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Economic Growth and Conflicts: Evidence from Nigeria

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Abstract. The paper empirically examines the impact of economic growth on conflicts in Nigeria, using annual data for the period 1981 to 2011 and employing the Dynamic OLS methodology. The results indicate that there is a long-run equilibrium relationship between conflict, inflation, poverty, economic growth and unemployment. There is evidence in support of a direct relationship between conflicts and Nigeria's economic growth, in that the incidents of violent conflicts are partly due to the drive for control of national wealth. It was found that macroeconomic instability, poverty and unemployment are significant variables influencing the nature and dynamics of conflicts in the country, suggesting that the nature of growth experienced is not one that is conflicting-reducing. The CUSUM and CUSUMSQ plots indicate parameter constancy in the estimated model. It is recommended that, while economic growth is accorded priority, policies which promote equity, foster mass employment, minimize distortions and reduce poverty need to be enacted and vigourously implemented.

Keywords: Conflicts, Cointegration, Dynamic OLS, Economic growth, Nigeria.
JEL Classification: E2, I38, J60, O5.

1. INTRODUCTION

It is becoming increasingly apparent that the need to consider the role of conflicts in the study of development, especially of developing countries is necessitated for many reasons. Conflicts of the violent type seem to have taken new dimensions in several countries and despite the global zest for peace, they appear to be a lost battle, in that since global wealth is rising, we should expect to see a fall in the amount of conflicts in the world, ceteris paribus. However, it is instructive to note that the opposite is observed. Between 1960 and 1995, approximately 18.5 million people were estimated to have died from internal conflicts with over 80% occurring in low-income countries while half of these took place in Africa (Stewart et al., 2001). Therefore, poverty tends to be a familiar bedfellow of conflicts. In the last decade, there has been a renewed interest in the investigation of conflict as a crucial factor in economic development and performance. That conflict is inimical to development is one of the major findings in the empirical literature, although the reverse may well be the case, leading to complications in the analysis.

Merely seeking to discover the causes of economic development among countries on the basis of only economic factors may be misplaced, in that sociopolitical factors can be crucial in the development process (Joachim, 2002). Conflicts, especially those that take violent dimensions can have significant impacts on personal safely, health, education and many other areas of economic life, thus affecting both individual and national productivity. It has been found that it has negative a impact on trade, economic growth and development as well as overall well-being and subjective happiness. Consequently, conflicts can affect virtually all sectors of the economy and in such important areas ranging from investment, financial markets to agriculture, depending on their nature, type and intensity. It is therefore plausible when it is argued that it is not possible to understand economic development without understanding violent conflicts (UNDP, 1994; King and Murray, 2001).

Nigeria, with over 160 million people comprising some 300 ethnic groups, remains underdeveloped even with abundant human and natural resources, occasioned

partly by conflicts of various forms. The country's budgetary revenues derive mainly from oil, located in the south, while the north remains relatively poor, although the latter has dominated the political landscape since political independence in 1960. The country was enmeshed in a devastating civil war, which consequently provoked the need to ensure some sort of balance through the adoption of a federal structure. Despite this measure, tensions have often proved difficult to control and for 30 of its 53 years of existence (i.e. from 1960 to 2013) Nigeria was subjected to military rule, a serious consequence of which was the erosion of institutions that make for good and effective governance. Although the military left the political space in 1999, the underlying problems are left more exposed, and in greater need of attention. Studies confirm that there are conflicts in all parts of Nigeria, and this has tended to increase with the passage of time, with youths accounting for a high proportion of violent conflicts in the country (Otite and Albert, 1999). Conflicts in Nigeria are particularly intriguing due to their frequency and magnitude, coupled with sheer complexity and seeming intractability.

Virtually in all the geo-political zones of Nigeria, there are entrenched structures of violent conflicts. Whether it is in the oil-producing Niger Delta region of the south-south, where resource control and environmental conflicts waged by ethnic groups have tended to threaten the stability of the region and the country at large; or the South-West, where the youths are the principal protagonists of ethnic and communal violence, the story is the same. In the three geo-political zones of the north, incessant outbreak of ethno-religious conflicts and disputes relating to land rights and community squabbles between "indigenes" and "settlers" is commonplace. In the south-east, social fragmentation is compounded by political turbulence (Reychler, 2002). There is also the nationwide problem of politicization of primordial ethnic and religious identities exacerbated by political violence. On the whole, what appears to be a major highlight of the historical background of conflict in Nigeria is that it is mainly rooted in stiff competition for resources, injustice and ineffective governance. The inequality in the distribution of the gains of globalization may be a causal factor on the distribution of violent conflicts. This may in part help to explain

the violent conflicts in the less-developed regions of the world where conflict-oriented sectors (such as oil and other natural resources) tend to attract foreign direct investment at the expense of such activities as agriculture, manufacturing and non-oil mining.

From the foregoing, the paper is aimed at the empirical investigation of the impact of economic growth and associated macroeconomic variables on conflicts in Nigeria. Although several investigations have been conducted on conflicts and from diverse perspectives on Nigeria, ranging from environment and conflicts (e.g. Onuoha, 2008; Phil-Eze, 2009); communal conflicts (e.g. Imobighe, 2003; Albert, 1999); to ethno-religious conflicts (e.g. Jega, 2002; Omorogbe and Omohan, 2005); climate change on conflicts (e.g. Olufemi and Samson, 2012), studies directly linking Nigeria's economic growth to conflicts have been scanty. The study is imperative given that previous studies have tended to suffer from non-quantitative analysis of the dimensions and the resultant effects of macroeconomic aggregates on conflicts. The hypothesis tested in the study is that conflicts are a result of poverty and unemployment, induced by the stage of a country's development and the nature and dynamics of macroeconomic policies.

The paper is organized into five sections. Following the introduction, Section 2 covers both theoretical and empirical literature; Section 3 entails materials and method, including model specification and estimation procedures. The empirical results of the study are presented and discussed in Section 4, while the study is concluded in Section 5.

2. LITERATURE REVIEW

2.1 Theoretical Framework

The concept of conflict has been approached in a variety of ways and given diverse definitions. There is apparently no universally accepted definition of the concept, in that it is contentious as to whether it is a situation or a variety of behaviour (Rahim, 2010). Francis (2006) considers conflicts as an intrinsic and inevitable part of the existence of human beings, and defines the phenomenon as the pursuit of

incompatible interests and goals by different groups. What can however be said to underlie most definitions offered are that a conflict is a process, which has developed from past interactions by individuals and groups; and that there are recognized opposing interests between parties in a zero-sum situation. Consequently, the dominant view of scholars and investigators is that conflicts are largely the expression of mutually opposing interests between individuals and groups in society.

From the point of view of civil conflicts, three major theories or approaches are delineated in political economy literature. However, it needs to be stressed that although they offer some useful insights into the causes and nature of civil unrest, none of them is exhaustive on the nature and dimensions of the phenomenon. These are: (1) Theories that place emphasis on the failure of the social contract as the principal driver of conflict; (2) Theories that emphasize private incentives, and consider conflict as motivated by private interests in hopes of exploiting the gains arising from it; and (3) Theories that highlight group stimuli, which underscore conflict as driven primarily by disparities in social and political resource distribution between and among groups with common affinity in religion, ethnicity or other bonds.

There is no consensus about the impact of conflict on economic performance, at least from a purely theoretical standpoint. A look at the literature shows contradictory and opposing views. While there is a prediction in neoclassical growth theory for example that an economy will recover relatively quickly and converge to its steady state, Barro and Sala-i-Martin (2004) in an alternative model contend that a long time may be taken for an economy to catch up to pre-conflict levels because of the slow rate at which human capital recovers. Other scholars like Sachs (2005) argue that conflict and poor performance can coexist where a country is trapped in a low level equilibrium. Studies conducted by Flores and Nooruddin (2009), using cross-country data, support both alternative views.

On the relationship between violent conflicts (such as civil wars) and economic growth, there is no consensus among scholars. While some consider civil war as a

contributory factor to economic growth, due to the influence of employment generation, technological innovation, improvement in efficiency, and reduction of rent-seeking power, in addition to military expenditure found to be positively correlated with economic growth due to the improvement in property rights (Murdoch and Todd, 2002; Harold, 1997), others aver that war affects economic growth negatively, in that resources are generally destroyed, there is hike in inflation due to higher defense spending, debt contraction becomes heightened and resources are unproductively allocated (Collier, 1999). The findings by Murdoch and Todd (2002) are particularly instructive in that the direct effects of conflicts and war are more pronounced and intense than the indirect effects.

The relationship between conflict and economic growth has been described as inverse. Consequently, a society or country where conflicts are predominant tends to have slower economic growth. Many studies show a negative relationship between economic growth and conflicts or the causative agents of conflict such as poverty and unemployment. Conflicts adversely affect economic growth in a number of ways. One is its impact on investment, in that it tends to increase uncertainty and risk which may be harmful to it, although it has been maintained that the end of civil war may contribute positively to growth, while on the whole, there is no general theory on its duration and contributing factors (Seonjou and James, 2005).

2.1.1 Relationship between Conflicts and economic growth

There appears to be divergence of views in economic literature on the relationship between conflicts and economic growth (wealth in this context). While it is the contention by many that the relationship is positive, others maintain that it is the reverse. Theoretical and empirical reasons have been advanced as to why an increase in wealth can induce conflicts. The argument is that if economic growth leads to an increase in the value of assets that a country possesses, this may induce higher propensity by individuals and groups to have control over the productive resources. In addition, the increase in assets is capable of enhancing the inducement to use violence by people whose interest is to have access to them, a

situation which can induce the coexistence of conflicts and economic prosperity (Bates, 2001). It is to avoid this kind of violent conflict that it has been suggested that stateless societies avoid wealth accumulation (Colson, 1974).

An argument which seems highly plausible in the context of many developing countries is advanced by Bates (1973). He contends that modernization may be an incubator of violence, in that a positive correlation between wealth and violence is related to the process of economic development which is capable of generating a radical re-organization of political structures that can consequently engineer conflict. Thus, explanation is given for ethnic politics, which is usually conflict-ridden and which is in fact a function of modernization rather than being atavistic. Another argument is that in poorer countries, an increase in economic growth or wealth impels the need for more goods and resources, and that shortages create the need to have more direct control over resources (Choucri and North, 1972). This idea was however heavily criticized by Zuk (1985) who notes that the conflict-oriented states of the period (1870-1914) studied by Choucri and North could provide for their own resources and where it was not possible, did so through international trade, so that the idea that wealth is a motivation for conflict may not be tenable and that it instead provides the means for the phenomenon. There are a number of studies linking reduced amount of conflicts to wealth. Studies conducted by Collier and Hoeffler (2002) found negative and statistically significant correlation between conflicts and the wealth of nations.

2.2 Empirical Literature

Empirical studies on the impact of economic growth on conflicts have been rather scanty, especially for developing countries, and most studies tend to be on specific areas of the economy rather than on broad categories like national output. This is hardly surprising, given the relative difficulty of quantifying the nature and dynamics of conflicts. Moreover, many studies tend to employ proxies of conflicts as an independent variable explaining the variation in growth. This is due to the belief that conflicts can harm economic growth and that the latter may not have any

role to play in the analysis of the former. While it is plausible to assume that conflicts can have some impact on growth, it is not equally out of place to contend that economic growth can help explain the trend of conflicts in many parts of the world. As incidence of conflicts can impact specific sectors and regions, so can economic growth in different regions and sectors impact the incidence of conflicts.

According to Hegre and Sambanis (2006), the relationship between low levels of national income and the incidence of violent conflict is probably one of the most firmly established findings in economic literature. They find that more than half of the countries with a GDP per capita of US$2000 or less in 1990/1991 experienced some form of civil war between then and the year 2000; less than one-fifth of countries with GDP per capita over this mark experienced conflict. Moreover, conflict tends to be more persistent and intense in poorer than in richer countries, so that on the average, each country below the $2000 mark in 1991 spent an average of a third of the subsequent ten years in conflict, whereas countries above this mark spent on the average less than one year of the decade in conflict.

That conflicts can lead to huge losses is not in contention. Even for the most developed of countries, considerable losses can be the aftermath of a conflict. For example, the United States lost some US$47 billion following the September 2001 terror attacks, in addition to US$41 billion in various forms of taxation, approximately US$10 to US$13 billion in property damage, not to talk of losses in market capitalization at US$1.7 trillion (Navarro and Spencer, 2001). Conflicts are inimical to trade, domestic or international, as it is disrupted by a variety of impediments, so much so that some scholars view conflicts in the form of violence and war in the same vein as import or export taxes. Conflicts can exert negative influence on economic growth and development due to their impact on such economic activities as trade, agriculture, services, tourism and the like, in addition to financial market operations. Li and Schaub (2004) find that economic openness is associated with a lesser number of terror incidents. Using bilateral trade data for a set of 96 countries for the period 1999 and 2000, Pasteels et al. (2003) estimate the cost of war on trade. Their findings indicate that on average, each step up a conflict

is comparable to a 33 percent increase in average tariffs. A study using a sample of more than 200 countries for the period 1960 to 1993 show that the volume of trade was significantly reduced by terrorist activities, while trade was reduced by about 4 percent due to a doubling in the number of terrorist incidents (Nitsch and Schumacher, 2003). Thus, violent conflicts harm trade, while trade has the potential of reducing conflicts between countries (Polachek, 2007).

In the case of Nigeria, only a handful of empirical work can be found linking conflicts to economic growth, and where such analyses are attempted, they are generally non-quantitative in nature. On the causes of conflicts in the country, what appears to be dominant is the argument that in addition to poverty and unemployment, dysfunctional structural divide and discrimination at various levels of state and society are causative agents, all of which impact adversely on issues of employment, promotion and public appointments. Also noteworthy are issues of group and community relations and land rights, often linked to the problem of indigeneity. Dunmoye (2003) maintains that land or boundary disputes are a major factor leading to communal conflicts in the middle-belt region of the country, implying that crises are triggered by scarcity of production factors occasioned by rising population pressure, land alienation or concentration of land in the hands of a few. Communal conflicts in the country are aggravated by economic crisis while ethnicism, religious differences and their manipulation, land hunger and increasing population, chieftaincy disputes and the "native/settler" syndrome are major causes. According to IPCR (2003), conflicts in the country and specifically in the North-Central region are driven largely by ethnic plurality, acute competition for political and traditional power, in addition to land ownership tussles, all of which are underpinned by systemic issues of access to economic resources and opportunities. Moreover, high poverty and unemployment levels and general limitations to alternative economic opportunities and bad governance are central to the phenomenon. Thus, mass poverty and unemployment are identified as fundamental underlying forces which create conflicts in Nigeria and this is particularly the case with ethnic conflicts. This is because poverty and unemployment tend to encourage

frustration, divisiveness, alienation and insecurity, all of which promote the preference to seek some sort of social security in ethnic nationalities, with the belief that other groups are responsible for the misery. On the effects of conflicts on the economy, NIPSS (2004) maintains that the magnitude and value of various losses have not been fully determined. However, there have been huge losses of lives and property, a growing class of youth unemployment and sometimes displacement of humans.

3. MATERIALS AND METHODS

3.1 Data Sources and Description

Annual data for the period 1981 to 2011 was utilized in the study. The data on real gross domestic product, poverty, government expenditure, inflation and unemployment was obtained from various issues of the Statistical Bulletin of the Central Bank of Nigeria. The data on conflicts is from the Integrated network for Societal Conflict Research (INSCR) which covers time-series data on interstate, societal and communal warfare magnitude scores (independence, interstate, ethnic, and civil, violence and warfare); and includes both country data and scores for neighboring countries and regional context for all independent countries (does not include independence wars). The data set employed in the present investigation is exclusive of scores for neighbouring countries and regional context.

On the basis of the theoretical framework, conflict is a function of macroeconomic factors including instability, poverty, policy volatility, economic growth and unemployment. In the light of this, the dependent variable was captured by the number of internal conflicts recorded annually; macroeconomic instability was proxied by inflation rate, computed as annual percentage change in the consumer price index; policy volatility was computed as deviation of total government expenditure from the mean; economic growth was proxied by real gross domestic product, following the standard in the literature. To capture non-linear properties and to correct for heteroscedasticity, the variables employed were initially transformed into logarithms.

3.2 Model Specification and Estimation Procedure

Following the extant literature, a conflict model is specified and presented as follows:

$$CONF_t = \beta_0 + \beta_1 INF_t + \beta_2 POV_t + \beta_3 PV_t + \beta_4 RGDP_t + \beta_5 UNEM_t + \varepsilon_t \quad (1)$$

where:

CONF = Conflict

INF = Inflation

POV = Poverty

RGDP = Real Gross Domestic Product

UNEM = Unemployment

ε_t = A white noise disturbance term

To estimate equation 1, the stability properties of the variables employed were first investigated. Three unit root tests were used in the present study, i.e. the Augmented Dickey-Fuller (ADF), the Phillips-Perron (PP) and the Kwiatkowski–Phillips–Schmidt–Shin (KPSS**).** The choice of three unit roots was informed by the imperatives of comparison and consistency. According to Hamilton (1994), the PP unit root test is generally considered to have a greater reliability than the ADF because it is robust in the midst of serial correlation and hetersocedasticity. However both have been shown to suffer from high size distortion (Zivot and Andrews, 1992). Because of this, this study combines both tests with the KPSS test in order to avoid the problems associated with the ADF and PP tests. The test for unit root for a variable such as CONF is executed using the following specification:

$$\Delta CONF_t = \Psi_0 + \Psi_{1t} + \Psi_2 CONF_{t-1} + \sum_{i=0}^{p} \Gamma_i \Delta CONF_{t-i} + \varepsilon_t \quad (2)$$

where, Ψ_0, Ψ_1, Ψ_2 and $\Gamma_1, \ldots \Gamma_p$ are parameters to be estimated, and ε_t is the disturbance term assumed to be Gaussian white noise.

Following the unit root tests is the test of cointegration by means of the Johansen (1988, 1991) framework, after which if a long-run relationship is found among the variables, the cointegrating equation of conflict is examined. This is particularly germane given that although there is consistency in the use of the Ordinary Least Squares (OLS) estimator to generate the cointegrating regression, it is however fraught with the problem of non-normal distribution, leading to the invalid results of statistical inferences. It is therefore useful that appropriate estimators are deployed to surmount this problem. Although there are various estimators in the literature, the Dynamic Ordinary Least Square (DOLS) estimator engineered by Stock and Watson (1993) is adopted in the present study. This approach is valuable in that it introduces dynamics in the specified model while simultaneity bias is given allowance. Consequently, the DOLS estimator of the cointegrating regression equation incorporates all variables in levels, including leads and lags of the change in the regressors. The estimated DOLS follows the specification in equation 3:

$$Y_t = \alpha_0 + \alpha_i X_t + \sum_{j=-q}^{q} \Phi_i \Delta X_{t-j} + \mu_t \quad (3)$$

where Y_t is the dependent variable, X_t is a vector of regressors and Δ is the lag operator.

In the present study, the specified model was estimated by OLS using the Newey and West's Heteroscedastic and Autocorrelation Consistent (HAC) covariance matrix estimator, whose standard errors are robust and make inferences about the coefficients of the variables entering the regressors in levels to be valid. This was to solve the problem of the non-normal distribution of the standard errors of the cointegrating regression equation. The model was estimated using Eviews7.1 package. 1 lead and 2 lags (based on the Schwarz Bayesian Criterion) of the change in the regressors were originally included (see Appendix D). Following Hendry's (1986) General to Specific (GETS) methodology, the parsimonious dynamic OLS were generated and the results are presented and discussed. The diagnostics include tests for autocorrelation, normality and heteroscedasticity.

4. RESULTS AND DISCUSSIONS

The results of the unit root tests are presented in Table 1.

Table 1: Unit Root Test Results

Table 1A: Test Results (with intercept)

Variable	ADF		PP		KPSS	
	Level	1st Difference	Level	1st Difference	Level	1st Difference
CONF	-2.463981	-5.282032*	-2.594541	-5.614093*	0.094242	0.143553
INF	-3.454196**	-6.344935	-3.238733**	-8.294729	0.161962	0.284747
POV	-1.684340	-2.694957***	-2.388389	-5.427238*	0.316478	0.127183
PV	-1.365281	-7.130466*	-0.409764	-6.995733*	0.712968**	0.166935
RGDP	0.925362	-3.288995**	1.948201	-3.152406**	0.693992**	0.471033
UNEM	0.186200	-5.939048*	1.273901	-5.984876*	0.669983**	0.349665

Table 1B: Test Results (with intercept and a linear trend)

Variable	ADF		PP		KPSS	
	Level	1st Difference	Level	1st Difference	Level	1st Difference
CONF	-2.439039	-5.180173*	-2.563360	-5.470680*	0.085922	0.134967***
INF	-4.216004**	-6.212025	-3.154828	-8.891682*	0.088485	0.281650*
POV	-2.895261	-6.806884*	-5.427238	-5.737107*	0.133582***	0.134240
PV	-0.704470	-4.374776*	-2.049334	-6.913051*	0.140695***	0.156306
RGDP	-1.837636	-3.671100**	-1.858831	-3.507902***	0.174100**	0.065552
UNEM	-2.294639	-6.316490*	-1.776829	-7.240671*	0.134194***	0.399863

Note: *, ** and *** denote rejection of the null hypothesis at 1%, 5% and 10% level of significance respectively. The null hypothesis is that the variable (in series) is non-stationary for ADF and PP. For KPSS, the null hypothesis is that the variable is stationary.

Source: Author's computations.

The results of the unit tests with intercept (Table 1A) and an intercept and linear trend (Table 1B) tend to be consistent for all unit root test types. The results suggest that CONF, POV, PV, RGDP and UNEM tend to be stationary in first

difference while INF tends to be stationary in level. Consequently, the hypothesis of non-stationarity cannot be rejected for the variables in levels, with the exemption of INF. However, a test of cointegration is warranted in that the rejection of the null hypothesis of no cointegraion implies that using the variables in their level form is appropriate for estimation.

The results of the cointegration tests are presented in Table 2.

Table 2: Johansen Cointegration Test Results

Hypothesis				5% critical		5% critical
Null	Alternative	Eigen value	λ_{max}	value	λ_{trace}	value
r = 0	r ≥ 1	0.759011	41.26715*	40.07757	117.4735*	95.75366
r ≤ 1	r ≥ 2	0.698611	34.78122*	33.87687	76.20638*	69.81889
r ≤ 2	r ≥ 3	0.568598	24.38077	27.58434	41.42517	47.85613
r ≤ 3	r ≥ 4	0.360954	12.98558	21.13162	17.04440	29.79707
r ≤ 4	r ≥ 5	0.123598	3.825993	14.26460	4.058820	15.49471
r ≤ 5	r ≥ 6	0.007996	0.232827	3.841466	0.232827	3.841466

r indicates the number of cointegrating vectors. * indicates rejection of the null hypothesis at 5% level of significance.

Source: Author's computations.

Results in Table 2 suggest that there is a long-run equilibrium relationship among the variables employed in the study, in that both the maximal eigenvalues and trace test statistics indicate that the hypothesis of no cointegration among the variables is rejected at the 5% significance level. From the results, there are two cointegrating vectors based on both the maximal eigenvalues and trace test statistics. Following the existence of long-term equilibrium relationships among non-stationary variables and which precludes spurious regression when the variables are used in levels for estimation purposes, the choice of the Dynamic OLS cointegrating framework is appropriate.

The estimated dynamic OLS results are presented in Table 3.

Table 3: The estimated DOLS Results

Dependent Variable: CONF

Variable	Coefficient	Std. Error	t-value (Prob.)
CONSTANT	-2.488327	1.556128	-1.599050(0.1358)
INF	-0.373976	0.089537	-4.176771(0.0013)
PV	-0.382023	0.061846	-6.176972(0.0000)
RGDP	0.302134	0.122196	2.472538(0.0294)
Δ INF	0.205118	0.096868	2.117506(0.0558)
Δ RGDP	2.385079	0.623864	3.823078(0.0024)
Δ UNEM	0.494064	0.092148	5.361625(0.0002)
Δ INF_{t+1}	-0.197848	0.078795	-2.510933(0.0274)
Δ $RGDP_{t+1}$	2.477814	0.697080	3.554560(0.0040)
Δ $UNEM_{t+1}$	0.263235	0.093463	2.816473(0.0156)
Δ $UNEM_{t-1}$	0.505448	0.100823	5.013235(0.0003)
Δ INF_{t-2}	0.245341	0.074804	3.279784(0.0066)
Δ POV_{t-2}	0.448946	0.156655	2.865822(0.0142)
Δ $RGDP_{t-2}$	2.844623	0.493381	5.765566(0.0001)
Δ $UNEM_{t-2}$	0.706502	0.098759	7.153811(0.0000)

Diagnostic Statistics	
R^2	0.94
Adjusted R^2	0.88
SER	0.069392
F-stat	14.39887(0.000022)
JB	2.399973(0.301198)
BG [χ^2, 1]	1.561459 (0.2115)
BG [χ^2, 2]	2.143433 (0.3424)
ARCH [χ^2, 1]	0.743876 (0.3884)
ARCH [χ^2, 2]	1.783889 (0.4099)

Note: Probability values are in parenthesis. Chi-square values and number of lags are in square bracket. SER: Standard error of regression; JB: Jarque-Bera test for normality of residuals; BG: Breusch-Godfrey Serial Correlation LM Test; ARCH: Engle's test for conditional heteroskedasticity.

Source: Author's computations.

The estimated parsimonious regression results presented in Table 3 indicate that all the explanatory variables are statistically significant. Consequently, macroeconomic instability, poverty, economic growth and unemployment are fundamental factors that impact conflicts.

Inflation: The estimated coefficients of inflation (which shows the degree of macroeconomic instability), are all statistically significant. Both current and potential instability tend to be negatively related to conflicts; while past (lagged) instability is associated with higher incidence of conflicts. The result of the positive relationship between changes in past levels of economic instability and current levels of conflict is consistent with literature, in that the higher the incidence of instability (such as excessive rates of cost-pull inflation), the higher is the tendency for conflicts to emerge. It must be remembered that since inflation generally reduces purchasing power, and thus lowers living standards, the need to meet aspirations and expectations in the midst of higher costs impose serious constraints on economic agents.

Poverty: The results indicate that poverty and conflict are positively related. The coefficient of the 2-lagged value of poverty is statistically significant at the 5 percent level, implying that higher poverty levels are associated with higher incidence of conflicts. This is clearly evident in Nigeria, where over the years poverty levels have been rising, and the nature and dynamics of conflicts rising and complex. The poverty situation in Nigeria is quite disturbing, given that both the quantitative and qualitative measurements attest to the growing incidence and depth of the phenomenon in the country. This situation however, presents a paradox considering the vast human and physical (natural) resources that the country is endowed with. It is even more disturbing that despite the huge human and material resources that have been devoted to poverty reduction by successive governments, no significant success has been achieved. Although, predicted poverty reduction scenarios vary greatly depending upon the rate and nature of poverty related policies, actual evidence suggests that the depth and severity of poverty is still at its worst in the

country. It is no surprise that poverty is largely a rural phenomenon with an average of between 62 and 75 percent of the population living on less than a dollar a day and also tends to be deeper than urban poverty (Okunmadewa et al., 2005; Apata et al., 2010).

Policy volatility: The results of the coefficient of policy volatility indicate a statistically significant negative relationship. The implication of this is that high volatility in government policy in the current period tends to be associated with lower incidences of conflict. The result is plausible given that conflicts usually take some time to manifest on a wide scale, although in the longer time, it is expected that with growing volatility in government policies, there is higher tendency for conflict to grow. Another important consideration regarding the results is that other policy volatile coefficients (not reported due to need for parsimony) even if correctly signed are not statistically significant, indicating that conflicts in Nigeria have little to do with volatility in government policy as encapsulated in spending shocks.

RGDP: The results of the coefficient of economic growth measured by real GDP indicate a statistically significant positive relationship. Consequently, present, lagged and lead values of RGDP are positively associated with the incidence of conflicts in Nigeria. Thus, the nature of economic growth is an important aspect explaining the dynamics of conflicts in the country. A priori, higher growth should lead to reduced conflicts but this is not the case with Nigeria which has had both variables increasing over the years. One possible reason for this is that the growth experienced in the Nigerian economy is not one that is conflicting-reducing. Conflicts can only be reduced if the growth originates from sectors that utilize the labour of those who are likely to engage in potential conflicts. The Nigerian economy has been helped more by the surge in the production and sale of crude oil, a sector which is highly capital intensive, than by agriculture, industry and services, which are capable of absorbing a significant proportion of the labour force. In other words, it can be hypothesized that conflicts are unlikely to persist in an environment where the majority is engaged in productive economic activities, as these help absorb the energy which would have found its way into fanning the

embers of conflicts and violence. Consequently, the rising income originating from growth tends to go to a negligible fraction of the population, with the greater number of able-bodied people left out in the economic growth pie, often frustrated and susceptible to violent conflicts.

Unemployment: The unemployment coefficients indicate a statistically significant positive relationship with conflict. Current and past levels of unemployment are significant drivers of conflicts. The explanation is that higher levels of unemployment imply higher levels of poverty and lower living standards. When unemployment is prolonged, there is the tendency for individual and group tensions to become intensified. This state can very easily degenerate into various forms of conflicts in an attempt to survive. The results are consistent with the literature which considers unemployment as one of the serious impediments to social progress. Apart from representing a colossal waste of a country's manpower resources, it generates welfare loss in terms of lower output, thereby leading to lower income and well-being (Raheem, 1993). It is a very serious issue in Africa (Rama, 1998) and particularly in Nigeria (Umo, 1996). It is because of this that unemployment problems feature very prominently in the development objectives of many developing countries, in other to avert the associated negative effects such as poverty and lower living standards.

Diagnostic Statistics: The diagnostic statistics for the estimated cointegrating regression equation are quite satisfactory. The Adjusted R^2, which indicates the overall fit of the estimated model shows that the independent variables employed in the model jointly accounted for 88 percent of the total variation in conflicts. The F-statistic and its associated probability value indicate joint significance of all the variables employed, implying that all the explanatory variables are jointly significant in determining the variation in the dependent variable. The model passes the test of normality, in that the JB statistic of 2.39997 and the probability of obtaining the value, on the basis of the normality assumption of 30% imply that the null hypothesis of normally distributed error term cannot be rejected. In addition, the estimated model satisfies the Breusch-Godfrey (BG) serial correlation

LM test at both lags 1 and 2, implying that the statistics are not statistically significant as indicated by their associated p-values, thereby rejecting the null hypothesis of serial correlation in the residuals. The null hypothesis of heteroscedasticity is rejected at both lags 1 and 2, given that the chi-square values are not statistically significant.

4.1 Stability Tests

To determine the stability of the estimated coefficients of the conflict equation for Nigeria, the cumulative sum of recursive (CUSUM) and cumulative sum of squares of recursive residuals (CUSUMSQ) tests, developed by Brown et al. (1975), were adopted. The CUSUM and CUSUMSQ tests are shown in Figures 1 and 2.

Figure 1: Plot of Cumulative Sum of Recursive Residuals

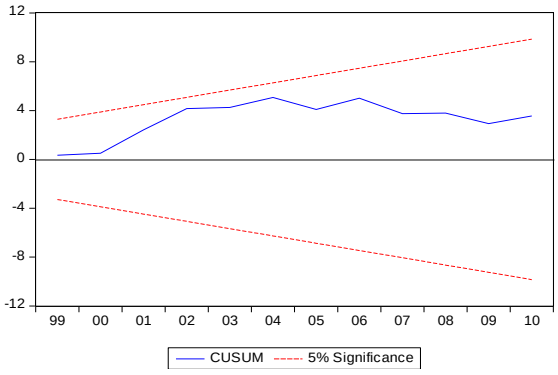
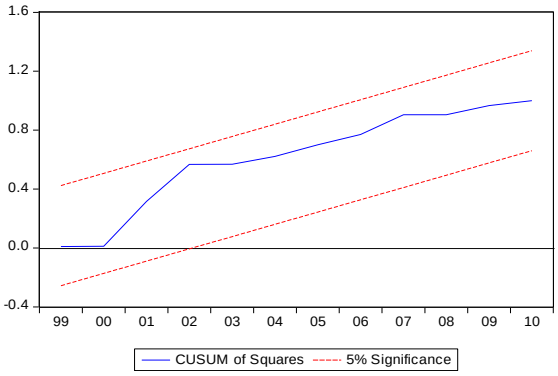


Figure 2: Plot of Cumulative Sum of Squares of Recursive Residuals



Source: Authors' computations.

The straight lines represent critical bounds at 5% significance level. Both the CUSUM and CUSUMSQ plots do not cross the 5% critical lines, implying that the stability of the estimated coefficients exist over the entire sample period of investigation. Consequently, there is parameter constancy in the estimated model, and the results of the regression coefficients are suitable for policy making.

5. CONCLUSION

The objective of the paper was the empirical examination of the impact of economic growth and other associated variables on conflicts in Nigeria, using annual data for the period 1981 to 2011. The study employed the Dynamic Ordinary Least Squares methodology. The empirical results demonstrate that there is a long-run relationship between conflict and macroeconomic variables such as inflation, poverty, real gross domestic product and unemployment. A major finding is that there is a direct relationship between conflicts and Nigeria's economic growth. This is not surprising given the mono-cultural tendency of the country in terms of crude oil production from which the country gets a bulk of its revenue and which has had a negligible and short-lived impact on the many conflicts that the country has experienced. Also noteworthy from the finding is that macroeconomic instability, poverty and unemployment are statistically significant variables which are directly related to the incidence of conflicts in the country. It is concluded that the growth trajectory experienced in the country is not one that is conflicting-reducing. There is also evidence that the parameters of the estimated model exhibit constancy given the CUSUM and CUSUMSQ plots.

Several implications arise from this study. First, there is a strong link between growth and conflict. Consequently, development policies must seek to integrate conflict-lessening measures which specifically address crisis-vulnerable persons and sectors of the economy. Second, it is certain that the mere increase in the country's wealth by way of higher growth rates may fuel rather than douse the embers of conflicts in all its ramifications. It is not out of place to assert that the tendency for

violence may increase given higher economic progress without a corresponding attention paid to how the gains from progress are distributed among the varied sections of the society. It is clear from the results that there has been progressive increase in the nature and sophistication of conflicts in the midst of higher growth of the Nigerian economy over the years. It is germane to note that policies which seek to deliberately target growth at the expense of income distribution are likely to be disastrous. Third, the growth process is crucial. In an environment where growth is not inclusive and embracive, such as appears to be the case in Nigeria where the "Dutch Disease" has been preeminent, it is not likely that disenchantment arising from high unemployment can be stomached, unless there is a deliberate effort to target potential crises-prone groups especially the young population and palliate them through various incentives (particularly through job creation).

Findings in the present investigation evidently call for further studies. It is unlikely that the relationship between economic growth and conflicts will be the same when the effects of the latter are studied within the context of micro units and specific communities or areas where conflicts have occurred. Consequently, investigations are warranted which seek to explain the exact nature of relationship between say conflicts and poverty, investment, income, health, human capacity development and the likes in regions where specific conflicts have occurred. This is because the effects of growth on conflicts may be masked in cases where the major source of a country's income comes from a single commodity (such as the sale of crude oil in Nigeria), the negative impact of which may be short-lived and generally die out when a long period is investigated. Sectoral analysis of growth and conflicts is certainly not out of place.

Based on the findings, a matrix of recommendations is apposite. There is much to be gained by focusing development efforts on the very poor. Horizontal inequality which appears to be endemic in Nigeria can be addressed through increased access to education and broad-based political representation. There is the task of finding a common ground on resource distribution. The concept of 'the richer the better' or 'the higher the growth, the better' cannot be justified in the midst of growing discontent

arising from gross neglect of the welfare of the majority. While economic development should be given priority, it is important that policies which promote equity, foster mass employment, minimize distortions and reduce poverty are enacted and implemented, with a view to dousing the embers of conflicts and the various colourations which they assume.

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APPENDIX A

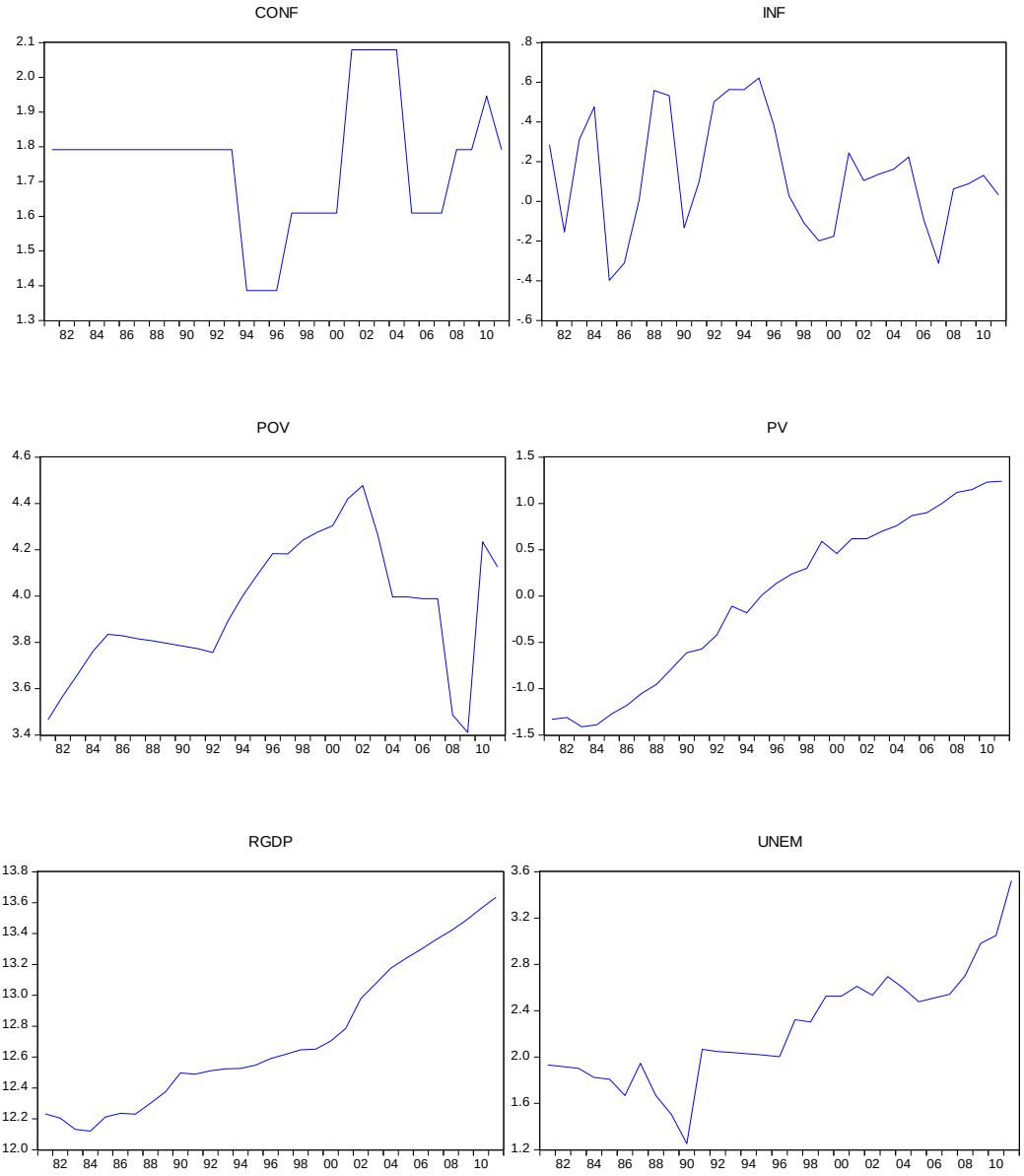
DESCRIPTIVE STATISTICS

	CONF	INF	POV	PV	RGDP	UNEM
Mean	1.753444	0.136767	3.949110	-0.019677	12.72132	2.242358
Median	1.791759	0.104891	3.988984	0.140000	12.59047	2.066863
Maximum	2.079442	0.621722	4.477337	1.240000	13.63418	3.523415
Minimum	1.386294	-0.397351	3.411148	-1.410000	12.12031	1.252763
Std. Dev.	0.185759	0.290428	0.280343	0.907147	0.467876	0.489989
Skewness	-0.120366	0.059370	-0.053931	-0.209734	0.552629	0.388965
Kurtosis	3.011604	2.021882	2.247058	1.617812	2.015035	3.086094
Jarque-Bera	0.075028	1.253969	0.747302	2.694930	2.831013	0.791260
Probability	0.963181	0.534200	0.688217	0.259898	0.242803	0.673256
Sum	54.35678	4.239762	122.4224	-0.610000	394.3608	69.51311
Sum Sq. Dev.	1.035191	2.530450	2.357763	24.68750	6.567242	7.202664
Observations	31	31	31	31	31	31

Source: Author's computations.

APPENDIX B

PLOTS OF MACROECONOMIC INDICATORS



Source: Author's computations.

APPENDIX C

COVARIANCE AND CORRELATION

Variable	CONF	INF	POV	PV	RGDP	UNEM
CONF	0.033393					
	1.000000					
INF	-0.004889	0.081627				
	-0.093650	1.000000				
POV	0.000558	-0.007180	0.076057			
	0.011074	-0.091125	1.000000			
PV	0.005168	-0.038053	0.120216	0.796371		
	0.031693	-0.149251	0.488467	1.000000		
RGDP	0.012581	-0.024967	0.033528	0.384783	0.211847	
	0.149575	-0.189858	0.264138	0.936801	1.000000	
UNEM	0.017643	-0.027547	0.049773	0.367397	0.192052	0.232344
	0.200297	-0.200025	0.374418	0.854107	0.865650	1.000000

Note: for each variable, covariance is in the first row and correlation in the second.

Source: Author's computations.

APPENDIX D

OVERPARAMETISED DYNAMIC OLS REGRESSION RESULTS

Dependent Variable: CONF

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-21.98857	29.72610	-0.739706	0.5945
INF	-0.329829	0.463824	-0.711107	0.6065
POV	0.783402	1.345625	0.582184	0.6644
PV	-1.116144	1.060055	-1.052911	0.4836
RGDP	1.552911	1.916965	0.810088	0.5665
UNEM	0.179086	0.673324	0.265973	0.8345
D(INF)	0.243332	0.446739	0.544685	0.6825
D(POV)	-0.502277	0.978880	-0.513115	0.6982
D(PV)	0.783434	1.689834	0.463616	0.7236
D(RGDP)	2.382588	2.220550	1.072972	0.4776
D(UNEM)	0.620194	0.402498	1.540863	0.3665
D(INF(1))	-0.240517	0.222314	-1.081880	0.4750
D(POV(1))	0.336067	0.395684	0.849330	0.5518
D(PV(1))	0.060125	0.965805	0.062254	0.9604
D(RGDP(1))	2.567068	2.044239	1.255757	0.4281
D(UNEM(1))	0.422907	0.434631	0.973025	0.5087
D(INF(-1))	-0.123616	0.330215	-0.374349	0.7720
D(POV(-1))	0.221244	0.615255	0.359597	0.7802
D(PV(-1))	0.516998	1.276914	0.404880	0.7551
D(RGDP(-1))	-2.547119	2.820171	-0.903179	0.5324
D(UNEM(-1))	0.412204	0.424673	0.970640	0.5095
D(INF(-2))	0.358955	0.313856	1.143692	0.4574
D(POV(-2))	0.563642	0.607432	0.927911	0.5238
D(PV(-2))	0.320252	0.757071	0.423015	0.7452
D(RGDP(-2))	3.731326	1.641276	2.273430	0.2638
D(UNEM(-2))	0.874182	0.326605	2.676571	0.2276

R-squared	0.990694	Mean dependent var	1.747768
Adjusted R-squared	0.758049	S.D. dependent var	0.198886
S.E. of regression	0.097829	Akaike info criterion	-3.181100
Sum squared resid	0.009571	Schwarz criterion	-1.933257
Log likelihood	68.94485	Hannan-Quinn criter.	-2.810051
F-statistic	4.258397	Durbin-Watson stat	2.685759
Prob(F-statistic)	0.367816		

Source: Author's computations.