDP, 1960-2007

Table 2: Growth Rate of Selected Macroeconomic Indicators

Year	Growth Rate of Real GDP	Inflation (Y-O-Y)	Growth Rate of Index of Agric Prod.	Capacity Utilization
Average (1980-1989)	2.2	24.8	7.2	45.0
Average (1990-1999)	3.0	30.2	4.4	35.1
Average (2000-2007)	6.2	13.0	4.9	46.4

Source: Anyanwu (2008)

The Nigerian economy slowed down from 7.4% growth in 2011 to 6.6% in 2012 (AEO, n.d.). The oil sector continues to drive the economy, with average growth of about 8.0%, compared to -0.35% for the non-oil sector (AEO, n.d.). Agriculture and the oil and gas sectors continue to dominate economic activities and Nigeria. The fiscal consolidation stance of the government has helped to contain the fiscal deficit below 3.0% of gross domestic product (GDP)(AEO, n.d.). This, coupled with the tight monetary policy stance of the Central Bank of Nigeria (CBN), helped to keep inflation at around 12.0% in 2012 (AEO, n.d.). The outlook for growth remains positive (see Table 3 for estimation of macroeconomic indicators for 2012 and projections for 2014). Short- and mid-term downside risks include security challenges arising from religious conflict in some states, costs associated with flooding, slower global economic growth (particularly in the United States and China) and the sovereign debt crisis in the euro area.
The economic growth has not translated into job creation or poverty alleviation. Unemployment increased from 21% in 2010 to 24% in 2011 because the sectors driving the economic growth are not high job-creating sectors (the oil and gas sector, for example, is a capital intensive "enclave" with very little employment-generating potential)(AEO, n.d.).
Table 3: Macroeconomic indicators 2011- 2013

Macroeconomic indicators	Years			
	2011	2012	2013	2014
Real GDP growth	7.4	6.6	6.7	7.3
Real GDP per capita growth	4.9	4.1	4.2	4.8
CPI inflation	10.9	12	9.7	9.5
Budget balance % GDP	-0.1	3.7	4.4	5.7
Current account % GDP	3.2	10.4	11.8	14.6

Note: Figures for 2012 are estimates; for 2013 and later are projections.
Source: AEO (n.d.)

2.2. Terrorism

Nigeria, like many nations in Africa, is not in short supply of groups and associations agitating for one thing or the other. Historically, three waves of such groups are discernible in Nigeria. The first of such groups existed even before colonial rule. They were the age-grades, guild associations and special interest groups performing one function after another in the overall engineering of their respective polities (Oyeniyi, 2013). Examples include Ndinche, Modewa, Aguren, Eso, Akoda and Ilari and so on. The second wave relates to groups, essentially based on kinship affinity, with presence in every part of Nigeria, including the northern region, Fernando Po, and the Gold

Coast. As Coleman had noted, such groups were formed as people began moving from one area to the other in search of colonial jobs. As ethnic associations, they were based on strong loyalty and obligation to their kinship group, towns or villages. These associations were the 'organizational expression of strong persistent feeling of loyalty and obligation to the kinship group, the town or village where the lineage is localized'. Examples include the Calabar Improvement League, Owerri Divisional Union, Igbira Progressive Union, Urhobo Renascent Convention, Naze Family Meeting, Ngwa Clan Union, Ijo Rivers People's League, Ijo Tribe Union, etc (Oyeniyi, 2013).

The third wave comprises of groups such as the O'Odua Peoples' Congress(OPC), Arewa Youth Consultative Forum, Movement for the Actualization for the Sovereign State of Biafra, Anambra State Vigilante Service, Abia State Vigilante Service, Imo State Vigilante Service, Niger-Delta Volunteers Force, Ogoni Youth, Ijaw Youth, Bakassi Boys, Egbesu Boys, Onitsha Traders Organization and Mambilla Militia Group (Oyeniyi, 2013).Several factors underlie the growth and development of groups of the third wave. Economic recession of the 1980s, falling commodity prices, OPEC price increases, privatization, economic liberalization, deregulation, currency devaluation, Cold War politics, trade barriers, civil conflict, etc. are some of the notable examples. These myriads of problems reduced government's ability to fund welfare projects. The impact of these policies ranged from job cuts, high inflation rates and unemployment to a burgeoning informal sector(Oyeniyi, 2013).

More recently, the activities of militant Islamist sects, or at best evolving terrorist groups, in northern Nigeria is now a growing source of security concern to Western capitals. Hitherto driving much of the attention is the ramping up of violent attacks on diverse civilian and military targets in Nigeria by the Jama'atuAhlissunnahlidda'awatiwal Jihad, or the Boko Haram, using such violent tactics like placement of improvised explosive devices (IEDs), targeted assassination, drive-by shooting and suicide bombing (see Tables 4, 5, and 6 in Appendix).

Images of terrorist attacks in Nigeria

Source: Gstatic.com (n.d);Kio-Lawson and MajekodunmiIn (2011)

3. Review of Related Literature

Enders and Sandler (1993, 1999 and 2000) define terrorism as the premeditated use or threat to use violence by individuals or subnational groups against noncombatants to obtain political and social objectives through the intimidation of a large audience beyond that of immediate victims. Empirical studies investigating the economic impact of terrorist incidents generally report that terrorist activities affect economic growth through various channels: It may lead to an increase in military expenditures (Eckstein and Tsiddon, 2004); an increase in production and transaction costs (Frey et al. 2007); a decrease in tourism revenues (Enders et al. 1992; Yechiam et al. 2005); a decrease in savings (Fielding 2003) and a decrease in foreign direct investment (Fielding 2004). Thus it is important to reveal the determinants of terrorism in order to be able to draft counter-terrorist measures (Yildirima, Öcalb and Korucuc, 2010).

Existing studies trying to investigate the determinants of terrorism agree that terror can originate more easily in economically and politically under-developed countries and / or provinces (Yildirima, Öcalb and Korucuc, 2010). Several studies have already investigated the economic roots of terrorism. Considering the supply side of terrorism, Berrebi (2003) finds that high standards of living and educational levels are positively associated with participation in Hamas and Palestinian Islamic Jihad (PIJ) terrorist activities in Israel. Krueger and Maleckova (2003) …find that the connection between poverty, education and terrorism is indirect, complicated and probably quite weak. A few studies on international terrorism …find that economic development and social welfare policies are important determinants terrorism (Burgoon, 2006; Li and Schaub, 2004; Li 2005).

Several cross-country studies have shown that terrorism has no economic roots. Among these studies the most influential ones are Abadie (2004) and Krueger and Laitin (2007). Abadie (2004) shows that terrorist risk is not significantly higher in poor countries when we control for political freedom. The terrorist risk data used by Abadie

(2004) includes information on the country of occurrence but not on the target countries and on the countries of origins of terrorism. Therefore the data confounds between different types of terrorism (Derin-Gürey, 2009).

The subject of this paper is domestic terrorism in Nigeria; the perpetrators, victims, locationand nation match. The violence, in other words, concerns matters within the nation. Yet, literature is not able to say categorically whether economic deprivationsexplain terrorism and empirical testing is largely absent or severely limited. Domestic terrorism is by far the more common phenomenon (Enders, et al. 2011; Feldman and Ruffle, 2008; Kis-Katos, et al. 2011; Merari, 1999; Piazza, 2011; Sanchez-Cuenca and De la Calle, 2009) in Nigeria. Ironically, it is the least empirically studied. The purpose of this paper is to contribute to rectifying this shortcoming.

4. Research Design and Strategy

Research design is the structure and strategy for investigating the relationship between the variables of the study. The research design adopted combines the theoretical consideration with empirical observation. It enables us therefore to observe the effects of explanatory variables on the dependent variables

4.1Research Domain

This investigation about economic deprivation leading to terrorism was conducted in Nigeria. The data spans the period 1970 to 2016 (46years). The data from this period present a considerable degree of freedom that is necessary to capture the net effect of explanatory variables on the dependent variables.

4.2 Data Sources

Secondary data were used for this study. The choice of these secondary sources is based on their authenticity and reliability. The data were obtained from the publication of Central Bank of Nigeria, websites, journals and newspapers. In examining the data, the line graphs for the variables are presented in Figure 2 (see Appendix) and their descriptive statistics are shown in Table 7 in Appendix. The correlation matrix of the variables is shown Table 8 (see Appendix).

4.3 Data Processing Technique

To test for stationarity of the data, a general form of Augmented Dickey Fuller (ADF) (Dickey and Fuller 1979, 1981) regression is formed below:

$$\Delta y_t = \beta\, y_{t-1} + \sum_{k=0}^{m} \alpha_i \Delta y_{t-i} + \Phi + \lambda_t + \varepsilon_t \text{……..(1)}$$

Where Δy is the first difference of the series, $m$is the lag length,t is a time trend, ε_t is a white noise residual. The ADF test is carried out by using the null hypothesisas$H_0 : \alpha_2 = \alpha_3 = 0$. The lag length used is relatively small to savedegrees of freedom and large enough to avoid the existence of autocorrelation inthe residual.

4.4. Technique of Analysis

The method of study in this paper is both descriptive and analytical. The descriptive tools consist of the use of table and percentages. The analytical tool used is the ordinary least square regression analysis. The OLS method is based on some assumptions (Gujarati, 2003) which make the OLS estimators to become Blue (Best linear Unbiased Estimator). Some of the short comings of the OLS method include the fact that while some of its assumptions are unrealistic (such as no autocorrelation, homoscedasticity and no multicollinearity); a single model as well cannot fully satisfy all the assumptions at a time. Also, no single test can solve all the problems of this method at a time. Moreover, the OLS method cannot be applied to purely non-linear models such as ones that are non-linear in parameter.

As a result of some of these short-comings, we use the OLS method but correct the standard errors for autocorrelation by a Newey-West method. The corrected standard errors are known as HAC (Heteroscedasticity – and autocorrelation-Consistent) standard errors or simply as Newey-West standard errors. To account for serial correlation, autoregressive (AR) term was also introduced.

5. Estimation Model

The model was developed to access the effect of economic variables on terrorism in Nigeria between 1970-2016. To achieve robust statistical analysis, potential economic predictors of terrorism such as inflation rate, GDP per capita, trade openness of the economy, government total expenditure, interest rate and policy index were included in the model. The specification is therefore given as:

TERR = f(GDPC, OPEN, INFL, GOVX, INTR, POLX) ……..(2)

Equation(1) can be operationalised for the purpose of estimation into the following equations:

$$TERR = \gamma_0 + \gamma_1 GDPC + \gamma_2 OPEN + \gamma_3 INFL + \gamma_4 GOVX + \gamma_5 INTR + \gamma_6 POLX + \varphi_t \text{…..(3)}$$

Where TERR is a dummy variable which takes the value of 1 if terrorist attack occurs in a year and 0 if otherwise, GDPC is per capita GDP, INFL is inflation rate, OPEN is an indicator variable for trade openness,GOVX is

government total expenditure, INTR is interest rate, POLX is index of economic policy, γ_0 *is a constant term,* $\gamma_1 \ldots \gamma_5$ *are coefficients that will be estimated empirically and* φ*is white noise, which is common to all econometric models given that by their nature, they are non-deterministic. Most of the variables in the above equation are transformed into logarithm to facilitate easy estimation. The behavioral assumptions are stated as follows:* $\gamma_1 < 0$, $\gamma_2 < 0$, $\gamma_3 > 0$, $\gamma_4 < 0$, $\gamma_5 > 0$, $\gamma_6 < 0$

Using the number of terrorist attacks per year or the number of victims per incident as dependent variable is quite common in terrorism research as this reflects more accurately the magnitude of terrorism risk. Due to issues of data availability and reliability, the dependent variable used in this paper is the occurrence of terrorism (TERR) and it is based on the chronological data on terrorism incidents in Nigeria. The variable is constructed using binary. It takes the value of 1 if terrorist attack occurs in a year and 0 if otherwise. The information about the underlying distribution of TERR is shown in the kernel density in Figure 3(see Appendix).

Concerning the independent variables, it is believed that economic development measured by GDP per capita *(GDPC)* reduces domestic terrorism. The openness variable measured as exports plus imports divided by GDP (X + M / GDP) is used as proxy for the level of trade between the economy and the rest of the world. The degree of openness *(OPEN)* is commonly assumed to be a channel of economic growth; it indirectly reduces terrorism within a country. Therefore it is expected to have the same sign of GDP per capita. Inflation *(INFL)* denotes the average annual change in consumer price index. On one hand, it proxies changes in purchasing power of individuals which can affect the standard of living eventually leading to terrorism. The formulation of sound economic policies ensures the overall stability of the economy. This necessitated the inclusion of policy index (*POLX*) as an explanatory dummy variable. It represents the different regimes and their policy stance. It takes the value of 0 for military rule and 1 for civilian rule. It is a common belief that government plays a significant role in the development of a country. The implication is that an increase in government expenditure (GOVX) will yield a positive increase in the growth of the economy by increasing the national income, especially when it is injected in development programs (Omoke, 2009) liking providing public (utilities) goods such as roads, communication, power, education and health. This is expected to discourage terrorism. Interest rate (INTR) could increase the probability of terrorist activities through the negative relationship between with investments. That is a fall in investment as a result of high interest could bring about unemployment and poverty which could encourage terrorism.

5.1 Empirical Result and Discussion

From the Pairs wise correlation matrix in Table 8 in Appendix, terrorism (TERR) and interest rate showed a highly positive correlation of about 0.71. This is followed by a strongly positive movement between government total expenditure (GOVX) and policy index (POLX). Other variables exhibited moderately weak correlation in general. The results of unit root test are contained in Table 9 (see Appendix). The results show that all the variables are stationary at first difference (d(1)).

Table 10 in Appendix contains the multivariate regression results of the basic model from equation 3. The results indicate that In the table, some of the presumptive signs were correct apart from the log of GDP per capita, log of openness of the economy to trade, interest rate (LOG(INTR) and policy index(POLX), which showed a positive sign instead of a negative sign. The results indicate that LOG (INFL)is statistically insignificant. With the exception of inflation variable, all the coefficients of the variables are statistically significant. However, there is serial correlation as indicated by a low Durbin-Watson statistic of1.445299. This necessitates the introduction of autoregressive (AR) term in the model and hence the estimation contained in Table 11 which will be the focus of the discussion.

The $R^2$0.911515 implies that 91.15 percent of total variation in terrorism is explained by the regression equation. Coincidentally, the goodness of fit of the regression remained high after adjusting for the degrees of freedom as indicated by the adjusted R^2(R^2=0.893298 or 8933%).The F-statistic 50.04, which is a measure of the joint significance of the explanatory variables, is found to be statistically significant at 1 percent as indicated by the corresponding probability value (0.000000). The Durbin-Watson statistic of 2.19 rules out autocorrelation.

From Table 11(see Appendix), it can seen that the coefficients of LOG(INFL), LOG(GDPC), LOG(INTR), LOG(OPEN) are far from being statistically significant. The results show that government expenditure has an adverse effect on terrorism. In Nigeria, government expenditure has been on the rise owing to the huge receipts from production and sales of crude oil, and the increased demand for public (utilities) goods. With a negative and statistically significant coefficient, the result suggests that the increase in government total expenditure reduces terrorism. Unfortunately, the rise in government expenditure has not translated into meaningful growth and development, as Nigeria ranks among the poorest countries in the world (Sevitenyi, 2012). In addition, many Nigerians have continued to wallow in abject poverty, while more than 50 percent live on less than US$2 per day(Sevitenyi,2012).Couple with this, are dilapidated infrastructure (especially roads and power supply) that has led

to the collapse of many industries, including high level of unemployment and abandoned elephant projects. As such the result should be taken with caution.

Policy index variable has a positive and statistically significant relationship with terrorism. From 1960, when the nation gained independence, to 2013, Nigeria experienced about twenty-five years of civilian, as opposed to military rule. The government's policy stance in the macro economy shows that there has been considerable fluctuation and that some bad habits e.g., deficit budgeting have been persistent. The implication of the result is that government policy stance ultimately affects the poverty level over the years. Invariably, terrorism in Nigeria is a direct consequence of the people's deep dissatisfaction with their government's macroeconomic policy.

6. Conclusion and Policy Implication

The primary objective of this paper is to find out whether economic condition leads to terrorism in the country, as the contemporary Nigeria society is engulfed by terrible acts of Terrorism. This paper used annual data for the time period 1970-2016 and employed Ordinary Least Square technique. The results suggest that government expenditure hinders terrorism, whereas macroeconomic policies foster it. This study has strong policy implications, suggesting that government should minimize policy inconsistency. Proper implementation and co-ordination of macroeconomic policy objective should be rigorously pursed since implementation of such policy is usually multidimensional and hence calls for effective co-ordination among the various government department, institutions and other relevant sectors.

The proportion of government expenditure that goes into capital and recurrent expenditure financing should be increased since these components exert significant negative effect on terrorism. In the same vein, government should restructure its various organs of public administration in order to engender efficiency and effectiveness in service delivery. The infrastructures should be improved upon to aid economic growth.

However, like any empirical study, this paper has some weaknesses associated with data. Data are not available on the number of terrorist attacks per year or the number of victims per incident especially in the 1970s and 1980s. As such, the paper was forced to construct a binary for the dependent variable. This very likely could have affected the results of the study. The findings should be interpreted as no more than a preliminary support of the idea that economic factors may play a role in encouraging/discouraging terrorism. While this paper offers some interesting results, further analyses might be wise by considering more advanced technique of analysis and inclusion of other economic, social, political variables.

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Appendix

Table 4: Attacks Blamed on the JAMBS

Date	Location	Target(s)	Description	Remarks
26 Nov. 2012	Garki, Abuja	Headquarters of the Special Anti-Robbery Squad (SARS)	Attack and freeing of some inmates in the detention facility of the SARS headquarters	JAMB claimed that the attack was in compliance with a Quranic injunction that urged believers to fight for the oppressed andthe feeble. It promised similar attacks against detention centres across the country
19 Dec. 2012	Katsina State	Francis Colump	Kidnapping of Francis, a French citizen working for the French company Vergnet	JAMBS claimed that the reason for kidnapping Colump is the stance of the French government and the French people on Islam, specifically citing France's major role in the (planned) intervention in northern Mali

19 Jan. 2013	Okene, Kogi State	Convoy of Mali-bound Nigerian soldiers	Ambushing of a truck conveying Mali-bound Nigerian soldiers, resulting in the death of two soldiers and injuring of five others	JAMBS claimed it attacked the soldiers because of Nigeria's contribution of troops to Mali	
17 Feb. 2013	Jamaare (Bauchi state)	Seven expatriates working with a Lebanese construction company, Setraco Nig. Ltd	Those abducted were four Lebanese, one Briton, a Greek citizen and an Italian	JAMBS claimed responsibility for the kidnapping, citing 'the transgressions and atrocities done to the religion of Allah by the European countries	

Source: Onuoha(2013)

Table 5: Categories of Militia Groups in the Niger Delta.

Private Militia	**Ethnic Militia**	**Pan-Ethnic Militia**
Niger Delta People Volunteer Force (NDPVF)	The MeinbutusArugbo Freedom Fighter	Movement for the Emancipation of the Niger Delta (MEND)
Adaka Marines	Iduwini Volunteer Force (IVF)	The Coalition for Militant Action in the Niger Delta (COMA)
Martyrs Brigade	Egbesu Boys of Africa	The Niger Delta People Salvation Front
Niger Delta Volunteers		
Niger Delta Militant Force Squad (NDMFS)		
Niger Delta Coastal Guerillas (NDCGS)		

Source**:**Forest (2012)

Table 6: Major Incidents of Boko Haram Attacks since 2009 up till date .

Date	Casualties
July 26, 2009	Boko Haram launches mass uprising with attack on a police station in Bauchi,starting a five-day uprising that spread to Maiduguri and elsewhere.
September 7, 2010	Boko Haram attacked a prison in Bauchi, killed about five guards and freed over700 inmates, including former sect members.
October 11, 2010	Bombing/gun attack on a police stationin Maiduguri destroys the station andinjures three by the group
December 24, 2010	The group carried out a bomb attack in Jos killing 8 people.
December 28, 2010	Boko Haram claims responsibility for the Christmas Eve bombing in Jos that killed38 people
December 31,201	The group attack a Mammy market at Army Mogadishu Barracks, Abuja, 11people died
April 1, 2011	The group attacked a police station in Bauchi
April 9, 2011	The group attacked a polling center in Maiduguri and bombed it
April 20, 2011	A bomb in Maiduguri kills a policeman
April 22, 2011	The group attacked a prison in Yola and freed 14 prisoners

April 24, 2011	Four bombs explode in Maiduguri, killing at least three.
May 29, 2011	Bombings of an army barracks in Bauchicity and Maiduguri and led to death of 15people
May 31, 2011	Gunmen assassinate Abba AnasIbnUmarGarbai, brother of the ShehuofBorno, in Maiduguri.
June 1, 2011	The group killed Sheu of Borno's brother, Abba El-kanemi
June 7, 2011	A team of gunmen launch parallel attacks with guns and bombs on a church andpolice stations in Maiduguri, killing 5 people.
June 16, 2011	Bombing of police headquarters in Abuja, claimed by Boko Haram. Casualty reportsvary.
June 26, 2011	Gunmen shoot and bomb a bar in Maiduguri killing about 25 people
August 16, 2011	The Bombing of United Nations Office in Abuja, killing over 34 people by thegroup
December 25, 2011	Bombing of St. Theresa's Catholic Church, Madalla, killing over 46 people
January 6, 2012	The Sect attacked some southernersinMubi killing about 13 Igbo
January 21, 2012	Multiple bomb blast rocked Kano city, claiming over 185 people
January 29, 2012	Bombing of Kano Police Station at Naibawa Area of Yakatabo
February 8, 2012	Bomb blast rocked Army Headquarters in Kaduna
February 15, 2012	KotonKarife Prison, Kogi State was attacked by the sect and about 119prisoners were released and a warder was killed.
February 19, 2012	Bomb blast rocked Suleja Niger State near Christ Embassy Church, leaving 5 people seriously injured
February 26, 2012	Bombing of Church of Christ in Nigeria, Jos leading to the death of about 2worshippers & about 38 people sustained serious injuries.
March 8 2012	An Italian, Franco Lamolinara and a Briton, Christopher McManus, who wereExpatriate Staff of StabilimVisioniConstruction Firm were abdicated in 2011 by a splinter group of Boko Haram and were later killed.
March 11, 2012	Bombing of St. Finbarr's Catholic Church, Rayfield, Jos resulting in the killing of 11people and several others wounded.
April 26 2012	Bombing of three media houses (Thisday Newspaper in Abuja killing 3 &2 securityofficers&injured 13 people; Thisday, the Sun & the Moments newspapers in Kaduna killing 3 persons & injured many others
April,29,2012	Attack on Bayero University, Kano, killing 13 Christian Worshippers, a senior non-academic staff & two Professors
April 30, 2012	Bomb explosion in Jalingo, claiming 11 persons and several others wounded.

Sources: Abimbola and Adesote (2012).

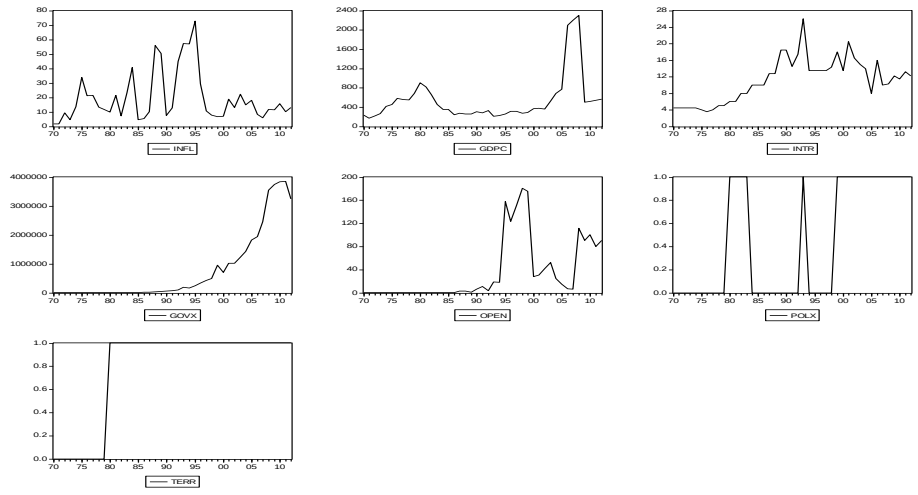

Figure 2: Line Graphs of Each of the Series

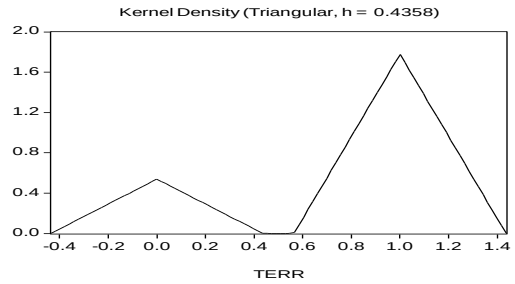

Figure 3: Kernel Density of TERR

Table 7: Descriptive Statistics

	INFL	GDPC	GOVX	OPEN	INTR	TERR	POLX
Mean	19.48442	540.9800	769439.9	35.64977	11.20209	0.767442	0.441860
Median	12.90000	368.5400	66584.00	6.140000	12.24000	1.000000	0.000000
Maximum	72.81000	2300.000	3848545.	180.7300	26.00000	1.000000	1.000000
Minimum	1.650000	166.6200	5503.000	0.020000	3.500000	0.000000	0.000000
Std. Dev.	17.32761	493.6716	1214355.	54.47743	5.312399	0.427463	0.502486
Skewness	1.507690	2.689627	1.593320	1.474146	0.368211	-1.266108	0.234146
Kurtosis	4.333762	9.527664	4.176456	3.832437	2.770214	2.603030	1.054825
Jarque-Bera	19.47800	128.1880	20.67354	16.81547	1.066253	11.77072	7.172052
Probability	0.000059	0.000000	0.000032	0.000223	0.586767	0.002780	0.027708
Sum	837.8300	23262.14	33085916	1532.940	481.6900	33.00000	19.00000
Sum Sq. Dev.	12610.33	10235891	6.19E+13	124647.2	1185.307	7.674419	10.60465
Observations	43	43	43	43	43	43	43

Source: Researchers' computation, 2013, adapted from regression result using E-view 4.1

Table 8: Pairwise Correlation Matrix

	INFL	GDPC	GOVX	OPEN	INTR	TERR	POLX
INFL	1.00						
GDPC	-0.24	1.00					
GOVX	-0.22	0.49	1.00				
OPEN	0.03	-0.02	0.43	1.00			
INTR	0.34	-0.09	0.19	0.35	1.00		
TERR	0.20	0.15	0.35	0.36	0.71	1.00	
QINS	-0.21	0.47	0.64	0.17	0.29	0.49	1.00

Augmented Dickey-Fuller

variables	levels	1st difference	2nd difference	Lag length	Order of integration
INFL		-6.330409*		9	I(1)
GDPC		-3.542123**		9	I(1)
GOVX		6.061500		9	I(1)
OPEN		-7.139956*		9	I(1)

INTR	-10.31167*	9	I(1)
TERR	-6.403124*	9	I(1)
POLX	-7.695598*	9	I(1)

Source: Researchers' computation, 2013, adapted from regression result using E-view 4.

Table 9: Unit Root Test
Source: Authors' Computation from Computer Output.
Note: * significant at 1%; ** significant at 5%; and ***significant at 10%

Table 10: Regression Estimates I

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.616363	0.598483	-1.029875	0.3099
LOG(INFL)	-0.014902	0.041387	-0.360071	0.7209
LOG(GDPC)	0.172628	0.073634	2.344397	0.0247
LOG(INTR)	0.657786	0.101564	6.476560	0.0000
LOG(GOVX)	-0.113963	0.043641	-2.611361	0.0131
LOG(OPEN)	0.071738	0.034837	2.059220	0.0468
POLX	0.227890	0.094308	2.416438	0.0209
R-squared	0.806491	Mean dependent var		0.767442
Adjusted R-squared	0.774240	S.D. dependent var		0.427463
S.E. of regression	0.203106	Akaike info criterion		-0.202282
Sum squared resid	1.485067	Schwarz criterion		0.084425
Log likelihood	11.34906	F-statistic		25.00635
Durbin-Watson stat	1.445299	Prob(F-statistic)		0.000000

Source: Computational results using Eviews 4.1

Table 11: Regression Estimates II

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	6.333720	4.832757	1.310581	0.1988
LOG(INFL)	-0.004015	0.026225	-0.153081	0.8792
LOG(GDPC)	0.045682	0.061769	0.739568	0.4646
LOG(INTR)	0.008179	0.094853	0.086224	0.9318
LOG(GOVX)	-0.303033	0.148141	-2.045578	0.0486
LOG(OPEN)	0.012170	0.028209	0.431424	0.6689
POLX	0.275613	0.072915	3.779929	0.0006
AR(1)	0.976248	0.028413	34.35878	0.0000
R-squared	0.911515	Mean dependent var		0.785714
Adjusted R-squared	0.893298	S.D. dependent var		0.415300
S.E. of regression	0.135659	Akaike info criterion		-0.987703
Sum squared resid	0.625714	Schwarz criterion		-0.656718
Log likelihood	28.74175	F-statistic		50.03528
Durbin-Watson stat	2.188453	Prob(F-statistic)		0.000000
Inverted AR Roots	.98			

Source: Researchers' computation, 2013, adapted from regression result using E-view 4.1