The Impact of Conflict on State Capacity in Nigeria

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Bringing Rigour and Evidence to Economic Policy Making in Africa

The Impact of Conflict on State Capacity in Nigeria

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Abstract

Nigeria has witnessed incessant incidents of conflict-related violence in recent years. This paper seeks to investigate how conflicts affect state capacity in term of growth in GDP per capita and tax per GDP ratio, and to examine the potential spill over effect of conflict in neighbouring state. The System Generalised Method of Moments (GMM) technique is employed for a panel data of 37 states in Nigeria over the period 2000 to 2013. Our main results show that increase in incident of conflict reduces state capacity, with more negative effect on growth than tax. We also find evidence that states suffer weaker growth and loss of tax revenue because of conflict in adjacent states due to spill over effect of conflict. The difference-in-differences method is used to unravel the net effect of conflict in the Boko Haram afflicted states relative to other states. The findings suggest that individuals living in states heavily affected by Boko Haram experienced a negative change in state capacity, especially in their perception of government provision of health and education, relative to unaffected states between 2008 and 2012.

JEL codes: *D74, 043, C23*

Keywords: *Conflict, state capacity, spill over, dynamic panel model, Nigeria*

1. Introduction

Over the last decade, there has been increasing concern about fragile and conflict-affected states on the need for building government capacity such that the state can legitimately respond to the needs of the society. This position was reiterated in Dili Declaration, 2010 which signalled immediate actions to address conflict and fragility which constitute obstacles for achieving the Millennium Development Goals (MDGs) by the target date of 2015[1]. Despite the emerging policy consensus and the affirmative actions, many developing countries are still enmeshed in active civil wars or conflicts that undermine the capability of states to fulfil their core functions. Collier et al., (2003) and Collier (2007) identify the "conflict trap" as being responsible for recurrent conflicts plaguing a large part of the developing world. The outbreak of conflicts is usually attributed to unemployment, poverty, and inequality. Also, domestic factors such as ethnicity, individual and communal land disputes and other politically motivated violence are factors that also drive conflicts. These conflicts sometimes cause major catastrophe in the countries affected and ultimately cause an economic downturn. The intensity of these conflicts can vary from large-scale warfare to guerrilla war to genocide.

We focus on Nigeria to investigate the relationship between state capacity and conflict. The Organisation for Economic Co-operation and Development (OECD) defines state fragility as "a state that has weak capacity to carry out basic governance function and inability to provide basic services and mutually constructive relation with the society. In addition, these states also exhibit lack of political commitment, and legitimacy to govern its population and territory" (OECD, 2015; Jones, 2013; Geda, 2011). Nigeria aptly fits into this description given the incessant incidence of acute conflict-related violence in the country has literally weakened economic growth and development due to vicious destruction of productive assets, sudden interruption of oil production, prevention of foreign direct investment and loss of social cohesion (See McDougal et al 2018). The history of civil war in Nigeria dates back to five decades ago and the country continues to witness a significant number of conflicts following her transition from military rule to civil rule in 1999. Notable among them are Niger Delta Militancy in the South-South which has resulted in several fatalities, kidnapping oil of workers and constant exploitation and destruction of pipelines; the Boko Haram conflict in the North-Eastern part of the country which attacks educational facilities and the killings of Christians and Muslims, and the farmer-pastoralist conflicts in the

Middle Belt[2]. According to the Armed Conflict Location and Events Dataset (ACLED)[3], Nigeria has been the third most violent country, and suffered the fourth-highest deaths from conflict, among African countries between 2003 and 2013, with around 1,600 lives documented to have been lost to violent conflict in 2015 (Baca, 2015).

Literature abounds on the causes of armed conflict (Fearon, 1995; Fearon and Laitin, 2003; Collier and Hoeffler, 1998, 2004 and Powell, 2004). Much of the recent literature that examines economic impacts of conflict include Abadie and Gardeazabal, 2003; Biswas et al, 2016; Miguel and Roland, 2011; Polachek & Daria Sevastianova 2012. Abadie and Gardeazabal(2003) investigates the economic effects of conflict, using the terrorist conflict in the Basque Country and finds GDP per capita declined about 10 percentage points relative to a synthetic control region without terrorism. Using different definitions of civil war and System GMM estimation to address the endogeneity of conflict and per capita income, Biswas et al, (2016) provides evidence of negative impact of non-ethnic civil war on economic growth by finding a negative contemporaneous impact of non-ethnic civil war on economic growth while the impact of ethnic war is statistically insignificant over the period of 1975-2005[4].

However, previous studies, except McDougal et al. (2018), have obviously neglected to identify and model how conflict impacts on the fiscal extractive capacity of a country. Taxation is a process through which state formation becomes possible and generates the resources necessary to mobilise an effective governance to sustain development and growth (Kohli, 1999; Di John, 2011). Besley and Persson (2009) argue that states with higher fiscal abilities tend to experience lower levels of conflict. Moreover, a higher fiscal position reflects the legitimacy of the state and possibility that it is in control of the country.

This paper investigates the impact of conflict on state capacity. First, the study seeks to understand how conflict affects growth rate of real GDP per capita and tax to GDP ratio. Perhaps the fundamental constraint for the empirical work of McDougal et al., (2018) is the lack of data on measurement of economic growth at the state-level; hence, we use a unique state-level gross domestic product data obtained from Canback[4]. Miguel et al., (2004) also argues that the economic impacts of war remain largely unexplored empirically due to challenges of convincingly identifying conflict impacts on economic growth in the face of simultaneity between violence and economic conditions. To address this problem, our study employs the System General Method of Moment (SGMM) estimator which is based on internal instrumentation mechanism using panel dataset that covers 37 states and 14 years, from 2000 to 2013. Second, the study examines the extent to which spill over effect of conflict from neighbouring states influence state capacity while relying on the incidence of conflict in neighbouring states[6]. Our main results reveal, that increase in the incidences of conflict leads to reduced level of growth in real GDP per capita and tax to GDP ratio. Specifically, the findings show that growth in GDP per capita is more susceptible to higher conflict incidence than tax to GDP ratio.

We also zero in our analysis to investigate the effect of conflict on state capacity on the states that are heavily affected by Boko Haram relative to other states. We unravel

the net impact of Boko Haram insurgent by matching our conflict fatalities data with individual micro-data supplied by Afrobarometer using difference-in-differences approach. We constructed four indicators of state capacity: government handling of health, education, water and employment.

The remainder of the paper is organized as follows. In the second section, we present the conceptualization of state capacity and fragility in Nigeria. Section 3 describes the data used. Section 4 discusses the empirical strategy and explain the estimation techniques. In Section 5, we present the estimation results and provide detailed discussion of the results. In Section 6, we conclude and highlight some policy recommendations.

2. Conceptualizing fragility and state capacity in Nigeria

Nigeria, Africa's most populous country, has an estimated population of about 180 million people. It is also one of the continent's most ethnically, linguistically, and religiously diverse nations, containing more than 250 ethnic and linguistic groups. Although the country is a multicultural society, the Hausa/Fulani, Igbo/Bini/Urhobo, and Yoruba are considered its three major ethnic groups. Easterly and Levine (1997) argues that ethnic heterogeneity in African states can explain much of the underdevelopment and instability in the region. Little wonder why religious and ethnic divisions remain the basis of violent political conflict in Nigeria (Adesoji, 2010; Lewis, 2006). Ethnic heterogeneity is also one of the causes of poor government policies, which in turn lead to a negative development and lack of structural policies like education and infrastructure. Social conflict and social polarization are the underlying factors when political decisions are being made. More ethnic polarization would mean implementing growth-reducing policies and increase political instability, while a higher degree of ethnic diversity leads to adoption of different public policies leading to more negative outcomes than for a society with more ethnic homogeneity (Easterly and Levine, 1997).

Furthermore, the outbreak of conflicts is usually attributed to poverty, inequality, climate variability in the case of clashes between farmers and headmen, perceived marginalization in the case of Niger Delta militancy, and domestic factors such as land acquisition to politically motivated violence. Religion ideological violence such as Boko Haram and other conflicts sometimes cause major catastrophe in the country and ultimately causing an economic downturn. The intensity of these conflicts varies from large-scale warfare to genocide. The international community often also get involved by supporting conflict afflicted areas in aid to the internally displaced persons. Often, these conflicts have resulted in political instability as result of territorial occupation by the insurgents, lack of infrastructures and consequences of a weak or failed state.

Although state capacity is difficult to measure as there are different sections to the capacity of a state, attempts to define and operationalize state capacity as it pertains to civil conflict fall into three categories: military capacity, bureaucratic/administrative capacity, and political institutional coherence and quality (Hendrix, 2010). Military capacity is the state's ability to deter or repel challenges to its authority with force and is the centrepiece of the state's repressive capabilities. Bureaucratic and administrative capacity encompasses professionalization of the state bureaucracy

and revenue-generating capacity[7]. The political institutional coherence and quality defines state capacity as the degree to which democratic and non-democratic features are intermingled in the political system. Polity index has been the most common measure used to capture institutional coherence (Gurr, 1974; Hegre et al., 2001; Marshall and Jaggers, 2009).

Given that Nigeria's government is divided across the federal government, 36 states and the Federal Capital Territory - Abuja, and 774 local governments[8], the states do not legislate on military capacity and spending. Military capacity is statutorily categorised under exclusive list where only the Federal Government of Nigeria can legislate. Also, there are no Polity index measures for states in Nigeria that capture institutional coherence and quality for each state. However, there is a large degree of census that countries with more capable bureaucracies' experience fewer civil conflicts. Therefore, we have considered state capacity using the bureaucratic/administrative capacity. More importantly, one of the measures of administrative capacity used in this study, GDP per capita, has distinct advantages in that it is widely available for many states in Nigeria over a considerable period. Additionally, taxes/GDP ratio is the most common revenue-based indicator of overall size and capacity of the state. The measure has been used widely in the literature (Cheibub, 1998; Fauvelle-Aymar, 1999).

3. Data description

Our main dependent and independent variables combine information from various sources covering the 37 states of Nigeria (including the Federal Capital Territory) over a period of 14 years, from 2000 to 2013. Drawing from the literature, we measure our dependent variable, state capacity, using two sets of proxies, *economic growth,* and the revenue-based indicator- also referred to as *fiscal state capacity*. Economic growth is captured as growth rate of GDP per capita (See Miguel, et al. 2004; Hendrix 2010; Bolhken and Sergenti, 2010)[9]. States with high or increasing per capita GDP growth are expected to have stronger state capacities. Data on states' GDP was obtained from the Canback database while per capita measure was estimated using the population data extracted from Nigeria's National Bureau of Statistics. The fiscal capacity variable measures the overall size and capacity expressed in *tax revenue* as a percentage of GDP as used in a number of studies (Campbell, 1993; Chaudhry, 1997; Cheibub, 1998; Fauvelle-Aymar, 1999; Centeno, 2002; Thies, 2010). The ability to collect taxes is an indication of increasing state's degrees of institutionalization, bureaucratic organization, and perceived legitimacy[10]. The total tax revenue for each state is proxied by the Internally Generated Revenue obtained from the Central Bank of Nigeria.

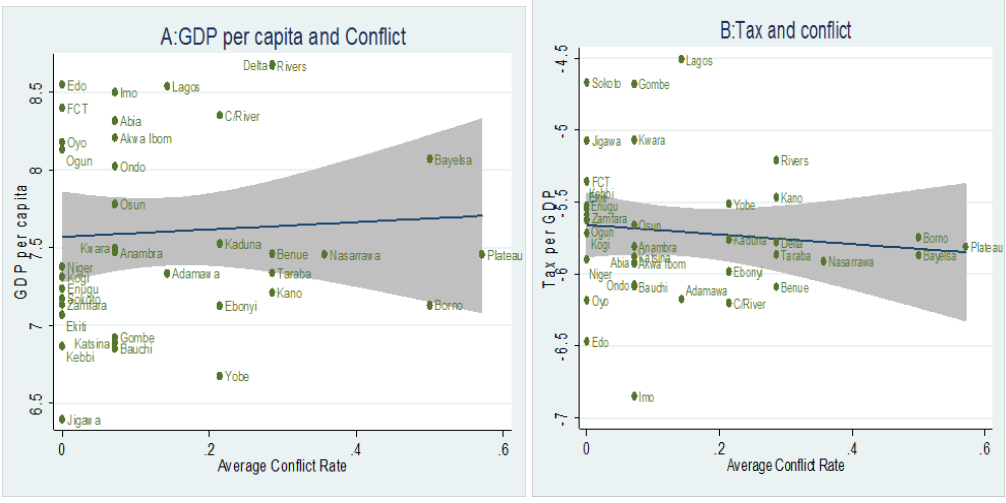
The primary explanatory variable of interest in this study is measure of conflict, categorized into three different indicators. First, *conflict*, the number of violent conflicts that occurred in a given state in a particular year. Second, *riots*, the number of protests that occurred in a given state in a particular year and third, *Conflict≥20,* a binary variable which takes the value 1 for states that have experienced violent events resulting in at least 20 fatalities[11]. This approach encompasses incidence and severity of conflict given that measuring the impact of conflict on growth is sensitive to how the conflict variable is constructed (Polachek and Sevastianova, 2012). ACLED provides the most detailed coverage of conflict events currently available. Conflict data was taken from the Armed Conflict Location and Event Data project (ACLED) which is based on the screening of news reports. The ACLED dataset summarizes conflict event by the name of the main actors, location of events, number of fatalities, and event type. Thus, we identify violent events linked to ethnic militia or "unidentified" armed groups, religious groups, farmers, and/or pastoralists occurring in each state in Nigeria.

There are country-level evidence in the literature regarding the spillover effects of conflicts with neighbouring countries (De Groot, 2010; Murdoch and Sandler, 2002).

Chauvet et al, (2011) estimated the impact at about 0.6%of lost output growth per neighbouring country. Therefore, to address this, we have included data on adjacent conflict and adjacent riots which measure the number of violent events and riots respectively in the neighbouring states. Several state-level explanatory variables serve as control variables following the growth literature (Biswas et al, 2016, Gupta, 2004; Montalvo and Reynal-Querol, 2005). We control for investment rate measured as a ratio of investment to GDP, literacy rate and population density expressed as a ratio of population per square kilometre of land. Data for investment is obtained from the Central Bank of Nigeria while literacy rate and landmass were extracted from Nigeria's National Bureau of Statistics.

In addition, we constructed data for the Boko Haram conflict using Afrobarometer survey. We merged the Afrobarometer data with the ACLED data at the state level. Data on state capacity from the Afrobarometer surveys, samples the economic, social, and political attitudes of citizens aged 18 and above. The surveys are based on random samples stratified by states and are therefore not representative at the level of Local Government Areas (LGAs). We combine two rounds of the surveys which coincide with the inception of Boko Haram attacks and our sample periods i.e. 2008 – 2012 to obtain a sample of 4,675 respondents from all the 37 states (including the Federal Capital Territory). We then constructed four indicators, namely: government handling of health; education, water, and employment. These indicators measure the respondents' perception of the ability of state in providing educational, social, and economic services. Other individual-specific characteristics such as gender, religion, urban-rural, age of respondents, state, tribe, and education were also extracted from the survey. The descriptive statistics of the variables, and the difference-in-differences variables used in the analysis are presented in Table A1 in the Appendix.

Figure 1: Correlations between conflict and GDP per capita and between conflict and tax per GDP



Furthermore, we examine the correlation between conflict and some key variables to have a cursory look at the casual relationship. Figure. 1 plots the correlation between cross-state averages of the log real GDP per capita, log tax to GDP ratio, and the conflict rate. The data is constructed by averaging over the available time. The conflict rate is the time average of the dummy variable and takes value of 1 when a state has witnessed at least 20 deaths per year. Figure 1A shows no clear relationship between the log real GDP per capita, and the conflict rate in cross-state averages. However, we do observe negative correlation between log of tax to GDP ratio and the conflict rate as revealed by Figure 1B. The direction of the correlation is expected, suggesting that state with higher conflict rate is experiencing lower tax revenue relative to more peaceful states. Regardless of the correlation, one should exercise caution in the interpretation of the outcomes due to the inability of correlation determining cause and effect.

4. Empirical strategy

This study uses the regression approach to study the relationship between state capacity and conflict. We specify a general panel data regression equation as follows:

$$y_{it} = \alpha + \gamma W_{it} + \varphi' \boldsymbol{X}_{it} + \eta_i + \psi_t + \varepsilon_{it} \quad (1)$$

$$i = 1,\ldots,N;\ t = 1,\ldots,T$$

Where y_{it} *measures* state capacity in state *i* in year *t*;. As previously stated, the state capacity outcomes of interest are growth rate of GDP per capita and tax revenue as a percentage of GDP. W_{it} is the relevant measure of conflict in state *i* in year *t*. X_{it} is a vector of control variables, which differs by equation, depending on the state capacity outcome of interest, η_i is the unobserved state fixed effects, ψ_t is the time invariant fixed effects and ε_{it} is the idiosyncratic error term.

The estimation of equation (1) above using pooled OLS will lead to biased estimate due to the presence of individual unobserved heterogeneity. In panel data regressions, the choice of an estimator mostly lies between the Random Effects (RE) or Fixed Effects (FE) estimators that can deal with the bias of unobserved heterogeneity. However, both estimators address the bias at the expense of a strong exogeneity assumption. Equation (1) does not include state-specific effects that can be correlated with other regressors. Moreover, past studies have shown that both state capacity and conflict are endogenously determined as the endogeneity of conflict and state capacity is one of the most persistent problems in conflict literature[12].

The issue of reverse causality is a clear possibility that could present additional endogeneity problems, directly related to our variables of interest. Collier (2000) and Collier and Hoeffler (2002, 2004) argue that GDP per capita affects the likelihood of conflict through the perceived opportunity cost to wages in the legal economy compared to participating in rebellion. Therefore, the RE and FE estimators do not produce consistent coefficient estimates in the presence of endogenous regressors and dynamics, and thus it is not possible to make inferences based on their estimates. Given the endogeneity issues discussed above, estimating equation (1) under the assumption of orthogonality of the regressors is not likely to produce

consistent estimates. To overcome these methodological concerns, dynamic panel data techniques offer solutions to the problems of endogeneity and heterogeneity identified above. First, to eliminate the time-invariant state-specific effects η, we take a first difference transformation of equation (1)

$$\Delta y_{it} = \delta \Delta y_{it-1} + \gamma \Delta \mathrm{W_{it}} + \varphi' \Delta \boldsymbol{X}_{it} + \Delta \varepsilon_{it} \tag{2}$$

Removing the state-specific effects by first difference leaves the transformed error term correlated with the right-hand side variables.

Since Δy_{it-1} and $\Delta \varepsilon_{it}$ are correlated, the OLS estimate of equation (2) is still inconsistent and FE estimators do not provide consistent estimates either. The most commonly used alternative estimators are dynamic panel General Method of Moments (GMM) estimators- difference GMM proposed by Arellano-Bond (1991) and system GMM proposed by Blundell-Bond (1998). Both estimators are specifically designed to capture the joint endogeneity of some explanatory variables through the creation of a matrix of "internal" instruments. Difference GMM uses lagged level observations as instruments for differenced variables. The standard moment conditions are as follows;

$$\begin{aligned} E(y_{it-s} \Delta \varepsilon_{it}) &= 0; \;\; s \geq 2; t = 3, \ldots T \\ E(Z_{it-s} \Delta \varepsilon_{it}) &= 0; \; s \geq 2; t = 3, \ldots T \end{aligned} \tag{3}$$

where Z_{it} denotes all predetermined and weakly exogenous variables in the model.

However, Blundell-Bond (1998) show that lagged levels of the explanatory variables are weak instruments for the first-differenced equation, when the explanatory variables are persistent over time, and when the time dimension of the sample is small. System GMM uses both lagged level observations as instruments for differenced variables and lagged differenced observations as instruments for level variables, leading a joint estimation of the equation in levels and in first differences. Therefore, to eliminate finite sample bias arising from weak instruments, Blundell-Bond (1998) develop additional moment conditions of no correlation of the unobserved state-specific effect with their differences as follows;

$$\begin{aligned} E\big(\Delta y_{i,t-1} \, (\eta_i + \varepsilon_{it})\big) &= 0 \\ E\left(\Delta Z_{i,t-1} \, (\eta_i + \varepsilon_{it})\right) &= 0 \end{aligned} \tag{4}$$

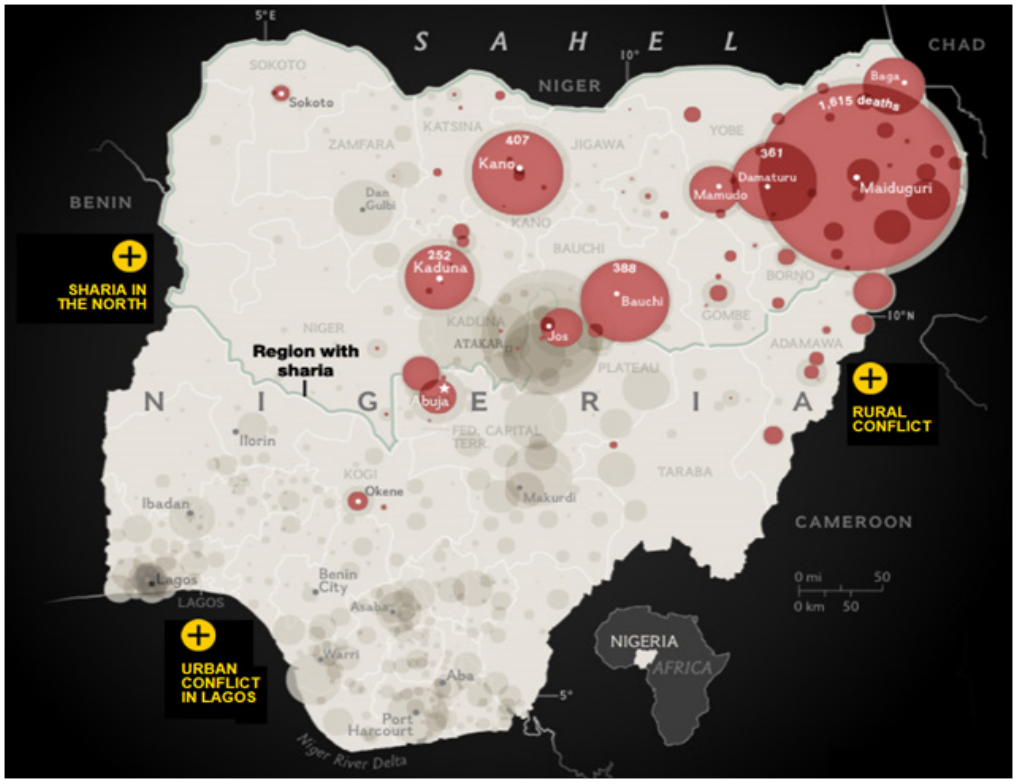
Thus, we employ the dynamic panel System GMM estimator to address the problem of endogeneity, time invariant fixed effects and dynamics. The consistency of the

System GMM estimator depends on the assumption of no serial autocorrelation in the errors. The Hansen test of over-identification restrictions is a joint test of model specification and appropriateness of the instrument vector. Failure to reject the null hypothesis of the test would indicate that the instruments used in estimation are valid and the model has been well specified.

Further investigation: Impact of Boko Haram conflict on state capacity

The defining feature of fragility is often considered as situations where the "social contract" is broken due to the state's incapacity or unwillingness to deal with its basic functions and obligations regarding the rule of law, poverty reduction, protection of human rights and freedoms, security and safety of its population, service delivery, transparent and equitable distribution of resources and opportunities, among others (European Report, 2009). Thus, fragility, in the context of conflict and state capacity nexus, arguably, implies that the state is unable to deliver its obligation because of incidence of conflict. Thus, we will investigate below whether the states with high spate of Boko Haram attacks in Nigeria have relatively lower state capacity compared to other states.

Figure 2: Boko Haram fatalities in 2009



Sources: Nate Haken, Fund for Peace and Partners for Peace; Nigeria Watch; Michael Watts, University of California, Berkeley.

Figure 2 shows the severity of Boko Haram attacks in terms of number of deaths in Northern part of Nigeria from June 2009 and June 2013. It could be observed that most of the sect's activities are concentrated in the North-Eastern part of Nigeria, such as Adamawa, Borno, and Yobe, while pockets of their activities are seen in states such as Kano, Kaduna, Bauchi, and the Federal Capital Territory. The violent intensified in 2010 resulting in the government declaring a state of emergency in the three most affected North-Eastern states of Adamawa, Borno and Yobe in 2013.

To identify the impact of Boko Haram attack on state capacity, as earlier stated, we linked data on Boko Haram fatalities with indicators of state capacity from the Afrobarometer surveys and used the difference-in-differences estimation technique that exploits variation in causalities across states and over time. The treatment is a continuous variable equal to the logged number of fatalities occurring between implementation of the 2008 and 2012 Afrobarometer survey. We used the 2008 survey because it was conducted before the first violent attack of Boko Haram took place in 2009. The treated group are the states where violence fatalities have been recorded due to boko haram insurgent. Simply put, the empirical identification strategy relies on the comparison of the change in state capacity in 2008–2012 across high Boko Haram violence attacks and states with no Boko Haram violence.

The difference-in-differences estimator for the investigation of the impact of Boko Haram violence on state capacity during sample period is specified as follows;

$$y_{its} = \alpha_1 \text{year}_{2012} + \alpha_2 (B_{2008-2012,s} * \text{year}_{2012}) + \boldsymbol{X'}_{its}\delta + \eta_s + \varepsilon_{its} \quad (5)$$

where i indexes individuals, s states, and t survey years. The variable y_{its} denotes individual-level perception of state capacity. $B_{2008\text{-}2012,s}$ denotes logged Boko Haram fatalities per state in the period 2008–2012; and year_{2012} is an indicator variable taking 1 for respondents in the 2012 survey. Thus, the coefficient of interest is α_2, which is the coefficient of the interaction term between $B_{2008\text{-}2012,s}$ and year_{2012}. To reduce heterogeneity across the observations, we control for several relevant individual-level characteristics. The vector $\boldsymbol{X'}_{its}$ represents a set of individual-level covariates, including the respondent's age, a gender indicator variable, an indicator variable that equals 1 if the respondent lives in an urban location, respondent's ethnicity, and the educational level of the respondent. The underlying assumption of the difference-in-differences estimator is that states affected by Boko Haram violence would have followed a similar trend as those unaffected, had they not been exposed to violence. The respondents' responses to the indicators of state capacity are coded as 1 if the current government handling of health, education, water and employment is fairly well or very well. This produces a discreet variable equal to 0 or 1 for each indicator of state capacity. We estimated equation (5) using linear probability model for ease of interpretation of the coefficient of interaction term. Alternatively, we estimate a probit model as robustness check for our linear probability model[13].

5. Results and discussion

We proceed by presenting preliminary results that reveal the likely relationship between measures of conflict and state capacity in Nigeria using the Pooled Ordinary Least Square. This is subsequently followed by in-depth analysis using the System GMM and the difference-in-differences method for the panel data.

Table 1 shows the baseline pooled OLS regression results for the two indicators of state capacity using different state characteristics set of controls. The regressions for growth rate of real GDP per capita are presented in the first three columns while the regressions for ratio of tax to GDP are reported in the last three columns. Following the standard approach in growth regression (Barro and Sala-i-Martin, 1992)[14], we capture the opportunity cost of rebellion in our growth model using initial real GDP per capita as poorer states are more predisposed to conflict relative to states with higher levels of real GDP per capita.

The results from the baseline estimation regressions presented in Table 1 show that measures of incidence of conflict, i.e., *conflict* and *riot*, are robust and negatively related to growth. Although, the measure of severity of conflict, conflict≥20, seems not to be statistically significant, it reveals a negative relationship with growth in real GDP per capita whereas none of the measures of conflict is statistically significant in the tax model.

Succinctly, the results suggest that higher levels of state conflict, *ceteris paribus*, are negatively associated with growth in per capita real GDP while the picture is not clear-cut for the ratio of tax per GDP due to the insignificant relationship and the contrasting signs of the parameter estimates. The findings for both the growth rate of per capital real GDP are reasonable as they are in line with a priori expectation. Nevertheless, these results are not to be taken at face value as they are only indicative and highly restrictive due to the drawback inherent in cross-sectional regressions which typically rule out the panel characteristics, and the time varying features of the data. Perhaps, this might, to a large extent, explain the reason why the initial per capital income is not significant in growth regressions. Furthermore, as we stated before, the issue of endogeneity arising from the simultaneity of conflict and state capacity necessitates a broader examination of the effect we are interested in. The standard treatment for the procedure for endogenously determined variables is to use instrumental variables. Therefore, we now turn to the results from the system GMM regressions which provide a framework using internal instrumentation. Drawing on the standard approach, the instrument used in the estimation were all exogenous variables.

Table 1: Impact of conflict of state capacity: OLS[15]

	(1)	(2)	(3)	(4)	(5)	(6)
Variables	**Growth**	**Growth**	**Growth**	**Tax/GDP**	**Tax/GDP**	**Tax/GDP**
Conflict	-0.458*			0.00356		
	(0.248)			(0.0301)		
Riot		-0.746**			-0.0554	
		(0.377)			(0.0435)	
Conflict≥20			-0.330			-0.00954
			(0.679)			(0.0865)
Initial income	0.500	0.134	0.513			
	(0.688)	(0.932)	(0.586)			
Investment rate	0.135	-2.664	-0.266	3.108***	3.471***	3.514***
	(3.652)	(4.547)	(3.333)	(0.444)	(0.521)	(0.426)
Literacy	0.0297	0.0497*	0.0345**	-0.00733***	-0.00781***	-0.00882***
	(0.0200)	(0.0266)	(0.0172)	(0.00201)	(0.00255)	(0.00184)
Pop density	-0.592*	0.0701	-0.539*	0.0698	0.135**	0.0501
	(0.359)	(0.441)	(0.322)	(0.0442)	(0.0535)	(0.0414)
Constant	3.293	0.885	1.833	-5.994***	-6.313***	-5.840***
	(4.310)	(5.928)	(3.697)	(0.202)	(0.252)	(0.184)
Observations	391	224	481	413	232	518
R-squared	0.025	0.051	0.021	0.141	0.241	0.145
CD test	57.99		71.96	13.66	-	25.58
p-value	0.00		0.00	0.00	-	0.00

Note: Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Table 2 reports the results from the System GMM regressions is in congruous with the results from the cross-sectional regression in Table 1, but with considerable economically meaningful outputs. Like the cross-sectional regressions, the sign of the coefficients on all the three measures of conflict are negative. The estimated parameters are also statistically significant, except for *conflict>20* for growth model in column 3 despite having the requisite sign.

A key observation in Table 2 is that the magnitude of the estimated coefficients of conflict measures appears much higher on growth model compared with tax model. A 1% increase in number of conflict and riots in the states will decrease growth rate of per capita GDP by about 0.78% points. Interestingly, while the impact of *Conflict≥20* on growth is not statistically different from zero, the impact is quite robust on ratio tax to GDP. This outcome suggests that an additional 20 deaths over the year due to battle related conflict reduces tax to GDP ratio by about 0.22%. This is to be expected given that the scale and instability arising from 20 deaths increases, owing to conflict, this will potentially cause an immediate reduction in taxable population, resulting in huge revenue loss. This finding is consistent with result of Biswas et al., (2016).

Table 2: Impact of conflict on state capacity: System GMM[16]

	(1)	(2)	(3)	(4)	(5)	(6)
Variables	**Growth**	**Growth**	**Growth**	**Tax/GDP**	**Tax/GDP**	**Tax/GDP**
Conflict	-0.782***			-0.0364*		
	(0.0815)			(0.0181)		
Riot		-0.776***			-0.0433***	
		(0.0446)			(0.00625)	
Conflict≥20			-0.225			-0.215***
			(0.179)			(0.0270)
Lagged dependent	-0.180***	-0.134***	-0.0391***	0.639***	0.766***	0.692***
	(0.0222)	(0.0289)	(0.00643)	(0.0475)	(0.0293)	(0.0186)
Initial income	1.290***	0.341***	0.888***			
	(0.200)	(0.0999)	(0.0941)			
Investment rate	-0.570	1.272	0.318	2.078***	2.439***	2.995***
	(3.511)	(3.516)	(1.782)	(0.579)	(0.294)	(0.230)
Literacy	0.0453***	0.0524***	0.0493***	-0.00661***	-0.00609***	-0.00601***
	(0.0111)	(0.00789)	(0.00313)	(0.000942)	(0.000461)	(0.000760)
Pop density	-0.904***	-0.0131	-0.798***	-0.331***	-0.213***	-0.299***
	(0.330)	(0.155)	(0.137)	(0.0485)	(0.0280)	(0.0185)
Observations	363	218	444	391	224	481
No of instrument	118	103	115	108	96	105
Hansen Statistics	36.02	32.17	36.97	32.22	33.49	36.90
p-value	1.00	1.00	1.00	1.00	1.00	1.00
AR(2)	2.41	1.29	3.31	1.02	1.35	1.12
p-value	0.016	0.198	0.01	0.309	1.77	0.265
CD Pesaran test	58.16	-	69.59	20.68	-	30.78
p-value	0.00	-	0.00	0.00	-	0.00

Note: Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Turning to the control variables, the effect of initial GDP per capita on growth regressions is positive and statistically significant. Investment rate is expected to create more opportunities and broaden the economic base to spur growth and development. It is surprising that we could not establish any robust impact of investment rate on the growth rate of GDP per capita. Investment rate has positive and statistically significant effect on ratio of tax to GDP. The more states are able to allocate a large proportion of their budget to capital expenditure in order to drive investment, the higher the tax revenue earned by the state. Consistent with the finding of Gören (2014), literacy rate is positively correlated on growth rate of GDP per capita. The result goes to reinforce the important role of human capital in driving growth. However, literacy rate appears to have a negative impact on the ratio of tax to GDP. The finding is not surprising due

to high level of tax evasion occasioned by the informality of the system in Nigeria. According to Nigeria's National Bureau of Statistics (NBS), only 13% of the 77 million the workforce is in the tax net in 2015. Population density also has a negative impact across both indicators of state capacity.

As preliminary test of spill over effect, we opted for test proposed by Pesaran (2004) to investigate the presence of cross-sectional dependence in our models. The result shows that the null hypotheses of no cross-sectional dependence are strongly rejected across all models indicating the presence of spatial dependence.

Table 3 shows the System GMM estimation result of the model that examines the impact of adjacent state conflict on state capacity. The regression tries to exploit alternative source by which conflict may influence state capacity such as spill over effects of neighbouring states. Chauvet and Collier (2005) point out the negative effect that fragile states have on neighbouring countries. In Nigeria, conflict has been geographically contagious, whereby conflict in one state quickly spills over into neighbouring states. For instance, Boko Haram which started off from Borno State has spread across bordering states in the North-Eastern part of Nigeria such as Yobe and Adamawa.

Similarly, the Middle Belt farmer-pastoralist conflict is being witnessed across primary neighbours such as Benue, Kaduna, Nasarawa, Taraba and Plateau. Besides, conflicts in some states often force refugees to migrate to neighbouring states where they are temporarily sheltered in camps for internally displaced people (IDPs) for safety. Consequently, health, water and education infrastructure are overstretched as hospitals are inadequate to cope with the teaming refugee population and schools are overpopulated due to school closure in the affected states. The results reveal that conflict and riots in adjacent states have negative and statistically significant impact on growth. In the same view, conflict and riots in adjacent states are accompanied with lower tax per GDP. This finding goes to validate the results in De Groot, (2010) that directly contiguous countries suffer from the negative effects of proximate conflict. Of course, this is explained by the fact that refugees are typically unskilled, poor and without economic benefit to the state, thereby making the host state to be strained in terms of capacity and are largely unable to meet the needs of the host population and IDPs.

Table 3: Impact of adjacent state conflict on state capacity: System GMM[17]

Variables	(1)	(2)	(3)	(4)
	Growth1	Growth2	Tax/GDP	Tax/GDP
Adjacent Conflict	-0.256***		-0.0289**	
	(0.0661)		(0.0130)	
Adjacent Riot		-1.386***		-0.0978***
		(0.0583)		(0.0120)
Lagged dependent	-0.0721***	-0.234***	0.697***	0.575***
	(0.00789)	(0.0130)	(0.0140)	(0.0335)

continued next page

Table 3 Continued

Variables	(1)	(2)	(3)	(4)
	Growth1	Growth2	Tax/GDP	Tax/GDP
Initial income	0.979***	0.944***		
	(0.0694)	(0.0654)		
Investment rate	0.630	-4.122	3.044***	2.747***
	(1.510)	(6.315)	(0.493)	(0.999)
Literacy	0.0418***	0.0474***	-0.00587***	-0.00855***
	(0.00562)	(0.00628)	(0.000934)	(0.000971)
Pop density	-0.683***	-0.159	-0.287***	-0.376***
	(0.107)	(0.107)	(0.0198)	(0.0465)
Observations	440	335	477	355
No of instrument	118	114	108	105
Hansen Statistics	36.94	34.98	36.67	32.97
p-value	1.00	1.00	1.00	1.00
AR(2)	3.19	1.75	1.40	1.90
p-value	0.001	0.08	0.160	0.057
CD test	69.38	-	30.44	
p-value	0.00	-	0.00	

Note: Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Further investigation: Evaluation of the impact of Boko Haram

We have established that incidence of conflict and its severity has significant impact on state capacity in Nigeria. However, Aleyomi, (2012) posits that among the different types of conflicts the nation has experienced in recent years, Boko Haram insurgency is the most vicious in term of economic loss and humanitarian crisis. The sect embraces that anyone who do not believe in Islam or who supports western education should be killed. Against this backdrop, we examine the impact of Boko Haram violence on the respondents' perception of state capacity in states affected by the insurgency using difference-in-differences technique. As discussed earlier, the indicators of state capacity such as government handling of health, water, education and employment are obtained from Afrobarometer survey. These survey data are then linked with Boko Haram fatalities data from ACLED at state level.

The results of the impact of the Boko-haram armed insurgent on the respondents' perception of state capacity are presented in Table 4. Following the standard difference-in-differences approach, the variable of interest is the interaction term between the treatment group and year, i.e., Boko-Haram*Year2012. The findings indicate that individuals living in states heavily affected by Boko Haram experienced a negative change in their perception of state capacity between 2008 – 2012 relative to

other states. It is interesting to note that the net effect of the conflict is quite substantial for education and health compared with other indicators of state capacity.

Table 4: Impact of Boko Haram: Linear Probability Model[18]

	(1)	(2)	(3)	(4)
Variables	**Health**	**Education**	**Water**	**Employment**
BokoHaram*Year2012	-0.0225**	-0.0500***	-0.00364	-0.0150*
	(0.0111)	(0.0110)	(0.0102)	(0.00871)
Year2012	0.0747***	0.0636**	0.0217	-0.128***
	(0.0284)	(0.0283)	(0.0261)	(0.0222)
Other Attacks	-0.0253**	-0.0036	-0.0204**	0.0102
	(0.0107)	(0.0106)	(0.00982)	(0.00841)
Constant	0.338**	0.386**	0.107	-0.0707
	(0.170)	(0.169)	(0.155)	(0.131)
Individual controls	Yes	Yes	Yes	Yes
State fixed effects	Yes	Yes	Yes	Yes
Observations	3,947	3,947	3,944	3,934
R-squared	0.128	0.133	0.112	0.120

Note: Unit of observation is an individual, standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1
The difference-in differences model uses two round of surveys, 2008 and 2012. Year2012 indicates the time when the treatment (Boko Haram) started which corresponds to 2012 survey in our data while 2008 survey is the pre-treatment year.

The estimated coefficient for education is almost twice as large, implying that 1% increase in Boko Haram attacks decreases the probability of perception about government providing quality education by 0.05% points. This finding reinforces the sect's ideology of attacking Nigerian education system in Northern Nigeria as they consider western education forbidden. In fact, the World Bank (2016a) puts the estimated total impact of Boko Haram conflict on the cost to education sector of the Northeast around US$ 273 million, 53% of which is accounted for in Borno State. We do not find any statistical significance change in the perception about water provision between 2008 and 2012 across states affected by Boko Haram while the likelihood of perceiving loss of employment increases with sect insurgence during the period. Moreover, the negative net effect of conflict on employment reiterates the argument by Sender, (2008) that sustained economic growth is necessary for sustained employment, which historically is the main source of salaried employment in low-income countries, although recent African evidence shows that structural transformation is much better for poverty reduction than simple growth (Abebe, 2014; Geda, 2019).

While we employ the linear probability model as an indicative estimation approach to demonstrate the nature of the relationship between variables in the model, the nonlinear models of the probit are adopted given that the indicators of state capacity are binary variables. We estimated probit model to compare our results and validate

the robustness of the OLS model, although estimating a limited dependent model are typically problematic when endogenous variables are combined with fixed effect (De Ree et al; 2009). Although, the results of the probit model are presented in Table 5. The results reveal that the effects of conflict, except for the employment effect, like our preferred OLS model with the same signs. we observe some striking differences in the magnitude of the estimated coefficients between the two models. For instance, the coefficient estimates of the impact of the Boko Haram attack on health and water in the probit model is almost three times as large as that of the estimates of the linear probability model. In general, we find evidence from the probit model more compelling given the consistency of probit technique in estimating models with binary dependent variable. Hence, the finding t supports the earlier result that the net effect of Boko Haram conflict has a large and negative impact on the probability of perception about government providing education and health compared with other indicators of state capacity. Overall, a very encouraging outcome from our analysis is the generally declining perception of state government capacity to provide education, health and related social services in the Boko Haram conflict affected states relative to other states.

Table 5: Impact of Boko Haram: Probit Model

Variables	(1)	(2)	(3)	(4)
	Health	Education	Water	Employment
BokoHaram*Year2012	-0.0639**	-0.141***	-0.0117	-0.0265
	(0.0308)	(0.0311)	(0.0330)	(0.0365)
Year2012	0.201***	0.176**	0.0601	-0.612***
	(0.0777)	(0.0781)	(0.0823)	(0.0986)
Other Attacks	-0.0673**	-0.00900	-0.0670**	0.0432
	(0.0292)	(0.0292)	(0.0315)	(0.0358)
Constant	-0.408	-0.285	-1.257**	-2.276***
	(0.459)	(0.463)	(0.488)	(0.619)
Individual controls	Yes	Yes	Yes	Yes
State fixed effects	Yes	Yes	Yes	Yes
Observations	3,930	3,921	3,902	3,830

Note: Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1
The difference-in differences model uses two round of surveys, 2008 and 2012. Year2012 indicates the time when the treatment (Boko Haram) started which corresponds to 2012 survey in our data while 2008 survey is the pre-treatment year.

Robustness checks

To check the robustness of our result, we estimated both fixed and random effect models. The results are presented in Appendix Tables A2 and A3 respectively. The results of the FE and RE models have a smaller number of statistically significant parameters, especially for conflict variables. While the Hausman test favours the FE

over RE, most of the estimates show a positive relationship between conflicts and state capacity, which is contrary to the apriori expectation in the literature, though the RE models shows negative values for the conflict variables. Besides, the models are less robust compared to the System GMM, which is expected given the drawback inherent in both models, owing to potential endogeneity between conflict and state capacity as discussed in section 4. We also drop the outlier states in our sample as shown in Figure 1 in that these states are hotspots for conflict in their regions. We re-estimate equation (2) to check the correctness of our results by investigating whether the results do not change despite the potential impact of influential points on the fitted line[19]. The results reveal that the parameter estimates are quite similar in magnitude to the full sample System GMM estimates as reported in Appendix Tables A4 and A5. It is therefore assumed that the outlier states in our model did not bias our results.

6. Conclusion

This study examines fragility through the standpoint of conflict and state capacity nexus across the 37 states (including Federal Capital Territory) in Nigeria during the period 2000-2013 by addressing three pertinent questions. First, how does conflict affect the growth rate of real GDP per capita and tax to GDP ratio? Second, to what extent does spill over effect of conflict from neighbouring states influence state capacity. Third, what is the net impact of Boko Haram insurgence on the perception of state capacity in the states that are affected by the armed insurgents? To answer these questions, we begin by estimating cross-sectional regressions and System Generalized Method of Moment estimators to better understand the relationship between conflict and state capacity indicators, while employing difference-in-differences approach to unravel the net impact of Boko Haram insurgent.

Our results reveal that increase in number of conflicts lead to lower levels of growth in GDP per capita and tax to GDP ratio. In particular, the findings show that growth in GDP per capital is more susceptible to higher conflict incidence than tax to GDP ratio. This is consistent with the reasoning that growth in GDP per capita in most developing countries is hampered by persistent conflict despite the abundance of natural resources. The analysis about the impact of conflict in adjacent state shows that conflict in geographically contiguous states has a negative effect on state capacity. Our results support the empirical findings of Murdoch and Sandler (2002b) and De Groot (2010) that domestic and adjacent conflicts are two sources that may have negative influence on growth. Moreover, we also find that individuals living in states heavily affected by Boko Haram experienced a negative change in state capacity between 2008 and 2012 relative to other states, with much larger net effect of conflict decreasing the likelihood of government providing education.

Given these results of the study, several policy recommendations emerge. First, since the evidence that growth in GDP per capita is influenced by incidences of conflict i.e., the number of conflicts and riots, and not the severity of conflict; policy intervention by government should be geared towards improving national and transborder security to reduce incidence of conflict. Second, implementation of mass education by the government is recommended, especially in the conflict-ridden area of Northern Nigeria, as our finding reveals that literacy rate could spur growth and development. Second, budgetary security expenditure and

developmental assistance from foreign agencies should not only be targeted at the conflict affected state but the entire states in the conflict prone region, since spill over effect across states is found to be important. Finally, a deliberate government effort such as the proposed North-East Development Commission for the rebuilding and reconstruction of educational and health infrastructures in the Boko Haram affected states is vitally important.

Notes

1. Dill declaration was the international dialogue of representatives of developing countries, bilateral and multilateral partners and civil society in Dili, Timor-Leste, on 9-10 April 2010 in which countries experiencing conflict and fragility and development partners agreed to jointly shape and guide international assistance to support peacebuilding and state building.

2. Salihu and Guariso (2017) provides a full review of the background of conflict in Nigeria.

3. Armed Conflict Location and Event Data Project (ACLED) is a disaggregated conflict collection, analysis and crisis mapping project. ACLED collects the dates, actors, types of violence, locations, and fatalities of all reported political violence and protest events across Africa, South Asia, Southeast Asia, and the Middle East. Political violence and protest include events that occur within civil wars and periods of instability, public protest, and regime breakdown.

4. Unfortunately, the author did not include country composition of their study sample in the paper.

5. Canback is a database managed by Canback Consulting which provides global income distribution across 89 countries. The Nigerian GDP state level data was accessed from this database.

6. Our approach is different from Murdoch and Sander (2002b), and De Groot, (2010) which adopt weighted matrix to measure the distance of the spill over between countries.

7. See Collier & Hoeffler, 2004; Humphreys, 2005; Thies, 2004, 2007 estimate administrative capacity indirectly by focusing on export profiles or revenue-generating.

8. Nonetheless, it is enshrined in the constitution that local governments would be subject to state-level legislation with significant oversight on the activities of the local governments.

9. Economic considered an appropriate measure of state capacity as it highly correlated with a variety of measure of administrative capacity when determines the quality bureaucratic and strong state institution (Hendrix, 2010).

9. The state's capacity to mobilize and extract financial resources is the core of state capacity building and the foundation of the state's ability to realise its other capacities Wang and Hu (2001)

10. Civil conflict in the literature is usually measured by violent event resulting in at least 20 or 25 casualties. For example, see Salihu and Guariso (2017) for at least 20 casualties and De Ree & Nillesen (2009) for at least 25 casualties. Hence, we followed a similar study on Nigeria by Salihu and Guariso (2017) and used the standard indicator of conflict>20.

11. Although conflict literature typically treats state capacity as exogenous, a few researchers, however, have treated it as an endogenous variable (Miguel, et al. 2004; Hendrix 2010; Bolhken and Sergenti, 2010) but the dynamic consequences of conflict are likely to be as important.

12. Although linear probability model is clearly more appropriate for our purpose than limited dependent model such as probit or logit as they consistently estimate the linear conditional expectation function and minimises mean error. See Angrist and Pischke (2008) for a detail discussion.

13. The growth model in Barro and Sala-i-Martin (1992) divides the panel into 5-year overlapping averages. However, due to short duration of our sample, the 5-year subdivision approach was not implemented on our dataset

14. The CD test for riot model in Table 1 (columns 2 & 6) could not be conducted due to error message as panel is highly unbalanced.

15. The CD test for riot model in Table 2 (columns 2 & 6) could not be conducted due to error message as panel is highly unbalanced.

16. The CD test for riot model in Table 3 (columns 2 & 4) could not be computed because the panel is highly unbalanced.

17. Individual controls are gender, religion, urban-rural, age of respondents, tribe and education. Education level is a categorical variable taking values between 0 and 5, with 0 denoting no schooling and 5 university education.

18. We thank the reviewer at the AERC workshop in Nairobi who pointed out the potential impact of the outliers in determining the fitted line lines as shown in Fig.1 Panel A. Thus, we exclude Borno, Plateau and Bayelsa States from the sample to carry out the robustness test.

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Appendix

Table A1: Summary Statistics

Variables	Obs.	Mean	Std. Dev.	Min.	Max.
Panel-level Variable					
No. annual conflict	518	6.9382	16.6968	0	217
No. annual riots	518	1.9266	4.5729	0	53
No. annual adjacent conflict	518	25.5328	25.5328	0	325
No. annual adjacent riots	518	7.0575	11.9285	0	104
Conflict≥20	518	0.1409	0.3483	0	1
Fatalities	518	45.7312	191.8753	0	2421
Growth rate of GDP per capita	481	4.7301	5.0704	-4.7619	25.187
Investment rate	518	1.36E+08	1.69E+08	7,65,1188	1.90E+09
GDP	518	1.02E+10	1.02E+10	1.02E+09	6.70E+10
Literacy rate	518	61.0058	19.6452	16.820	95.00
Tax	518	4.33E+07	1.01E+08	1727007	9.11E+08
Survey Variable					
Handling Health	4,724	0.4717	0.4992	0	1
Handling Education	4,724	0.4525	0.4980	0	1
Handling Water	4,724	0.3041	0.4601	0	1
Handling Employment	4,724	0.2018	0.4014	0	1
Age	4,724	31.2911	12.2223	17	86
Education level	4,724	2.9745	1.5232	0	5
Gender (Male=1)	4,724	0.5006	0.5001	0	1

Table A2: Impact of conflict of state capacity: Fixed Effect OLS model???

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
	Growth	Growth	Growth	Tax/GDP	Tax/GDP	Tax/GDP
Conflict	0.527*			0.0466		
	(0.289)			(0.0314)		
Riot		0.609			-0.109**	
		(0.423)			(0.0459)	
Conflict≥20			0.388			0.112
			(0.713)			(0.0798)
Investment rate	0.485	-3.321	0.678	3.101***	2.292***	3.432***
	(4.973)	(6.834)	(4.673)	(0.533)	(0.698)	(0.530)
Literacy	-0.00968	0.00286	-0.00310	0.000132	-0.00340	0.00111
	(0.0275)	(0.0406)	(0.0239)	(0.00306)	(0.00445)	(0.00280)
Pop density	-22.71***	-24.00***	-19.40***	-0.309	0.00676	0.0397
	(2.452)	(3.394)	(2.062)	(0.251)	(0.333)	(0.220)
Constant	125.5***	136.0***	107.3***	-4.500***	-5.743***	-6.402***
	(13.29)	(19.34)	(11.31)	(1.368)	(1.909)	(1.205)
Observations	391	224	481	413	232	518
R-squared	0.209	0.250	0.174	0.089	0.101	0.084
Time dummies	No	No	No	No	No	No
Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
CD Pesaran	72.73	-	91.96	7.39	-	7.68
(P-value)	0.000	-	0.000	0.000	-	0.000

Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Table A3: Impact of conflict of state capacity: Random Effect OLS model??

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
	Growth	Growth	Growth	Tax/GDP	Tax/GDP	Tax/GDP
Conflict	-0.458*			0.0260		
	(0.248)			(0.0286)		
Riot		-0.746**			-0.106***	
		(0.377)			(0.0399)	
Conflict≥20			-0.330			0.0908
			(0.679)			(0.0786)
Initial income	0.500	0.134	0.513			
	(0.688)	(0.932)	(0.586)			
Investment rate	0.135	-2.664	-0.266	3.088***	2.640***	3.399***
	(3.652)	(4.547)	(3.333)	(0.495)	(0.611)	(0.491)
Literacy	0.0297	0.0497*	0.0345**	-0.00195	-0.00537*	-0.00238
	(0.0200)	(0.0266)	(0.0172)	(0.00254)	(0.00310)	(0.00235)
Pop density	-0.592*	0.0701	-0.539*	-0.0420	0.0974	-0.0181
	(0.359)	(0.441)	(0.322)	(0.0811)	(0.0886)	(0.0751)
Constant	3.293	0.885	1.833	-5.760***	-6.183***	-5.879***
	(4.310)	(5.928)	(3.697)	(0.408)	(0.438)	(0.382)
Observations	391	224	481	413	232	518
R-squared	0.080	0.200	0.174	0.150	0.220	0.180
CD Pesaran test	40.62	-	45.47	4.16	-	6.40
P-value	0.000	-	0.000	0.000	-	0.000

Table A4: Impact of conflict of state capacity without outliers: System GMM

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
	Growth	Growth	Growth	Tax/GDP	Tax/GDP	Tax/GDP
Conflict	-0.800***			0.000106		
	(0.0839)			(0.0182)		
Riot		-0.807***			-0.0237**	
		(0.0394)			(0.00972)	
Conflict≥20			-0.333			-0.0931***
			(0.368)			(0.0327)
Lagged	-0.208***	-0.177***	-0.0608***	0.618***	0.759***	0.661***
	(0.0147)	(0.0190)	(0.00781)	(0.0573)	(0.0252)	(0.0225)
Initial income	1.253***	0.353**	0.837***			
	(0.0674)	(0.146)	(0.0929)			
Investment rate	1.048	-2.402	-0.950	2.971***	2.301***	3.069***
	(1.962)	(1.736)	(2.725)	(0.563)	(0.339)	(0.249)
Literacy	0.0583***	0.0684***	0.0648***	-0.00670***	-0.00526***	-0.00619***
	(0.00459)	(0.00721)	(0.00280)	(0.00108)	(0.000973)	(0.000863)
Pop density	-1.002***	-0.111	-0.864***	-0.363***	-0.225***	-0.330***
	(0.132)	(0.224)	(0.165)	(0.0569)	(0.0264)	(0.0209)
Observations	327	199	408	352	204	442
No of instrument	118	101	115	108	95	105
Hansen Statistics	36.02	30.31	36.97	31.16	29.55	33.95
p-value	1.00	1.00	1.00	1.00	1.00	1.00
AR (2)	2.18	1.32	3.16	0.52	1.25	0.80
p-value	0.29	0.19	0.00	0.60	0.21	0.423
CD Pesaran test	52.75	-	63.86	17.51	-	27.84
p-value	0.00	-	0.00	0.00	-	0.00

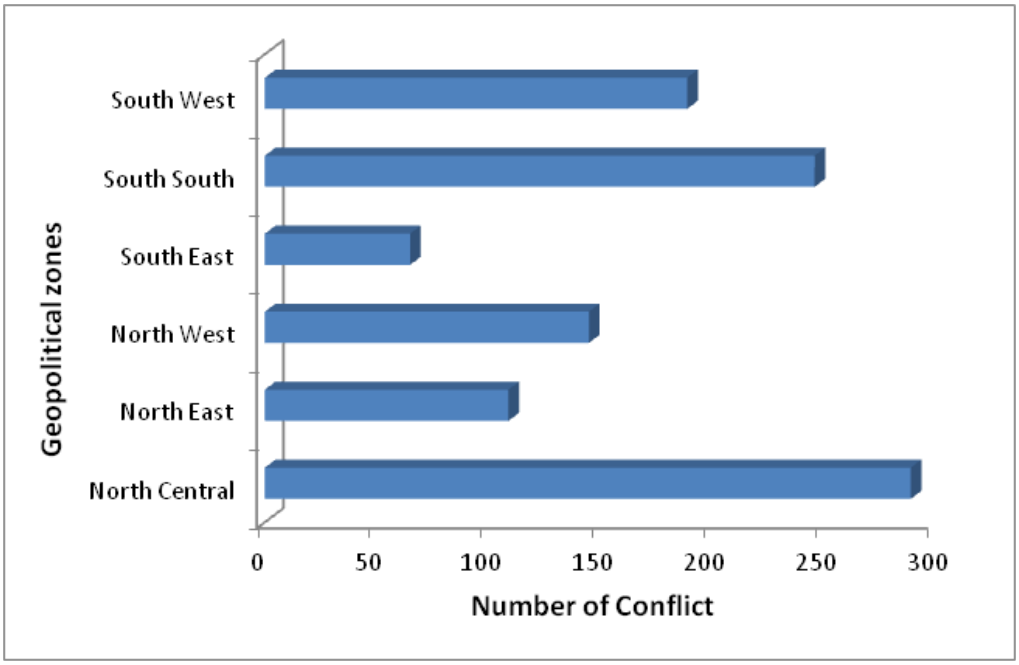
Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Table A5: Impact of adjacent state conflict of state capacity without outliers: System GMM

VARIABLES	(1)	(2)	(3)	(4)
	Growth1	Growth2	Tax/GDP	Tax/GDP
Adjacent Conflict	-0.166**		-0.0361***	
	(0.0618)		(0.0117)	
Adjacent Riot		-1.422***		-0.0885***
		(0.0653)		(0.00856)
Lagged	-0.0970***	-0.270***	0.698***	0.561***
	(0.0106)	(0.0116)	(0.0168)	(0.0330)
Initial income	0.888***	1.112***		
	(0.0949)	(0.267)		
Investment rate	-0.871	-6.551	2.910***	1.446
	(2.937)	(7.708)	(0.592)	(0.953)
Literacy	0.0598***	0.0668***	-0.00628***	-0.00852***
	(0.00617)	(0.00673)	(0.000872)	(0.000928)
Pop density	-0.763***	-0.513	-0.271***	-0.381***
	(0.105)	(0.379)	(0.0248)	(0.0393)
Observations	404	309	438	328
No of instrument	118	114	108	105
Hansen Statistics	33.89	31.60	33.89	28.63
p-value	1.00	1.00	1.00	1.00
AR (2)	3.05	1.88	1.08	1.78
p-value	0.00	0.06	0.28	0.07
CD Pesaran test	63.85	-	27.80	-
p-value	0.00	-	0.00	-

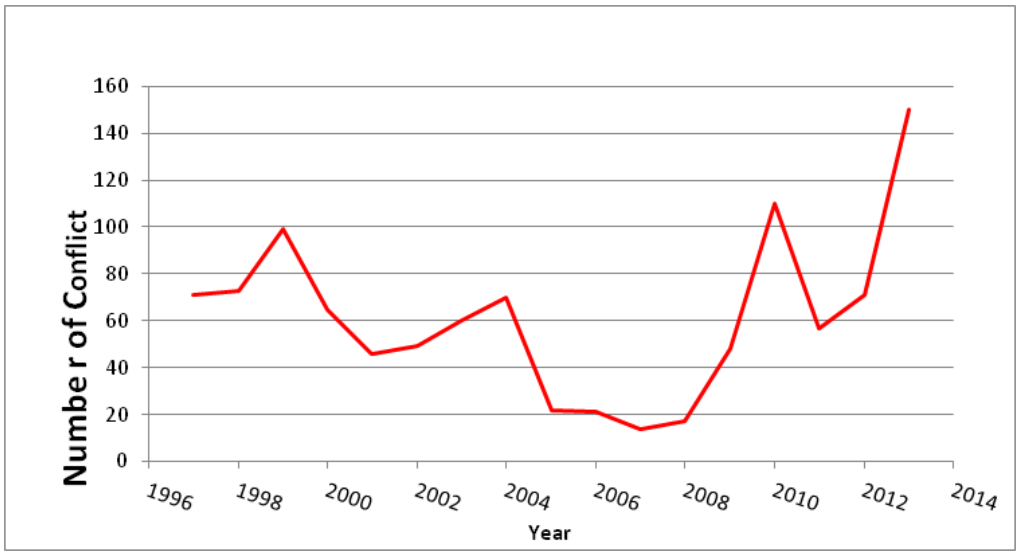
Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Figure A1: Regional Distribution of Conflicts in Nigeria (1997-2013)



Source: Computed from ACLED database, and authors' calculation

Figure A2: Trend of Conflicts in Nigeria (1997-2013)



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To strengthen local capacity for conducting independent, rigorous inquiry into the problems facing the management of economies in sub-Saharan Africa.

The mission rests on two basic premises: that development is more likely to occur where there is sustained sound management of the economy, and that such management is more likely to happen where there is an active, well-informed group of locally based professional economists to conduct policy-relevant research.

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