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Cohesive Institutions and Political Violence

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Abstract

Can institutionalized transfers of resource rents be a source of civil conflict? Are cohesive institutions better in managing distributive conflicts? We study these questions exploiting exogenous variation in revenue disbursements to local governments together with new data on local democratic institutions in Nigeria. We make three contributions. First, we document the existence of a strong link between rents and conflict far away from the location of the actual resource. Second, we show that distributive conflict is highly organized involving political militias and concentrated in the extent to which local governments are non-cohesive. Third, we show that democratic practice in form having elected local governments significantly weakens the causal link between rents and political violence. We document that elections (vis-a-vis appointments), by producing more cohesive institutions, vastly limit the extent to which distributional conflict between groups breaks out following shocks to the available rents. Throughout, we confirm these findings using individual level survey data.

Keywords: conflict, ethnicity, natural resources, political economy, commodity prices

JEL Codes: Q33, O13, N52, R11, L71

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1 Introduction

The peaceful division of scarce resources between groups in a society is one of the key distinguishing features of functioning and successful states. An important ingredient to managing the resource allocation problem is a country's political system and its cohesiveness – capturing the extent to which different groups in society are meaningfully represented and engaged with political processes. A lack of cohesive institutions has been identified as a central feature that may explain the emergence of fragile and low income development clusters (Acemoglu and Robinson, 2012; Besley and Persson, 2011a).

Natural resource rents – relative to other sources of government revenue – are particularly vulnerable to cause violence through a multitude of channels (Collier and Hoeffler, 1998; Caselli et al., 2015; Berman et al., 2017). What distinguishes natural resource rents from other government revenues is that these rents are windfall profits that mostly directly accrue to the state as opposed to being indirectly sourced through taxation. Windfall profits encourage rent-seeking behavior and this contesting of rents may or may not involve violence (van der Ploeg, 2011). Rather than fostering broad development, resource wealth is often associated with repressive regimes, rentier states and clientelism (Brollo et al., 2013; Besley and Persson, 2011b; Carreri and Dube, 2017).

Understanding how the institutional setup in a country is able to shape and peacefully resolve the challenges that resource windfalls may pose is of significant importance. An understanding of why some countries are being cursed by their endowments can help to inform the design of robust institutions (Ross, 2015). This paper makes headway in providing an in-depth analysis of the interactions between institutions, resource rents and the incidence of political violence. Leveraging the theoretical framework of Besley and Persson (2011b), we study three related questions. First, do large windfalls of politically controlled natural resource rents encourage the use of violence to contest or enforce the exclusion from these rents? Second, are elected (vis-a-vis appointed) local governments more successful in discouraging the use of violence to contest rents? Third, to what extent does variation in the degree of cohesiveness that these different institutional setups gen-

erate, explain why violence is being used to contest rents in one, but not the other regime.

In answering these questions, we provide ample evidence in support of the overall theoretical predictions of Besley and Persson (2011b). Further, we present significant evidence in support of an important hypothesis that has been left unexplored: do cohesive institutions discourage the use of political violence? Besley and Persson (2011b)'s theoretical results strongly depend on a single model parameter capturing the extent to which institutions are constraining incumbents. Less cohesion implies that more resources are being diverted away from common public goods, and towards patronage and clientelism, generating a unique value for a group to holding political power. Through this channel, investments in political violence to retain power (incumbent) or gain access to it (opposition) can be rationalized. With fully cohesive institutions, the sharp theoretical predictions break down: the more cohesive institutions are, the less likely are revenue shocks to induce investments in violence. The central role that the cohesiveness of institutions plays has not been investigated empirically in a convincing manner due to a lack of time-variation in institutions. This paper fills this gap.[1]

There are at least three main challenges to find a suitable context that maps well into the overall theoretical framework, while allowing for a sharp and fairly clean test of the theoretical predictions. First, natural resources can cause conflict through a multitude of direct and indirect channels posing a significant challenge for non-experimental studies to causally identify and quantify the relevance of any individual channel.[2] Second, there exist few cases where countries exhibit significant and meaningful variation in their institutional setup that are not confounded with other concurrent changes. Such broader sweeping institutional changes, for example brought about by democratization, are compound treatments, which fuzz the ability to distinguish independent effects that specific institutional features may have

[1]While cross-sectional variation across countries is being used to estimate heterogenous effects in Besley and Persson (2011b), they leave a test of their important Corollary 4 to future research.

[2]To give a sense for the multitude of channels, the existing literature has suggested – among others – that natural resources encourage inter-state conflict (Caselli et al., 2015), secession (Morelli and Rohner, 2015), improve the feasibility of rebellion (Berman et al., 2017); other channels explored are due to the negative externalities of resource extraction (Sexton, 2018; Humphreys, 2005) and a lack of transparency around extraction activity (Christensen, 2017).

in isolation. Third, measuring and identifying the degree of cohesiveness of political institutions is not trivial. While political institutions may seem non-cohesive from the outset along certain dimensions such as religion, ethnicity or identity, the extent to which the public actually *perceives* institutions as non-cohesive along such dimensions depends on the extent to which society is polarized along these fault lines to begin with.

We argue that Nigeria provides a unique context that allows us to navigate these challenges in a comprehensive fashion. First, we exploit Nigeria's system of oil revenue sharing across layers of government. This has several key advantages. On the empirical side, this is appealing as the revenue sharing follows a fixed rule and the size of transfers are essentially guided by the movements of world oil prices. Further, the spatial concentration of oil wealth in the South of the country allows us to cleanly isolate the effect that institutionalized rents have on political violence at the local level. Hence, it is not confounded by any direct effects of extraction activity on violence. Lastly, on the conceptual side, the revenue sharing matches a key tenet of the theoretical model in Besley and Persson (2011b): resource rents directly accrue to the incumbent government, generating an asymmetry between incumbent and opposition over access to rents.[3]

Second, Nigeria allows us to exploit variation in the extent of local democratic practice *within country* and even *within constitution* over time due to existence of rich and quite idiosyncratic variation in the extent to which local governments are appointed or democratically elected (while holding constant the overall institutional setup). Lastly, we can leverage the fact that Nigeria is a multi-ethnic society in which politics is significantly influenced by ethnic affiliation of population groups (Alesina et al., 2016; Hodler and Raschky, 2014).

Our findings are threefold. First, consistent with the theoretical prediction in Besley and Persson (2011b), we document a significant and economically sizeable link between resource rents and the incidence of political violence. These effects are driven by *positive shocks* to resource rents. The ensuing low-intensity conflict

[3]On the relevance of how this asymmetry may affect the dynamics of civil conflict, see e.g. Andersen et al. (2017) who exploit the variation that off-shore versus on-shore oil and gas revenues have on government versus rebel fighting capacity, or Vanden Eynde (2015) who documents that Indian state governments are more likely to engage in fighting an insurgency if they obtain a higher share of the mineral resource revenues that the insurgency contests.

is highly institutionalized involving government repression and militias using targeted violence, but not broad, open rebellions embroiling riots or protests. The finding suggests that revenue sharing – an institutional feature common to eleven African countries (NRGI/UNDP, 2016) – implies *a novel type of resource-induced conflict*: while violence may be used to voice grievances or contest the allocation of resources, the patterns are inconsistent with all-out civil war, which is not surprising given that civil war may compromise access the rents in the first place (e.g. secession of non-oil producing areas is not a credible contest goal). Revenue sharing, thus, may exacerbate latent low intensity distributional conflicts in places far removed from physical resources, yet, this conflict, as we show, is driven by places where governance is weak and institutions are non-cohesive.

Second, we find that having an elected local government systematically weakens the link between rents and the incidence of political conflict. Rather than focusing on any individual election – which may be prone to violence directly affecting its outcome (Long et al., 2017) – we contrast consecutive episodes over which local governments are elected (as opposed to appointed) and study the systematic link between shocks to rents and violence across such episodes. Our identification strategy allows us to tackle many plausible endogeneity concerns, while providing sharp results that match key theoretical predictions in Besley and Persson (2011b). Further, while our main results are derived from the widely used ACLED conflict data (and other common conflict data sets), we also turn to *individual level micro data* to corroborate our findings, documenting that fear of political violence, actual victimization, and even engagement in conflict broadly follows the pattern suggested by the aggregate data. Given the still limited availability of data in the African context, we feel this cross-check is speaking to the overall robustness of our results (Berman and Matanock, 2015).

Having an elected local government can affect political violence through a multitude of channels. Our third set of findings highlights that – consistent with the theoretical predictions – the *higher degree of cohesiveness of institutions* that elections (vis-a-vis appointments) produce seem to drive the results. We construct a measure of non-cohesiveness capturing the extent to which an area's population's ethnic makeup is aligned with the ethnicity of the state governor. We provide ample

anecdotal evidence suggesting that, when local governments are appointed, these appointments are skewed towards the ethnicity of the state governor. We validate this measure using individual level micro data and document that the link between political violence and resource rents are strongly driven by this measure of non-alignment – but only when local governments are appointed, not when they are elected.

This paper is related to three strands of literature. First, we relate to the literature studying the important link between natural resources and civil conflict.[4] Dube and Vargas (2013)'s seminal paper studies civil conflict in Colombia comparing oil producing versus coffee producing municipalities finding strong evidence in support of the opportunity cost mechanism; Sanchez de la Sierra (2015) studies violence in coltan and gold mining regions in Congo; Berman et al. (2017) study resource related conflict in Africa around fine spatial grid cells with mining activity, while Caselli et al. (2015) focus on interstate conflict over natural resources. Bazzi and Blattman (2014) provide an overview of the literature exploiting commodity price shocks to study conflicts, Ciccone (2018) provides new cross-country evidence and asks important questions around the construction of commodity price shock measures, while Blattman and Miguel (2010) review the broader literature on civil war. Our paper differs as we document a *new type of resource conflict* affecting regions far away from the physical location of the resource due to the institutionalized sharing of resource revenues. This observation highlights a potential problem for empirical designs studying conflict over physical control of the resource across space: the sharing of revenues implies a form of spillovers that violates the non-interference assumption inherent to the difference-in-difference estimation designs used in this literature.

We further relate to the literature that understands how institutions – in particular, democracy – may shape development outcomes more broadly and civil conflict, more specifically. On the former, Martinez-Bravo et al. (2014) find that the introduction of local village elections in China increased public goods expen-

[4] A large literature studies the natural resource curse in terms of economic growth and development. Some of papers that substantiated this strand of the literature are Sachs and Warner (1995), Sachs and Warner (1999), Acemoglu et al. (2014) and more recently Cust and Mihalyi (2017) and Harding et al. (2017). A literature overview is provided in Arezki et al. (2011).

diture financed by villagers, caused a moderate decline in income inequality, and likely reduced corruption, while Martinez-Bravo et al. (2017) suggest that elite capture may persist through democratic transitions. On the latter, Collier and Rohner (2008) suggest that democracy, due to the possibility of violence having an electoral costs, may be constraining the use of force. On the other hand, the act of holding elections may itself be encouraging violence to affect turnout (Collier and Vicente, 2014; Eifert et al., 2010; Long et al., 2017). Natural resource rents may have further effects on political outcomes, not necessarily involving violence in the form we document here. Brückner et al. (2012) document in a cross-country panel setup that positive oil price shocks are followed by moderate improvements in democratic institutions (measured using the Polity-2 dataset), while Caselli and Tesei (2016) suggest that resource windfalls make autocratic regimes even more autocratic, while not affecting democratic countries. The concern with this work is the multitude of channels through which these effects could operate. This highlights the value of working with subnational data exploiting time variation in *a specific democratic institution*, while holding constant the overall institutional context, as we are able to do in this paper. Yet, it also raises the concern that our subnational time-variation in transition to and from having elected governments may be endogenous to commodity price cycles. We find no evidence for this to be the case as local governments transition in and out of having elected local governments quite unsystematically. Lastly, there is also a literature that exploits time variation in resource shocks on the quality of institutions holding the overall institutional framework fixed. Carreri and Dube (2017) show how oil price shocks affect which type of political candidate is being elected in oil-producing municipalities in Colombia, while Brollo et al. (2013) study how additional resource revenues accruing to a government induce corruption. This paper does not focus on the direct effects that elections themselves may have on conflict – we can simply discard data around individual elections – but rather, how the institution of *having an elected local government* can systematically moderate the violent contest over political rents. We show that the most likely channel through which having an elected local government reduces conflict dynamics is due to the broader representation of ethnic groups in government that elections (vis-a-vis appointments) produce. We

stay clear from making normative statements about whether elections are *better* for a simple reason: we lack alternative counterfactuals. For example, it may be that local governments run by merit-based recruited bureaucrats may produce better (or worse) outcomes (Bertrand et al., 2017).

We also relate to the growing literature on ethnic politics in Africa in general, and on power sharing as an institution in particular. Francois et al. (2015) describe how power is shared among African ethnic groups represented by cabinet positions at the central government level as a result of outside threats such as revolutions or coups. They document a strong degree of proportionality between ministerial positions and ethnic group population shares. Eifert et al. (2010) find ethnic identities to become stronger before elections, when political competition intensifies. Furthermore, ethnic and regional favoritism are used by politicians to please their constituencies (Burgess et al., 2015; Hodler and Raschky, 2014), which may result in significant between ethnic group inequality (Alesina et al., 2016). Power sharing more generally has been suggested to be an important driver of the peace process in Northern Ireland (Mueller and Rohner, 2017). Fearon and Laitin (2003) suggests that ethnic diversity is not associated with a higher civil conflict incidence, Rohner et al. (2013a) document that conflict reduces inter-ethnic trust, while the theoretical model in Rohner et al. (2013b) suggests that measures fostering inter-ethnic trust and trade may be effective in avoiding a vicious cycle of conflict. More recently Bazzi and Gudgeon (2015) suggest for Indonesia, that increasing public resources can increase conflict particularly in ethnically polarized areas.

Lastly, there is a small literature on Nigeria. Sala-i Martin and Subramanian (2013) suggests that Nigeria's institutions are negatively affected by the oil wealth undermining growth; a more historic account of oil wealth and violence is given by Azam (2009), while Collier and Vicente (2014) examine how voter intimidation is effective in reducing voter turnout. Fenske and Zurimendi (2017) provides evidence on the long-run effects of oil wealth increasing inequality; analyzing state capacity, Rasul and Rogger (2017) investigate how management practices in the Nigerian public sector, such as autonomy of the bureaucrat as well as incentives and monitoring, affect service delivery.

The remainder of the paper is organized as follows. Section 2 provides back-

ground on the institutional setup and discusses the data used. Section 3 examines whether political rents induce conflict. We then proceed in Section 4 to study whether having an elected local government weakens this link. Section 5 provides evidence of the underlying mechanism. Section 6 concludes.

2 Institutional Context and a First Look at the Data

We first discuss the Nigerian context and introduce our main data. We focus on three things: first, we describe the system of revenue sharing, second, we provide an account of local governance in Nigeria and third, we discuss the observed violence and introduce our measures of conflict. A more extensive discussion of the institutional and the socio-econonomic context can be found in Appendix A.

2.1 Fiscal federalism, resources and political rents

Nigeria is organized as a Federation of States as per the Nigerian Constitution of 1999. The constitution stipulates a system of revenue sharing between the three tiers of government (federal, state and local governments) according to a fixed formula. The collected revenues are comprised of oil production tax and value-added tax (VAT) revenues. Oil revenues though make up the most significant share of government revenues and are important for public finances at all levels of government: in 2013 oil revenues accounted for 75% of all revenues (World Bank, 2013). At the local level, transfers due to revenue sharing accounts for the vast majority of funds: almost 90% of gross revenues available to local governments is due to disbursements from the federation account (World Bank, 2013).[5] The exogenously sourced monthly allocations to local governments thus constitute the main source of political rents.

The revenue sharing system stipulates that, of the gross total of public sector revenues, 20.60% are allocated to local governments, 26.72% are allocated to the states, and 52.68% are allocated to the federal government (vertical formula).[6] Of

[5]Local governments have limited ability to raise revenues. Ekpo and Englama (2008) documents that they usually raise less than 5% of gross revenues with the main source of non-transfer revenues is property tax and market and trading licenses.

[6]The oil producing states receive 13% percent of oil revenues directly, called the *Derivation Principle*. Our results are robust to excluding the oil producing states wholly from the analysis. Similarly, in our empirical setup we control for state by time fixed effects, which effectively accounts

the 20.6% allocated to local governments, each of the 774 local governments has a specific weight ω_i, whereby $\sum_i \omega_i = 1$ (horizontal formula). These weights are essentially time-invariant and fixed at a baseline year.[7] Table 1 highlights that population and landmass are driving the cross-sectional variation in the index weights ω_i. This results in rich cross-sectional variation in the index weights used across the country which are visually displayed in panel A of Figure 1.

We digitize data on the monthly allocations along with the index weights used in the allocation formula from the Federation Account Allocation Committee at the Nigerian Federal Ministry of Finance. This data is assembled to provide us with a monthly balanced panel of allocations across all 774 local government areas for the period June 1999 to July 2014. Variation in the monthly allocations is mostly driven by the variation in oil prices as the amount of oil produced is quite stable over our sample period.[8]

The actual allocations are separated into *statutory* and *extraordinary* allocations. Importantly, both these allocation respect the set of fixed index weights ω_i, which determine the individual shares of total revenues that each local government receives. The statutory allocations are regular monthly disbursals calculated based on a benchmark oil price that tracks the spot market price at a discount and are triggered automatically. Revenues that accrue due to the difference between the spot market and benchmark price are accumulated in the Excess Crude Account. Extraordinary allocations are disbursed irregularly from the Excess Crude Account and based on idiosyncratic political decisions. These allocations can usually be traced back to periods when significant fiscal buffers were accumulated.[9] The overall allocations are hence the monthly combination of statutory and extraordinary allocation. In the empirical exercises, we focus on the statutory allocations, but use

in a non-parametric fashion for the state specific variation in transfers.

[7]Over our sample period, the allocation formula changed very slightly in August 2006 and then again in October 2013, when there was again another slight change in the allocation weights.

[8]Appendix Table A2 provides a formal decomposition of the variance in allocations highlighting that the bulk of variation is explained by price (as opposed to quantity) variation.

[9]The benchmark price usually tracks the spot market price at a discount resulting in accumulation of fiscal buffer. We describe this in further detail in section **??** in the appendix. Appendix Table A1 presents a decomposition of within and between LGA variation for these different types of allocations (overall, statutory, and extraordinary allocations) indicating that the within-LGA variation accounts for the major part of the overall variation in allocations.

the extraordinary allocations for robustness checks. Panels B in Figure 1 present the statutory allocations against the oil price over time.

2.2 Local political institutions

As per the constitution of Nigeria, local governments should result out of local council elections to be held every three years. Local councils consist of a number of Councillors and a Chairman selected from among the Councillors. The local government councils have substantial responsibilities over the provision of education, health care services, and policies to foster local economic development, but have essentially no independent revenue raising capacity and are reliant on transfers from the central government. While the constitution stipulates that local government councils must be elected by the people, state governments have are responsible to organize and finance the local government elections.

The first local council elections in the transition from military to democratic rule were held in November/December 1998. The first term of the initially elected local councils came to an end in May 2002. At that time, confusion emerged as the national voter register used in the 1999 elections had not yet been updated to possibly hold new elections.[10] In June 2002, state governors appointed committees to (temporarily) run the local governments, called "transition committees". Ever since that decisive moment in 2002 when committees across the country were appointed, elections of local councils became a political controversy.[11] In the subsequent years, state governors started to exploit their idiosyncratic political power to postpone or cancel local elections altogether. As a consequence, many local government councils ceased to be elected bodies, and became appointed bodies. This results in significant de-facto variation in local political institutions across Nigeria that we exploit in this paper.

The cohesiveness of local governments depends, inter alia, on whether local councils are elected by the people or appointed by the state governor. We presume and provide ample anecdotal and empirical evidence that local government council

[10] A supreme court ruling in 2002 proclaimed that local government elections should not to be held until the voter register was updated (reported e.g. in the newspaper *This Day*, May 8 2002).

[11] See Kyburz (2017) for a more detailed description of the controversy surrounding local government council elections and the appointment of caretaker committees.

elections improve the inclusion of various constituencies in the governing process. Meanwhile appointments made by the state governor appear to maximize control over local governments and the distributions of perks to cronies. Panel A of Figure 2 displays the variation in the overall time that areas have an elected local government council between 1999 to 2014, while Panel B presents the time-series variation capturing the share of local governments that are elected in a specific point in time. An in-depth discussion of local government responsibilities and council elections is provided in Appendix A.3.

We draw data on the conduct of local government council elections or appointment of so-called "transition" or "caretaker" committees from a media content analysis using Nigerian newspapers, presented in more detail in Kyburz (2017). Since official information on local councils is not available we rely on local newspapers from which we extract information on local government council elections.[12] In particular, we extract information for each of the 774 local government areas on the dates when local elections were held, the period of tenure of elected councils, and the periods in which appointed committees were in power.

In our empirical analysis, we use the *de facto* variation in the 'state of democracy' at the local level to analyze whether having an elected local government has a pacifying effect on civil violence described in the following subsection. We do not focus on any individual election, but rather focus on consecutive periods in which local governments are elected (as opposed to appointed). We code a dummy variable that captures whether a local council is elected (Elected = 1) or appointed as caretaker committee by the state governor (Elected = 0).

Political control over the local government represents an important source of political rents. Anecdotal evidence suggests that the rents are often used for patronage, which again may generate economic grievances for marginalized groups. These grievances are likely pronounced in cases where local governments do not have electoral incentives to share the rents with the local population through the provision of common public goods (Besley and Persson, 2011b). Because of the high volatility in oil prices, the flow of allocations into local accounts is both hard

[12]Most information is extracted from Nigerian newspapers *This Day/All Africa Global Media*, *Daily Champion/All Africa Global Media*, *Vanguard/All Africa Global Media*, *Daily Trust/All Africa Global Media*, and *Daily Independent/All Africa Global Media*.

to predict and opens the floodgates to misappropriate public funds. There are numerous accounts of mismanagement of public funds, lowering trust in the local governments and creating grievances among the population. Cancelling elections and appointing committees instead is likely to re-enforce these grievances and to lead to hostilities between political interest groups.[13]

Grievances among the population and cleavages between ethnic groups may further intensify when politicians use ethnic identities to distribute perks. Periods of non-elected caretaker governments presumably exacerbate the prevalence of ethnic politics as state governors are likely to appoint co-ethnic cronies (Burgess et al., 2015; Hodler and Raschky, 2014). In a regime with appointed local governments, the non-aligned ethnic groups thus may realize to be excluded from any political rents. They possibly resort to violence to contest the control of the local government and improve their bargaining power vis-a-vis the group in power. On the other hand, the group in power may use violence and repression to exclude opposition groups from accessing rents. We provide both anecdotal and empirical evidence for the relevance of these mechanisms in Section 5, and moreover use micro-data to corroborate our findings. Elected local governments, by virtue of being more inclusive, make political institutions more cohesive and significantly reduce the incidence of resource-rent induced conflict by fostering broader sharing of the rents.

2.3 Political violence

Nigeria is in a state of low-intensity conflict. Generally small scale violent events cause numerous casualties each year all over the country. We propose that these kinds conflicts are — to a large extent — contests between political factions for the control over local governments. The control of local government councils brings with it the perks of the allocations from the Federation Account. While in some local government areas, the distribution of institutionalized resource rents may be resolved through peaceful means, in other cases rivalrous political groups fight using physical intimidation, violent repression and force to gain access to rents.

[13] In appendix A.1, we provide a detailed description of the public finance management at the local government level and how the erratic nature of revenue allocations may facilitate embezzlement.

The variation in conflict across Nigeria that we use in our empirical analysis is displayed in Figure 3, indicating the number of violent events for each of the 774 local government areas over the period 1999 to 2014. Civil conflict data over the entire sample period is drawn from the Armed Conflict Location and Event Data Project (ACLED).[14] Raleigh and Dowd (2015) provide a detailed description of variables and coding methodology. The ACLED project provides details of geographic locations of conflict events, in terms of latitude and longitude, dates, and additional information on the actors involved. In particular, it codes the actions of rebels, governments, and militias within unstable states, allowing an analysis of the local level factors and the dynamics of civil and communal conflict.

We provide detailed anecdotal evidence on this low-intensity conflicts between political groups in Appendix A.2. Accounts of violence related to the contest over resource rents, disbursed to local governments as monthly allocations, are abundant. Violence is reported to be associated with the misconduct of local government chairmen, mismanagement of local public finances such as omission of paying salaries, or the embezzlement of public funds, and their failure to provide education and health care services. The acts of fraud are used to mobilize and provoke violent reactions by opposing political groups who want to contest their share of the pie. Importantly, we will see that this violence is concentrated around *positive shocks* to political rents and does *not seem to involve mass-mobilization* involving protests and riots, but rather involve violence orchestrated by the incumbent resorting to the military and political militia groups.

Violent clashes between political factions may also happen around the time of local elections. We indeed report a significant increase in civil violence in the month leading up to local elections, and the month of the election itself, as depicted in Figure A4 in the appendix. Our results, as we will show in detail, are not driven by election related violence, but rather occur systematically within periods of the different regimes.

We now proceed to provide causal empirical evidence on the violent contest

[14]The ACLED conflict events data is available at https://www.acleddata.com/. We use alternative conflict data to check the robustness of our results. Specifically, we also employ data from Uppsala Conflict Data Program Georeferenced Event Dataset, available at http://ucdp.uu.se/, and the Global Terrorism Database GTD, available at https://www.start.umd.edu/gtd/.

over institutionalized rents, and how more cohesive political institutions alleviate the link between resources and conflict.

3 Do Resource Rents Induce Conflict?

We first present evidence that institutionalized resource rents are causing political violence. To be able to contrast with our later analysis, we restrict the estimating sample to only include those time periods in which local councils are *appointed*.

3.1 Empirical strategy

Our estimation strategy consists of both an ordinary least squares as well as an instrumental variables estimation approach. Equation 1 presents our baseline specification,

$$y_{jst} = \alpha_j + \gamma \times Alloc_{jst} + \delta_{st} + \varepsilon_{jst} \tag{1}$$

where the dependent variable y_{jst} indicates the incidence of conflict in local government area j, state s, and month t. $Alloc_{jst}$ are the monthly revenue disbursements to a local government area.[15] Throughout, we control for LGA-specific fixed effects, α_j, and more importantly state-by-time fixed effects, δ_{st}. While we obtain very similar results using less demanding specifications, the inclusion of state-by-time fixed effects is appealing for two reasons: first, states participate in the revenue sharing and thus, controlling for state by time fixed effects flexibly controls for the extent to which resources flow into the state (as opposed to LGA's); second, they remove any state-specific non-linear conflict trends.

Our central coefficient of interest is γ. We expect this coefficient to be positive, $\gamma > 0$, indicating that positive shocks to rents increase the incidence of repression and political violence. In the context of the theoretical model of Besley and Persson (2011b), the mechanism is simple: higher amounts of rents accruing to the incumbent government, all else constant, increases the value of holding political power for the incumbent (and to gain political power for the opposition) as this entails the ability to divert resources through transfers to the own group if institutions are not

[15] Appendix Tables A3, A4 and A5 highlight our results are robust to alternative temporal resolutions, working with intensity (as opposed to incidence) measures and other estimation methods to account for the count data nature. We prefer the monthly resolution as this allows us to directly address concerns that our estimates are affected by increased conflict around elections.

cohesive. As a result, the incumbent as well as the opposition invest in violence.

In addition to the OLS estimation, we also use an instrumental variable approach to counter any endogeneity or measurement concerns in the allocations disbursed to the local governments every month. Equation 2 represents the first-stage specification. The central input to the revenue sharing formula is the variable ω_j, which captures a local authority area's share in the overall revenue allocation and is decomposed as presented in Table 1. The second ingredient is a measure of the $Oil\ price_t$ which drives the bulk of the variation in overall revenues.

$$Alloc_{jst} = \alpha_j + \pi \times \omega_j \ \times Oil\ price_t + \delta_{st} + x'_{jst}\beta + \varepsilon_{jst} \tag{2}$$

The second stage takes the instrumented allocations $\widehat{Allocations}_{jst}$ as regressors, with a conflict measure y_{jst} as dependent variable. In particular, the estimated specification becomes:

$$y_{jst} = \alpha_j + \gamma \times \widehat{Alloc}_{jst} + \delta_{st} + x'_{jst}\beta + \varepsilon_{jst} \tag{3}$$

The underlying identifying assumption for γ in specification 3, representing the causal effect of natural resource rents on conflict, is that there is no other indirect way by which the interaction between $\omega_j \times Oil\ price_t$ affects conflict other than through the allocations. This would be a concern if there were other transfers or government schemes that are linked to the specific ω_j used for the revenue allocations. Alternatively, a concern would be if oil price shocks had a further differential effect on e.g. economic activity in different locations that is not captured through the interaction with the allocation weight.

As we will show, the revenue sharing formula is followed very closely, so that one can question the necessity of an instrumental approach. Therefore, we do not show IV estimation coefficients throughout all result tables to preserve space. We next present the results.

3.2 Results

The main results from this analysis focusing on the periods in which local governments are *appointed* are presented in Table 2. The table includes outcomes from

both the OLS as well as the instrumental variable estimation exercises. Substantively, the results in Table 2 demonstrate a significant and considerable relationship between civil conflict measures, as reported in the ACLED database, and inflows of resource revenues during periods when local governments are *appointed*. The effects are sizeable: the point estimate in column (1) suggests that a one standard deviation increase in allocations is associated with a more than doubling of the conflict event incidence relative to the average incidence, implying that revenue sharing and the involved rents are a major source of political violence and contest. Columns (2) – (4) study the three types of events covered in ACLED: "battles" – involving any interaction between organized combatants, "violence against civilians", and "protests/riots". We see that rents are most strongly associated with increasing the incidence of battles and violence against civilians, while we observe a null result for protests and riots, which we will discuss further below.

Columns (4) – (8) cover the groups involved in conflict, distinguishing between the military, political militias, communal militias, and rebels. The results indicate that the effects are mostly driven by conflict events involving the military, political and communal militias, while they are not driven by rebel violence. The latter is quite a telling null result: rebel groups, as per ACLED's definition are "political organizations whose goal is to counter an established national governing regime by violent acts [...] with a stated political agenda for national power (either through regime replacement or separatism)". Yet, as we argued earlier, secession is not a viable contest goal for the vast majority of Nigeria that is non-oil producing, as secession would cut these areas off from further transfers. A null result here is, thus, not surprising. Lastly, in columns (9) – (10) we further decompose column (6), to study between which actors conflict unfolds: most events involve political militias either fighting the military or targeting civilians.

As becomes clear from comparing the OLS and the IV results (Panel A and B, respectively), there is limited need for instrumenting in the first place since the gross statutory allocations are almost fully explained by the interaction term. The weak-IV test statistic is far from any levels that would merit concern regarding the weakness of the instrument.[16] Since the allocation rule is being tightly followed

[16]This is not surprising as in Appendix Table A2, we see that the R^2 of the de-facto first stage

and the OLS and IV results are very similar throughout, going forward, in order to keep the presentation of the results dense, we do not report the IV estimates.

3.3 Robustness

Our baseline results are robust to a battery of checks. We obtain very similar results when varying the *temporal resolution* of our data to be quarterly or annually instead of monthly in Table A3, or when considering alternative *transformations of our conflict measures* to measure plain conflict levels, per capita measures or logarithmic transformations in Table A4. Further, we show that our results are robust to *alternative functional forms* in Table A5. We obtain very similar results when estimating Poisson, negative-binomial or plain OLS on event counts. Similarly, we can flexibly control for the individual subcomponents of the revenue sharing *formula weights* in Table A6. We also document that we obtain very similar results using different conflict data altogether in Table A7, where we draw in the Uppsala Conflict Data Program data set, as well as the Global Terrorism Database, and remove Boko-Haram conflict events from ACLED to illustrate that the effects are not driven by this particular conflict. Finally, we also check whether extraordinary allocations that are triggered when fiscal buffers accumulate (while still following the allocation rule), have a different effect on conflict – finding no evidence that this is the case in Table A8.

Any differential effect in oil producing areas? In Appendix Table A9 we explore whether the link between resource rent and conflict in LGAs in states that produce oil (Panel A) or LGAs that have a known oil field (Panel B). There is only limited evidence of a slightly weaker relationship between resource rents and conflict in areas that are (likely) produce oil. This suggests that the conflict we capture is indeed over the institutionally distributed natural resource rents and not primarily a conflict over the control of the actual physical source of the resource wealth.

Discussion The analysis hitherto suggests that resource revenue sharing may itself be associated with instability and violence in areas *far removed* from the actual location of oil production. We believe that we are the first to document this *insti-*

reaches 98%. The specification without time and location fixed effects reaches an R^2 of 86%, suggesting that the allocation rule is very closely followed.

tutionalized spillover effect.[17] This has broader implications. Revenue sharing, which is quite common across the world, may imply a violation to the non-interference assumption inherent to papers exploiting difference-in-difference designs comparing natural resource producing areas to those that don't. Further, the conflict that we document is institutionalized – not involving mass riots or protests – which we would a-priori expect if resources are misappropriated. As we will see, the conflict is mainly driven by *positive shocks* to resource revenues, while negative shocks, if anything, are associated with slightly less conflict. The null result on protests and riots suggests that citizens may be poorly informed about revenue allocations or have a systematically different attitude to misallocation of natural resource revenues as opposed to taxes (see e.g. Gadenne, 2017; Martínez, 2017). Yet, as we will show next, the link between violence and political rents strongly depends on the underlying institutions, suggesting that revenue sharing may contribute to instability, only if institutions are weak.

4 Do Elected Local Governments Promote Peace?

We next study the question whether local democratic institutions can reduce the resource rents induced civil conflict.

4.1 Empirical specification

Our main estimating equation thus becomes

$$y_{jst} = \alpha_{je} + \nu Alloc_{jst} \times Elected_{jst} + \gamma Alloc_{jst} + \delta_{st} + \varepsilon_{jst} \tag{4}$$

In comparison to specification 1, we made two changes. First, our location fixed effects α_{je} are specific to whether a local authority area has an elected or appointed local council. This implies that we allow the institution of conducting elections to have a distinct level effect that is specific to each LGA. While less demanding specification yield similar results, this implies that we fully abstain – for now – to study any level effects that having an elected local government may entail and fully focus on the role of rents. In the empirical specification, our second modification is

[17] Girard et al. (2018) is related as they study revenue sharing in Kazakhstan focusing on labor disputes in mining areas.

that having an elected local government now enters through an added interaction term $Alloc_{jst} \times Elected_{jst}$.

We are particularly interested in the estimates of the coefficients γ relative to the estimated coefficients ν. Our previous analysis showed that $\gamma > 0$, indicating that positive shocks to the natural resource rents (in places far away from the actual source of the rents), are positively associated with conflict. In the context of the theoretical predictions coming out of Besley and Persson (2011b), we would expect the estimated coefficient ν to be negative, $\nu < 0$, if having an elected local government implies more cohesive institutions that impose more constraints on the incumbent to divert rents away from common public goods to payoffs benefiting their own group. As before, we also show a version of the above specification using our instrumental variable setup.

4.2 Results

The results from this analysis are presented in Table 3. They suggest that having an elected local government significantly weakens the relationship between resource rents and conflict. Throughout, the estimated effect of the interaction term between the natural resource rents and the election status indicator, ν, is negative and statistically significant, at least at the 5% level. As we will see, the linear regressions are likely to *underestimate* the moderating effect that elected councils have: the weakening of the link is mostly driven by positive shocks to resource rents, which we discuss further below. The weakening of the link is strongly associated with those types of events and groups involved that are driving this relationship when local governments are *appointed*.

An F-test on the joint significance of observing any battle of some sort in column (2), suggests that the sum of the two coefficients remains weakly positive (0.03) but is statistically insignificant at conventional levels (p-value of 0.176). This suggests that, statistically speaking, with elected local governments in place, shocks to rents cease to be meaningfully correlated with conflict. We will explore the underlying mechanism in detail in the next section. Yet, before we address some natural concerns that may arise given our exercise

Addressing plausible concerns There are severalconcerns that may be brought forward to contest the validity of our results. In particular, a specific worry could be that elections change the nature of violent contest concentrating violence near individual elections. We address this in two ways. First of all, we highlight that the transitions we study are not focusing on any individual election, but rather mark transitions between consecutive political regimes (periods with elected versus appointed governments). Nevertheless, conditional on an area using elections to select local governments, we may be concerned that *election related violence* distorts the results. In fact, we document, through an event study in Appendix Figure A4, that there is indeed an increase in violence in a tight time window around individual elections. As a simple robustness test, we restrict the estimating sample to exclude windows around individual elections. If anything, the results, presented in Table A10, suggests that our results on how elections change the relationship between resource rents and conflict become even sharper.

Another concern may pertain to the endogeneity of elections to local conditions or potentially, to the underlying resource rents. This can be tackled in three ways. First, as we show through a variance decomposition in appendix Table A11, most of the variation in election status is explained by our state by time fixed effects, suggesting that this is a decision that is taken *at the state level*. Hence, holding elections only in a select set of LGAs within a state – but not others – seems politically infeasible. Thus, the decision to hold or not hold elections taken by the state governor is likely exogenous to the conditions of any specific LGA. Second, we do not estimate – at least in this exercise – the direct level effect of having an elected local government, but focus on the interaction term. We argue that this interaction term is exogenous to the conditions in any specific location for two reasons: first, as already proposed, the decision to hold election is taken at the state level with limited scope to take the specific conditions in any LGA into account and second, since oil price movements are erratic and state electoral commissions need at least three to six months preparation time, it seems implausible that e.g. conflicts are fought in anticipation of higher resource rents and elections. Lastly, we can directly test whether the residual variation in having an elected local government left after controlling for state by time fixed effects meaningfully correlates with an LGA's

time-varying or time-invariant characteristics. Neither allocations in the last 3, 6, or 12 months, nor conflict in the last 3, 6, or 12 months (see Appendix Table A12), nor an areas climatic conditions, its ethnic make-up or its allocation weights (see Appendix Table A13) correlate with the residual variation left after controlling for state by time fixed effects. These three arguments render us confident in saying that we can interpret the interaction term as being a causal effect.

Finally, another concern may be governors' direct favoritism to individual LGAs. Since state governors influence the revenue allocations to their respective states, they may divert resources to individual LGAs. We can directly control for this favoritism channel by including state governor specific LGA fixed effects – these results are presented in Appendix Table A14. Since every state has, on average, 3.4 distinct state governors over our sample period, this amounts to controlling for, on average, three distinct sets of LGA fixed effects. Despite this specification being extremely demanding – and likely introducing a lot of irrelevant control variables, inflating standard errors and resulting in a loss of statistical power – we still observe very similar results.

Non-linear effects As we suggested before, the estimated effects on the interaction term we document in Table 3 are underestimating the true effect, due to non-linearities in the relationship between resource rents and conflict. We estimate a non-parametric watercolor regression à la Hsiang (2013) presented in Figure 4.[18]

The left panel shows that, with an appointed local government, there is a association with negative shocks to resource rents associated with less conflict, while positive shocks to the resource rents trigger conflict. The right panel constructs the figure using the subset of data when local councils are elected. While negative shocks continue to be weakly associated with less conflict, positive revenue shocks are not associated with conflict in this subsample. This result suggests that with elected local governments the tensions arising with positive revenue shocks and resolve distributional disputes with no conflict. Furthermore, as evidenced by the green solid OLS regression line, the effects we document by estimating a linear regression are *underestimating* the effect of having elected local governments, which

[18]Results from a more conventional estimation method are presented in Appendix Figure A3. The method is described in more detail in Hsiang (2013).

mostly operates through its moderating impact during positive resource shocks.

Randomisation inference We also use two forms of randomization inference as an alternative method for inference. Figure A1 presents the results of a permutation test, whereby the LGA specific sequences of elected vs. appointed regimes have been shuffled randomly within each LGAs. The kernel density plots out the distribution of point estimates on the estimated interactions effect between the (shuffled) election dummy and the gross statutory allocations in our main estimating specification. The red line corresponds to the point estimate obtained using the true (non shuffled) election status variable for the interaction term. It is clear that the interaction for the true election status variable lies on a far tail relative to the distribution of point estimates for the shuffled variable.

Figure A2 presents results from shuffling the election status variable *at the state level* as opposed to the LGA level. This requires us to assign binary values in case there is variation within state with not all LGA's within the state holding the same status. This affects 1,328 state by time observations out of the total 7,104 observations. We assign election status as being 1, in case more than 50% of the LGAs in a state have an elected LGA at a point in time, while we assign a value of zero otherwise. Despite this coarser treatment, which introduces some noise and attenuation bias, we are able to reject the null of no effect at around the 5% level.

Other robustness checks As before, our results also robust to a battery of simpler checks. Appendix Table A15 shows that we obtain very similar results focusing only on the extraordinary allocations, as opposed to the statutory allocations. Again, we also check our results using alternative conflict data, Appendix Table A16, transformations in the dependent variable, Appendix Table A17, for different temporal resolutions, Appendix Table A18, and alternative functional forms, Appendix Table A19. As for our baseline results, controlling flexibly for index weights doesn't affect the results, shown in Table A20. Throughout the results are very similar. Next, we validate these results using micro-data.

4.3 Validating results using individual level micro data

To corroborate our findings, we use the Afrobarometer surveys to evaluate whether individuals perception of violence maps into our findings derived from

aggregate data. Specifically, we focus on people's fear of becoming a victim of political violence, whether individuals actually have been physically attacked, and if people engage themselves in political violence. We construct a pseudo-panel of surveyed individuals at the LGA level. This has to be taken with a grain of salt, as the sampling is not representative at the LGA level and unfortunately, not every question is asked in each round. Nevertheless, we can use this to study whether patterns are broadly consistent with the analysis from the conflict data.

To construct a measure of the revenue shock, we compute the total rents accruing to a local government area in the last 6, 12, and 18 months prior to the survey. The election status is coded based on the survey month. We then estimate the following specification

$$y_{ijst} = \alpha_j + \delta_t + \nu \times Alloc_{jt} \times Elected_{jt} + \gamma Alloc_{jt} + \boldsymbol{\beta} \times \boldsymbol{X_{ijt}} + \varepsilon_{ijt} \quad (5)$$

where now in addition the subindex i indicates an individual response and the allocation variables are constructed as described above. We control for LGA fixed effects α_j and time fixed effects δ_t, along with the election status and some additional control variables capturing respondent characteristics in X_{ijt}.

The results are presented in Table 4. A consistent image emerges: locally accruing resource rents increase individual fear of being a victim of political violence (columns 1 and 2), increase the actual victimization (columns 3 and 4) and importantly, indicate that they increase the propensity of individuals to engage in violent acts (columns 5 and 6). Once an LGA has an elected government, these associations are significantly weaker.

5 Do Differences in Cohesiveness of Institutions Explain these Effects?

We next study whether elected local governments – by improving the cohesiveness of local governments – weakens the link between resource rents and conflict.

5.1 Anecdotal evidence

As in other African countries, ethnicity plays an important role in Nigerian politics. We exploit the ethnic affiliation of state governors, who, when appointing local governments are known to make those appointments along ethnic lines. There is ample anecdotal evidence to support this. For example, in Adamawa State, Governor Murtala Nyako, who was in office between 2007 and 2014, belongs to the Hausa-Fulani ethnicity, that makes up 31% of the state population. In 2011, Governor Nyako was accused of favoring his Fulani co-ethnics when appointing local governments:

> He [Nyako] was accused of concentrating a large percentage of his appointments among his fellow Fulani ethnic stock especially to his kiths and kin of Mayo Belwa where he hails from. (Leadership, 23/02/2011)

Similarly, young people of the Oron ethnic group complained about being marginalized in Akwa Ibom State, denouncing that there has never been a governor elected from their own ethnic group

> Some Oron youths in Akwa Ibom on Tuesday protested over undue marginalisation of the Oron nation by the current administration. Enweme [a commentator] said that since the creation of the state, no Oron man had ever been an acting governor, not to talk about being a governor. If you take a look at Oron nation, you will testify that nothing is happening here. (PM News, 24/12/2014)

In order to construct a measure of cohesion, we build a detailed map of the population shares of different ethnic groups in LGAs across Nigeria, exploiting the fact that the DHS survey rounds ask the ethnicity of the respondents. We combine the data pertaining to all individual DHS surveys. The dominant ethnic group across LGAs based on population shares is presented visually in Appendix Figure A5. Figure A6 in the Appendix displays the population shares of the ethnic groups mentioned above across Adamawa and Akwa Ibom State to illustrate the anecdotes. We use this to construct a measure of exclusion from political power based on the ethnicity of the state governor, which we describe next.

5.2 Measuring non-cohesiveness

As suggested, when local governments are appointed by the state governor, ethnicity is known to play a central role influencing appointments. To leverage this, we collected data on the ethnic affiliation of state governors and use the DHS-derived data giving us the ethnic makeup of the population across LGAs. Under the assumption that local governments are appointed along ethnic lines, with the state governor favoring members of his own ethnic group, these appointments are likely to have heterogeneous effects across the local government areas. In particular, areas in which the local population is of the same ethnic group as the state governor, institutions seem relatively more cohesive, compared to areas where the governor's co-ethnic population share is small.

Our measure of non-cohesiveness captures the share of the local population that is of a different ethnic group to the state governor's. Formally, denote E_{kt} the ethnic group of governor in state k at time t. We infer the population share of the politically excluded ethnic group in LGA j at time t, under the assumption of appointments happening along ethnic lines, as

$$\text{Excluded}_{jt} = \sum_{i \neq E_{kt}} p_{it} \tag{6}$$

where the ethnic group population shares are inferred from combining all existing DHS data rounds containing that information. Since governors have limited terms in office, also the governor's ethnicity is changing over time, which produces a limited degree of time-variation in our measure of excluded ethnic groups. Conceptually, we can think of this measure to be the inverse of the cohesiveness parameter, implying that areas and time periods with larger excluded population ($\text{Excluded}_{jt} \to 1$), are vulnerable to intergroup violence.

To assess whether our measure of exclusion is picking up meaningful signal, we again turn to the Afrobarometer surveys. For a some survey rounds, the data provides the ethnic affiliation of respondents, which allows us to measure *at the individual level*, whether individuals who have a different ethnic group as the state governor feel that their own ethnic group is treated unfairly. Appendix Table A21 highlights that this appears to the the case, suggesting that our measure of ethnic

non-alignment is picking up some grievances. This validation exercise, together with the anecdotal evidence, suggests that ethnic politics is likely to matter and that our measure of exclusion, should carry some signal relevant to the theory. We now bring this measure to bear on the data.

5.3 Empirical specification

We perform two related empirical tests with slightly less demanding empirical specifications to what we had before. First, rather than ignoring any potential *level effect* of having an elected local government on conflict, we study whether the data suggests such a level effect and whether this is driven by areas that with a large share of the population is of a different ethnic group compared to the state governor.

In particular, we estimate

$$\begin{aligned} y_{jst} &= \alpha_j + \eta Elected_{jst} \times Excluded_{jt} \\ &+ \nu \times Elected_{jst} + \xi \times Excluded_{jt} + \delta_t + \varepsilon_{jst} \end{aligned} \tag{7}$$

As suggested, this amounts to a direct test of Corollary 4 in Besley and Persson (2011b), which proposes that there is a strictly lower likelihood of conflict in places that have more cohesive institutions. As such, we would expect that any level effect of having an elected local government on conflict incidence should be driven by areas manifesting non-cohesiveness, i.e. those that stand out with high values in $Excluded_{jt}$. Hence, in the above specification, we expect the estimate on the interaction coefficient η to be negative, $\eta < 0$, implying that in areas where, under appointed local governments, large shares of the population are excluded from political power, we anticipate the drop in conflict to be most pronounced.

The second exercise builds on the previous analysis and directly tests whether the link between resource rents and conflict are driven by places that have non-cohesive institutions. We use our measure of ethnic exclusion, $Excluded_{jt}$, to proxy for the cohesiveness parameter. If having an elected local government makes institutions more cohesive, our measure relevant to capture the degree of non-cohesiveness when local governments are appointed, should cease to meaningfully correlate with resource rent-induced conflict.

Relative to the main estimation specifications 1 and 4, we add an array of interaction terms to estimate how effects are heterogeneous in $Excluded_{jt}$. Further, due to lack of statistical power, we need to make the time fixed effects less demanding – rather than including state-by-time fixed effects, we now include only simple time fixed effects. Here, we expect that resource rent induced conflict is most pronounced in areas with a significant share of the local population excluded from political power, when local governments are appointed. On the other hand, when local governments are elected, these areas should be mostly driving the weakening of the relationship between rents and conflict.

5.4 Results

We present these results in turn. Table 5 presents results from the first analysis, estimating whether having an elected local government has an effect on *levels of conflict*. Panel A presents the estimation of just the plain difference-in-difference estimation. Throughout the majority of estimated coefficients indicate that having an elected local government is associated with *less conflict*. The results indicate that conflict incidence is around 50% lower during time-periods when local governments are elected as opposed to appointed.

Panel B studies a heterogeneous effect version, using the measure of ethnic exclusion. As expected, the reduction in conflict is mostly driven by places that would see a significant share of the local population excluded from political power, when appointments are made based on the ethnicity of the state governor. This suggests: more cohesive institutions, that elections seem to generate, are associated with distinctly lower levels of conflict.

We next turn to study how resource rents and our implicit measure of the degree of cohesion interplay. These results are presented in Table 6. In Panel A, we document that indeed during periods when local governments are appointed, violence is concentrated in areas with a significant sized population excluded from political power. In Panel B, we study how this relationship changes when expanding the sample to include periods when local governments are elected, adding the relevant interaction terms. The results demonstrate that the exclusion of ethnic groups during periods when local governments are appointed are driving the link

between exogenous resource revenue shocks and conflict. This result is compelling as it illustrates the important role local elections may play in forming cohesive governments at the local level. It suggests that elected local governments are able to resolve contest over the allocated resources in a peaceful manner.

We thus find ample evidence that the transition towards having elected local governments is systematically associated with changing conflict dynamics. The differential degrees of cohesion that the two distinct institutional setups (appointed versus elected) generate are at heart to understanding political violence. While the level effect may be subject to some debate regarding potential excludability, we feel that we have a convincing case about the exogeneity of the interaction terms we study. Lastly, we turn again to micro-survey data to substantiate these conclusions.

5.5 Are elected local councils perceived to handle resources differently?

The results so far suggest that political violence ceases to be associated with resource rents during periods when local governments are elected. We provided evidence suggesting that this is substantively driven by the systematic exclusion of ethnic groups from political power when local governments are appointed. This suggests that elected (vis-a-vis appointed) local governments are perceived to be managing resources very differentially.

We proceed to investigate whether having elected local governments improves the perceptions of the quality of local governance. This directly maps into the previous analysis: does the perception of quality, corruption and distrust in government evolve in fashion correlated with inflow of rents? As before, we use consecutive rounds of the Afrobarometer survey data measuring how the relationship between the approval of local governments, the extent of trust and the perception of corruption change as a function of rents.

The results are presented in Table 7. Columns (1) and (2) suggest that resource rents are associated with negative perception of local governments during periods when local governments are appointed. Having elected local governments significantly weakens this link. In columns (3) and (4) we perform a similar exercise studying the perception of corruption: resource rents are associated with increased

perception of corruption, yet, only when local governments are appointed. Lastly, in columns (5) and (6) we show that when local governments are appointed, resource rents are associated with lower levels of trust. This relationship, again, significantly weakens when local governments are elected with consistent patterns throughout.

These results suggest, together with the results presented in Table 6, that elected local governments are capable of resolving the contest for resource rents in an institutional form within the local government, and not invoking violence. The change in the relationship between resource rents and improved approval and trust of people in the local government suggested that electoral incentives may improve the quality of resource management and sharing. We highlight with a type of placebo exercise that these results are specific to the perception of the quality of local governments and are not confounded by concurrent changes in the perceptions of quality of government at other levels of government. Leveraging the fact that similar measures of the perceptions of the quality governance are collected for the Federal Parliament or State level institutions, we show in Appendix Table A22 and A23 that there are no similar patterns between resource rents, election status of local governments and perceptions of *federal* or *state level institutions*.

6 Conclusion

Whether scarce resources are allocated in a concordant and peaceful manner or invoke coercion and violence is one of the important questions guiding a lot of political economy research. This paper makes headway by contributing to our understanding of how a particular type of democratic institution – having elected local governments – can shape and moderate the interactions between groups in society in a peaceful fashion. This question is particularly relevant to countries with significant resource wealth, such as Nigeria, as democratic oversight and a tight institutional framework are proposed to be the central ingredient to ensure that countries are not being cursed by their resource wealth. While the theoretical work has suggested the importance of institutions, the empirical research studying these questions has struggled to provide compelling evidence.

Exploiting within-country variation in democratic institutions at the local level

in Nigeria, we show that having an elected local government is key to understanding why in some places resource rents are associated with conflict – but not in others. In doing so, we are able to exploit institutional features that significantly relaxes identification concerns, while at the same time matching key tenets of theoretical models. In particular, we exploit the sharing of natural resource revenues across tiers of government according to a fixed formula, which ensures that we can rule out any direct effects that the extraction activity can have on political violence. Rather, we can exclusively focus on the impact of these rents and document that, when local governments are appointed, rents are associated with instability and political violence. We show, consistent with the theory, that the underlying mechanism is working through the different degrees of cohesion that the two means of selection local governments provide. The more disconnected local governments are from the local population – proxied by the ethnic make-up – the more likely it is that positive shock to resource rents are associated with political violence. We confirm these findings in a rich empirical framework, and substantiate and validate our findings using individual level micro survey data.

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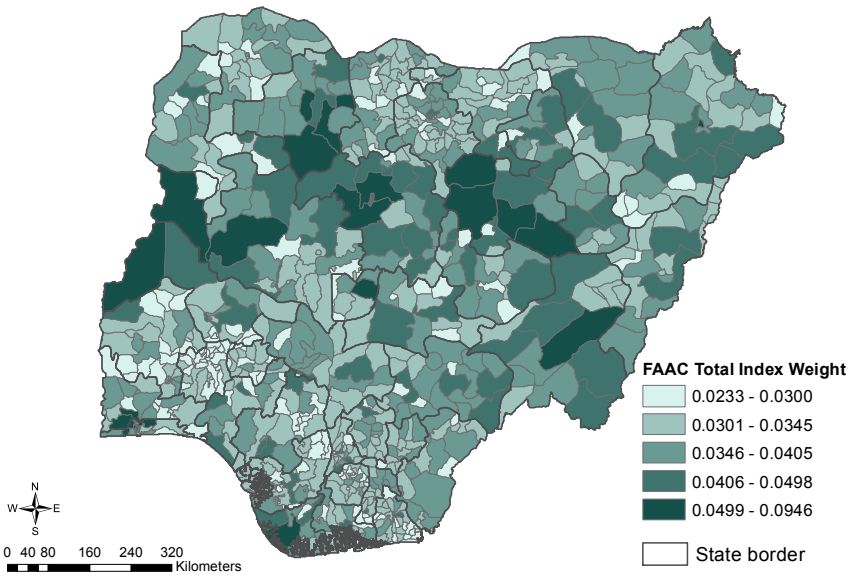
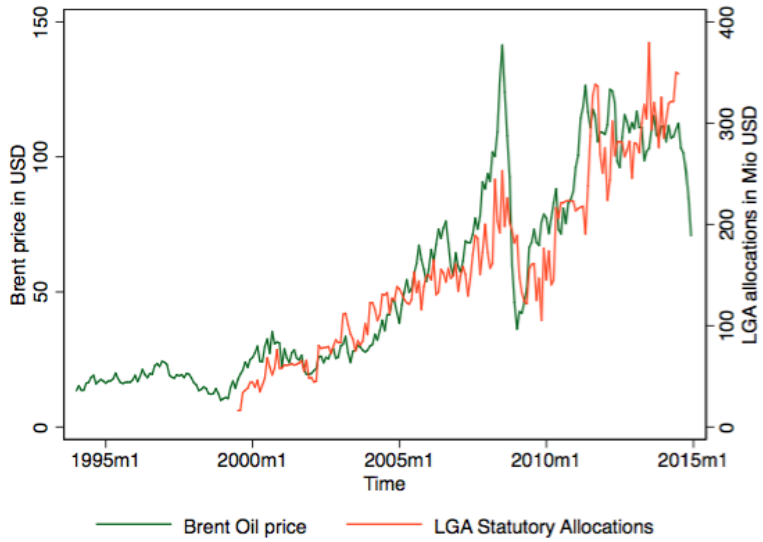
Figure 1: Formula based oil revenue sharing: Formula index weights, oil price movements and time series variation in statutory local government allocations

Panel A: Index weights



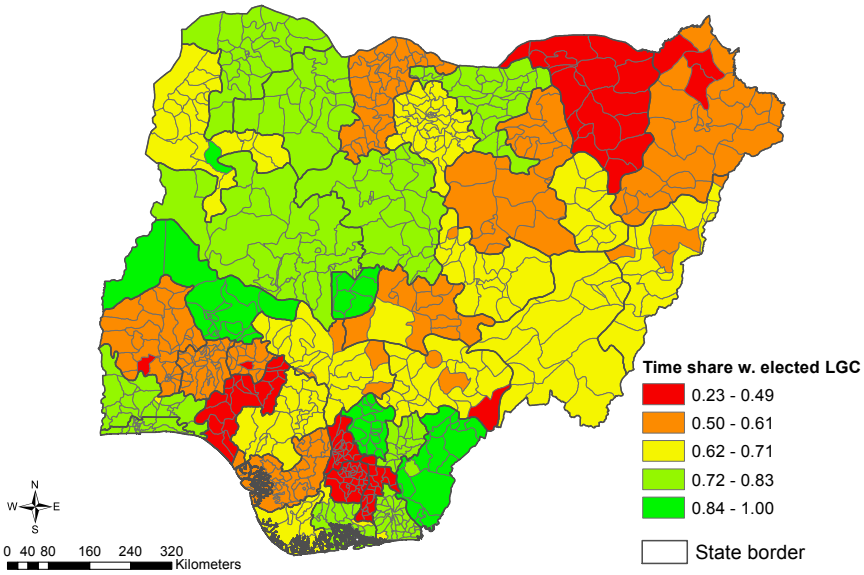
Panel B : Overall allocations



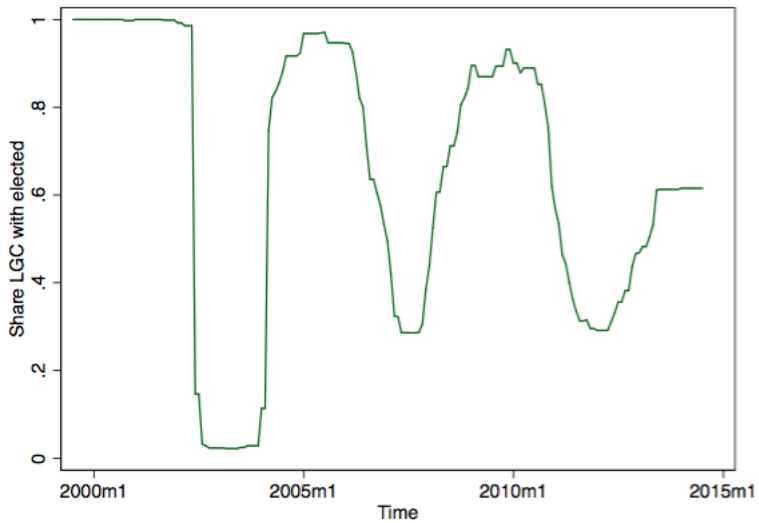
Notes: *Panel A*: Total Index Weight for each local government area based on the horizontal revenue sharing formula of 2006. *Panel B*: Monthly variation in overall revenue allocations made to local governments (right scale), and monthly prices of Brent Crude oil (left scale).

Figure 2: Spatial and temporal variation in the elected versus appointed local government area status

Panel A: Spatial variation

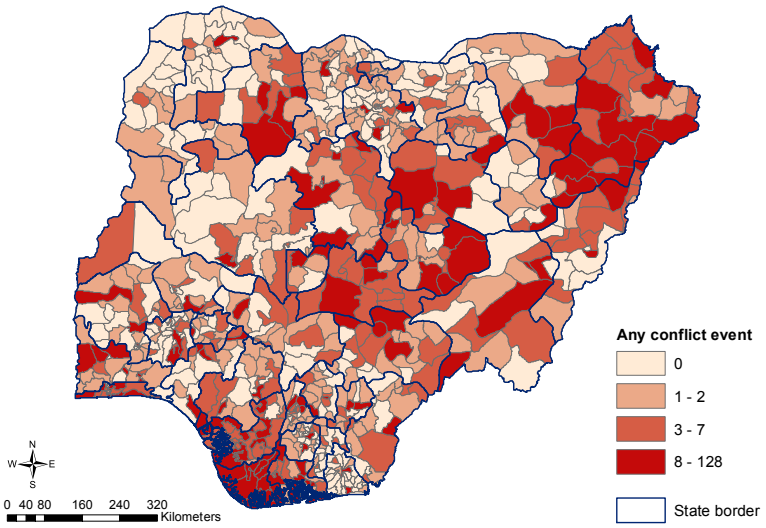


Panel B: Temporal variation



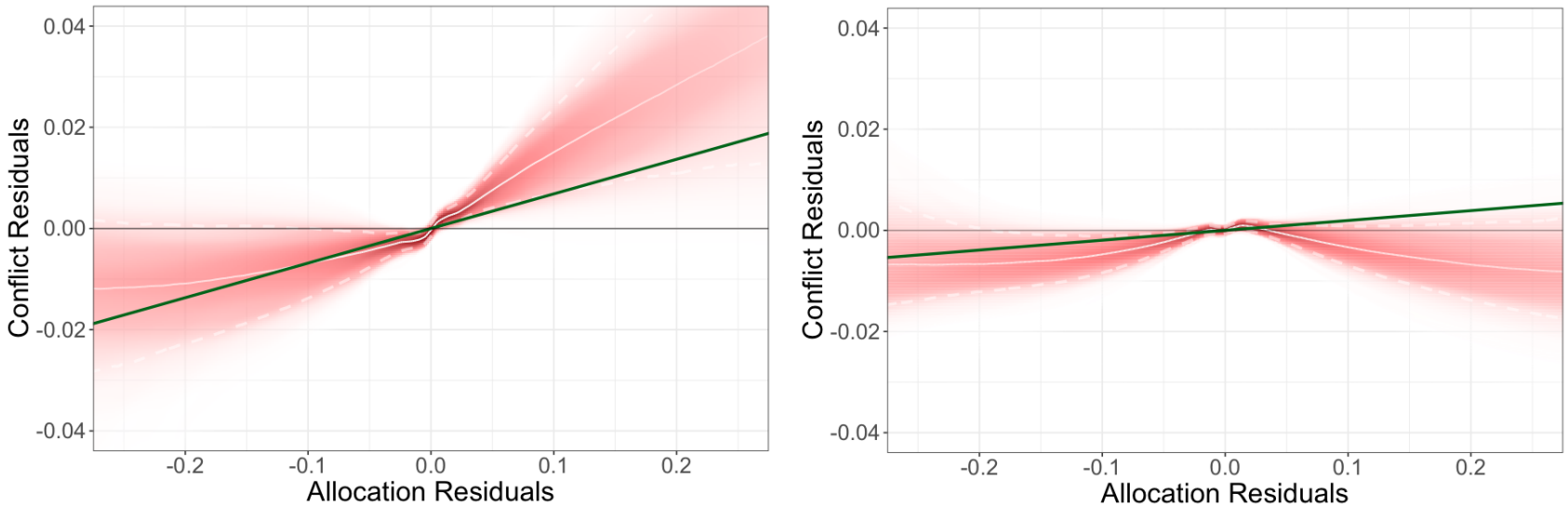
Notes: *Panel A:* Share of months with an elected local government for each local government area in the period 1999 to 2014. *Panel B:* Monthly time series variation in the share of local government areas with an elected government council over time.

Figure 3: Conflict intensity across Nigeria



Notes: The map shows the distribution of conflict events across local government areas in the period 1999 to 2014. *Sources*: conflict data is from *ACLED* and administrative boundaries are from Global Administrative Areas (GADM; https://gadm.org/).

Figure 4: Positive and Negative Resource Shocks Under Elected and Appointed Regime



(a): Appointed Local Council (b): Elected Local Council

Notes: The figure presents results from bootstrapped lowess regressions on the residuals of the dependent variable, after having demeaned the data by LGA and state-by-time fixed effects. The method first computes lowess regressions from 1000 bootstrapped samples of the demeaned data. It then calculates density estimates of the predictions from the lowess regressions for several hundred cuts along the y-axis and distributes a specified color proportional to that density estimate. The resulting figure displays the uncertainty in the regressions visually. The median value of the bootstrapped lowess predictions is indicated as a solid white line, while OLS regressions are indicated as a green line. Figure *(a)* presents the results for periods with appointed local councils, while Figure *(b)* displays the results for periods with elected local councils.

Table 1: Revenue Allocation Formula

Variable	Mean	Std. Dev.
Equality	0.138	0
Population	0.104	0.058
Internal Revenue Generation effort	0.009	0.004
Landmass	0.017	0.021
Terrain	0.017	0
Health - Hospital Beds	0.01	0.005
Education - Primary enrollment	0.014	0.008
Rain - Water supply spread	0.005	0.006
Rain - Rainfall share	0.005	0
Total index	0.345	0.068
N	774	

Notes: Mean and Standard deviation of the different sub-indices that feed into the overall index weight used to allocate revenues to local government areas (revenue allocation formula of 2006). *Source*: Federation Account Allocation Committee (FAAC).

Table 2: The effect of resource rents on political violence when local councils are *appointed*

		Type of Event			Groups involved				Between Pol. Militias &...	
	(1) Overall	(2) Battle	(3) Civilian Violence	(4) Protest	(5) Military	(6) Pol. Militia	(7) Comm. Militia	(8) Rebels	(9) Military	(10) Civilians
Panel A: OLS										
LGC Statutory Allocations	0.237***	0.116**	0.153***	0.017	0.118**	0.199***	0.065**	-0.010	0.099**	0.136**
	(0.077)	(0.048)	(0.051)	(0.035)	(0.046)	(0.062)	(0.027)	(0.007)	(0.042)	(0.055)
Observations	49662	49662	49662	49662	49662	49662	49662	49662	49662	49662
Number of LGCs	768	768	768	768	768	768	768	768	768	768
Mean of DV	.0292	.0112	.0152	.00471	.0108	.0191	.00495	.00105	.00767	.0127
Panel B: IV										
LGC Statutory Allocations	0.341***	0.126**	0.199***	0.054	0.153***	0.252***	0.075**	-0.005	0.109**	0.160**
	(0.107)	(0.057)	(0.059)	(0.040)	(0.058)	(0.086)	(0.029)	(0.011)	(0.049)	(0.068)
Kleibergen-Paap weak IV	361.9	361.9	361.9	361.9	361.9	361.9	361.9	361.9	361.9	361.9
Observations	49662	49662	49662	49662	49662	49662	49662	49662	49662	49662
Number of LGCs	768	768	768	768	768	768	768	768	768	768
Mean of DV	.0292	.0112	.0152	.00471	.0108	.0191	.00495	.00105	.00767	.0127

Notes: All regressions control for state by time fixed effects and local government area (LGA) fixed effects. The dependent variable includes (1) any violent conflict event defined as the use of force by a group with a political purpose. *Type of events* include (2) battles defined as violent interactions between two politically organized armed groups; (3) violence involving civilians are violent acts by an organized political group against unarmed non-combatants; (4) protests are demonstrations and spontaneous acts of violence by disorganised groups. Columns (5)–(8) include the specific *groups involved*; (6) political militias are armed agents to influence political processes; (7) communal militias are (ethnic or religious) groups engaged in local political competition; (8) rebels are political organizations to counter an established national government. Columns (9)–(10) present results for the specific *dyadic interaction of actors involved*. The main explanatory variable is the monthly revenue allocation to a local government council. The instrumental variable estimation in Panel (B) uses the index weight interacted with the oil price as instrument. Standard errors in parentheses are adjusted for two way clustering by time and LGA with stars indicating *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 3: Resource rents and conflict – moderating effect of having an elected local government

		Type of Event			Groups involved				Between Pol. Militias &...	
	(1) Overall	(2) Battle	(3) Civilian Violence	(4) Protest	(5) Military	(6) Pol. Militia	(7) Comm. Militia	(8) Rebels	(9) Military	(10) Civilians
Panel A: OLS										
LGC Statutory Allocations	0.213***	0.115***	0.141***	0.009	0.118***	0.187***	0.054**	-0.011	0.097**	0.140***
	(0.073)	(0.043)	(0.049)	(0.030)	(0.042)	(0.060)	(0.024)	(0.008)	(0.037)	(0.051)
Elected × LGC Statutory Allocations	-0.131*	-0.083**	-0.084*	-0.006	-0.086**	-0.128**	-0.045**	0.026***	-0.082**	-0.111**
	(0.068)	(0.041)	(0.047)	(0.040)	(0.043)	(0.057)	(0.020)	(0.009)	(0.039)	(0.049)
Observations	140713	140713	140713	140713	140713	140713	140713	140713	140713	140713
Number of LGCs	774	774	774	774	774	774	774	774	774	774
Mean of DV	.0239	.00906	.0112	.00507	.0084	.0133	.00491	.000981	.00487	.00828
Panel B: IV										
LGC Statutory Allocations	0.310***	0.127**	0.178***	0.043	0.164***	0.242***	0.055**	-0.010	0.114**	0.161***
	(0.099)	(0.052)	(0.056)	(0.035)	(0.055)	(0.082)	(0.026)	(0.015)	(0.045)	(0.062)
Elected × LGC Statutory Allocations	-0.224**	-0.114**	-0.107**	-0.038	-0.153***	-0.183**	-0.048*	0.023	-0.112**	-0.117**
	(0.088)	(0.049)	(0.053)	(0.039)	(0.053)	(0.077)	(0.025)	(0.015)	(0.044)	(0.058)
Kleibergen-Paap weak IV	148.2	148.2	148.2	148.2	148.2	148.2	148.2	148.2	148.2	148.2
Observations	140713	140713	140713	140713	140713	140713	140713	140713	140713	140713
Number of LGCs	774	774	774	774	774	774	774	774	774	774
Mean of DV	.0239	.00906	.0112	.00507	.0084	.0133	.00491	.000981	.00487	.00828

Notes: All regressions control for state by time fixed effects and local government area (LGA) fixed effects. The dependent variable includes (1) any violent conflict event defined as the use of force by a group with a political purpose. *Type of events* include (2) battles defined as violent interactions between two politically organized armed groups; (3) violence involving civilians are violent acts by an organized political group against unarmed non-combatants; (4) protests are demonstrations and spontaneous acts of violence by disorganised groups. Columns (5)–(8) include the specific *groups involved*; (6) political militias are armed agents to influence political processes; (7) communal militias are (ethnic or religious) groups engaged in local political competition; (8) rebels are political organizations to counter an established national government. Columns (9)–(10) present results for the specific *dyadic interaction of actors involved*. The main explanatory variable is the monthly revenue allocation to a local government council. The variable *Elected* indicates whether a local government council is elected or appointed in a given month. The instrumental variable estimation in Panel (B) uses the index weight interacted with the oil price as instrument. Standard errors in parentheses are adjusted for two way clustering by time and LGA with stars indicating *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 4: Resource rents, elected (vs appointed) local governments and individual level victimization and participation in conflict

	Fear of political violence		Physically attacked		Engage in violence	
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A:						
LGC Allocations 6 months prior to survey	0.330	0.342*	0.090	0.105*	0.046	0.067*
	(0.206)	(0.200)	(0.055)	(0.057)	(0.029)	(0.034)
Elected × LGC Allocations 6 months prior to survey	-0.138	-0.135	-0.087**	-0.099**	-0.031	-0.052*
	(0.117)	(0.118)	(0.044)	(0.046)	(0.024)	(0.028)
Observations	4570	4498	13823	12331	6837	5446
Number of LGCs	367	367	575	574	359	357
Mean of DV	.684	.683	.143	.15	.0301	.0272
Panel B:						
LGC Allocations 12 months prior to survey	0.135*	0.141*	0.049*	0.059**	0.019	0.028*
	(0.082)	(0.080)	(0.026)	(0.027)	(0.014)	(0.016)
Elected × LGC Allocations 12 months prior to survey	-0.064	-0.063	-0.046**	-0.052**	-0.013	-0.022*
	(0.051)	(0.052)	(0.020)	(0.021)	(0.011)	(0.013)
Observations	4570	4498	13823	12331	6837	5446
Number of LGCs	367	367	575	574	359	357
Mean of DV	.684	.683	.143	.15	.0301	.0272
Panel C:						
LGC Allocations 18 months prior to survey	0.102*	0.105**	0.036**	0.042**	0.013	0.019*
	(0.054)	(0.052)	(0.018)	(0.018)	(0.009)	(0.010)
Elected × LGC Allocations 18 months prior to survey	-0.049	-0.048	-0.032**	-0.036***	-0.009	-0.015*
	(0.034)	(0.034)	(0.013)	(0.014)	(0.007)	(0.009)
Observations	4570	4498	13823	12331	6837	5446
Number of LGCs	367	367	575	574	359	357
Mean of DV	.684	.683	.143	.15	.0301	.0272
Respondent controls		X		X		X

Notes: All regressions control for time fixed effects and local government area (LGA) fixed effects. The dependent variables in column (1)–(2) indicates how much a respondent personally fears to become a victim of political intimidation or violence; columns (3)–(4) indicates how often the respondent or someone in the respondent's family has been physically attacked in the past year; columns (5)–(6) indicates whether how often respondent has used force or violence for a political cause. Panel (A) uses the sum of monthly revenue allocations in the last 6 months, Panel (B) in the last 12 months, and Panel (C) in the last 18 months. The variable *Elected* indicates whether a local government council is elected or appointed in a given month. Respondent controls include the respondents age, educational attainment, employment status, gender and an indicator whether the household lives in an urban area. Standard errors in parentheses are clustered by LGA level with stars indicating *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 5: Inclusion of Ethnic Groups Through Elections and Conflict: Estimation of effect on conflict levels

		Type of Event			Groups involved				Between Pol. Militias &...	
	(1) Overall	(2) Battle	(3) Civilian Violence	(4) Protest	(5) Military	(6) Pol. Militia	(7) Comm. Militia	(8) Rebels	(9) Military	(10) Civilians
Panel A: Level effect										
Elected	-0.007**	-0.004**	-0.006***	0.001	-0.004**	-0.009***	0.001	-0.001	-0.005***	-0.007***
	(0.003)	(0.002)	(0.002)	(0.001)	(0.002)	(0.002)	(0.001)	(0.001)	(0.002)	(0.002)
Observations	148428	148428	148428	148428	148428	148428	148428	148428	148428	148428
Number of LGCs	774	774	774	774	774	774	774	774	774	774
Mean of DV	.0251	.0093	.0116	.00566	.0087	.0137	.00519	.000936	.00509	.00862
Panel B: Ethnic alignment heterogenous effect										
Elected	-0.007**	-0.004**	-0.006***	0.002	-0.005**	-0.009***	0.001	-0.001	-0.006***	-0.007***
	(0.003)	(0.002)	(0.002)	(0.001)	(0.002)	(0.002)	(0.001)	(0.001)	(0.002)	(0.002)
Elected × Non-aligned ethnic group	-0.015***	-0.005*	-0.011***	-0.003**	-0.007**	-0.012***	-0.004**	0.002**	-0.006**	-0.011***
	(0.005)	(0.003)	(0.003)	(0.002)	(0.003)	(0.004)	(0.002)	(0.001)	(0.003)	(0.003)
Non-aligned ethnic group	0.004	0.002	0.004	0.001	0.003	0.005	-0.001	-0.000	0.003	0.005
	(0.005)	(0.003)	(0.004)	(0.002)	(0.003)	(0.005)	(0.002)	(0.001)	(0.003)	(0.003)
Observations	131107	131107	131107	131107	131107	131107	131107	131107	131107	131107
Number of LGCs	706	706	706	706	706	706	706	706	706	706
Mean of DV	.0257	.00959	.0121	.00551	.00864	.0141	.00542	.00103	.00507	.00901

Notes: All regressions control for state by time fixed effects and local government area (LGA) fixed effects. The dependent variable includes (1) any violent conflict event defined as the use of force by a group with a political purpose. *Type of events* include (2) battles defined as violent interactions between two politically organized armed groups; (3) violence involving civilians are violent acts by an organized political group against unarmed non-combatants; (4) protests are demonstrations and spontaneous acts of violence by disorganised groups. Columns (5)–(8) include the specific *groups involved*; (6) political militias are armed agents to influence political processes; (7) communal militias are (ethnic or religious) groups engaged in local political competition; (8) rebels are political organizations to counter an established national government. Columns (9)–(10) present results for the specific *dyadic interaction of actors involved*. The main explanatory variable *Elected* indicates whether a local government council is elected or appointed in a given month. The variable *Non-aligned ethnic group* measures the population share that is of a different ethnic group than the state governor. Standard errors in parentheses are adjusted for two way clustering by time and LGA with stars indicating *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 6: Inclusion of Ethnic Groups Through Elections and Conflict: Triple Difference-in-Differences with Allocated Rents

		Type of Event			Groups involved				Between Pol. Militias &...	
	(1) Overall	(2) Battle	(3) Civilian Violence	(4) Protest	(5) Military	(6) Pol. Militia	(7) Comm. Militia	(8) Rebels	(9) Military	(10) Civilians
Panel A: Appointed local governments										
LGC Statutory Allocations	0.336***	0.150***	0.222***	0.010	0.156***	0.310***	0.077***	-0.002	0.140***	0.214***
	(0.093)	(0.054)	(0.062)	(0.036)	(0.052)	(0.081)	(0.028)	(0.007)	(0.046)	(0.066)
Non-aligned ethnic group × LGC Statutory Allocations	0.138***	0.059**	0.118***	-0.003	0.083***	0.128***	0.033***	-0.006	0.071***	0.104***
	(0.041)	(0.024)	(0.030)	(0.018)	(0.025)	(0.035)	(0.012)	(0.004)	(0.023)	(0.028)
Observations	45789	45789	45789	45789	45789	45789	45789	45789	45789	45789
Number of LGCs	706	706	706	706	706	706	706	706	706	706
Mean of DV	.0303	.0117	.016	.00467	.0112	.02	.00524	.0012	.00795	.0133
Panel B: including interaction terms										
LGC Statutory Allocations	0.263***	0.108***	0.168***	0.029	0.122***	0.213***	0.044*	0.007	0.095***	0.145***
	(0.068)	(0.035)	(0.040)	(0.024)	(0.033)	(0.053)	(0.024)	(0.005)	(0.027)	(0.040)
Elected × LGC Statutory Allocations	-0.076**	-0.058***	-0.064***	0.021	-0.044**	-0.119***	0.005	0.003	-0.059***	-0.088***
	(0.032)	(0.020)	(0.021)	(0.016)	(0.020)	(0.028)	(0.011)	(0.005)	(0.018)	(0.022)
Non-aligned ethnic group × LGC Statutory Allocations	0.149***	0.064**	0.126***	-0.003	0.088***	0.139***	0.036***	-0.006	0.076***	0.112***
	(0.041)	(0.025)	(0.031)	(0.018)	(0.025)	(0.036)	(0.012)	(0.004)	(0.024)	(0.029)
Elected × Non-aligned ethnic group × LGC Stat. Alloc.	-0.174***	-0.060**	-0.122***	-0.035	-0.078***	-0.118***	-0.050***	0.005	-0.062***	-0.092***
	(0.047)	(0.028)	(0.032)	(0.024)	(0.028)	(0.036)	(0.017)	(0.006)	(0.024)	(0.029)
Observations	127130	127130	127130	127130	127130	127130	127130	127130	127130	127130
Number of LGCs	706	706	706	706	706	706	706	706	706	706
Mean of DV	.0243	.00934	.0115	.00491	.00836	.0135	.00515	.00106	.00485	.00857

Notes: All regressions control for time fixed effects. Panel A is estimated off the sample with appointed local governments and includes LGA fixed effects, while Panel B includes the periods with elected local governments and a separate set of LGA fixed effects for periods in which governments are elected. The dependent variable includes (1) any violent conflict event defined as the use of force by a group with a political purpose. *Type of events* include (2) battles defined as violent interactions between two politically organized armed groups; (3) violence involving civilians are violent acts by an organized political group against unarmed non-combatants; (4) protests are demonstrations and spontaneous acts of violence by disorganised groups. Columns (5)–(8) include the specific *groups involved*; (6) political militias are armed agents to influence political processes; (7) communal militias are (ethnic or religious) groups engaged in local political competition; (8) rebels are political organizations to counter an established national government. Columns (9)–(10) present results for the specific *dyadic interaction of actors involved*. The variable *Elected* indicates whether a local government council is elected or appointed in a given month. The variable *Non-aligned ethnic group* measures the population share that is of a different ethnic group than the state governor. *LGC Allocations* captures the monthly revenue allocation to a local government council. Standard errors in parentheses are adjusted for two way clustering by time and LGA with stars indicating *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 7: Individual Level Perception of Local Governance

	Approval of LGC Council		LGC Councillors corrupt		Trust in LGC	
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: 6 months						
LGC Allocations 6 months prior to survey	-0.338***	-0.337***	0.397***	0.384**	-0.257**	-0.238*
	(0.122)	(0.124)	(0.150)	(0.151)	(0.125)	(0.143)
Elected × LGC Allocations 6 months prior to survey	0.233**	0.208**	-0.203*	-0.188*	0.197**	0.170*
	(0.102)	(0.097)	(0.104)	(0.104)	(0.085)	(0.088)
Observations	12670	11284	9032	8902	13054	11614
Number of LGCs	573	572	522	522	575	574
Mean of DV	2.84	2.9	3.77	3.78	2.51	2.58
Panel B: 12 months						
LGC Allocations 12 months prior to survey	-0.165***	-0.165***	0.174***	0.168**	-0.108*	-0.098
	(0.059)	(0.060)	(0.067)	(0.068)	(0.056)	(0.063)
Elected × LGC Allocations 12 months prior to survey	0.114**	0.103**	-0.094**	-0.088*	0.084**	0.071*
	(0.047)	(0.045)	(0.047)	(0.047)	(0.039)	(0.039)
Observations	12670	11284	9032	8902	13054	11614
Number of LGCs	573	572	522	522	575	574
Mean of DV	2.84	2.9	3.77	3.78	2.51	2.58
Panel C: 18 months						
LGC Allocations 18 months prior to survey	-0.110***	-0.110***	0.120***	0.117***	-0.075**	-0.066
	(0.040)	(0.041)	(0.044)	(0.044)	(0.037)	(0.041)
Elected × LGC Allocations 18 months prior to survey	0.076**	0.068**	-0.065**	-0.061**	0.057**	0.047*
	(0.031)	(0.030)	(0.031)	(0.031)	(0.026)	(0.026)
Observations	12670	11284	9032	8902	13054	11614
Number of LGCs	573	572	522	522	575	574
Mean of DV	2.84	2.9	3.77	3.78	2.51	2.58
Respondent controls		X		X		X

Notes: All regressions control for time fixed effects and local government area (LGA) fixed effects. The dependent variable in columns (1)–(2) indicates how much a respondent approves of the performance of the local government councillor (4-point Likert scale); in columns (3)–(4) it captures how many of the local councillors a respondent thinks are involved in corruption; columns (5)–(6) indicates how much a respondent trusts the local government council (4-point Likert scale). Panel (A) uses the sum of monthly revenue allocations in the last 6 months, Panel (B) in the last 12 months, and Panel (C) in the last 18 months. The variable *Elected* indicates whether a local government council is elected or appointed in a given month. Respondent controls include the respondents age, educational attainment, employment status, gender and an indicator whether the household lives in an urban area. Standard errors in parentheses are clustered by LGA level with stars indicating *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Appendix to "Cohesive Institutions and Political Violence"

For Online Publication

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Section A provides a more detailed discussion of the institutional context in Nigeria. Section B provides additional figures and tables.

A Extended Discussion of Institutional Background

In this section, we describe the institutional context in further detail. First, we explain what the main characteristics of Nigerian fiscal federalism are and how local and state governments are mainly funded by oil revenues. Second, we describe the role of local government council elections and how we use Nigerian news media to collect data on the conduct of local elections and the appointment of caretaker committees by state governors. Third, we describe the geo-referenced data employed to measure violent events and how different local political regimes may be associated with conflict.

A.1 Fiscal federalism, oil revenues and local government finance

Nigeria exhibits a system of fiscal federalism with rules defined in the Nigerian Constitution (Federal Republic of Nigeria, 1999). The largest part of tax revenues are paid into a centrally managed Consolidated Revenue Fund of the Federation, the Federation Account. This federation account is mostly alimented from tax revenue on oil and value-added tax (VAT). Oil tax revenues comprise a major part of overall tax revenues, and are fundamental for public finances at all government levels; e.g. in the year 2013, they amounted to 75% of budgetary revenues (World Bank, 2013). The centrally collected tax revenues are then allocated to the 3 tiers of government, the federal government, the states and the local government councils according to a specific allocation formula by the Federation Account Allocation Committee (FAAC) under the auspices of the Revenue Mobilisation Allocation and

Fiscal Commission according to the Constitution of the Federal Republic of Nigeria (1999).[1]

Under the 1999 constitution, at least 13% percent of oil revenues must directly flow back to the oil-producing states to account for their status as the source of revenues. This rule is known as the derivation principle (Federal Republic of Nigeria, 1999).[2] Subsequently, the collected tax revenues are divided by a vertical and horizontal allocation formula. The vertical allocation formula states that 52.68 percent of revenue allocations are disbursed to the federal government, 26.72 percent to the state governments and the FCT (Abuja), and 20.60 percent to the local governments. The share of revenues that accrues to the state and local government councils, is then further divided according to a horizontal allocation formula that makes allowance for geographic and socio-economic characteristics of the respective administrative unit. These geographic and socio-economic indicators of the formula are (i) equality 40%; (ii) population 30%; (iii) internal revenue generation Effort 10%; (iv) landmass and terrain 10%; (v) education 4%; (vi) health 3% (primary school enrolment); (vii) water supply 3% (rainfall).[3] Panel (A) in Figure 1 presents a map representing the revenue allocation index weight for each of the 774 local government areas. Table 1 presents descriptive statistics for the various demographic and socio-economic characteristics comprising the allocation index weights calculated for each local government by the FAAC. Population and landmass are by far the most important factors when it comes to explaining the cross

[1]The Revenue Mobilisation Allocation and Fiscal Commission is comprised of a chairman and one member from each state and the Federal Capital Territory, Abuja. The Federation Account Allocation Committee is constituted of the Federal Minister of Finance, representatives of each state (usually the states' commissioners of Finance and their accountants-general), and representatives from fiscal and monetary related federal agencies such as the Central Bank, and the Customs and Federal Inland Revenue Services (Maystadt and Salihu, 2015).

[2]The states benefiting from the derivation principle are Abia, Akwa Ibom, Bayelsa, Cross River, Delta, Edo, Imo, Ondo, and Rivers. Anambra recently also became an oil producing state, yet they haven't benefited from the derivation principle during our study period.

[3]The landmass and terrain factor is further equally divided into one constant part for all local government areas according to terrain conditions in the state (50% of 10%), and a second part measuring the size of the landmass of each local government area (50% of 10%). The internal revenue generation effort is further divided into one part applying to each local government council in each state equally (75% of 10%), and one part depending on the individual revenue effort of each local government council (25% of 10%). The water supply factor is further equally divided into an equality part applying to all local government councils equally in each state (50% of 3%), and territorial spread of rainfall depending on each local government area's rainfall (50% of 3%).

sectional variation in the overall index. On the other hand, factors such as Equality, Terrain and Rainfall share do not vary across the country.

Data on monthly allocations and the index weights are published by the FAAC of the Federal Ministry of Finance. We assemble the monthly allocation data to a balanced panel including all 774 local government areas for the period June 1999 to July 2014.[4] The information on the monthly allocations is communicated by the Accountant-General of the Federation in Abuja each month.

Oil revenues that aliment the Federation Account depend both on the price of crude oil and the magnitude of oil production. We hence obtain data on the crude oil price from Thomson Reuters[5] and monthly oil product data from Nigerian National Petroleum Corporation. The relevant variable to drive the variation behind changes in monthly allocations to local government areas appears to be the oil price, and not the production quantity. Table A2 in the appendix highlights that the amount of variation in the monthly levels of oil production is significantly smaller compared to the variation in monthly oil prices. Monthly Nigerian crude oil production varies around a mean of 2.32 million barrels with a standard deviation of 0.17 million barrels, while monthly oil prices vary around a mean monthly price of USD 64.21 with a standard deviation of USD 34.97, suggesting that the bulk of the variation in allocations is due to price variation. This is relevant to the extent that prevailing world oil prices are unaffected by Nigerian oil production.

In our empirical analysis, we investigate whether oil producing states are affected differently by violence compared to non-oil states. We hence collect data on the location of oil and gas fields from the Nigerian National Petroleum Corporation (NNPC) across Nigeria. We construct a dummy that is equal to 1 in case a local government area is intersecting an oil field. This measure includes not only producing oil fields, but also fields that are under exploration. In total 63 local government areas do have an oil or gas field. Additionally, we also create an indicator variable to mark states as oil producing. As discussed in the paper, Appendix Table A9 demonstrates that violence in oil-producing areas – as in the rest of the country – appears to be driven by the statutory allocations to the local government

[4]The data was available on www.faac.gov.ng in April 2015. The website is currently not online (August 2017).

[5]We use the Brent Crude Oil Price extracted from Thomson Reuters Datastream.

councils.

Statutory and extraordinary allocations Federal allocations of oil revenues can be roughly divided into two categories of disbursements. *Statutory allocations* are calculated based on a benchmark price of oil determined at the beginning of each year and are regularly disbursed each month. *Extraordinary allocations* are disbursed irregularly and are based on idiosyncratic political decisions. Such augmented allocations originate from the *Excess Crude Account* (ECA). The ECA was established 2004 in order to collect resource revenues that accrue due to the difference between the yearly benchmark oil price and the actual market price. Its objective was to account for the volatility in crude oil prices to protect planned budgets (Central Bank of Nigeria, 2012). Essentially, it was set up as a "rainy day fund".[6]

The ECA was surrounded by controversies throughout its existence (Central Bank of Nigeria, 2012). It was subject to the whims of political leaders, which raised serious concerns about transparency and accountability. It was meant to de-link government expenditure from oil revenues in order to insulate the Nigerian economy from external shocks. Due to surging oil prices, the funds collected in the ECA increased almost fourfold from $ 5.1 billion to over $ 20 billion by November 2008. Due to budget deficits at all government level as a consequence of the financial crisis and falling oil prices, the ECA decreased to less than $ 4 billion in 2010. The augmentation payments to the three tiers of government from the ECA are rather unexpected as they are due to unexpected changes in oil prices.

A large part of accumulated funds was depleted in the year 2009, when in February the state governors asked for the sharing of $ 4 billion from the account. The newspaper *Leadership* reported that the Conference of Nigerian Political Parties (CNPP) to make public the actual use of $ 130 billion accruing to the ECA since 2000.

In the year 2009, there was a $ 2 billion stimulus package paid out to the three tiers of government. The federal government received $842, the 36 states received $ 799.648 million while the 774 local government councils got the balance of $ 358.4

[6]In 2010, Nigeria's National Economic Council approved the creation of a national sovereign wealth fund to replace the Excess Crude Account. The establishment of the Nigeria Sovereign Investment Authority was signed into law on 25 May, 2011 (Nigeria Sovereign Investment Autority, 2015). The wealth fund operates three separate funds, the Stabilisation Fund (SF), the Future Generations Fund (FGF), and the Nigeria Infrastructure Fund (NIF).

million. The state with the largest amount paid out was Rivers with $ 108.7 million, while the state with the smallest amount received was Ebonyi with $ 10.4 million (*Daily Trust*, 19 October 2009). *Vanguard* (2 April, 2009) reports that President Yar Adua succumbed to the pressure of state governors to deplete the ECA. So it became a additional source of extra money for the three tiers of government.

Local government responsibilities According to the constitution (Federal Republic of Nigeria, 1999), economic planning and development is in joint responsibility of state and local government councils. The constitution instructs local governments to form an economic planning board. While the local governments appear to be a tier of government that are an executing body for the state governments, they have indeed substantial autonomy. Most important, they are responsible to provide primary education and primary health care services.[7] Local governments should build and maintain the physical infrastructure of primary health centres, payment of all staff salaries and ensuring the centres sufficient stock of medicines and other resources. With regard to education, local governments bear the responsibility to execute government education policies and to run primary schools on a daily basis (for further details see Albin-Lackey, 2007). Further responsibilities include such diverse tasks as the provision of adult and vocational education, and the development of agriculture and natural resources (other than the exploitation).[8] Overall, the local governments play a prominent role in providing public goods that are important in the citizens everyday life. The absence of a functioning local government may thus create grievances among the local population and lower its trust in institutions.

[7]According to Khemani (2006), the real responsibility of providing education and health care services is indeed delegated to local governments, although the constitution puts the task in the joint responsibility of state and local governments. An informative account of how local government are de-facto responsible for providing education and health care services is given in (Albin-Lackey, 2007), in 5 case studies of local governments (Etche, Khana, Tai, Akuku/Toru, and Obio/Akpor). A World Bank report describes in an insightful way how local governments can outperform other local government areas if the local government council is active and willing to implement progressive policies (see World Bank, 2002, p. 46).

[8]The local government council further makes recommendations to the State commission on economic planning on diverse issues such as the construction and maintenance of roads, streets, street lightings, drains, the provision and maintenance of public conveniences, sewage and refuse disposal, the control and regulation of shops, kiosks, restaurants, bakeries, and other places for the sale of food, and the licensing, regulation, and control of the sale of liquor (Federal Republic of Nigeria, 1999).

Local government finance management With the transition to democratic rule in 1999, the Nigerian fiscal system was decentralized rapidly. According to a World Bank report, the share of sub-national budget spending in the consolidated budget increased from 23% in 1999 to 46% in 2005 (World Bank, 2007). The sub-national budget expenditure already was almost four times higher in 2005 than in 1999 in real terms, while the expenditure at the local level in fact grew even faster than at the state level, so that sub-national budget systems have become more decentralized. This followed a stricter implementation of federal allocations than in the 1990s.

The bulk of gross revenues at local level originate from disbursements out of the federation account. Local governments can raise internally generated revenues as well. Their ability and the extent to which they do, however, is very limited. Overall they raised less than 5% of gross revenues through internally generated means in the period 2001–2005 (Eboh et al., 2006). This is not surprising as tax powers available to local governments are limited to minor subjects, such as property tax and market and trading licences.[9] As local governments hence heavily depend on the allocations of resource revenues from the Federation Account, which heavily fluctuate with global oil prices, their fiscal situation is highly volatile and unsustainable (World Bank, 2013).

Various reports and newspaper articles describe the mismanagement of public finances at the local level. Human Rights Watch (HRM, 2007) conducted a detailed analysis of local government finances in a number of local government areas in Rivers State, which apparently is a difficult task as local government councils treat the budgets and financial reports as closely guarded secrets. HRM specifically investigated how local finances are managed, focusing on expenditures for education and health care (Albin-Lackey, 2007).

By Rivers State law, the legislative body in each local government is to approve or vote down annual budgets presented by the chairperson of the LGC. Legislative councils are also entitled to review the end-of-year expenditure reports that are submitted by the chair. This check on the chairperson's handling of local budgets – although theoretically important – ended up being an opportunity for local councils members to ask for bribes, as a device for self-enrichment, in return for

[9] A full list of tax powers is provided in Ekpo and Englama (2008).

passing the budget. Many local councillors see the budget process as the best opportunity to claim their share of the allocated revenues. Once the councillors got their requested share of the pie, the chairmen are left free and unconstrained to spend the remaining allocations according to their preferences and not accounted in the budget process (Albin-Lackey, 2007).

Substantial revenues are declared in the local budget process for projects that are never properly implemented or are even non-existent. One local government chairman in Rivers State spent huge sums on e.g. a "demonstration fish pond" that was never operational and payment of more than 100 "functional committee/protocol officers" whose responsibilities were entirely unclear (Albin-Lackey, 2007). According to the newspaper *Daily Champion*, in Oshimili local government area, N 2 million were apparently spent on erosion control, yet there was no visible sign of such a project. Another example of very poor budget implementation is Warri South local government, where millions of Naira have been allocated to landscaping the chairman's house, construction/renovation of market stalls, the purchase of generator transformers, the provision of a solar water scheme, the construction of drains/culverts, the maintenance of parks and gardens, the construction of motor parks in selected towns, and the construction of television viewing centres. Yet, none of these projects were actually implemented.[10] These examples of the local public finance management provide both an insight into the variety of projects that are budgeted and the poor implementation in many cases. Although these are just examples, they represent larger inefficiencies of public finance management at the local level, as described in detail in (Albin-Lackey, 2007).

The failure to pay salaries, is another example of the poor public finance management at the local level (Albin-Lackey, 2007, p. 13). It is reported that in LGCs in Rivers State, salaries for public sector workers are routinely withheld while the funds that were set aside to pay them disappear. In other local governments, it is alleged that non-existent workers are on the payroll of local governments, which is another way for local politicians to siphon away public funds (Albin-Lackey, 2007, p. 34).

While citizens at the local level observe that local government council mem-

[10]These accounts of poor public finance management can be in found in the newspaper *The Daily Champion*, 22 June, 2007.

bers enrich themselves, the provision of health care and education is miserable. According to a civil society organization in Port Harcourt[11], the local government chairs have no objectives other than getting paid to do nothing. Except for paying salaries, the local governments have ceased to perform any duties assigned to them. Some local government chairmen apparently do not even reside in their local governments, but only come back to pay out salaries and to distribute the remainder of the monthly allocations as patronage. While there are few positive accounts of local finance management, the overall assessment is usually rather devastating. An official of the Federal Economic and Financial Crimes Commission stated: "To say that [local government] everywhere is a disaster is not a fair assessment, but it is not far from the truth." (Albin-Lackey, 2007, p.25). A positive example in the use of increased local public finances is Tai LGC. According to HRM, Tai LGC used the allocated revenues to implement numerous projects such as renovating schools, building new classroom blocks, and constructed 7 new health care centres. The Tai LGC compiled a list of all projects undertaken and also made it public. Many of the projects were undertaken at the request of the communities within the local government (Albin-Lackey, 2007, p.27).

It becomes clear that local governments public finance management is poor, yet differs in capacity across LGAs. Because of the high volatility in oil prices, the flow of allocations into local accounts is both hard to predict and opens the floodgates to misappropriate public funds. This brings us back to the main variation we use in our empirical framework. As mentioned above and shown in Table A1, the within-LGA variation in allocations is considerable and driven by global oil prices (see Table A2). This high volatility makes the processes in public finance management, such as paying public servants' salaries or providing public goods, difficult and non-transparent and calls for strong political factions to appropriate its share, using force if necessary.

A.2 Violent contest for institutionalized rents

The poor local governance and mismanagement or outright embezzlement of public funds possibly creates grievances within the local population. It may even lead political groups to use force in order to contest for their share of the oil revenue

[11] Port Harcourt is the capital and largest city in Rivers State.

pie. The contest for these institutionalized rents that flow through local and state governments is a possible cause of low-intensity conflict throughout Nigeria as all governments are benefiting from the revenue allocations.

Data on civil conflict over the entire sample period is drawn from the Armed Conflict Location and Event Data Project (ACLED).[12] The ACLED project provides details on geographic locations of conflict events in terms of latitude and longitude, dates, and additional information on the actors involved. In particular, it codes the actions of rebels, governments, and militias, allowing an analysis of the local level factors and the dynamics of civil and communal conflict. The variation in conflict events across Nigeria that we use in our empirical analysis is displayed in Figure 3, depicting the number of violent events for each of the 774 local government areas over the period 1999 to 2014.

Nigeria is in a state of low-intensity conflict. Generally small scale violent events cause numerous casualties each year. We propose that these kinds conflicts are – to a large extent – contests between political factions for the control over local governments. The control of local government councils brings with it the perks of the allocations from the Federation Account. While in some local government areas, the political contest for the institutionalized resource rents may work through peaceful means, in other cases the contest is likely to be fought with physical intimidation and force. In the following, we provide anecdotal evidence for these low-intensity conflicts across Nigeria.

One case of such low-intensity conflict is reported in the newspaper *This Day* about violent incidences in Afikpo and Ivo local governments, Ebonyi State. Several cases of gross misconduct and malpractice of local government officers triggered off protest, lead to the destruction of property and the murder of a prominent businessman, the Divisional Police Officer (DPO) in charge of Ivo local government, and the vice principal of a secondary school. It finally developed into a "full-blown" conflict. The newspaper article also suggests that governing politicians should stop to use state resources and machinery to hound and intimidate perceived opponents (*This Day*, 18 September, 2001). The communal conflicts in Ebonyi state continued, as reported by the newspaper *Vanguard* in October 2008. The newspaper described

[12]The ACLED conflict events data is available at https://www.acleddata.com/. Raleigh and Dowd (2015) provide a detailed description of variables and coding methodology.

how the upsurge in violence between communities in the state can be traced to the monthly allocations from the Federation Account (*Vanguard*, 28 October, 2008).

Further evidence of violence related to public misuse of funds is reported by Human Rights Watch (2007) for Khana and Etche local governments, Rivers State. In Khana, political opponents tried to remove the chairman from office, yet failed, which again created an increased level of violence and insecurity. In 2006, opposition forces burnt down a part of the new local government secretariat in a night-time attack. The very public revolt has helped to cast light on the rampant government malfeasance and its impact on the health and education sectors. The chairman was accused of having channelled large sums of money into dubious or non-existent projects, and that he also passed some of that money on to thugs to enforce his will in Khana (Albin-Lackey, 2007).

In Etche local government, chairman Nwuzi was elected into office in 2004. By the end of 2005, local government councillors charged him of misappropriating a large portion of what they called "huge monthly allocations to the council". Their grievances were also triggered by the alleged failure to pay salaries and other allowances that were due to them. Councillors also accused the chairman of using "thugs equipped with dangerous weapons" to intimidate them into abandoning their request to get their share of the allocations paid into to local governments account in the first 18 months of the chairman's office (Albin-Lackey, 2007, p. 64). According to the report, local councillors were even forced by thugs, also known as the chairman's "boys", to sign loyalty oaths to stop asking for their share of the accounts. Apparently, the local government chairman Nwuzi had to pay large amounts of the monthly allocations to his political "godfather", the Rivers State Commissioner for Sport who helped him to win office. When the chairman had to flee after a heated confrontation with local residents over the replacement of an electrical transformer, he apparently shot wildly into the crowd killing one person (Albin-Lackey, 2007, p. 65).

Even the Boko Haram conflict is reported to be related to local government mismanagement by local observers. In an opinion article in the *Daily Trust*, Kaka Bolori writes how the Boko Haram violence is related to government mismanagement:

> If one is to summarize the entire Boko Haram conflict, I can simply say it is an organized crime between few aggrieved original Boko Haram

> members and those who are in the helm of affairs of government. In other words, the conflict is all about fraud, theft and embezzlement occurring within or against the state, local governments' finances and people of Borno. (*Daily Trust*, 15 December, 2015)

Overall, there is plenty of anecdotal evidence of violence related to the contest over resource rents disbursed to local governments as monthly allocations from the Federation Account. Violence is reported to be associated with the misconduct of local government chairmen and their failure to provide education and health services, mismanagement of local public finances such as omission of paying salaries, or the embezzlement of public funds. The acts of fraud provokes violent reactions by opposing political groups who want to claim their share of the pie.

A.3 The role of local government elections

Civil violence and riots are often related to elections, be they general elections or local government elections. Figure A4 in the appendix depicts a surge in violence around local government council elections. The role of local elections with regard to civil violence is thus a priori unclear. Local elections may be a trigger event for violence, when opposition parties perceive that elections are not held in a free and fair manner and demand a level playing field. The event of a local election may in this case be an opportunity for political factions to show their strength and support by the people, using violent means if necessary.[13] In this paper we mainly focus on the systematic violence that is not specifically related to elections, but happens throughout the term periods of local politicians.

The Nigerian Constitution of 1999 stipulates that local government councils must be elected by the people (Federal Republic of Nigeria, 1999). Even though the federal structure of governance includes three tiers of government, the constitution gives the state governments considerable influence over the organization and regulation of local government councils and holding local elections. The main

[13]One of the worst violent outbreaks around a local government council election, reported around the World, was the clash between members of People's Democratic Party (PDP) and members of the All Nigerian Peoples Party (ANPP) over a local election result in Jos city, Plateau state. 761 people were killed, schools, churches and mosques burnt to the grounds in the post-election violence, as the PDP claimed their victory. The opposition probably realised that a defeat would cut them off from the allocations for years to come. For further details, see BBC News, 29 November 2008.

problem with the constitutional provision guaranteeing local elections is that it treats the local governments not rigorously as an independent tier of government.

In contrast to the Independent National Electoral Commission that supervises the general elections, State Independent Electoral Commissions are appointed by the state government. It is the body to organise, undertake, and supervise local government elections. It consists of a chairman and no less than five but not more than seven other members (Federal Republic of Nigeria, 1999). Furthermore, the state governor has to provide the financing for the conduct of local council elections so that local officials hinge on the intentions and decisions of the governor.

The first post-autocratic local government councils elections were held in November/December 1998 as a preparation of the democratic presidential elections in February 1999, which marked the transition from military to civilian rule. After the first term of the initially elected local councils ended in May 2002, confusion emerged as the national voter register was not updated to possibly hold another local election. In June 2002, most state governors appointed so-called 'caretaker' or 'transition committees' to (temporarily) run the local governments. Ever since that decisive moment in 2002 when caretaker committees were appointed, the election of local governments became a political controversy.[14] In the following years, the local government councils were in many cases not elected bodies of government anymore, but appointed bodies in many instances. This created de-facto variation in local political institutions across Nigeria. While some states, like Cross River or Enugu, local government council elections have been held (almost) consistently throughout the period from 2004 to 2014, and hence were more democratic in that sense, other states like Ondo or Yobe state had appointed caretaker committees for the larger part of that same period (see Figure 2).

We draw data on the conduct of local government council elections or appointment of caretaker committees from a media content analysis using Nigerian Newspapers, presented in more detail in Kyburz (2017). Since official information on local councils is not available, we have to resort on media outlets, to gather a consistent picture about local governance in the 774 local government areas. The news-

[14]See Kyburz (2017) for a more detailed description of the controversy surrounding local government council elections and the appointment of caretaker committees.

paper articles are collected in the FACTIVA media data base.[15] From local Nigerian newspaper articles, we extract information on local government council elections.[16] By using a series of keywords, it is possible to determine for each of the 774 local government areas the date when local elections were held, the tenure of elected councils, and the periods when caretaker committees were appointed.

We use the de-facto variation in the 'state of democracy' at the local level to analyze whether local elections have a pacifying effect on civil violence. We create a dummy variable that measures for each month the election status of a local government, hence whether a local council is elected by the people (Elected = 1) or appointed as caretaker committee by the state governor (Elected = 0).

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[15]The FACTIVA media data base is a product by Dow Jones and contains news articles and information from over 9'000 international, national and regional news publications out of 152 countries, including several Nigerian newspapers.

[16]Most information is extracted from Nigerian newspapers *This Day/All Africa Global Media*, *Daily Champion/All Africa Global Media*, *Vanguard/All Africa Global Media*, *Daily Trust/All Africa Global Media*, and *Daily Independent/All Africa Global Media*.

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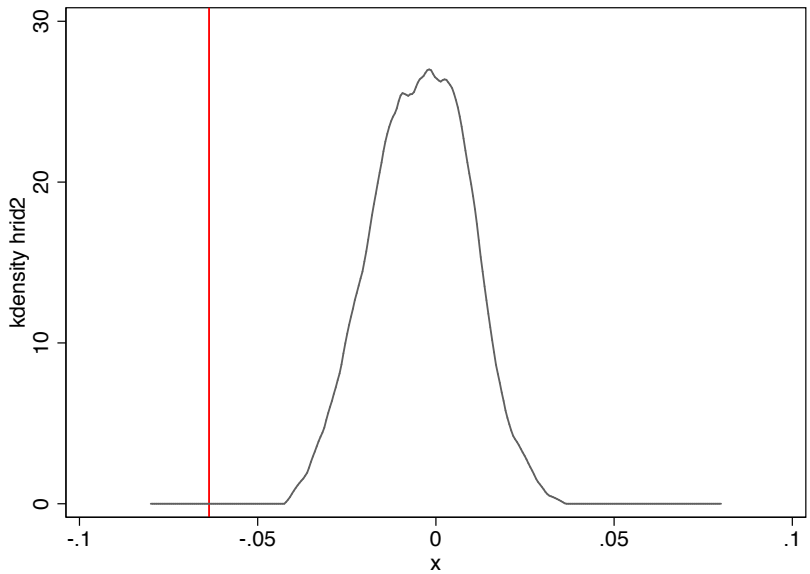
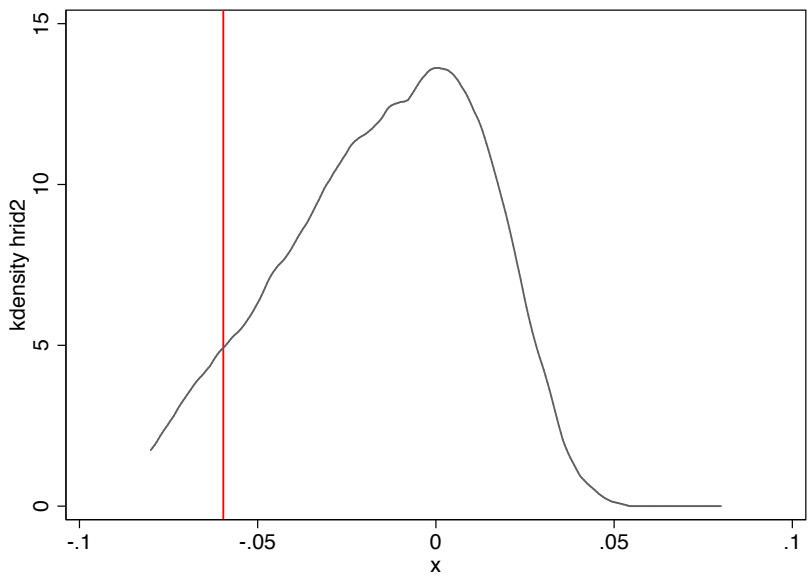
B Additional Tables and Figures

Figure A1: Permutation test on gross statutory allocations and election status



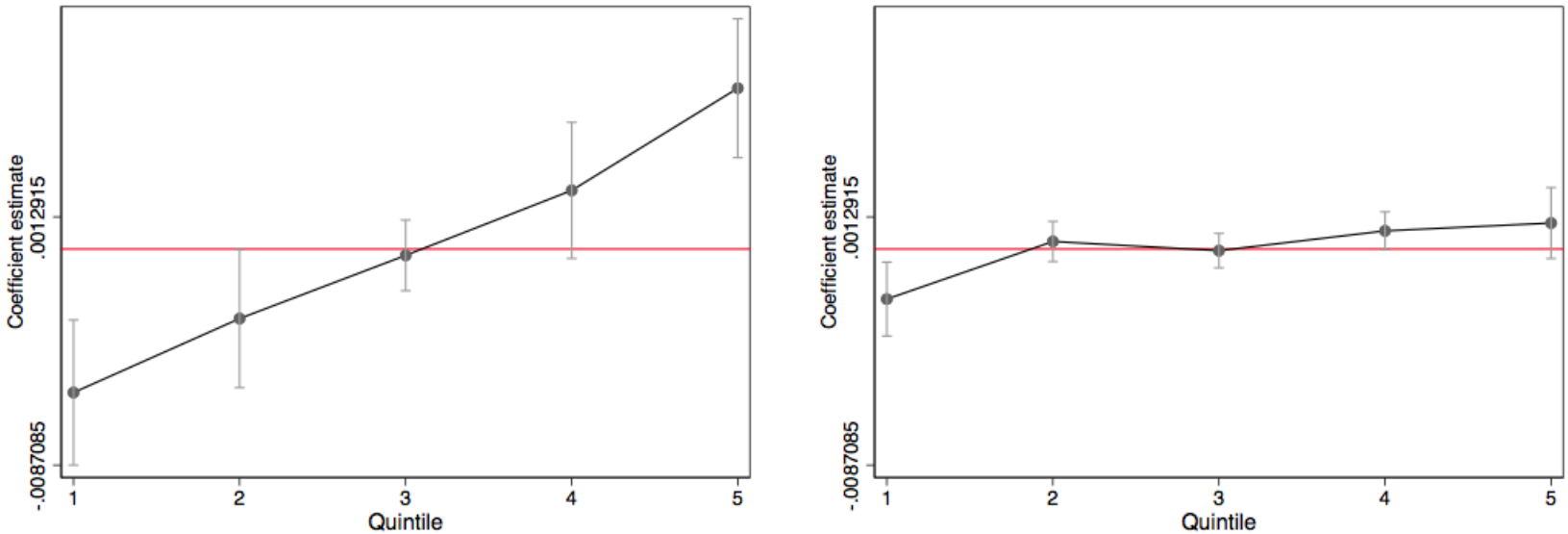
Notes: Permutation test on the interaction effect between gross statutory allocations and the elected status dummy. 100 permutations were constructed by randomly reordering spells of appointed vs elected governments at the LGA level. Each model is estimated including state by time and LGA fixed effects. The vertical line indicates the estimate that is obtained with the true data. It is clear that we can safely reject the null hypothesis with a p-value of less than 0.001.

Figure A2: Permutation test on election status dummy across 37 states



Notes: Permutation test after permuting the election status dummy across the 37 states, thus ignoring part of the local variation. 100 permutations were constructed by randomly reordering spells of appointed vs elected governments at the state level. Each model is estimated including time and LGA fixed effects. The vertical line indicates the estimate that is obtained with the true data. We can reject the null hypothesis of no effect with a p-value of 0.05.

Figure A3: Conventional test for non-linearities

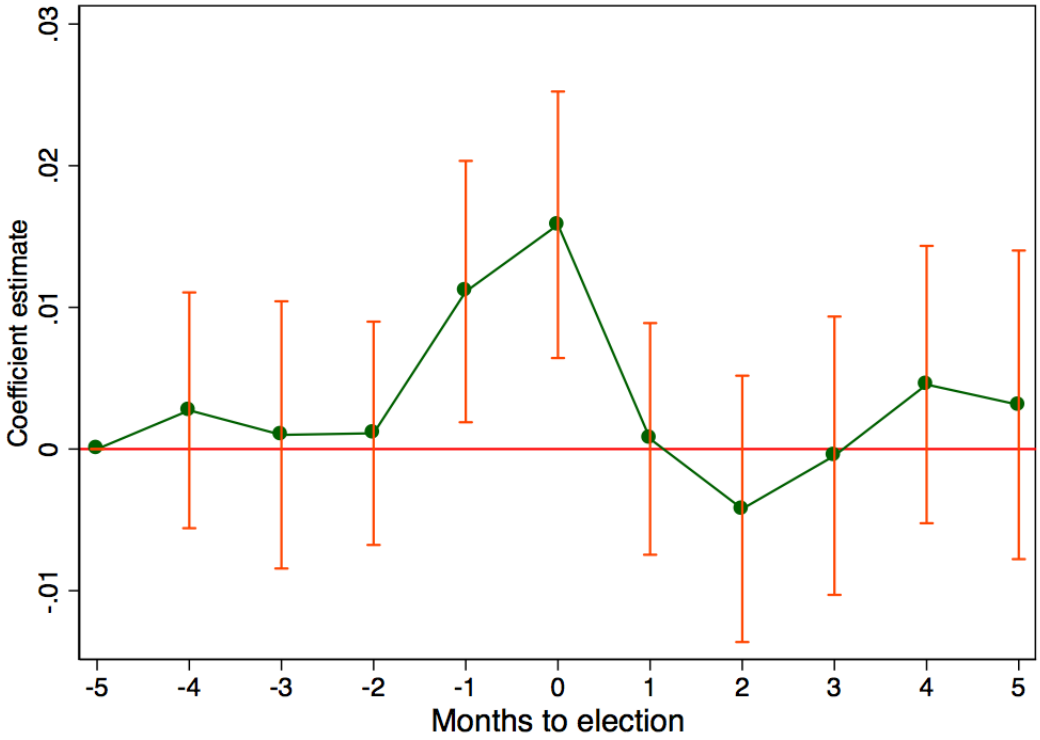


(a): Appointed Local Council

(b): Elected Local Council

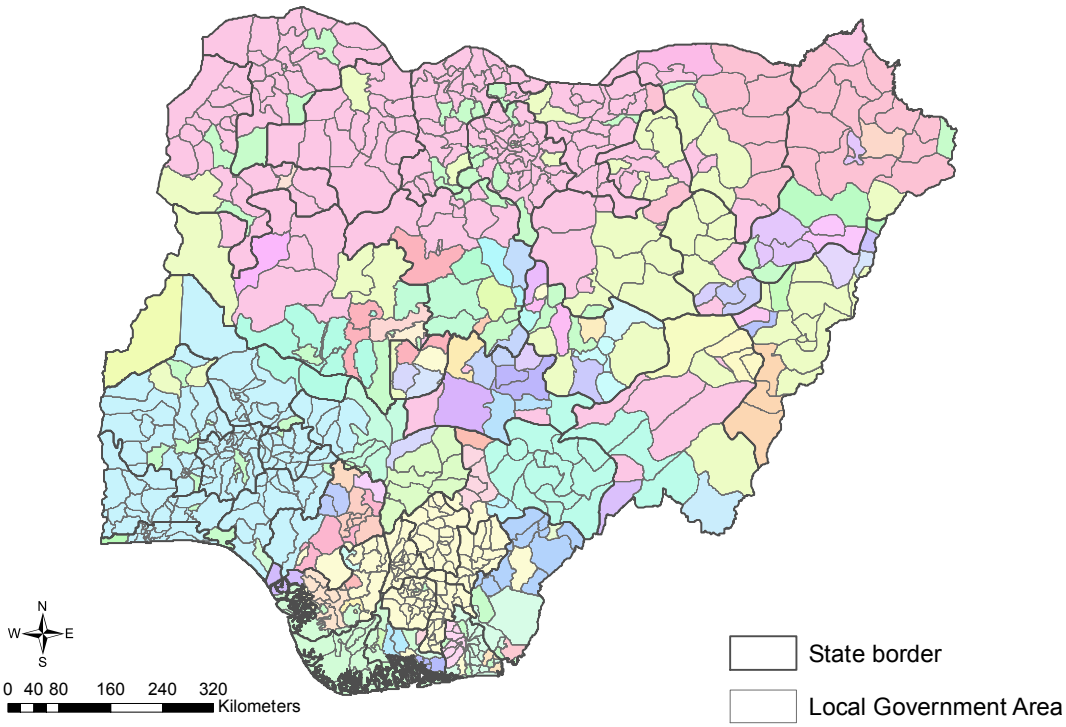
Notes: The figures are constructed by demeaning the conflict outcome as well as the Gross Statutory Allocations by the location and time fixed effects, sub-setting the sample into two parts: one with elected and one with appointed local governments. The residuals of the allocations are subdivided into quintiles and we then estimate a simple specification using the quintiles as categorical right hand side measures. The resulting point estimates per quintile are plotted out. The figure displays the effect of LGC Gross Statutory Allocations per month on civil conflict by quintile of the shock without (left) and with (right) elected LGC. 90% confidence intervals obtained from clustering standard errors two way by time and state are indicated.

Figure A4: Conflict around election months



Notes: The figure presents estimated coefficients from a regression with the left hand side being a dummy variable indicating whether there was any conflict event in an LGA and month. The regression removes LGA fixed effects and time fixed effects prior and then regresses the residualized dependent variable on a set of dummies capturing the time to the election date. Standard errors are clustered at the LGA level and 10% confidence bands are indicated.

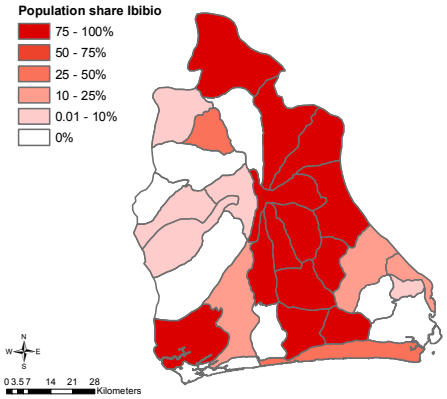
Figure A5: Distribution of Ethnic Groups across Nigeria



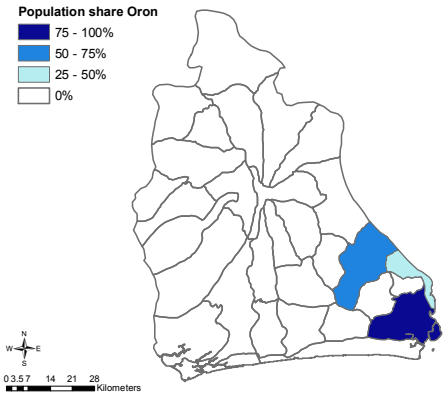
Notes: The map shows the distribution of ethnic groups across Nigeria. For each local government area the largest ethnic group is displayed in a different colour. The largest groups are the Yoruba in light blue (South-West), the Hausa-Fulani in pink (North), and the Igbo/Ibo in yellow (South-East) *Sources*: own calculations based on ethnic information in the Demographic Health Surveys. Administrative boundaries are from Global Administrative Areas (GADM; https://gadm.org/)

Figure A6: Population Shares of various ethnic groups in Akwa Ibom and Taraba states

Panel A: **Akwa Ibom State**

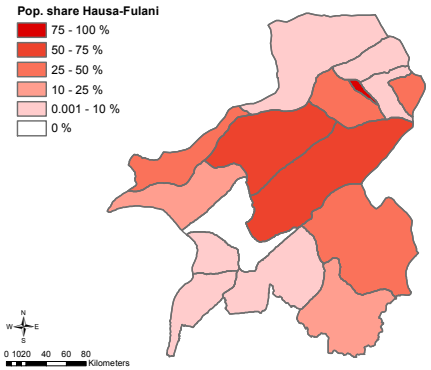


(a) Ibibio

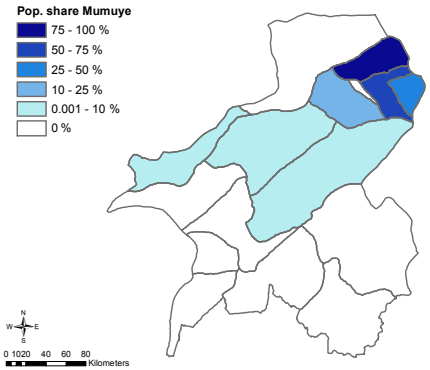


(b) Oron

Panel B: **Taraba State**



(a) Hausa-Fulani



(b) Mumuye

Notes: *Panel A* presents population shares for the (a) Ibibio and (b) Oron ethnic groups across local government areas in Akwa Ibom State. *Panel B* presents population shares for the (a) Hausa-Fulani and (b) Mumuye ethnic groups across local government areas in Taraba State. *Sources*: Population shares of ethnic groups across local government areas are calculated based on respondents' information on ethnicity and language in 5 Demographic Health Surveys (1990, 2003, 2008, 2010, 2013). Administrative boundaries are from Global Administrative Areas (GADM; https://gadm.org/).

Table A1: Within- and between LGA variation in different types of FAAC Allocations

Variable		Mean	Std. Dev.	Observations
Total Allocations	overall	0.305	0.243	N = 140868
	between		0.074	n = 774
	within		0.231	T = 182
Statutory Allocations	overall	0.206	0.122	N = 140868
	between		0.040	n = 774
	within		0.115	T = 182
Extraordinary Allocations	overall	0.056	0.131	N = 140868
	between		0.011	n = 774
	within		0.131	T = 182

Notes: The table presents a decomposition of the variation in the Federation Account Allocation Committee (FAAC) allocations within- and between LGA's. Statutory Allocations are calculated based on a benchmark oil price defined at the beginning of each year. Extraordinary Allocations are additional revenue transfers from the Excess Crude Account (ECA) based on the same allocation formula defined by the FAAC. These allocations are subject to idiosyncratic political decisions. *Source*: information on monthly allocations is published by the FAAC.

Table A2: Decomposition of Allocations by Type and Oil Price used

	Overall Allocations			Statutory allocations			Extra allocations		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Panel A: Brent Crude Oil Price									
Total index × brent	18.496***	18.496***	18.496***	8.710***	8.710***	8.710***	5.068***	5.068***	5.068***
	(1.406)	(1.409)	(1.438)	(0.392)	(0.393)	(0.403)	(1.157)	(1.157)	(1.196)
LGC FE		X	X		X	X		X	X
Time FE			X			X			X
R2	.693	.713	.972	.828	.833	.987	.203	.204	.967
Observations	140868	140868	140868	140868	140868	140868	140868	140868	140868
Number of LGCs	774	774	774	774	774	774	774	774	774
Mean of DV	.305	.305	.305	.206	.206	.206	.0564	.0564	.0564
Panel B: NG Oil production									
Total index × Monthly Nigerian crude production	1.209***	1.209***	1.209***	0.759***	0.759***	0.759***	0.141	0.141	0.141
	(0.329)	(0.329)	(0.339)	(0.131)	(0.132)	(0.136)	(0.183)	(0.183)	(0.189)
LGC FE		X	X		X	X		X	X
Time FE			X			X			X
R2	.132	.151	.943	.228	.233	.964	.00875	.00917	.959
Observations	140868	140868	140868	140868	140868	140868	140868	140868	140868
Number of LGCs	774	774	774	774	774	774	774	774	774
Mean of DV	.305	.305	.305	.206	.206	.206	.0564	.0564	.0564

Notes: All regressions control for state by time fixed effects and local government area (LGA) fixed effects. The dependent variable in columns (1)–(3) is the Overall Allocation determined by the horizontal allocation formula (index) for each local government council; in columns (4)–(6) the Statutory Allocations calculated based on a benchmark oil price set at the beginning of each year; in columns (7)–(9) the Extraordinary Allocations that are additional revenue transfers from the Excess Crude Account (ECA). The explanatory variable in Panel (A) is an interaction between the total index weight in the allocation formula times the monthly Brent Crude Oil price; in Panel (B) it is an interaction between the total index weight times the monthly Nigerian crude oil production. Standard errors in parentheses are adjusted to allow for two-way clustering by LGA level and by time with stars indicating *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A3: Robustness of the effect of resource rents on civil conflict *without elected LGA*'s: Different temporal resolution of the data

		Type of Event			Groups involved				Between Pol. Militias &...	
	(1) Overall	(2) Battle	(3) Civilian Violence	(4) Protest	(5) Military	(6) Pol. Militia	(7) Comm. Militia	(8) Rebels	(9) Military	(10) Civilians
Panel A: Annual										
LGC Statutory Allocations	0.115***	0.079***	0.097***	0.016	0.095***	0.113***	0.040***	0.002	0.087***	0.076***
	(0.024)	(0.019)	(0.021)	(0.015)	(0.020)	(0.024)	(0.015)	(0.005)	(0.019)	(0.019)
Observations	4565	4565	4565	4565	4565	4565	4565	4565	4565	4565
Number of LGCs	768	768	768	768	768	768	768	768	768	768
Mean of DV	.165	.0793	.0973	.032	.0714	.117	.0401	.00811	.0493	.0824
Panel B: Quarterly										
LGC Statutory Allocations	0.177***	0.095***	0.136***	0.018	0.123***	0.176***	0.056***	-0.001	0.101***	0.133***
	(0.046)	(0.030)	(0.033)	(0.030)	(0.032)	(0.041)	(0.018)	(0.005)	(0.027)	(0.032)
Observations	17015	17015	17015	17015	17015	17015	17015	17015	17015	17015
Number of LGCs	768	768	768	768	768	768	768	768	768	768
Mean of DV	.0694	.0287	.0374	.0136	.0282	.0459	.0133	.00282	.0195	.0306

Notes: All regressions control for time fixed effects and local government area (LGA) fixed effects. The dependent variable includes (1) any violent conflict event defined as the use of force by a group with a political purpose. *Type of events* include (2) battles defined as violent interactions between two politically organized armed groups; (3) violence involving civilians are violent acts by an organized political group against unarmed non-combatants; (4) protests are demonstrations and spontaneous acts of violence by disorganised groups. Columns (5)–(8) include the specific *groups involved*; (6) political militias are armed agents to influence political processes; (7) communal militias are (ethnic or religious) groups engaged in local political competition; (8) rebels are political organizations to counter an established national government. Columns (9)–(10) present results for the specific *dyadic interaction of actors involved*. Panel (A) uses an annual resolution of the data, and Panel (B) a quarter yearly resolution. Standard errors in parentheses are adjusted for clustering at the LGA with stars indicating *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A4: Robustness of the effect of resource rents on civil conflict *without elected LGA*'s: Transformations of Dependent Variable

		Type of Event			Groups involved				Between Pol. Militias &...	
	(1) Overall	(2) Battle	(3) Civilian Violence	(4) Protest	(5) Military	(6) Pol. Militia	(7) Comm. Militia	(8) Rebels	(9) Military	(10) Civilians
Panel A: Any conflict										
LGC Statutory Allocations	0.115***	0.079***	0.097***	0.016	0.095***	0.113***	0.040***	0.002	0.087***	0.076***
	(0.024)	(0.019)	(0.021)	(0.015)	(0.020)	(0.024)	(0.015)	(0.005)	(0.019)	(0.019)
Observations	4565	4565	4565	4565	4565	4565	4565	4565	4565	4565
Number of LGCs	768	768	768	768	768	768	768	768	768	768
Mean of DV	.165	.0793	.0973	.032	.0714	.117	.0401	.00811	.0493	.0824
Panel B: Levels										
LGC Statutory Allocations	0.669**	0.225**	0.314***	-0.028	0.263**	0.568**	0.111***	0.004	0.225**	0.295**
	(0.274)	(0.093)	(0.111)	(0.044)	(0.115)	(0.236)	(0.034)	(0.013)	(0.100)	(0.130)
Observations	4565	4565	4565	4565	4565	4565	4565	4565	4565	4565
Number of LGCs	768	768	768	768	768	768	768	768	768	768
Mean of DV	.632	.195	.255	.0754	.199	.42	.0705	.0171	.147	.23
Panel C: log(Levels per capita)										
LGC Statutory Allocations	0.169***	0.085***	0.108***	0.005	0.101***	0.152***	0.049***	0.001	0.088***	0.089***
	(0.039)	(0.022)	(0.024)	(0.017)	(0.024)	(0.034)	(0.015)	(0.005)	(0.021)	(0.024)
Observations	4565	4565	4565	4565	4565	4565	4565	4565	4565	4565
Number of LGCs	768	768	768	768	768	768	768	768	768	768
Mean of DV	-.279	-.391	-.371	-.437	-.397	-.342	-.433	-.462	-.419	-.386
Panel C: Levels per capita										
LGC Statutory Allocations	0.209	0.113*	0.111	-0.052**	0.101	0.227	0.052***	-0.001	0.100	0.104
	(0.182)	(0.066)	(0.076)	(0.023)	(0.082)	(0.163)	(0.020)	(0.008)	(0.072)	(0.087)
Observations	4565	4565	4565	4565	4565	4565	4565	4565	4565	4565
Number of LGCs	768	768	768	768	768	768	768	768	768	768
Mean of DV	.407	.129	.163	.0487	.131	.276	.0441	.0104	.0983	.149

Notes: All regressions control for time fixed effects and local government area (LGA) fixed effects. The dependent variable includes (1) any violent conflict event defined as the use of force by a group with a political purpose. *Type of events* include (2) battles defined as violent interactions between two politically organized armed groups; (3) violence involving civilians are violent acts by an organized political group against unarmed non-combatants; (4) protests are demonstrations and spontaneous acts of violence by disorganised groups. Columns (5)–(8) include the specific *groups involved*; (6) political militias are armed agents to influence political processes; (7) communal militias are (ethnic or religious) groups engaged in local political competition; (8) rebels are political organizations to counter an established national government. Columns (9)–(10) present results for the specific *dyadic interaction of actors involved*. Standard errors in parentheses are adjusted for clustering at the LGA with stars indicating *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A5: Robustness of effect of resource rents on civil conflict *without elected LGA*'s: Alternative functional forms to account for count data

		Type of Event			Groups involved				Between Pol. Militias &...	
	(1) Overall	(2) Battle	(3) Civilian Violence	(4) Protest	(5) Military	(6) Pol. Militia	(7) Comm. Militia	(8) Rebels	(9) Military	(10) Civilians
Panel A: OLS										
LGC Allocations	0.942***	0.296***	0.419***	0.044	0.315***	0.684***	0.137***	0.019	0.248***	0.362***
	(0.271)	(0.091)	(0.102)	(0.071)	(0.100)	(0.215)	(0.035)	(0.018)	(0.088)	(0.118)
Observations	4565	4565	4565	4565	4565	4565	4565	4565	4565	4565
Number of LGCs	768	768	768	768	768	768	768	768	768	768
Mean of DV	.632	.195	.255	.0754	.199	.42	.0705	.0171	.147	.23
Panel B: Poisson										
LGC Allocations	1.054***	1.349***	1.335***	1.898	1.251**	1.269**	1.254***	0.738	1.655**	1.053**
	(0.376)	(0.462)	(0.481)	(1.216)	(0.556)	(0.497)	(0.479)	(0.966)	(0.774)	(0.514)
Observations	2375	1431	1716	746	1347	1859	857	152	978	1410
Number of LGCs	363	218	262	102	202	284	129	23	148	217
Mean of DV	1.21	.623	.678	.461	.675	1.03	.376	.513	.684	.744
Panel C: NB										
LGC Allocations	0.360***	0.890***	0.731***	1.743	0.522**	0.277**	1.114***	0.927	0.601*	0.332*
	(0.126)	(0.251)	(0.204)	(1.392)	(0.233)	(0.136)	(0.326)	(0.977)	(0.351)	(0.179)
Observations	2375	1431	1716	746	1347	1859	857	152	978	1410
Number of LGCs	363	218	262	102	202	284	129	23	148	217
Mean of DV	1.21	.623	.678	.461	.675	1.03	.376	.513	.684	.744

Notes: All regressions control for time fixed effects and local government area (LGA) fixed effects. The dependent variables throughout are the count number of events per LGA and year for the period covering 1999-2014. The dependent variable includes (1) any violent conflict event defined as the use of force by a group with a political purpose. *Type of events* include (2) battles defined as violent interactions between two politically organized armed groups; (3) violence involving civilians are violent acts by an organized political group against unarmed non-combatants; (4) protests are demonstrations and spontaneous acts of violence by disorganised groups. Columns (5)–(8) include the specific *groups involved*; (6) political militias are armed agents to influence political processes; (7) communal militias are (ethnic or religious) groups engaged in local political competition; (8) rebels are political organizations to counter an established national government. Columns (9)–(10) present results for the specific *dyadic interaction of actors involved*. Panel (B) applies a Poisson estimation, and Panel (C) a Negative-Binomial estimator (NB). Standard errors in parentheses are adjusted for clustering at the LGA with stars indicating *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A6: Robustness of the effect of resource rents on civil conflict *without elected LGA's*: Controlling flexibly for formula inputs

		Type of Event			Groups involved				Between Pol. Militias &...	
	(1) Overall	(2) Battle	(3) Civilian Violence	(4) Protest	(5) Military	(6) Pol. Militia	(7) Comm. Militia	(8) Rebels	(9) Military	(10) Civilians
Panel A: Population Weight Decile x Time FE										
LGC Statutory Allocations	0.210**	0.167**	0.145**	-0.029	0.147**	0.251***	0.050	-0.005	0.162***	0.165**
	(0.103)	(0.068)	(0.067)	(0.078)	(0.066)	(0.086)	(0.036)	(0.009)	(0.060)	(0.073)
Observations	49632	49632	49632	49632	49632	49632	49632	49632	49632	49632
Number of LGCs	768	768	768	768	768	768	768	768	768	768
Mean of DV	.0293	.0112	.0152	.00471	.0108	.0192	.00496	.00105	.00768	.0127
Panel B: Landmass Weight Decile x Time FE										
LGC Statutory Allocations	0.144**	0.027	0.091**	0.019	0.051	0.113*	0.032	-0.013	0.025	0.084*
	(0.073)	(0.038)	(0.046)	(0.033)	(0.042)	(0.058)	(0.024)	(0.009)	(0.036)	(0.050)
Observations	49618	49618	49618	49618	49618	49618	49618	49618	49618	49618
Number of LGCs	768	768	768	768	768	768	768	768	768	768
Mean of DV	.0293	.0112	.0152	.00472	.0108	.0192	.00496	.00105	.00768	.0127
Panel C: Public Good Access Index Deciles x Time FE										
LGC Statutory Allocations	0.225***	0.108*	0.099*	0.034	0.103*	0.172**	0.065**	-0.011	0.082	0.092
	(0.085)	(0.057)	(0.057)	(0.035)	(0.055)	(0.069)	(0.029)	(0.009)	(0.050)	(0.061)
Observations	49652	49652	49652	49652	49652	49652	49652	49652	49652	49652
Number of LGCs	768	768	768	768	768	768	768	768	768	768
Mean of DV	.0292	.0112	.0152	.00471	.0108	.0192	.00495	.00105	.00767	.0127
Panel D: Water supply spread Index Deciles x Time FE										
LGC Statutory Allocations	0.144**	0.027	0.091**	0.019	0.051	0.113*	0.032	-0.013	0.025	0.084*
	(0.073)	(0.038)	(0.046)	(0.033)	(0.042)	(0.058)	(0.024)	(0.009)	(0.036)	(0.050)
Observations	49618	49618	49618	49618	49618	49618	49618	49618	49618	49618
Number of LGCs	768	768	768	768	768	768	768	768	768	768
Mean of DV	.0293	.0112	.0152	.00472	.0108	.0192	.00496	.00105	.00768	.0127
Panel E: Hospital beds Index Deciles x Time FE										
LGC Statutory Allocations	0.233***	0.122**	0.141***	0.021	0.119**	0.193***	0.069**	-0.010	0.100**	0.124**
	(0.076)	(0.048)	(0.050)	(0.032)	(0.047)	(0.062)	(0.027)	(0.007)	(0.043)	(0.055)
Observations	49647	49647	49647	49647	49647	49647	49647	49647	49647	49647
Number of LGCs	768	768	768	768	768	768	768	768	768	768
Mean of DV	.0292	.0112	.0152	.00471	.0108	.0192	.00495	.00105	.00767	.0127

Notes: All regressions control for state by time fixed effects and local government area (LGA) fixed effects. The dependent variable includes (1) any violent conflict event defined as the use of force by a group with a political purpose. *Type of events* include (2) battles defined as violent interactions between two politically organized armed groups; (3) violence involving civilians are violent acts by an organized political group against unarmed non-combatants; (4) protests are demonstrations and spontaneous acts of violence by disorganised groups. Columns (5)–(8) include the specific *groups involved;* (6) political militias are armed agents to influence political processes; (7) communal militias are (ethnic or religious) groups engaged in local political competition; (8) rebels are political organizations to counter an established national government. Columns (9)–(10) present results for the specific *dyadic interaction of actors involved*. Each panel uses specific allocation formula sub-index deciles interacted with time fixed effects. Standard errors in parentheses are adjusted for two way clustering by time and LGA with stars indicating *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A7: Effect of Resource rents on civil conflict: Alternative conflict data

	ACLED			UCDP GED		GTD	
	(1) Events	(2) Fatalities	(3) Non Boko Haram	(4) Events	(5) Fatalities	(6) Events	(7) Fatalities
Panel A: Any conflict							
LGC Statutory Allocations	0.362***	0.291***	0.147***	0.213***	0.171***	0.220***	0.199***
	(0.086)	(0.069)	(0.037)	(0.067)	(0.057)	(0.067)	(0.064)
Observations	50021	50021	50021	50021	50021	50021	50021
Number of LGCs	768	768	768	768	768	768	768
Mean of DV	.0294	.0163	.0134	.0114	.00844	.0121	.0107
Panel B: Levels							
LGC Statutory Allocations	0.828***	8.581***	0.180***	0.505**	5.054**	0.505**	6.737*
	(0.303)	(3.047)	(0.054)	(0.225)	(2.415)	(0.213)	(3.476)
Observations	50021	50021	50021	50021	50021	50021	50021
Number of LGCs	768	768	768	768	768	768	768
Mean of DV	.0526	.291	.0171	.0258	.149	.0234	.269

Notes: All regressions control for time fixed effects and local government area (LGA) fixed effects. The dependent variable in columns (1)–(3) is based on the ACLED data; in columns (4)–(5) on the Uppsala Conflict Data Program Geo-referenced Event Data, and in columns (6)–(7) on the Global Terrorism Database. Columns (1), (4), and (6) indicate any conflict event; columns (2), (5), and (7) indicate the number of fatalities in conflict; column (3) only includes conflict events that are *not* associated with the Jihadist militant organization "Boko Haram" in northeastern Nigeria. The explanatory variable captures the monthly revenue allocations to each local government council. Panel (A) reports results for any conflict event, and Panel (B) conflict levels. Standard errors in parentheses are adjusted for clustering at the LGA with stars indicating *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A8: LGA Extraordinary Allocations and Conflict

		Type of Event			Groups involved				Between Pol. Militias &...	
	(1) Overall	(2) Battle	(3) Civilian Violence	(4) Protest	(5) Military	(6) Pol. Militia	(7) Comm. Militia	(8) Rebels	(9) Military	(10) Civilians
Panel A: OLS										
LGC Extra Allocations	0.108**	0.048	0.042**	0.037	0.032	0.086***	0.009	-0.014	0.027	0.055**
	(0.045)	(0.030)	(0.020)	(0.027)	(0.022)	(0.029)	(0.013)	(0.009)	(0.020)	(0.024)
Observations	49662	49662	49662	49662	49662	49662	49662	49662	49662	49662
Number of LGCs	768	768	768	768	768	768	768	768	768	768
Mean of DV	.0292	.0112	.0152	.00471	.0108	.0191	.00495	.00105	.00767	.0127
Panel B: IV										
LGC Extra Allocations	0.662**	0.244**	0.386**	0.105	0.297**	0.488**	0.146**	-0.010	0.211*	0.311**
	(0.276)	(0.122)	(0.156)	(0.082)	(0.141)	(0.212)	(0.072)	(0.021)	(0.111)	(0.156)
Kleibergen-Paap weak IV	12.64	12.64	12.64	12.64	12.64	12.64	12.64	12.64	12.64	12.64
Observations	49662	49662	49662	49662	49662	49662	49662	49662	49662	49662
Number of LGCs	768	768	768	768	768	768	768	768	768	768
Mean of DV	.0292	.0112	.0152	.00471	.0108	.0191	.00495	.00105	.00767	.0127

Notes: All regressions control for state by time fixed effects and local government area (LGA) fixed effects. The dependent variable includes (1) any violent conflict event defined as the use of force by a group with a political purpose. *Type of events* include (2) battles defined as violent interactions between two politically organized armed groups; (3) violence involving civilians are violent acts by an organized political group against unarmed non-combatants; (4) protests are demonstrations and spontaneous acts of violence by disorganised groups. Columns (5)–(8) include the specific *groups involved*; (6) political militias are armed agents to influence political processes; (7) communal militias are (ethnic or religious) groups engaged in local political competition; (8) rebels are political organizations to counter an established national government. Columns (9)–(10) present results for the specific *dyadic interaction of actors involved*. The explanatory variable is the extraordinary allocation to each local government council from the Excess Crude Account (ECA) on a monthly basis. Extraordinary allocations are based on idiosyncratic political decisions. The instrumental variable estimation in Panel (B) uses the index weight interacted with the oil price as instrument. Standard errors in parentheses are adjusted for two way clustering by time and LGA with stars indicating *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A9: Conflict in Oil-Producing States and Oil Fields

		Type of Event			Groups involved				Between pol militias &...	
	(1) Overall	(2) Battle	(3) Civilian Violence	(4) Protest	(5) Military	(6) Pol Militia	(7) Comm militia	(8) Rebels	(9) Military	(10) Civilians
Panel A: Oil producing state										
LGC Statutory Allocations	0.255***	0.142***	0.147***	0.018	0.143***	0.220***	0.070**	-0.004	0.119**	0.139**
	(0.088)	(0.054)	(0.056)	(0.038)	(0.053)	(0.073)	(0.029)	(0.004)	(0.048)	(0.064)
LGA is in Oil Producing State × LGC Statutory Allocations	-0.118	-0.174*	0.043	-0.007	-0.162	-0.140	-0.035	-0.042	-0.134	-0.016
	(0.178)	(0.095)	(0.095)	(0.092)	(0.102)	(0.125)	(0.042)	(0.045)	(0.083)	(0.088)
Observations	49662	49662	49662	49662	49662	49662	49662	49662	49662	49662
Number of LGCs	768	768	768	768	768	768	768	768	768	768
Mean of DV	.0292	.0112	.0152	.00471	.0108	.0191	.00495	.00105	.00767	.0127
Panel B: LGA with Oil field										
LGC Statutory Allocations	0.236***	0.116**	0.154***	0.016	0.118**	0.200***	0.065**	-0.009	0.099**	0.137**
	(0.077)	(0.048)	(0.051)	(0.034)	(0.046)	(0.062)	(0.027)	(0.007)	(0.042)	(0.055)
LGA has Oil Field × LGC Statutory Allocations	0.040	-0.002	-0.006	0.037	0.024	-0.013	-0.012	-0.013	0.000	-0.014
	(0.055)	(0.029)	(0.030)	(0.034)	(0.026)	(0.037)	(0.028)	(0.008)	(0.017)	(0.024)
Observations	49662	49662	49662	49662	49662	49662	49662	49662	49662	49662
Number of LGCs	768	768	768	768	768	768	768	768	768	768
Mean of DV	.0292	.0112	.0152	.00471	.0108	.0191	.00495	.00105	.00767	.0127

Notes: All regressions control for time fixed effects, state governor fixed effects and local government area (LGA) fixed effects. The dependent variable includes (1) any violent conflict event defined as the use of force by a group with a political purpose. *Type of events* include (2) battles defined as violent interactions between two politically organized armed groups; (3) violence involving civilians are violent acts by an organized political group against unarmed non-combatants; (4) protests are demonstrations and spontaneous acts of violence by disorganised groups. Columns (5)–(8) include the specific *groups involved*; (6) political militias are armed agents to influence political processes; (7) communal militias are (ethnic or religious) groups engaged in local political competition; (8) rebels are political organizations to counter an established national government. Columns (9)–(10) present results for the specific *dyadic interaction of actors involved*. In Panel (A) the monthly statutory allocation are interacted with a dummy variable indicating whether a LGA is in a state that has any oil-producing facilities; in Panel (B) it is interacted with a dummy variable indicating whether a LGA has any oil field. Standard errors in parentheses are clustered by LGA level with stars indicating *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A10: Robustness: Removing election related violence from estimating sample

		Type of Event			Groups involved				Between Pol. Militias &...	
	(1) Overall	(2) Battle	(3) Civilian Violence	(4) Protest	(5) Military	(6) Pol. Militia	(7) Comm. Militia	(8) Rebels	(9) Military	(10) Civilians
Panel A: Removing 1 month window around election										
LGC Statutory Allocations	0.217***	0.111**	0.150***	0.012	0.112***	0.189***	0.062**	-0.014	0.096**	0.141***
	(0.073)	(0.044)	(0.049)	(0.031)	(0.043)	(0.060)	(0.025)	(0.009)	(0.039)	(0.052)
Elected × LGC Statutory Allocations	-0.134*	-0.086*	-0.090*	-0.002	-0.080*	-0.134**	-0.052**	0.025***	-0.081**	-0.108**
	(0.073)	(0.045)	(0.049)	(0.042)	(0.044)	(0.060)	(0.023)	(0.009)	(0.040)	(0.050)
Observations	134606	134606	134606	134606	134606	134606	134606	134606	134606	134606
Number of LGCs	774	774	774	774	774	774	774	774	774	774
Mean of DV	.0236	.00888	.011	.00504	.00827	.0131	.00484	.000973	.00478	.00822
Panel B: Removing 3 month window around election										
LGC Statutory Allocations	0.237***	0.118**	0.165***	0.013	0.119**	0.204***	0.076***	-0.014	0.102**	0.149***
	(0.080)	(0.047)	(0.053)	(0.034)	(0.047)	(0.065)	(0.027)	(0.010)	(0.043)	(0.056)
Elected × LGC Statutory Allocations	-0.151*	-0.093*	-0.102*	-0.007	-0.080	-0.148**	-0.068***	0.026**	-0.081*	-0.117**
	(0.080)	(0.050)	(0.054)	(0.044)	(0.049)	(0.066)	(0.024)	(0.010)	(0.045)	(0.056)
Observations	126340	126340	126340	126340	126340	126340	126340	126340	126340	126340
Number of LGCs	774	774	774	774	774	774	774	774	774	774
Mean of DV	.0237	.00894	.011	.00511	.00828	.0132	.00484	.000966	.0048	.00827
Panel C: Removing 6 month window around election										
LGC Statutory Allocations	0.287***	0.144***	0.192***	0.029	0.144***	0.243***	0.089***	-0.011	0.122**	0.166***
	(0.083)	(0.054)	(0.055)	(0.037)	(0.053)	(0.068)	(0.029)	(0.010)	(0.048)	(0.059)
Elected × LGC Statutory Allocations	-0.200**	-0.112*	-0.127**	-0.024	-0.087	-0.188***	-0.076***	0.025**	-0.097*	-0.136**
	(0.084)	(0.058)	(0.053)	(0.049)	(0.058)	(0.070)	(0.026)	(0.010)	(0.053)	(0.059)
Observations	112506	112506	112506	112506	112506	112506	112506	112506	112506	112506
Number of LGCs	774	774	774	774	774	774	774	774	774	774
Mean of DV	.0237	.0089	.011	.00525	.00822	.0131	.00492	.000933	.00474	.00831

Notes: All regressions control for state by time fixed effects and local government area (LGA) fixed effects. The dependent variable includes (1) any violent conflict event defined as the use of force by a group with a political purpose. *Type of events* include (2) battles defined as violent interactions between two politically organized armed groups; (3) violence involving civilians are violent acts by an organized political group against unarmed non-combatants; (4) protests are demonstrations and spontaneous acts of violence by disorganised groups. Columns (5)–(8) include the specific *groups involved*; (6) political militias are armed agents to influence political processes; (7) communal militias are (ethnic or religious) groups engaged in local political competition; (8) rebels are political organizations to counter an established national government. Columns (9)–(10) present results for the specific *dyadic interaction of actors involved*. Panel (A) removes the month when a local council election is held from the sample; Panel (B) removes a three months window from the sample; Panel (C) removes a six months window from the sample. *LGC Statutory Allocations* the monthly revenue allocation to a local government council. The variable *Elected* indicates whether a local government council is elected or appointed in a given month. Standard errors in parentheses are adjusted for two way clustering by time and LGA with stars indicating *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A11: Variance Decomposition of Local Democracy Dummy

	(1)	(2)	(3)	(4)
R-squared	.0817	.571	.672	.972
LGC FE	X	X	X	X
Time FE		X	X	
State Governor FE			X	
State x Time FE				X
Observations	148428	148428	143930	148428
Number of LGCs				

Notes: Table presents a decomposition of the variation in the election status dummy variable after controlling for different levels of fixed effects.

Table A12: Residual Variation to Hold Local Elections: Allocations and Conflict

	Allocations					ACLED			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
LGC Allocations	-0.006								0.046
	(0.018)								(0.078)
LGC Extra Allocations		-0.017							-0.050
		(0.023)							(0.086)
LGC Allocations (last 3 months)			-0.002						-0.004
			(0.005)						(0.006)
LGC Allocations (last 6 months)				-0.001					-0.000
				(0.003)					(0.005)
LGC Allocations (last 12 months)					-0.001				-0.002
					(0.002)				(0.004)
ACLED events (last 3 months)						-0.000			-0.001
						(0.001)			(0.001)
ACLED events (last 6 months)							-0.000		-0.000
							(0.000)		(0.001)
ACLED events (last 12 months)								-0.000	0.000
								(0.000)	(0.000)
R2	.967	.967	.967	.966	.966	.967	.967	.967	.966
Observations	140713	140713	138406	136099	131485	148428	148428	148428	131485

Notes: The table presents a series of regressions of the elected status indicator variable (*Elected*) on the different types of allocations for different periods prior to local elections, and conflict events prior to local elections. The residuals in the *Elected* variable are calculated after controlling for state by time fixed effects and local government (LGA) fixed effects. Column (9) presents the estimation with all relevant explanatory variables included. Standard errors in parentheses are adjusted for two way clustering by time and LGA with stars indicating *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A13: Residual Variation in Local Elections: Formula Inputs and Ethnicity

	Weather		Index and Geography					Demographics			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Temperature	-0.002										-0.005*
	(0.003)										(0.003)
Rainfall (annual avg)		-0.000									-0.000
		(0.000)									(0.000)
Total index			-5.905								63.527
			(19.724)								(121.180)
Population				-8.599							-75.004
				(24.536)							(131.132)
Landmass					-13.324						-39.040
					(74.721)						(163.646)
Rain - Water supply spread						-44.413					0.000
						(249.069)					(.)
LGA has Oil Field							0.002				0.008
							(0.003)				(0.006)
Non-aligned ethnic family								0.010			0.014
								(0.007)			(0.009)
Non-aligned ethnic group									0.007		0.002
									(0.007)		(0.008)
Share of LGC population non-aligned w. Gov. religion										-0.005	-0.009
										(0.008)	(0.008)
R2	.967	.967	.967	.967	.967	.967	.967	.966	.966	.967	.968
Observations	148428	148428	148428	148428	148428	148428	148428	131107	131107	126187	123947

Notes: The table presents a series of regressions of the elected status indicator variable (*Elected*) on two weather indicators in columns (1)–(2), temperature and annual rainfall, on the allocation index and its sub-indices in columns (3)–(6), on an LGA oil field indicator in column (7), and on three ethnic/religious alignment variables in columns (8)–(10), indicating what share of the population is aligned with the state governor's ethnicity and religion, respectively. Column (10) includes all covariates. The residuals in the *Elected* variable are calculated after controlling for state by time fixed effects and local government (LGA) fixed effects. Standard errors in parentheses are adjusted for two way clustering by time and LGA with stars indicating *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A14: Robustness: Controlling for State-Governor Specific LGA Fixed Effects

		Type of Event			Groups involved				Between Pol. Militias &...	
	(1) Overall	(2) Battle	(3) Civilian Violence	(4) Protest	(5) Military	(6) Pol. Militia	(7) Comm. Militia	(8) Rebels	(9) Military	(10) Civilians
Panel A: without elected LGCs										
LGC Statutory Allocations	0.146**	0.079**	0.081*	0.007	0.047	0.116**	0.039	-0.016	0.041	0.098**
	(0.067)	(0.038)	(0.045)	(0.046)	(0.037)	(0.052)	(0.030)	(0.012)	(0.034)	(0.049)
Observations	49644	49644	49644	49644	49644	49644	49644	49644	49644	49644
Number of LGCs	768	768	768	768	768	768	768	768	768	768
Mean of DV	.0292	.0112	.0152	.00471	.0108	.0192	.00496	.00105	.00767	.0127
Panel B: with elected LGCs										
LGC Statutory Allocations	0.116***	0.027	0.052*	-0.013	0.013	0.092***	0.031	-0.003	0.019	0.060**
	(0.043)	(0.032)	(0.031)	(0.029)	(0.028)	(0.033)	(0.022)	(0.007)	(0.026)	(0.030)
Elected × LGC Statutory Allocations	-0.030	0.001	-0.019	0.013	0.006	-0.043	-0.015	0.009*	-0.017	-0.041*
	(0.035)	(0.028)	(0.026)	(0.022)	(0.022)	(0.027)	(0.017)	(0.005)	(0.018)	(0.023)
Observations	139537	139537	139537	139537	139537	139537	139537	139537	139537	139537
Number of LGCs	768	768	768	768	768	768	768	768	768	768
Mean of DV	.0233	.00895	.011	.00471	.00808	.013	.00489	.000982	.00474	.00812

Notes: All regressions control for state by time fixed effects and separate LGA fixed effects for each state governor. The dependent variable includes (1) any violent conflict event defined as the use of force by a group with a political purpose. *Type of events* include (2) battles defined as violent interactions between two politically organized armed groups; (3) violence involving civilians are violent acts by an organized political group against unarmed non-combatants; (4) protests are demonstrations and spontaneous acts of violence by disorganised groups. Columns (5)–(8) include the specific *groups involved;* (6) political militias are armed agents to influence political processes; (7) communal militias are (ethnic or religious) groups engaged in local political competition; (8) rebels are political organizations to counter an established national government. Columns (9)–(10) present results for the specific *dyadic interaction of actors involved.* Panel (A) presents estimation results for periods with an appointed local government council (LGC), and Panel (B) includes periods with an elected LGC. The main explanatory variable is the monthly allocation to a LGC. The variable *Elected* indicates whether a LGC is elected or appointed in a given month. Standard errors in parentheses are adjusted for two way clustering by time and LGA with stars indicating *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A15: LGA Extraordinary Allocations and Conflict

		Type of Event			Groups involved				Between Pol. Militias &...	
	(1) Overall	(2) Battle	(3) Civilian Violence	(4) Protest	(5) Military	(6) Pol. Militia	(7) Comm. Militia	(8) Rebels	(9) Military	(10) Civilians
Panel A: OLS										
LGC Extra Allocations	0.077**	0.046*	0.026	0.029	0.030	0.074***	-0.009	-0.013*	0.025	0.042**
	(0.034)	(0.025)	(0.016)	(0.021)	(0.021)	(0.024)	(0.008)	(0.007)	(0.019)	(0.019)
Elected × LGC Extra Allocations	-0.038	-0.037	-0.014	0.000	-0.030	-0.061*	0.007	0.015**	-0.037	-0.028*
	(0.036)	(0.036)	(0.013)	(0.009)	(0.027)	(0.032)	(0.010)	(0.007)	(0.022)	(0.016)
Observations	140713	140713	140713	140713	140713	140713	140713	140713	140713	140713
Number of LGCs	774	774	774	774	774	774	774	774	774	774
Mean of DV	.0239	.00906	.0112	.00507	.0084	.0133	.00491	.000981	.00487	.00828
Panel B: IV										
LGC Extra Allocations	0.563**	0.231**	0.324**	0.079	0.299**	0.441**	0.100	-0.018	0.208**	0.293**
	(0.252)	(0.109)	(0.147)	(0.068)	(0.137)	(0.196)	(0.061)	(0.025)	(0.101)	(0.146)
Elected × LGC Extra Allocations	-0.421**	-0.208**	-0.208*	-0.069	-0.277**	-0.341**	-0.087	0.038	-0.201**	-0.220*
	(0.208)	(0.096)	(0.123)	(0.070)	(0.128)	(0.167)	(0.056)	(0.026)	(0.096)	(0.128)
Kleibergen-Paap weak IV	4.17	4.17	4.17	4.17	4.17	4.17	4.17	4.17	4.17	4.17
Observations	140713	140713	140713	140713	140713	140713	140713	140713	140713	140713
Number of LGCs	774	774	774	774	774	774	774	774	774	774
Mean of DV	.0239	.00906	.0112	.00507	.0084	.0133	.00491	.000981	.00487	.00828

Notes: All regressions control for local government area (LGA) fixed effects and state by time fixed effects. The dependent variable includes (1) any violent conflict event defined as the use of force by a group with a political purpose. *Type of events* include (2) battles defined as violent interactions between two politically organized armed groups; (3) violence involving civilians are violent acts by an organized political group against unarmed non-combatants; (4) protests are demonstrations and spontaneous acts of violence by disorganised groups. Columns (5)–(8) include the specific *groups involved*; (6) political militias are armed agents to influence political processes; (7) communal militias are (ethnic or religious) groups engaged in local political competition; (8) rebels are political organizations to counter an established national government. Columns (9)–(10) present results for the specific *dyadic interaction of actors involved*. The variable *LGC Extra Allocations* indicates the extraordinary allocations to each local government council from the Excess Crude Account (ECA) on a monthly basis. Extraordinary allocations are based on idiosyncratic political decisions. The variable *Elected* indicates whether a local government council is elected or appointed in a given month. The instrumental variable estimation in Panel (B) uses the index weight interacted with the oil price as instrument. Standard errors in parentheses are adjusted for two way clustering by time and LGA with stars indicating *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A16: Effect of Resource rents on civil conflict: Alternative conflict data

	ACLED			UCDP GED		GTD	
	(1) Events	(2) Fatalities	(3) Non Boko Haram	(4) Events	(5) Fatalities	(6) Events	(7) Fatalities
Panel A: Any conflict							
LGC Statutory Allocations	0.279***	0.206***	0.100***	0.166***	0.140***	0.159***	0.144***
	(0.061)	(0.045)	(0.027)	(0.046)	(0.039)	(0.042)	(0.040)
Elected × LGC Statutory Allocations	-0.063**	-0.060***	-0.030***	-0.071***	-0.069***	-0.073***	-0.068***
	(0.027)	(0.021)	(0.011)	(0.023)	(0.021)	(0.022)	(0.020)
Observations	140713	140713	140713	140713	140713	140713	140713
Number of LGCs	774	774	774	774	774	774	774
Mean of DV	.0239	.0121	.0106	.00703	.00465	.00767	.00671
Panel B: Levels							
LGC Statutory Allocations	0.642***	5.705***	0.122***	0.424**	3.444**	0.344***	4.509*
	(0.190)	(1.825)	(0.036)	(0.186)	(1.411)	(0.121)	(2.601)
Elected × LGC Statutory Allocations	-0.143	-3.017***	-0.044***	-0.224**	-2.257***	-0.186***	-3.160***
	(0.098)	(1.049)	(0.016)	(0.100)	(0.865)	(0.062)	(1.192)
Observations	140713	140713	140713	140713	140713	140713	140713
Number of LGCs	774	774	774	774	774	774	774
Mean of DV	.0405	.224	.0134	.0133	.0735	.0127	.189

Notes: All regressions control for time fixed effects and local government area (LGA) fixed effects. The dependent variable in columns (1)–(3) is based on the ACLED data; in columns (4)–(5) on the Uppsala Conflict Data Program Geo-referenced Event Data, and in columns (6)–(7) on the Global Terrorism Database. Columns (1), (4), and (6) indicate any conflict event; columns (2), (5), and (7) indicate the number of fatalities in conflict; column (3) only includes conflict events that are *not* associated with the Jihadist militant organization "Boko Haram" in northeastern Nigeria. The variable *LGC Statutory Allocations* captures the monthly revenue allocations to each local government council. The variable *Elected* indicates whether a local government council is elected or appointed in a given month. Panel (A) reports results for any conflict event, and Panel (B) conflict levels. Standard errors in parentheses are adjusted for clustering at the LGA with stars indicating *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A17: Effect of Resource rents on civil conflict: Different transformations of dependent variables

		Type of Event			Groups involved				Between Pol. Militias &...	
	(1) Overall	(2) Battle	(3) Civilian Violence	(4) Protest	(5) Military	(6) Pol. Militia	(7) Comm. Militia	(8) Rebels	(9) Military	(10) Civilians
Panel A: Any conflict										
LGC Statutory Allocations	0.061***	0.039***	0.063***	0.018*	0.058***	0.067***	0.019*	0.005	0.053***	0.050***
	(0.014)	(0.012)	(0.013)	(0.010)	(0.014)	(0.016)	(0.010)	(0.003)	(0.012)	(0.013)
Elected × LGC Statutory Allocations	-0.022***	-0.008	-0.023***	0.007	-0.021***	-0.023***	0.004	-0.001	-0.022***	-0.024***
	(0.007)	(0.006)	(0.006)	(0.005)	(0.006)	(0.007)	(0.006)	(0.001)	(0.005)	(0.006)
Observations	12369	12369	12369	12369	12369	12369	12369	12369	12369	12369
Number of LGCs	774	774	774	774	774	774	774	774	774	774
Mean of DV	.139	.0689	.079	.0341	.0599	.0889	.0415	.00728	.0366	.0614
Panel B: Levels										
LGC Gross Statutory Allocations	0.626***	0.174***	0.252***	0.071	0.218***	0.427***	0.079**	0.010	0.166***	0.227***
	(0.192)	(0.062)	(0.072)	(0.059)	(0.071)	(0.145)	(0.035)	(0.008)	(0.059)	(0.080)
Elected × LGC Gross Statutory Allocations	-0.130	-0.069**	-0.089***	0.048	-0.070**	-0.201***	0.011	-0.000	-0.084***	-0.106***
	(0.079)	(0.027)	(0.029)	(0.034)	(0.031)	(0.059)	(0.014)	(0.003)	(0.027)	(0.031)
Observations	12369	12369	12369	12369	12369	12369	12369	12369	12369	12369
Number of LGCs	774	774	774	774	774	774	774	774	774	774
Mean of DV	.516	.153	.189	.0968	.149	.262	.0875	.0145	.0868	.142
Panel C: log(Levels per capita)										
LGC Gross Statutory Allocations	0.121***	0.053***	0.082***	0.019	0.072***	0.102***	0.027**	0.005	0.059***	0.068***
	(0.026)	(0.015)	(0.017)	(0.013)	(0.016)	(0.024)	(0.013)	(0.004)	(0.013)	(0.018)
Elected × LGC Gross Statutory Allocations	-0.032***	-0.016**	-0.029***	0.011	-0.023***	-0.042***	0.003	-0.000	-0.026***	-0.032***
	(0.010)	(0.007)	(0.007)	(0.007)	(0.007)	(0.009)	(0.006)	(0.001)	(0.006)	(0.007)
Observations	12369	12369	12369	12369	12369	12369	12369	12369	12369	12369
Number of LGCs	774	774	774	774	774	774	774	774	774	774
Mean of DV	-.315	-.412	-.4	-.443	-.419	-.386	-.439	-.473	-.444	-.42
Panel C: Levels per capita										
LGC Gross Statutory Allocations	0.173	0.082**	0.079*	-0.019	0.078*	0.156*	0.034**	0.003	0.071*	0.076
	(0.108)	(0.039)	(0.044)	(0.024)	(0.047)	(0.093)	(0.016)	(0.004)	(0.040)	(0.049)
Elected × LGC Gross Statutory Allocations	-0.091*	-0.043**	-0.049**	0.013	-0.048**	-0.108***	0.002	0.001	-0.050***	-0.054***
	(0.048)	(0.019)	(0.019)	(0.015)	(0.021)	(0.041)	(0.007)	(0.002)	(0.019)	(0.020)
Observations	12369	12369	12369	12369	12369	12369	12369	12369	12369	12369
Number of LGCs	774	774	774	774	774	774	774	774	774	774
Mean of DV	.31	.0952	.116	.0534	.0898	.166	.0529	.00816	.0563	.0892

Notes: All regressions control for time fixed effects and local government area (LGA) fixed effects. The dependent variable includes (1) any violent conflict event defined as the use of force by a group with a political purpose. *Type of events* include (2) battles defined as violent interactions between two politically organized armed groups; (3) violence involving civilians are violent acts by an organized political group against unarmed non-combatants; (4) protests are demonstrations and spontaneous acts of violence by disorganised groups. Columns (5)–(8) include the specific *groups involved*; (6) political militias are armed agents to influence political processes; (7) communal militias are (ethnic or religious) groups engaged in local political competition; (8) rebels are political organizations to counter an established national government. Columns (9)–(10) present results for the specific *dyadic interaction of actors involved*. The variable *LGC Statutory Allocations* captures the monthly revenue allocations to each local government council. The variable *Elected* indicates whether a local government council is elected or appointed in a given month. Standard errors in parentheses are adjusted for clustering at the LGA with stars indicating *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A18: Different temporal resolution of the data

		Type of Event			Groups involved				Between Pol. Militias &...	
	(1) Overall	(2) Battle	(3) Civilian Violence	(4) Protest	(5) Military	(6) Pol. Militia	(7) Comm. Militia	(8) Rebels	(9) Military	(10) Civilians
Panel A: Annual										
LGC Statutory Allocations	0.061***	0.039***	0.063***	0.018*	0.058***	0.067***	0.019*	0.005	0.053***	0.050***
	(0.014)	(0.012)	(0.013)	(0.010)	(0.014)	(0.016)	(0.010)	(0.003)	(0.012)	(0.013)
Elected × LGC Statutory Allocations	-0.022***	-0.008	-0.023***	0.007	-0.021***	-0.023***	0.004	-0.001	-0.022***	-0.024***
	(0.007)	(0.006)	(0.006)	(0.005)	(0.006)	(0.007)	(0.006)	(0.001)	(0.005)	(0.006)
Observations	12369	12369	12369	12369	12369	12369	12369	12369	12369	12369
Number of LGCs	774	774	774	774	774	774	774	774	774	774
Mean of DV	.139	.0689	.079	.0341	.0599	.0889	.0415	.00728	.0366	.0614
Panel B: Quarterly										
LGC Statutory Allocations	0.136***	0.062***	0.107***	0.025	0.090***	0.129***	0.040***	0.006	0.071***	0.092***
	(0.031)	(0.017)	(0.021)	(0.018)	(0.021)	(0.027)	(0.013)	(0.004)	(0.015)	(0.023)
Elected × LGC Statutory Allocations	-0.022*	-0.018**	-0.030***	0.014	-0.025***	-0.047***	0.002	0.000	-0.032***	-0.038***
	(0.013)	(0.009)	(0.010)	(0.009)	(0.009)	(0.011)	(0.007)	(0.002)	(0.008)	(0.009)
Observations	49476	49476	49476	49476	49476	49476	49476	49476	49476	49476
Number of LGCs	774	774	774	774	774	774	774	774	774	774
Mean of DV	.0566	.0236	.0287	.0133	.0218	.0327	.0134	.00251	.0127	.0212
Panel C: Monthly										
LGC Statutory Allocations	0.279***	0.104***	0.178***	0.033	0.133***	0.232***	0.050**	0.006	0.104***	0.161***
	(0.061)	(0.031)	(0.036)	(0.026)	(0.032)	(0.051)	(0.020)	(0.004)	(0.027)	(0.041)
Elected × LGC Statutory Allocations	-0.063**	-0.040**	-0.060***	0.026	-0.032*	-0.103***	0.003	0.002	-0.050***	-0.077***
	(0.027)	(0.017)	(0.018)	(0.017)	(0.017)	(0.023)	(0.010)	(0.002)	(0.015)	(0.018)
Observations	140713	140713	140713	140713	140713	140713	140713	140713	140713	140713
Number of LGCs	774	774	774	774	774	774	774	774	774	774
Mean of DV	.0239	.00906	.0112	.00507	.0084	.0133	.00491	.000981	.00487	.00828

Notes: All regressions control for time fixed effects and local government area (LGA) fixed effects. The dependent variable includes (1) any violent conflict event defined as the use of force by a group with a political purpose. *Type of events* include (2) battles defined as violent interactions between two politically organized armed groups; (3) violence involving civilians are violent acts by an organized political group against unarmed non-combatants; (4) protests are demonstrations and spontaneous acts of violence by disorganised groups. Columns (5)–(8) include the specific *groups involved*; (6) political militias are armed agents to influence political processes; (7) communal militias are (ethnic or religious) groups engaged in local political competition; (8) rebels are political organizations to counter an established national government. Columns (9)–(10) present results for the specific *dyadic interaction of actors involved*. The variable *LGC Statutory Allocations* captures the monthly revenue allocations to each local government council. The variable *Elected* indicates whether a local government council is elected or appointed in a given month. Panel (A) reports results for an annual resolution of the data, Panel (B) for a quarter yearly resolution, and Panel (C) for a monthly resolution. Standard errors in parentheses are adjusted for clustering at the LGA with stars indicating *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A19: Effect of Resource rents on civil conflict: Alternative functional forms to account for count data

		Type of Event			Groups involved				Between pol militias &...	
	(1) Overall	(2) Battle	(3) Civilian Violence	(4) Protest	(5) Military	(6) Pol Militia	(7) Comm militia	(8) Rebels	(9) Military	(10) Civilians
Panel A: OLS										
LGC Allocations	0.853***	0.220***	0.343***	0.134**	0.266***	0.530***	0.111***	0.011	0.193***	0.290***
	(0.211)	(0.068)	(0.079)	(0.066)	(0.072)	(0.156)	(0.041)	(0.010)	(0.060)	(0.087)
Elected x LGC Allocations	-0.147*	-0.075***	-0.093***	0.043	-0.075**	-0.207***	0.010	-0.002	-0.086***	-0.108***
	(0.076)	(0.027)	(0.030)	(0.033)	(0.030)	(0.058)	(0.014)	(0.003)	(0.026)	(0.031)
Observations	12369	12369	12369	12369	12369	12369	12369	12369	12369	12369
Number of LGCs	774	774	774	774	774	774	774	774	774	774
Mean of DV	.516	.153	.189	.0968	.149	.262	.0875	.0145	.0868	.142
Panel B: Poisson										
LGC Allocations	0.430**	0.459	0.601**	0.153	0.312	0.568*	0.382	1.005**	0.459	0.597*
	(0.208)	(0.284)	(0.295)	(0.186)	(0.253)	(0.318)	(0.405)	(0.493)	(0.433)	(0.352)
Elected x LGC Allocations	-0.071	-0.129	-0.152	0.010	-0.129	-0.211**	0.119	0.104	-0.224	-0.218**
	(0.081)	(0.107)	(0.100)	(0.073)	(0.109)	(0.101)	(0.135)	(0.260)	(0.143)	(0.109)
Observations	8257	5498	6215	3114	4999	6452	4234	736	3578	5143
Number of LGCs	517	344	389	195	313	404	265	46	224	322
Mean of DV	.773	.344	.376	.384	.368	.501	.256	.243	.3	.342
Panel C: NB										
LGC Allocations	0.160**	0.176*	0.320***	0.263	0.229**	0.207**	0.116	0.629	0.260*	0.314***
	(0.066)	(0.095)	(0.097)	(0.173)	(0.103)	(0.086)	(0.117)	(0.506)	(0.141)	(0.119)
Elected x LGC Allocations	-0.062	-0.038	-0.102*	0.051	-0.115*	-0.089	0.043	0.009	-0.165*	-0.139**
	(0.043)	(0.064)	(0.058)	(0.082)	(0.066)	(0.054)	(0.087)	(0.256)	(0.088)	(0.066)
Observations	8257	5498	6215	3114	4999	6452	4234	736	3578	5143
Number of LGCs	517	344	389	195	313	404	265	46	224	322
Mean of DV	.773	.344	.376	.384	.368	.501	.256	.243	.3	.342

Notes: All regressions control for time fixed effects and local government area (LGA) fixed effects. The dependent variables throughout are the count number of events per LGA and year for the period covering 1999-2014. The dependent variable includes (1) any violent conflict event defined as the use of force by a group with a political purpose. *Type of events* include (2) battles defined as violent interactions between two politically organized armed groups; (3) violence involving civilians are violent acts by an organized political group against unarmed non-combatants; (4) protests are demonstrations and spontaneous acts of violence by disorganised groups. Columns (5)–(8) include the specific *groups involved*; (6) political militias are armed agents to influence political processes; (7) communal militias are (ethnic or religious) groups engaged in local political competition; (8) rebels are political organizations to counter an established national government. Columns (9)–(10) present results for the specific *dyadic interaction of actors involved*. The variable *LGC Allocations* captures the monthly revenue allocations to each local government council. The variable *Elected* indicates whether a local government council is elected or appointed in a given month. Panel (B) employs a Poisson estimation, and Panel (C) a negative-binomial estimation. Standard errors in parentheses are adjusted for clustering at the LGA with stars indicating *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A20: Robustness: Controlling flexibly for formula inputs

		Type of Event			Groups involved				Between Pol. Militias &...	
	(1) Overall	(2) Battle	(3) Civilian Violence	(4) Protest	(5) Military	(6) Pol. Militia	(7) Comm. Militia	(8) Rebels	(9) Military	(10) Civilians
Panel A: Population Weight Decile x Time FE										
LGC Statutory Allocations	0.096	0.117**	0.117*	-0.075	0.098*	0.160**	0.022	-0.012	0.115***	0.134**
	(0.090)	(0.053)	(0.061)	(0.059)	(0.052)	(0.071)	(0.033)	(0.010)	(0.044)	(0.062)
Elected × LGC Statutory Allocations	-0.099	-0.086*	-0.075	0.007	-0.090*	-0.131*	-0.031	0.029**	-0.094**	-0.115**
	(0.080)	(0.044)	(0.058)	(0.051)	(0.050)	(0.067)	(0.022)	(0.013)	(0.045)	(0.057)
Observations	140713	140713	140713	140713	140713	140713	140713	140713	140713	140713
Number of LGCs	774	774	774	774	774	774	774	774	774	774
Mean of DV	.0239	.00906	.0112	.00507	.0084	.0133	.00491	.000981	.00487	.00828
Panel B: Landmass Weight Decile x Time FE										
LGC Statutory Allocations	0.185**	0.079**	0.113**	0.019	0.098**	0.149**	0.044*	-0.014	0.062*	0.118**
	(0.072)	(0.038)	(0.050)	(0.032)	(0.041)	(0.058)	(0.024)	(0.009)	(0.034)	(0.050)
Elected × LGC Statutory Allocations	-0.110	-0.061	-0.065	-0.007	-0.064	-0.100*	-0.042**	0.029***	-0.057	-0.094*
	(0.067)	(0.038)	(0.047)	(0.043)	(0.043)	(0.057)	(0.018)	(0.011)	(0.038)	(0.049)
Observations	140713	140713	140713	140713	140713	140713	140713	140713	140713	140713
Number of LGCs	774	774	774	774	774	774	774	774	774	774
Mean of DV	.0239	.00906	.0112	.00507	.0084	.0133	.00491	.000981	.00487	.00828
Panel C: Public Good Access Index Deciles x Time FE										
LGC Statutory Allocations	0.198**	0.109**	0.102**	0.018	0.111**	0.166***	0.052**	-0.014	0.089**	0.112**
	(0.076)	(0.046)	(0.052)	(0.032)	(0.044)	(0.062)	(0.025)	(0.009)	(0.039)	(0.053)
Elected × LGC Statutory Allocations	-0.123*	-0.083*	-0.050	-0.012	-0.080*	-0.113*	-0.044**	0.027***	-0.076*	-0.085*
	(0.071)	(0.043)	(0.049)	(0.043)	(0.045)	(0.059)	(0.020)	(0.010)	(0.040)	(0.051)
Observations	140713	140713	140713	140713	140713	140713	140713	140713	140713	140713
Number of LGCs	774	774	774	774	774	774	774	774	774	774
Mean of DV	.0239	.00906	.0112	.00507	.0084	.0133	.00491	.000981	.00487	.00828
Panel D: Water supply spread Index Deciles x Time FE										
LGC Statutory Allocations	0.185**	0.079**	0.113**	0.019	0.098**	0.149**	0.044*	-0.014	0.062*	0.118**
	(0.072)	(0.038)	(0.050)	(0.032)	(0.041)	(0.058)	(0.024)	(0.009)	(0.034)	(0.050)
Elected × LGC Statutory Allocations	-0.110	-0.061	-0.065	-0.007	-0.064	-0.100*	-0.042**	0.029***	-0.057	-0.094*
	(0.067)	(0.038)	(0.047)	(0.043)	(0.043)	(0.057)	(0.018)	(0.011)	(0.038)	(0.049)
Observations	140713	140713	140713	140713	140713	140713	140713	140713	140713	140713
Number of LGCs	774	774	774	774	774	774	774	774	774	774
Mean of DV	.0239	.00906	.0112	.00507	.0084	.0133	.00491	.000981	.00487	.00828
Panel E: Hospital beds Index Deciles x Time FE										
LGC Statutory Allocations	0.206***	0.114***	0.139***	0.007	0.118***	0.180***	0.055**	-0.010	0.095**	0.134***
	(0.071)	(0.043)	(0.048)	(0.029)	(0.041)	(0.059)	(0.024)	(0.008)	(0.038)	(0.050)
Elected × LGC Statutory Allocations	-0.129*	-0.081*	-0.087*	-0.004	-0.083*	-0.128**	-0.044**	0.026***	-0.081**	-0.112**
	(0.067)	(0.041)	(0.047)	(0.038)	(0.042)	(0.057)	(0.019)	(0.009)	(0.039)	(0.049)
Observations	140713	140713	140713	140713	140713	140713	140713	140713	140713	140713
Number of LGCs	774	774	774	774	774	774	774	774	774	774
Mean of DV	.0239	.00906	.0112	.00507	.0084	.0133	.00491	.000981	.00487	.00828

Notes: All regressions control for state by time fixed effects and local government area (LGA) fixed effects. The dependent variable includes (1) any violent conflict event defined as the use of force by a group with a political purpose. *Type of events* include (2) battles defined as violent interactions between two politically organized armed groups; (3) violence involving civilians are violent acts by an organized political group against unarmed non-combatants; (4) protests are demonstrations and spontaneous acts of violence by disorganised groups. Columns (5)–(8) include the specific *groups involved*; (6) political militias are armed agents to influence political processes; (7) communal militias are (ethnic or religious) groups engaged in local political competition; (8) rebels are political organizations to counter an established national government. Columns (9)–(10) present results for the specific *dyadic interaction of actors involved*. The variable *LGC Allocations* captures the monthly revenue allocations to each local government council. The variable *Elected* indicates whether a local government council is elected or appointed in a given month. Panels (A)–(E) control flexibly for the various allocation formula sub-indices defined by the Federation Account Allocation Committee. Standard errors in parentheses are adjusted for two way clustering by time and LGA with stars indicating *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A21: Validation of measure of exclusion of ethnic groups

	Alignment with ethnic group of state governor			
	(1)	(2)	(3)	(4)
Panel A: Own ethnic group treated unfairly (dummy)				
Person not aligned with governor's ethnicity	0.046***	0.034**	0.042***	0.026*
	(0.012)	(0.014)	(0.013)	(0.015)
Observations	15980	15980	15978	15978
Number of LGCs	579	579	577	577
Mean of DV	.803	.803	.803	.803
Panel B: Own ethnic group treated unfairly				
Person not aligned with governor's ethnicity	0.117***	0.086***	0.085***	0.045
	(0.029)	(0.033)	(0.032)	(0.038)
Observations	15980	15980	15978	15978
Number of LGCs	579	579	577	577
Mean of DV	3.32	3.32	3.32	3.32
State FE	X	X		
LGA FE			X	X
Time FE		X		X

Notes: The explanatory variable measures whether a respondent perceives the own ethnic group treated unfairly on a 4-point likert scale (Panel A), or at least sometimes (Panel B) to be treated unfairly by the government. The dependent variable indicates whether a respondent is of the same ethnic group as the state governor. Standard errors in parentheses are clustered by LGA level with stars indicating *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A22: LGA Allocations and Grievances towards National Political Institutions

	Approval of MP		National MP's are corrupt		Trust in National Assembly	
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: 6 months						
LGC Allocations 6 months prior to survey	-0.163	-0.161	0.067	0.040	-0.169	-0.162
	(0.117)	(0.112)	(0.135)	(0.135)	(0.118)	(0.128)
Elected × LGC Allocations 6 months prior to survey	0.044	0.042	0.115	0.128	0.033	0.034
	(0.100)	(0.095)	(0.101)	(0.101)	(0.087)	(0.090)
Observations	12624	11237	8993	8868	12943	11495
Number of LGCs	575	574	522	522	573	572
Mean of DV	2.83	2.9	3.73	3.73	2.51	2.59
Panel B: 12 months						
LGC Allocations 12 months prior to survey	-0.080	-0.077	0.023	0.008	-0.081	-0.078
	(0.057)	(0.055)	(0.066)	(0.066)	(0.057)	(0.060)
Elected × LGC Allocations 12 months prior to survey	0.026	0.024	0.048	0.055	0.017	0.018
	(0.047)	(0.045)	(0.048)	(0.047)	(0.041)	(0.042)
Observations	12624	11237	8993	8868	12943	11495
Number of LGCs	575	574	522	522	573	572
Mean of DV	2.83	2.9	3.73	3.73	2.51	2.59
Panel C: 18 months						
LGC Allocations 18 months prior to survey	-0.059	-0.055	0.020	0.011	-0.058	-0.055
	(0.038)	(0.036)	(0.046)	(0.045)	(0.040)	(0.041)
Elected × LGC Allocations 18 months prior to survey	0.021	0.019	0.027	0.031	0.015	0.015
	(0.031)	(0.029)	(0.032)	(0.032)	(0.028)	(0.029)
Observations	12624	11237	8993	8868	12943	11495
Number of LGCs	575	574	522	522	573	572
Mean of DV	2.83	2.9	3.73	3.73	2.51	2.59
Respondent controls		X		X		X

Notes: All regressions control for time fixed effects and local government area (LGA) fixed effects. The dependent variable in columns (1)–(2) indicates how much a respondent approves of the performance of the Members of Parliament at the federal government level; in columns (3)–(4) it captures perception of corruption of Members of Parliament; columns (5)–(6) indicates how much a respondent trusts the National Assembly. The variable *Elected* indicates whether a local government council is elected or appointed in a given month. Respondent controls include the respondents age, educational attainment, employment status, gender and an indicator whether the household lives in an urban area. Standard errors in parentheses are clustered by LGA level with stars indicating *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A23: LGA Allocations and Grievances towards State level Political institutions

	Approval State Governor		State Assembly corrupt		Trust State governor	
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: 6 months						
LGC Allocations 6 months prior to survey	-0.660*	-0.235	1.613	1.393	-0.292	-0.316
	(0.400)	(0.373)	(1.600)	(1.549)	(0.271)	(0.303)
Elected × LGC Allocations 6 months prior to survey	0.120	-0.074	0.170	0.081	0.126	0.174
	(0.311)	(0.271)	(1.746)	(1.720)	(0.226)	(0.259)
Observations	4327	3596	2340	2301	6537	5157
Number of LGCs	309	309	198	198	359	358
Mean of DV	2.82	2.92	3.68	3.68	2.39	2.48
Panel B: 12 months						
LGC Allocations 12 months prior to survey	-0.288	-0.090	-0.841	-0.678	-0.119	-0.130
	(0.190)	(0.176)	(2.328)	(2.526)	(0.123)	(0.139)
Elected × LGC Allocations 12 months prior to survey	0.044	-0.042	0.644	0.516	0.048	0.071
	(0.145)	(0.127)	(0.973)	(1.003)	(0.103)	(0.119)
Observations	4327	3596	2340	2301	6537	5157
Number of LGCs	309	309	198	198	359	358
Mean of DV	2.82	2.92	3.68	3.68	2.39	2.48
Panel C: 18 months						
LGC Allocations 18 months prior to survey	-0.195	-0.073	1.447	1.202	-0.090	-0.097
	(0.122)	(0.111)	(1.008)	(0.983)	(0.080)	(0.089)
Elected × LGC Allocations 18 months prior to survey	0.027	-0.026	0.312	0.290	0.044	0.059
	(0.094)	(0.081)	(0.606)	(0.607)	(0.066)	(0.076)
Observations	4327	3596	2340	2301	6537	5157
Number of LGCs	309	309	198	198	359	358
Mean of DV	2.82	2.92	3.68	3.68	2.39	2.48
Respondent controls		X		X		X

Notes: All regressions control for time fixed effects and local government area (LGA) fixed effects. The dependent variable in columns (1)–(2) indicates how much a respondent approves of the performance of the State Governor; in columns (3)–(4) it captures perception of corruption among members of the State assembly; columns (5)–(6) indicates how much a respondent trust the state governor. The variable *Elected* indicates whether a local government council is elected or appointed in a given month. Respondent controls include the respondents age, educational attainment, employment status, gender and an indicator whether the household lives in an urban area. Standard errors in parentheses are clustered by LGA level with stars indicating *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.