Does Democracy Moderate Resource-induced Conflicts?

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Abstract

Can institutionalized transfers of natural resource rents to lower levels of government be a source of civil conflict? Can democratic institutions limit the link between resource rents and civil conflict? This paper brings together these two questions by exploiting within country variation in disbursements of oil revenue to subnational governments that are located far away from the actual physical location of the natural resource. We combine novel rich micro data on these exogenously determined transfers with novel data on local democratic institutions in Nigeria to make three contributions. First, we establish the existence of a strong relationship between institutionalized resource rents and conflict. Second, we find that this conflict is highly institutionalized centering around political militias. Third, we find that elections at the local level significantly reduce the pass between positive shocks to natural resource rents and civil conflict. These findings are confirmed using detailed individual level micro-surveys.

Keywords: conflict, natural resource rents, political economy, commodity prices

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

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1 Introduction

Do large windfalls of oil revenue disrupt democratic institutions and lead political groups to take up arms trying to cling to power forcibly? And can democratically elected governments moderate the risk of violent clashes between political factions in the event of large oil revenue shocks? These are central questions in the study of the natural resource curse. Large oil shocks are believed to be detrimental to democratic institutions as they may corrupt and potentially disrupt formal political processes. The desire to control windfalls of resource revenues affects the contest for power and gives politicians incentives to employ thugs and form armed militias to intimidate opposition forces and voters and secure their access to the remunerative treasury. Although there is an extensive literature on the resource curse, our knowledge on how resource revenues affect government institutions, in particular at the subnational level, is still limited. In this paper, we study two related questions.

Is natural resource-induced conflict concentrated around the physical local of the natural resource? This is the maintained assumption implicit to many papers studying how natural resources and their associated rents drive civil conflict (e.g. Lujala, 2010; Caselli et al., 2015; Berman et al., 2017). In this paper, we show that an institutionally formalized sharing of natural resource rents to other levels of government is a major driver of civil conflict in Nigeria. Our findings suggest that this institutionalized redistribution of natural resource rents may account for a significant share of civil conflict casualties in Nigeria. Our research design and context allows us to fully abstract from conflict that may be directly due to contest over the *physical source* of the natural resource wealth. This is an important distinction as most of the existing literature focus on resource-induced civil conflict near the physical source of rents: Dube and Vargas (2013) focus on oil producing versus coffee producing municipalities in Colombia, de la Sierra (2015) studies coltan and gold mining regions in Congo, while Berman et al. (2017) study conflict in Africa at a fine spatial resolution around grid cells with mining activity.[1] Our results indicate that natural resource rents drive civil conflict in places *far away* from the physical location of the actual resource. We further show that the conflict is

[1]See Bazzi and Blattman (2014) for an overview of the literature exploiting commodity price shocks and Blattman and Miguel (2010) for a review of the literature on civil war.

highly institutionalized involving political militia groups that fight over the distribution of the resource rents. This has several important implications: first, we point to an important source of heterogeneity suggesting that resource-induced civil conflict can take quite a different form and structure, depending on the extent to which natural resource rents may be institutionally shared. Second, it has implications for the wider literature that studies the relationship between natural resources and conflict: the implicit spillovers that any form of institutionalized natural resource revenue sharing creates is a threat to the non-interference identifying assumptions inherent to difference-in-difference estimation designs typical in this literature. Nigeria's institutionalized oil revenue sharing is – by far– not an exception: across Africa, twelve resource rich countries have formal revenue sharing schemes in place.[2]

Can institutions pacify the contest taking place over the natural resource rents? This is the second question that we study, focusing on a very specific institution: *democratic* elections of local governments. Our setting in Nigeria allows us to exploit within-country variation in the extent to which local government councils are run by democratically elected councils as opposed to being run by appointed committees. This setup allows us to contrast the extent to which natural resource shocks are causing conflict under these different institutional settings. Our central finding suggests that, in locations with elected local governments, shocks to the natural resource rents cease to be associated with conflict between different political militia groups. We confirm these findings studying individual level micro data capturing perceptions of violence, actual victimization as well as actual participation in violent activities.

This paper speaks to two strands of literature. The first studies the relationship between natural resources and conflict. Natural resources have long been suspected and found to be a cause of conflict and low development.[3] Early cross-

[2]This is by no means limited to the Nigerian case that we study: natural resource revenue sharing schemes exists in twelve African countries alone, see http://www.undp.org/content/undp/en/home/blog/2016/9/10/Making-natural-resource-revenue-sharing-work.html.

[3]A large literature studies the natural resource curse in terms of economic growth and development. Some of the seminal papers that substantiated this strand of the literature are Sachs and Warner (1995), Sachs and Warner (1999), and Acemoglu et al. (2014). An overview over the topic is provided in Arezki et al. (2011). Caselli and Cunningham (2009) explore theoretically a number of channels through which resource rents may alter the incentives of a politician to either induce greater investment in public goods that favour growth or increase rent-seeking activities.

country studies that find a negative effect of resource wealth on conflict events are Collier and Hoeffler (1998) who find a non-monotonic relationship. Wealth in natural resources initially increase the risk and duration of civil war, but reduces it when there is plenty. Bazzi and Blattman (2014) perform a systematic analysis in a long cross-country panel, exploiting variation in commodity price shocks. They find, however, no effect of price shocks on the outbreak of new conflict or coups, and that rising oil and mineral prices are actually associated with shorter, less intense conflicts. Besley and Persson (2011) present in a theoretical framework that exogenous income, such as natural resource revenues or aid, increases the likelihood of an economy to be in a repressive state or civil war, unless political institutions are consensual. Lei and Michaels (2014) show that discoveries of large oil-fields around the world since 1946 was a major driver of conflict.

The seminal paper by Dube and Vargas (2013) is the first to exploit within-country variation in the incidence of commodity price shocks to identify the causal mechanisms driving the civil conflict in Colombia. In similar spirit **?** explore how minerals fuel conflict across Africa. Exploiting exogenous variations in world prices, they find a positive impact of mining on conflict at the local level. de la Sierra (2015) finds that when groups in Eastern Congo gain access to natural resources, they try to protect their gains by building up monopolies of violence and fiscal administration, to actually build the essential functions of a state around the resource. The focus of most studies is thus on conflict around the point of extraction of natural resources. At or near the point of extraction, a whole range of mechanisms could be driving conflict: direct contest over the physical control of the natural resource; looting and extortion of rents along transport routes; civil unrest and conflict due to grievances brought about by environmental degradation, exploitation of workers and increases in inequality; forced migration due to expropriations to access minerals; or more general changes in the size and composition of the local population in mining areas with respect to ethnicity, age and gender.

In our study, we can abstract from these sources of conflict to focus explicitly on the role of natural resource rents. We focus on institutionalized rents that are accruing to local governments far away from the actual point of extraction of the resource. Conflicts occurring in non-oil areas can thus be traced back to the resource wealth in distant areas of extraction – they are *detached resource conflicts*.

Andersen et al. (2016), as most studies, emphasize the location of oil fields as a determinant of conflict. Yet, relevant for our study, they find that offshore oil income accrues to the government and hence strengthens its capacity to counter rebellion. Onshore oil shocks in contrast, strengthen active rebel groups. While we also include Nigerian oil states, we are able to discriminate between the two mechanisms. Interestingly, while supporting the association between resource rents and violence, we find only institutionalized rents to significantly increase conflict. Our study is thus complementary to the bulk of studies in this strand of the literature. For the case of Nigeria, we find that institutionalized rents distributed according to a allocation formula, play a much bigger role in causing violence, than direct resource rents at the point of extraction. The institutions that regulate the distribution of resource rents seem to literally shape conflict.[4]

The second strand of literature studies the relationship between natural resources and institutions.[5] Leite and Weidmann (1999) presented early theoretical and empirical evidence that natural resources abundance increases rent-seeking activities, depending on government policies and the prevailing bureaucratic concentration. Mehlum et al. (2006) confirm that the quality of institutions is decisive for whether a country becomes a winner or loser through natural resource wealth. In line with that argument, we can confirm that local government areas with elected local council can resolve contests for resources more peacefully. Deacon and Rode (2015) confirms the finding in the literature that resource windfalls can alter political institutions. A consistent picture drawn is the corruptive effect of resource rents. Vicente (2010) explores the oil discovery announcements in Sao Tome and Principe (1997-1999) to assess the role of natural resources in determin-

[4]Other examples on the role of institutions shaping rents are Fetzer and Marden (2017), who show that institutions shape conflict over land resources in the Brazilian Amazon, where the establishment of protected areas caused a marked drop in conflicts over land resources, since protected areas de-facto limit incentives for squatters to contest unused idle land in hope to be awarded a tradable legal title. Similarly in the case of institutionalized rents, the political parties who occupy the local governments can use these funds to finance their strategies to fend off opponents. In a similar vain, Vanden Eynde (2015) analyses the introduction of a 10% ad valorem tax on iron that substantially increased the royalty collection by affected states in India. He finds that the royalty hike was followed by a significant intensification of state violence in those districts that contain deposits of iron ore, as the government tries to counter any insurgent movements.

[5]The institutional aspect of the natural resource curse has been reviewed extensively in Ross (2015), usually referred to as political resource curse. The main conclusion of his review is that natural resources make authoritarian regimes more durable, increase certain types of corruption, and help trigger violent conflict in low- and middle-income countries.

ing corruption. They find evidence of corruption in sectors vital to the country's political elite, such as increased vote buying, and the handing out of scholarships to specific groups. Knutsen et al. (2016) investigates how mining affects local level corruption using a large collection of Afrobarometer surveys. They find that in mining regions, additional income due to mining incentivizes and enables local officials to request more bribes. Brollo et al. (2013) study a form of institutional rents similar to the rents implied by the oil revenue sharing principle in Nigeria. Using a regression discontinuity design based on distinct population cutoffs in a federal transfer schedule, they show (similar to Carreri and Dube, 2017), that increased rents increase observed corruption and reduce the quality of candidates for political office. Asher and Novosad (2016) confirm this finding by presenting evidence for India that local mineral wealth shocks lead to the election of criminal politicians, and that politicians commit more crimes and accumulate greater wealth during their term in office.

We contribute to that literature by showing local elected governments moderate the adverse effects of large resource shocks by reducing grievances and the risk of conflict. Most closely related to our paper is Carreri and Dube (2017). They study how how oil price shocks shocks affect who is gaining power in oil-producing municipalities in Colombia. Their central finding is that positive oil price shocks increase the likelihood that politicians affiliated with paramilitary groups win office in oil-producing municipalities. They indirectly argue that these politicians are using force to gain power, as evidenced by rising paramilitary violence, and reduce electoral competition.

Our study differs in several central aspects from the existing literature. First, by exploiting variation in the type of political regime, we are able to shed light on whether natural resource rents contribute to conflict under different institutional regimes (democratically elected vs appointed local administrators). Gaining electoral victory in Carreri and Dube (2017) implies the control of both: the underlying point resource as well as gaining control over the (allocation of) accruing rents. If gaining control over the natural resource has distinct effects on conflict dynamics, as for example argued in Andersen et al. (2016), then it seems important to separate out the (potential) differential effects. Due to the concentration of the oil wealth in only a few states (and to some extent offshore), we are able to concentrate on the distinct channels through which natural resource rents affect

conflict dynamics in parts of the country that are far away from the actual location of the natural resources. This has implications for the nature and structure of conflict as political groups that attempt to use violence to gain access to the natural resource rents have limited incentives to encourage secession, as this may entail loosing any access to the natural resource wealth that is located elsewhere.

We analyse the impacts of resource revenues and local democratic institutions on conflict in Nigeria. Although Nigeria is often mentioned as disastrous example in the resource curse literature, there are few convincing studies that disentangle the underlying mechanisms.[6] Our study is one of the first to comprehensibly analyse local democratic institutions and its role in managing resource revenues, and increasing or reducing violence. As local governments are democratically elected only in a fraction of Nigerian states, and appointed as so-called caretaker committees in many other cases, we use a within country de-facto variation in local democratic institutions, to examine its effect on conflict in cases of small and large oil revenue shocks.[7] As secession is not an option for non oil-producing states, we can also rule out secessionist conflicts, and focus on the localized contest for institutionalized resource rents.

We harness novel data on oil revenue allocations and local government council elections in Nigeria in order to analyse the local political resource curse. We use monthly data on tax revenue disbursements from the Federation Account to measure oil revenue shocks. Our data on local democratic institutions is assembled by conducting a media content analysis of major Nigerian newspaper articles.[8] By extracting information on local council elections and the appointment of care-

[6] A few paper analyze the natural resource curse in Nigeria, which is often referred to as a prime example. Sala-i Martin and Subramanian (2013) suggest that Nigeria's the quality of institutions are negatively affected by the oil wealth, having a detrimental effect on long-run growth. World Bank (2014) describes a similar line of argument. Collier et al. (2008) provides policy advice on how Nigeria could escape the resource curse. A more historic account of oil wealth and violence is given by Azam (2009). Collier and Vicente (2014) examined how voter intimidation is effective in reducing voter turnout. Fenske and Zurimendi (2015) provides further evidence on the long-run effects the oil resources. Oil prices experienced in early childhood affect ethnic groups in the north differently from the south, such as reduced fertility, delayed marriage, higher probabilities of working and having a skilled occupation, and greater schooling.

[7] Most of the existing literature either focuses on cross-country variation in democratic institutions (see Ross, 2015 for a review of the literature) or on the effect of local resource rents on the quality of institutions (references).

[8] The data on local government council elections and appointment of caretaker committee was first employed and presented in Kyburz (2017).

taker committees, we can measure some degree of local democratic institutions in each of the 774 local government areas over the whole study period 1999 to 2014. We combine this data with geo-referenced conflict data provided by the ACLED project to have an accurate measure of political violence, oil revenue shocks, and local democratic institutions at a fine-grained geographic level.

We present two main sets of results using a two-stage instrumental variables difference-in-differences estimation. First, since the tax revenue allocations follow a strict rule, we can demonstrate that almost all of the variation of allocations over time are caused by exogenous changes in global oil prices. We then show that these changes in global oil prices and subsequent revenue windfalls to local governments significantly causes the contest for the resources to intensify, leading to more local violence. Importantly, we highlight that the civil conflict is primarily happening in areas that do not see any natural resource extraction. Rather, violence can be attributed to the sharing of natural resource rents due to Nigeria's system of fiscal federalism. A 1 standard deviation increase in the allocated resources increases conflict incidence by up to 100%. The results are not driven by the choice of the temporal resolution of the data, the functional form or the specific dependent variable capturing the extent of conflict. Besides civil conflict being highly institutionalized, it involves mainly the military and in particular, political militias, that mobilize citizens to contest for the natural resource rents.

Second, we study whether local elections can reduce the natural resource rents induced civil conflict. The question is whether by having elected local council improves accountability to the citizens, which again may decrease grievances due to the redistribution of rents.[9] If people feel better represented, this possibly eases tensions among constituencies about the large windfalls of revenue allocations. Focusing on the interaction between oil revenue shocks and elected local governments, we present novel evidence suggesting that local democratic institutions

[9] A number of studies explore the effects of local democratic institutions on accountability and responsiveness. Ayee (2008) investigate how decentralization affects governance, in particular how it may improve public accountability, reduce political instability, and impose incentive-compatible limit on government power. Bratton (2012) adds to that subject by focusing on political relationships between citizens and local governments in sub-Saharan Africa. Resorting to survey data of the Afrobarometer data, he finds that citizens regard local councils as weak institutions. Martinez-Bravo (2014) find that the introduction of local village elections in China increased public goods expenditure financed by villagers, caused a moderate decline in income inequality, and likely reduced corruption.

indeed have a pacifying effect when oil shocks hit. The analysis suggests that elections significantly weaken the relationship between resource rents and conflict. It supports the notion that democratic accountability, achieved through elections, reduces the ability of local politicians to misappropriate funds and use them to use force to repress political opposition.

Interestingly, positive oil revenue shocks affect communities with elected councils differently than those with (autocratically) appointed committees. Our estimation of non-linear effects of oil revenue shocks suggest that with an appointed caretaker committee, negative shocks are associated with less conflict, yet positive shocks in resource rents increase conflict. With an elected local government in contrast, negative shocks also seem to reduce conflict, while positive shocks do *not* lead to more conflict. These results are remarkable and strongly support the argument that elected councils are able to reduce tensions between political groups fighting over the distribution of excess spoils.

Our main results are stable across a series of robustness tests. In case, militias would anticipate oil revenue allocations, they could act strategically by arming themselves, which would bias our estimate. Therefore, we also we provide results for hard to predict extraordinary allocations from the Excess Crude Account (ECA). We also remove local election related violence to abstract from violence that is staged between political groups right before and after a local elections take place. Results also remain the same when using difference specifications, functional forms, and timing. Besides some further robustness exercises, we also show that results are unchanged when using alternative conflict data.

We then proceed to strengthen our arguments using micro-level data from the Afrobarometer on public attitudes on democracy and governance. We are able to corroborate our main findings by showing that shocks to natural resource rents increase respondents fear of being a victim of political violence, increase actual victimization as well as increase the self-reported propensity of respondents to engage in violent acts. Most interestingly, having elected local government councils weakens these associations.

If people's grievances are resembled in distrust in democratic institutions and their governments and increase with resource rents in should be resembled in survey responses. We do indeed find – although with slightly less statistical power – that higher resource rents flowing into local governments deteriorate approval

of local government councils, and also that the perceived levels of corruption increase with the availability of contestable rents. Furthermore, higher resource rents also lower the trust in local government councils. More democratic regimes are to some extent able to moderate the negative influence of oil shocks on people's perception of local democratic institutions.

The remainder of the paper is organized as follows. Section 2 provides background information on the institutional setup in Nigeria and discusses the data sources used. Section 3 presents both the empirical strategy and the main results. Section 4 discusses the underlying mechanisms and supports our arguments and findings using micro-data. Finally, section sec:conclusion concludes.

2 Context and a First Look at the Data

In this section, we describe the institutional context and present the main data used in this paper. 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 or 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. The data is assembled into a balanced monthly-level panel at the local authority level for the whole of Nigeria covering the time period between 1999 to 2014, more details are available in Appendix A.

2.1 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. This federation account is mostly alimented from tax revenue on oil and value-added tax (VAT). Oil revenues comprised about 75% of of budgetary revenues in the year 2013 and thus are highly influential for public finances at all government

levels (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).[10]

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. This rule is known as the derivation principle (Federal Republic of Nigeria, 1999). 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).[11] 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

[10]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 comprised of 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).

[11]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%).

government by the FAAC. Population and landmass are by far the most important factors when it comes to explaining the cross 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.[12] 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 obtain data on the crude oil price from Thomson Reuters[13] and 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.

The relevant variable to drive the variation behind changes in monthly allocations to local government areas appears to be the oil price. Table A3 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 (as opposed to changes in quantity). This is relevant to the extent that prevailing world oil prices are unaffected by Nigerian oil production.

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 for each year and are reg-

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

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

ularly disbursed each month. In contrast, extraordinary allocations are disbursed irregularly and are based on idiosyncratic political decisions. Such augmented allocations originate in most cases from the Excess Crude Account (ECA). The ECA, described in further detail in section A.1 in the appendix, is alimented by resource revenues that accrue due to the difference between the yearly benchmark oil price and the actual crude oil market price. Table A1 in the appendix presents a decomposition of within and between LGA variation for these different types of allocations (overall, statutory, and extraordinary allocations). The within-LGA variation clearly accounts for the major part of the overall variation for all three types.

States and local governments can raise internally generated revenues as well. Their ability and the extent to which they do is very limited. Almost 90 % of gross revenues at local level is due to disbursements from the federation account in the period 2001–2005. Overall they raised less than 5% of gross revenues through internally generated means (average 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.[14] The fiscal situation in particular for local governments is at the mercy of global oil prices (World Bank, 2013).

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.[15] Local

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

[15] 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).

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).[16] 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.

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.

Various reports and newspaper articles describe the mismanagement of public finances at the local level. Human Rights Watch conducted a detailed analysis of local government finances and how they are managed with a specific focus on expenditures for education and health care (Albin-Lackey, 2007). According to the report, the local government councils (LGCs) treat the budgets and financial reports as closely guarded secrets. To keep local politicians accountable on budget issues may, therefore, be a difficult task.

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

[16]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).

bers enrich themselves, the provision of health care and education is miserable. According to a civil society organization in Port Harcourt[17], 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).[18]

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 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 visi-

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

[18]A positive example in the use of increased local public finances is Tai LGC. According to Human Rights Watch, 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).

ble 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.[19] 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).

Since local government councils failed to pay out teachers' salaries, the federal government has stripped local governments of their responsibility for paying primary school teachers salaries by deducting the money to pay their salaries at source. This failure to pay salaries, is another example of the poor public finance management at the local level (Albin-Lackey, 2007, p. 13). It is also 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 (Albin-Lackey, 2007, p. 34).

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 A3). 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.

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

2.2 Violent Contest for Institutionalized Rents

The poor local governance and mismanagement or outright embezzlement of public funds possibly creates grievances within the local population. Even more disastrous, it may lead political groups to use force in order to contest for their share of the oil revenue pie. The contest for these institutionalized rents that flow through local and state governments is a possible cause of low-intensity conflict throughout Nigeria since all governments are benefitting from the allocations from the Federation Account. The variation in conflict events 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.

Data on civil conflict over the entire sample period are drawn from the PRIO / Uppsala Armed Conflict Location and Event Data Project (ACLED).[20] 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.

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. Below we provide anecdotal evidence for these low-intensity conflicts across Nigeria.

A 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 abuse of local government officers triggered off protest, lead to the destruction of property and the murders of a prominent

[20]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.

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 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 councilor members 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).[21]

Even the Boko Haram conflict is reported to be related to local government

[21] According to the report by Human Rights Watch (Albin-Lackey, 2007), local councilors 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).

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.

2.3 The Role of Local Government Elections

Civil violence and riots are often related to elections, be they general elections or local government elections. Figure A3 in the appendix depicts a surge in violence around local government council elections. The role of local elections with regard to civil violence is a priori unclear. Local elections may be a trigger event for violence, when opposition parties feel that elections are not held in a free and fair manner and fight for 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.[22] In this paper we mainly focus

[22]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.

on the systematic violence that is not specifically related to elections, but happens throughout the term periods of local politicians. As described earlier, we aim at determining whether having elected local government councils may reduce this low-intensity violence as citizens feel better represented and able to hold politicians accountable, so that grievances of constituencies are reduced.

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 organisation and regulation of local government councils and holding local elections. The main problem with the constitutional provision guaranteeing local elected governments is that it treats them not enough rigorously as an independent tier of government.

In contrast to general elections which are conducted under the surveillance of the Independent National Electoral Commission, State Independent Electoral Commissions are appointed by the state government, a 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 her intentions and decisions.

After the first term of the initially elected local councils ended in May 2002, confusion emerged as the voter register was not updated to possibly hold another local election.[23] 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.[24] 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

[23]The first local government elections were held in November/December 1998 as a test and preparation for the presidential elections held in February 1999 that marked the transition from the military autocratic regime to a civil democratic regime.

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

(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. Figure 2 presents a map that presents the share of months with elected local government council in the period 1999 to 2014.

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 newspaper articles are collected in the FACTIVA media data base.[25] From local Nigerian newspaper articles, we extract information on local government council elections.[26] 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).

Table A2 in the appendix presents a decomposition of the variance in the election status dummy variable after controlling for different levels of fixed effects. The table shows clearly that once we control for state-by-time fixed effects, we absorb most of the variation. So controlling for state-by-time fixed effects in our main regressions eliminates the independent level effect of elections as we control for it, and focus on the its interaction with the allocations. Table A3 presents a decomposition of the variation in the allocation variable, which suggests that the allocation rule is tightly followed. Since we are mainly concerned with elected local councils having a pacifying effect when local governments receive a large

[25]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.

[26]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*.

shock in oil revenue allocations, we are most of all interested in the interaction of those variables (see our main specification in section 3.2).

3 Empirical Strategy and Results

This section presents the empirical strategy and the main results. We subdivide this section into two parts. First, we show that (institutionalized) natural-resource rents are robustly associated with conflict. Second, we examine whether local government council elections reduce resource-induced conflict.

3.1 Do natural-resource rents induce conflict?

We first study to what extent natural-resource rents induce conflict and provide a full characterization of the nature of conflict, presenting the empirical strategy and the results for this part.

3.1.1 Empirical strategy

Our estimation strategy follows an instrumental variables estimation approach on a balanced (monthly) panel stretching from 1999 to 2014.[27] Equation 1 is the first stage equation that we estimate to explain the contestable rents that are flowing into a local government area. The central inputs to this formula is the variable $Index\ Weight_{j,2006}$, 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 $Oil\ price_t$. The oil price, as noted before, captures the bulk of the variation in overall oil revenues (as variation in the total quantity of oil produced is second order in comparison to the variation in the oil prices). As will become evident, instrumentation is not really needed as the first stage is extremely strong throughout.

[27] Appendix Table A4 highlights that the choice of the temporal resolution of the data does not have a significant effect on the results. We prefer the monthly resolution as this allows us to zoom in with regard to the timing to address concerns that our estimates are affected by increased conflict intensity around elections.

$$Alloc_{jst} = \alpha_j + \pi \times Index\ Weight_{j,2006} \times Oil\ price_t + \delta_{st} + x'_{jst}\beta + \varepsilon_{jst} \quad (1)$$

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:

$$y_{jst} = \alpha_j + \gamma \times \widehat{Alloc}_{jst} + \delta_{st} + x'_{jst}\beta + \varepsilon_{jst} \quad (2)$$

Throughout, we control for LGA-specific fixed effects, α_j, and more importantly state-by-time fixed effects, δ_{st}. The inclusion of state-by-time fixed effects is appealing for a range of reasons. First of all, states themselves 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). Secondly, they remove any state-specific non-linear trends in conflict.

Appendix Table A5 highlights that our results are robust to alternative model specification, in particular using models appropriate for count data (which makes sense to do once the data is collapsed at the annual level).

The underlying identifying assumption for γ in specification 2 to represent the causal effect of natural resource rents on conflict is, that there is no other indirect way by which the interaction between $Index\ Weight_{j,2006} \times Oil\ price_t$ affect conflict directly by not going through the allocations. This would be a concern if there were other transfers or government schemes that are linked to the specific $Index\ Weight_{j,2006}$ used for the FAAC 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 FAAC weight.

3.1.2 Results

The main results from this analysis are presented in Table 2. The table presents the OLS, the reduced form as well as the instrumental variable estimation exercise. As becomes clear from comparing the OLS and the IV results (Panel A and C respectively), there is limited need for instrumenting in the first place since the

gross statutory allocations are nearly fully explained by the interaction term. The weak-IV test statistic is far from any levels that would merit concern about the weakness of the instrument. This is not surprising as in Appendix Table A3, we see that the R^2 of the de-facto first stage 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.[28]

It also suggests that increasing more controls to this basic specification bears the risk of eliminating any residual variation in the allocation variable that we can attribute to. Hence, in order to keep the presentation of the results sufficiently dense, in the remainder of the paper, we will concentrate on the simple IV specifications without presenting the additional OLS and reduced forms.

The results suggest that the relationship between natural resource rents and conflict is large: a 1 standard deviation increase in the allocated resources increases conflict incidence by up to 100%. Appendix Tables A4, A5 and A6 highlight that the results are not driven by the choice of the temporal resolution of the data, the functional form or the transformation of the dependent variable.

It is further important to highlight that the results are robust across different dependent variables, types of events and involved groups: civil conflict responds strongly to the underlying contestable rents that flow into a LGA. The main conflict-pair groups that are involved is conflict between the military and political militia groups, as well as conflict between political militia and civilians. The suggested conflict dynamic is one whereby political militia groups find themselves in conflict, targeting both civilians as well as the military.

No differential effect in oil producing areas We show that there are no heterogeneous effects of natural resource rents on conflict in places that are producing oil vis-a-vis non oil producing areas. The results from this analysis are presented in Table 3. There is only limited evidence of a slightly weaker relationship between the natural resource rents and conflict in the actual areas that produce oil. Whether an area produces oil is measured either through a dummy indicating that an LGA is located in an oil producing state (Panel B) or by a dummy variable indicating whether an LGA has an actual oil field. This suggests that, if

[28]Panel B of Appendix Table A3 further highlights that quantity variation is second order compared to price variation.

anything, the relationship between natural resource rents and conflict, is stronger in areas that do not actually have any oil resources. This suggests that the conflict we study is over the institutionally distributed natural resource rents and not primarily a conflict over the control of the actual source of the natural resource wealth.

3.2 Do Elections reduce natural resource rents-induced conflict?

We next turn to study the question whether elections can reduce the natural resource rents induced civil conflict. For the purpose of our analysis, we are mostly interested in whether elections (and the associated democratic accountability) reduces conflict that is associated with the natural resource rents. The focus thus is not on whether elections themselves trigger conflict. In Appendix Table A2, we decompose the variation in the elected status dummy that we use in our analysis. It becomes evident that the bulk of the variation (99.1%) is accounted for location fixed effects and state-by-time fixed effects are included.

Thus we are effectively controlling for any (homogeneous) level effect that elections can have on conflict. Our main estimating equation thus becomes

$$y_{jst} = \alpha_j + \delta_{st} + \nu \times Alloc_{jst} \times Elected_{jst} + \gamma Alloc_{jst} + \eta \times Elected_{jst} + \varepsilon_{jst} \quad (3)$$

where we are particularly interested in the estimates of the coefficients γ relative to the estimated coefficients ν. Our previous analysis suggested 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. If democratic accountability, achieved through elections, reduces the ability of local politicians to misappropriate funds and use them to repress political opposition, then we would expect to see that the estimate ν is negative, i.e. $\nu < 0$.

As before, we can estimate a version of the above specification using our instrumental variables setup. The results from this analysis are presented in Table 4. The analysis suggests that elections significantly weaken the relationship between resource rents and conflict. Throughout, the estimated effect of the interaction term between the natural resource rents and conflict, ν, is negative. This

suggests that the relationship between natural resource rents and civil conflict is significantly weaker in LGA's with an elected (as opposed to appointed) local government.

Non-linear effects What type of shocks are associated with increases in conflict? Figure 4 highlights how elections moderate the relationship between resource rents and various conflict measures, using quintiles of the allocations as measure of resource shock intensity for the subset of periods in which an LGA has an elected vis-a-vis appointed local government.[29] The results are striking: the left column suggests that, with an appointed local government, there is a clear relationship suggesting that negative shocks to resource rents are associated with less conflict, while positive shocks to the resource rents trigger conflict. The right column displays the same picture constructed based on the subset of LGA with elected local council. While negative shocks also seem to reduce conflict, positive revenue shocks are not associated with more conflict. This results suggests that elected local governments are indeed able to ease tensions around distributional disputes, and hence to reduce violence.

3.3 Robustness

Decomposing allocations variable Given the nature of the formula, rebel groups may form expectations over the expected allocations. This is particularly true with regard to the statutory allocations which are based on a crude oil benchmark that is set out in the Nigerian budget at the beginning of the year. Naturally, this benchmark price is correlated with the actual oil price, but tends to be significantly lower compared to the spot price on the day the budget was passed. This puts a specific emphasis on the extraordinary allocations, which more clearly come as surprise shocks to the available contestable rents in a local authority area. Appendix Tables A7 versus A13 show that we obtain very similar results focusing only on the extraordinary allocations, while Appendix Tables A8 versus

[29] To be more precise. The figures are constructed by demeaning the conflict outcome as well as the Gross Statutory allocations by the location and time fixed effects, subsetting 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.

A14 highlight that we obtain nevertheless fairly similar results when studying explicitly only the statutory allocations.

Removing election related conflict Elections may be associated with civil conflict independent from the contest over the natural resource rents. The type of conflict we study in this paper aims to separate the structural level of conflict that is unrelated to elections as a method to transfer power, but due to the improvements in democratic accountability and civil society participation.

Appendix Figure A3 suggests that conflict is indeed happening right around elections. In order to remove any distorting effects that this type of conflict may have (which may or may not be related to the natural resource rents), we can remove the observations from the period right around the election dates and see whether the results change in any systematic manner. We restrict the sample using symmetric time windows to only include observations that lie at least one, three and six months (Panel A - C respectively) before and after an election month. The results from this analysis are presented in Table 6.

If anything, the analysis suggests that our results on how elections transform the relationship between resource rents and conflict become even sharper.

Alternative specifications, functional form sensitivity and timing Appendix Tables highlight that our results are robust to alternative functional forms and alternative specifications. In particular, we show in Table A9 that we obtain similar results focusing on coarser temporal resolution, Appendix Table A10 highlights that we obtain very similar results on different transformations of our dependent variable, in particular using the counts, log value of counts per capita or levels per capita as dependent variable, while Appendix Table A11 highlights that the results are robust to different empirical models if we were to estimate the model using the count data nature.

Randomisation inference Throughout we cluster standard errors two-way by LGA and by time. An alternative approach to inference is to perform randomisation inference. We perform two types of randomisation inference. Figure A1 presents the results of a permutation test, whereby the sequences of elected vs.

appointed local governments has been shuffled randomly across LGAs. The kernel density plots out the point estimate on the estimated interactions between the (shuffled) election dummy and the gross statutory allocations. The red line corresponds to the point estimate obtained using the true (non shuffled) election status variable for the interaction term. It becomes evident that the point estimate on the interaction for the true election status variable is clearly outside the other observed realisations 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 coarse treatment, which eliminates quite a bit of variation, we are able to reject the null of no effect at around the 5% level.

Controlling for governor specific LGA fixed effects As noted, state governors play a central role in the decision on whether to hold elections or not. Since state governors are also controlling significant fiscal resources, they may use these resources to affect political outcomes or conflict outcomes in way that is biased towards certain LGAs (Hodler and Raschky, 2014). We can control for this mechanism by controlling for state governor specific LGA fixed effects. On average, every state has at least three governors over the whole sample period from 1999 to 2014. This implies that we control for three separate LGA fixed effects that are specific to each state governor in addition to controlling for state-by-time fixed effects. It goes without saying that this is an extremely demanding specification as it absorbs a lot of the conflict variation on the left hand side, but more importantly, it leaves very little residual variation in the allocations variable to identify its effect on conflict. As evidenced in Table 7, we loose quite some precision (which is not surprising since some of the additional LGA fixed effects are likely to be irrelevant control variables, thus inflating standard errors), but nevertheless the sign pattern remains broadly consistent and some estimates retain their statistical significance.

Controlling flexibly for FAAC formula weights The FAAC allocations are based on a formula which define an LGA's share of the mostly oil revenues accruing to the Nigerian federation. Conflict may be evolving distinctly in a way that is correlated with the different components of the overall index weight. We define deciles of the individual components feeding into the overall formula and flexibly control for the most important formula ingredients by interacting the respective decile with the simple time fixed effect.

We focus on the most important ingredients that drive the cross sectional variation in the overall formula index weight (see the respective standard deviations reported in Table 1): population, landmass and education. Note that including these decile fixed effects further eliminates a significant share of the residual variation in the oil rents. A fully flexibly version that controls for each of the index weight ingredients flexibly would de-facto leave no more residual variation in the allocation variable to be attributed to changes in conflict. It is worth highlighting that the population weight explains 88% of the variation in the total index, while landmass, the indicator with the highest absolute cross sectional standard deviation to follow only explains 3%.

The results controlling for index weight decile specific time fixed effects for the different index components in turn are presented in Table 5. It is reassuring that throughout the coefficient, sign pattern and – in most part – the statistical significance of the results remains unaffected.

Alternative conflict data The last set of robustness checks to perform is whether we obtain similar results when studying alternative conflict data. ACLED is the most comprehensive data source available covering civil conflict in Nigeria. Yet, there are (at least) two alternatives conflict datasets available that provide spatial- and temporal disaggregated conflict data: the Uppsala Conflict Data Program Events Database (GED) and the Global Terrorism Database (GTD). In addition to not being as finely coded, the latter two databases contain significantly fewer events compared to ACLED for Nigeria. Hence we prefer to work with ACLED for the main conflict results. Nevertheless, Appendix Table A12 presents the results using the any event dummy and for the count number of events: throughout, we obtain very similar results, suggesting that the results are not specific to the underlying source of data we use for our dependent variables measuring conflict.

4 Mechanisms

How do (democratic) elections reduce the link between natural resource rents and conflict? In order to shed light on this question, we draw on some survey data to build corroborating evidence. We proceed by showing that with individual level survey data we corroborate our findings from the previous sections: shocks to natural resource rents increase respondents fear of being a victim of political violence, increase actual victimization as well increase the self-reported propensity of respondents to engage in violent acts. Elections in local government areas weaken these associations.

We then turn to further survey items to understand how elected councils may reduce the grievances associated with (the distribution of) resource rents in a local government area: democracy improves the perceived quality of local governance. We proceed by briefly presenting the data construction and the empirical approach.

4.1 Data and Empirical Approach

Our analysis follows closely the one from the previous analysis, but needs to be adapted in certain parts to account for the nature of the data. The data we use comes from the Afrobarometer surveys, which have been carried out in five rounds since 1999 across a total of 22 African countries. The survey modules contain overarching survey questions that are asked across all countries. Respondents are sampled at a subnational level, though in the case of Nigeria, sampling is not representative at the LGA level. In total we have assembled the micro data from all the five rounds for Nigeria and matched the geocodes of respondents to the respective LGAs to produce pseudo panels. In total we have survey data for 17,618 respondents across the five rounds, though unfortunately not all questions are consistently asked throughout.

We map survey questions that have sufficient balance across rounds in order to study the evolution of attitudes towards conflict over time, relative to the underlying election status of an LGA. The underlying survey is carried out in a respective month and, in order to compute the size of the local natural resource rent shock, we compute the total rents accruing to a local government area in the last 6, 12

and 18 months respectively. In a similar fashion, we compute the average crude oil price in over the last 6, 12 and 18 months to construct the reduced form and the instrument.

We then estimate the following specification

$$y_{ijst} = \alpha_j + \delta_t + \nu \times Alloc_{jt} \times Elected_{jt} + \gamma Alloc_{jt} + \varepsilon_{ijt} \quad (4)$$

where now in addition the subindex i indicates an individual response and the Allocation variables are constructed as described above. The instrumental variables specification follows the approach for instrumenting outlined in the previous section, except that we use the average oil price over the time window prior to the respondents being surveyed.

4.2 Results

We first highlight that we obtain very similar results studying how elections change the way natural resource rents translate into individual level actual as well as fear of victimization, in addition to studying propensity to engage in violence. We then aim to shed light on how democracy may address the underlying grievances that are manifested in the latent level of conflict.

Individual level violence The results are presented in Table 8 and a consistent image emerges: locally accruing natural 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. What is a plausible mechanism by which natural resource rents, once administered by a democratically elected local government, cease to produce the types of social tensions that translate into conflict? We explore a range of other survey questions to shed light on this.

Grievances We first study grievances that the electorate may have, in particular, we study to what extent citizens perceive the quality of local governance

and how resource rents affect the perceptions thereof. We focus on a range of survey questions asking about the (perceived) quality of local government. The results are presented in Table 9. In particular, columns (1) and (2) highlight that natural resource rents are associated with a deterioration in the approval of local government councils, while columns (3) and (4) indicate that perceived levels of corruption are increasing in the availability of contestable rents. Mirroring that image, there is a weak association between natural resource rents and distrust in the LGC as an institution (columns 5 and 6).

While the sign pattern is consistent throughout, we do not always have enough statistical power for precise estimates. Yet, the overarching pattern suggests that elections reduce the extent to which natural resource rents are associated with corruption, suggesting that quality of governance over the natural resource rents improves.

In Appendix Table A17 we present a form of placebo test. Improvements in governance over natural resource rents in LGAs could be masking wider changes or improvements in political accountability and governance that go beyond the local institutions. In order to rule this out, we present the results when studying respondents perceptions of the perceived performance of a local area's member of parliament in the National Assembly. As expected, there are no associations standing out.

5 Conclusion

This paper provides empirical evidence of the effects of a plausibly exogenous changes in locally accruing natural resource rents on civil conflict. We show that institutionally warranted natural resource rents encourage civil conflict between political groups and militias; we posit that contest is used as a method to put forth grievances and foster the agenda of social groups that are disenfranchised from the political control over these rents. Transitions towards elected local governments significantly weakens the association between resource rents and civil conflict, suggesting that democratic elections can vastly reduce the grievances associated with the distribution of natural resource rents.

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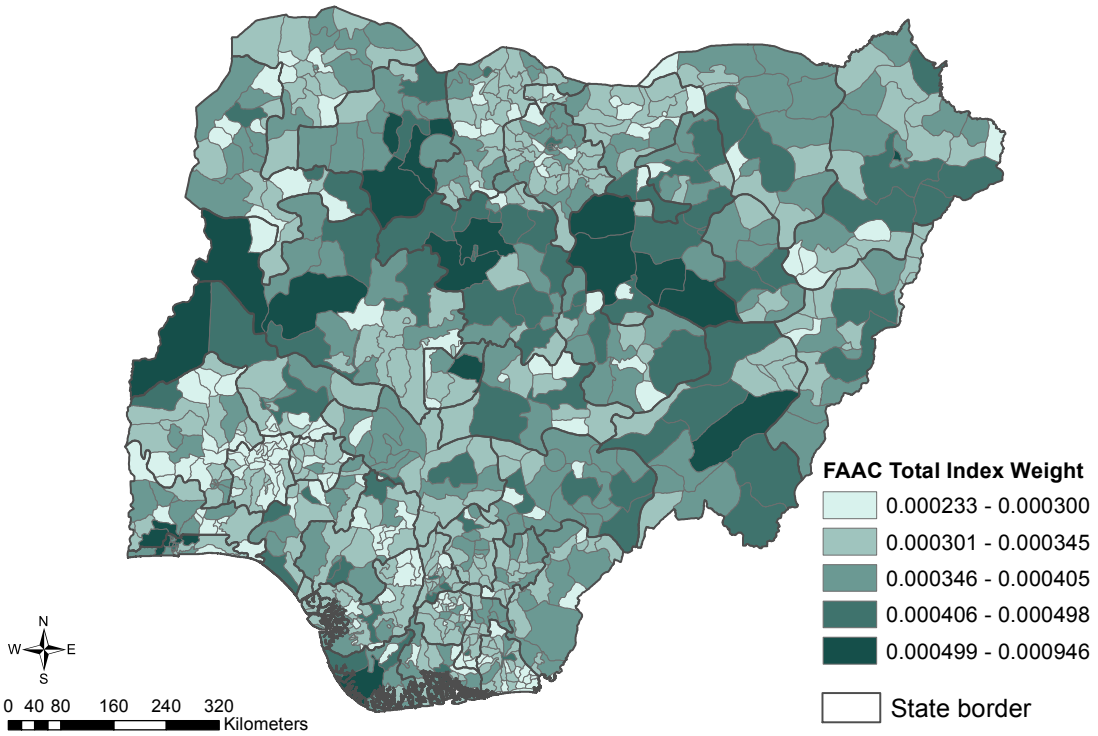
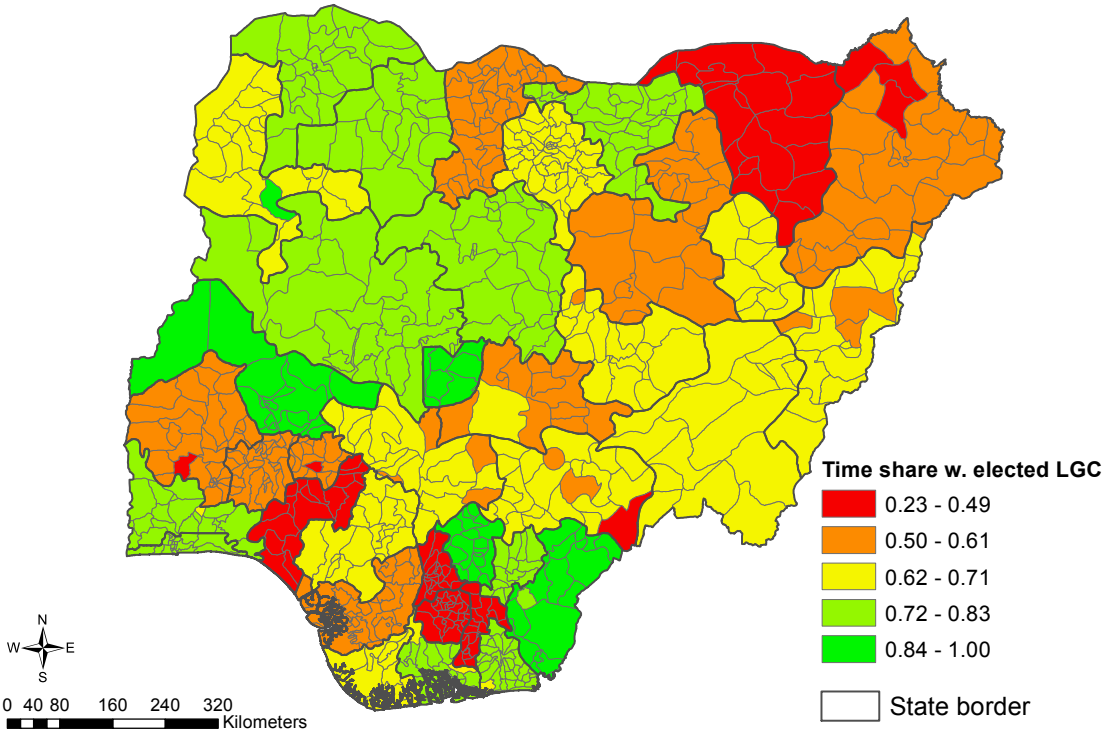
Tables and Figures for Main Text

Figure 1: Oil Revenue Sharing Through a Fixed Formula



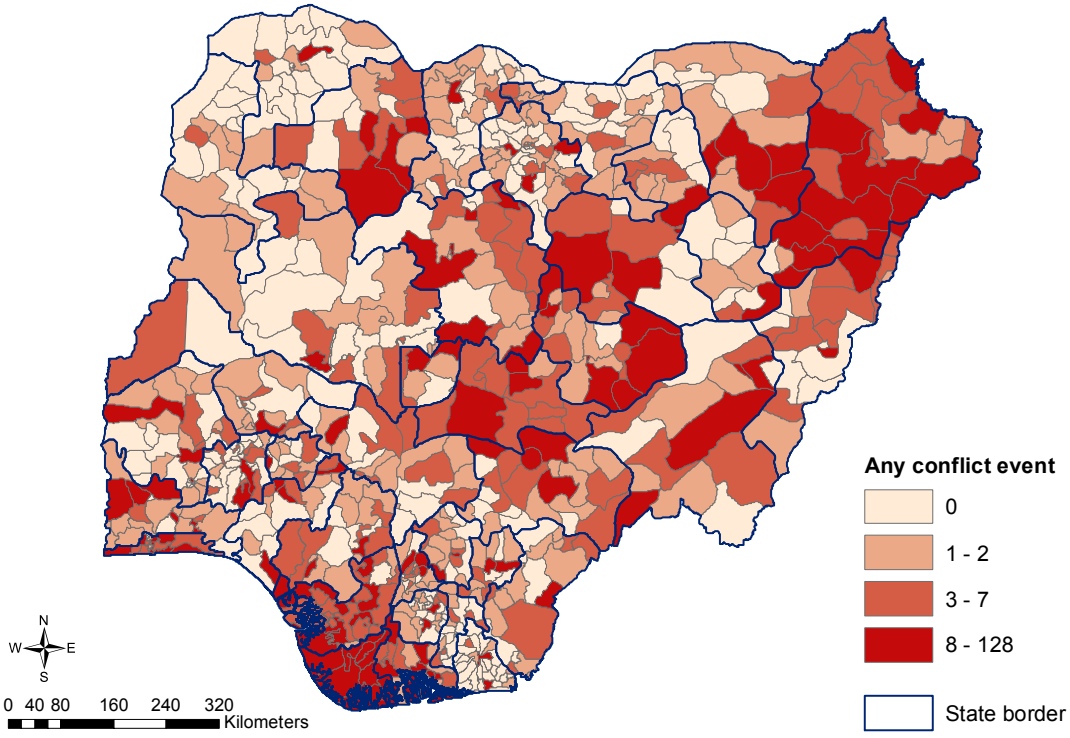
Notes: The map presents the revenue allocation total index weight for each local government area for the period 2006 to 2013. *Sources*: Federation Account Allocation Committee (FAAC) and administrative borders from *Global Administrative Areas (GADM)*.

Figure 2: De-facto Variation in Local Democratic Instiutions



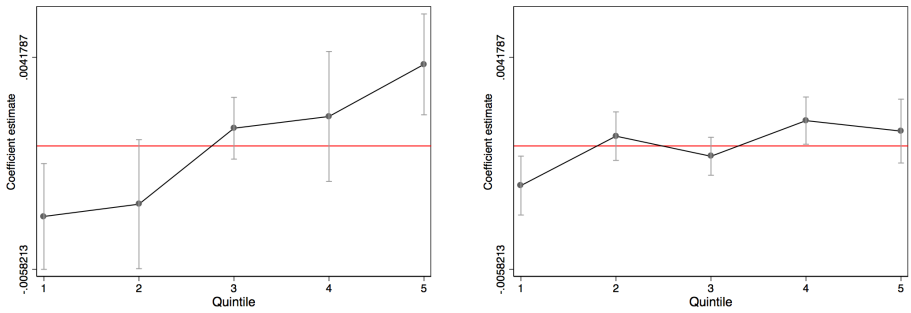
Notes: The map shows the share of months with an elected local government for each local government area in the period 1999 to 2014. *Sources*: local government council elections are from Kyburz (2017) and administrative borders from *Global Administrative Areas (GADM)*.

Figure 3: Conflict intensity across Nigeria

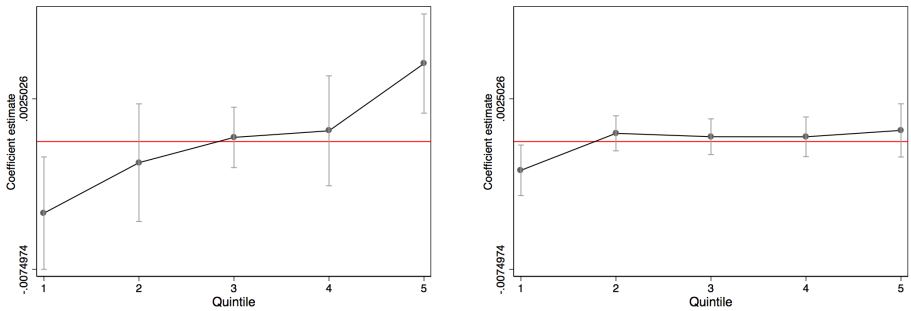


Notes: The map shows the distribution of conflict across local government areas in the period 1999 to 2014. *Sources*: conflict data is from *ACLED* and administrative borders are from *Global Administrative Areas (GADM)* .

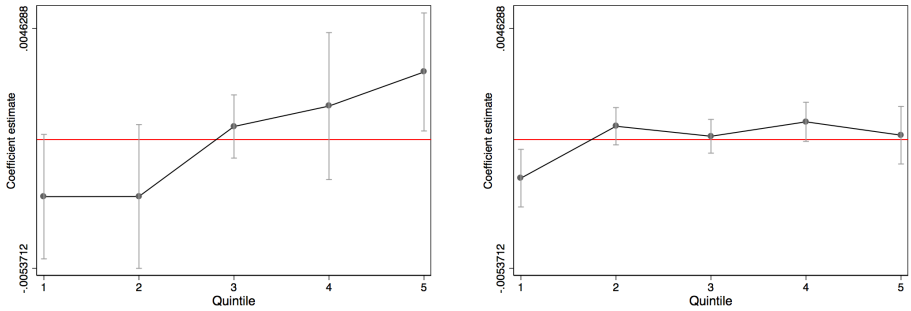
Panel A: Events with violence against civilians



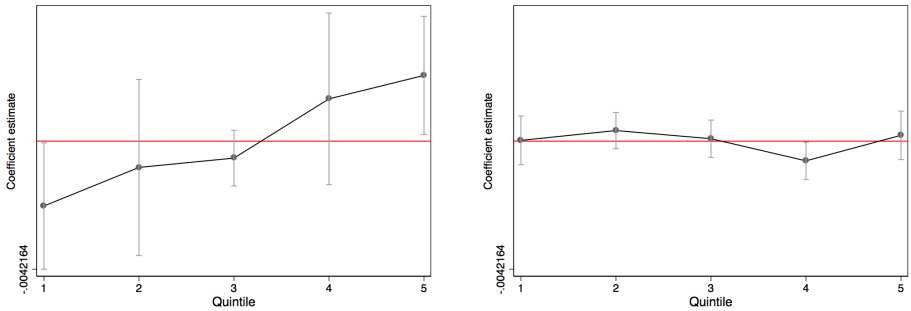
Panel B: Events involving political militia



Panel C: Events involving political militia against civilians



Panel D: Events involving military against political militia



without elected LGC with elected LGC

Figure 4: 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.

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 ingredients that feed into the overall index used to allocate revenues to local government area's.

Table 2: Effects of LGA Allocations on civil conflict *without elected* LGA's

	Type of Event			Groups involved			Between which groups	
	(1) Any Event	(2) Battle	(3) Civilians	(4) Military	(5) Pol Militia	(6) Comm Militia	(7) Military vs Pol Militia	(8) Pol Militia vs Civilians
Panel A: OLS								
LGC Allocations	0.123***	0.056**	0.068***	0.053**	0.099***	0.026**	0.043**	0.066**
	(0.041)	(0.023)	(0.023)	(0.022)	(0.032)	(0.013)	(0.020)	(0.027)
Observations	49662	49662	49662	49662	49662	49662	49662	49662
Number of LGCs	768	768	768	768	768	768	768	768
Mean of DV	.0292	.0112	.0152	.0108	.0191	.00495	.00767	.0127
Panel B: Reduced form								
Total index × Oil price	4.714***	1.908**	2.724***	2.106**	3.519***	0.956**	1.714**	2.155**
	(1.445)	(0.736)	(0.836)	(0.815)	(1.167)	(0.390)	(0.713)	(0.930)
Observations	51154	51154	51154	51154	51154	51154	51154	51154
Number of LGCs	768	768	768	768	768	768	768	768
Mean of DV	.031	.0117	.0158	.0112	.0201	.00506	.00805	.0133
Panel C: IV								
LGC Allocations	0.223***	0.084**	0.124***	0.104***	0.156***	0.052**	0.075**	0.097**
	(0.072)	(0.036)	(0.041)	(0.039)	(0.056)	(0.020)	(0.033)	(0.045)
Kleibergen-Paap weak IV	273.5	273.5	273.5	273.5	273.5	273.5	273.5	273.5
Observations	49662	49662	49662	49662	49662	49662	49662	49662
Number of LGCs	768	768	768	768	768	768	768	768
Mean of DV	.0292	.0112	.0152	.0108	.0191	.00495	.00767	.0127

Notes: All regressions control for state by time fixed effects and local government area (LGA) fixed effects. Standard errors are adjusted for two way clustering by time and LGA with stars indicating *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 3: Heterogenous Effect of LGA Statutory Allocations on civil conflict *without elected* LGA's: Difference in Difference

	Type of Event			Groups involved			Between which groups	
	(1) Any Event	(2) Battle	(3) Civilians	(4) Military	(5) Pol Militia	(6) Comm Militia	(7) Military vs Pol Militia	(8) Pol Militia vs Civilians
Panel A: Oil producing state								
LGC Allocations	0.136***	0.065**	0.065**	0.067***	0.110***	0.030**	0.054**	0.063*
	(0.047)	(0.025)	(0.028)	(0.025)	(0.037)	(0.014)	(0.022)	(0.033)
LGA is in Oil Producing State × LGC Allocations	-0.090	-0.065	0.025	-0.096	-0.078	-0.024	-0.077	0.023
	(0.092)	(0.061)	(0.066)	(0.059)	(0.071)	(0.028)	(0.050)	(0.066)
Observations	49662	49662	49662	49662	49662	49662	49662	49662
Number of LGCs	768	768	768	768	768	768	768	768
Mean of DV	.0292	.0112	.0152	.0108	.0191	.00495	.00767	.0127
Panel B: LGA with Oil field								
LGC Allocations	0.123***	0.056**	0.069***	0.053**	0.099***	0.027**	0.043**	0.066**
	(0.041)	(0.023)	(0.023)	(0.022)	(0.032)	(0.013)	(0.020)	(0.028)
LGA has Oil Field × LGC Allocations	0.016	-0.005	-0.004	0.002	-0.009	-0.008	-0.005	-0.005
	(0.026)	(0.016)	(0.017)	(0.012)	(0.018)	(0.014)	(0.008)	(0.016)
Observations	49662	49662	49662	49662	49662	49662	49662	49662
Number of LGCs	768	768	768	768	768	768	768	768
Mean of DV	.0292	.0112	.0152	.0108	.0191	.00495	.00767	.0127

Notes: All regressions control for state by time fixed effects and local government area (LGA) fixed effects. Standard errors are adjusted for two way clustering by time and LGA with stars indicating *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 4: LGA Statutory Allocations and Conflict: Difference in Difference

	Type of Event			Groups involved			Between which groups	
	(1) Any Event	(2) Battle	(3) Civilians	(4) Military	(5) Pol Militia	(6) Comm Militia	(7) Military vs Pol Militia	(8) Pol Militia vs Civilians
Panel A: OLS								
LGC Allocations	0.108***	0.043**	0.061***	0.043**	0.092***	0.016*	0.036**	0.063***
	(0.034)	(0.018)	(0.019)	(0.018)	(0.027)	(0.009)	(0.015)	(0.022)
Elected × LGC Allocations	-0.063**	-0.028	-0.033**	-0.028*	-0.065***	-0.014*	-0.034**	-0.043**
	(0.025)	(0.018)	(0.015)	(0.016)	(0.022)	(0.008)	(0.015)	(0.017)
Observations	140713	140713	140713	140713	140713	140713	140713	140713
Number of LGCs	774	774	774	774	774	774	774	774
Mean of DV	.0239	.00906	.0112	.0084	.0133	.00491	.00487	.00828
Panel B: Reduced form								
Total index × Oil price	3.780***	1.478***	2.252***	1.571**	3.074***	0.607**	1.327**	1.992***
	(1.168)	(0.553)	(0.624)	(0.651)	(0.908)	(0.296)	(0.542)	(0.706)
Elected × Total index × Oil price	-1.600**	-0.623	-0.859**	-0.563	-1.530***	-0.318*	-0.800**	-1.024**
	(0.629)	(0.387)	(0.417)	(0.405)	(0.536)	(0.181)	(0.343)	(0.457)
Observations	148428	148428	148428	148428	148428	148428	148428	148428
Number of LGCs	774	774	774	774	774	774	774	774
Mean of DV	.0251	.0093	.0116	.0087	.0137	.00519	.00509	.00862
Panel C: IV								
LGC Allocations	0.160***	0.057**	0.093***	0.067**	0.126***	0.029**	0.053**	0.084***
	(0.051)	(0.025)	(0.028)	(0.028)	(0.039)	(0.013)	(0.023)	(0.032)
Elected × LGC Allocations	-0.069**	-0.031	-0.034*	-0.032*	-0.068***	-0.019*	-0.038**	-0.046**
	(0.029)	(0.019)	(0.020)	(0.019)	(0.024)	(0.010)	(0.016)	(0.021)
Kleibergen-Paap weak IV	188.6	188.6	188.6	188.6	188.6	188.6	188.6	188.6
Observations	140713	140713	140713	140713	140713	140713	140713	140713
Number of LGCs	774	774	774	774	774	774	774	774
Mean of DV	.0239	.00906	.0112	.0084	.0133	.00491	.00487	.00828

Notes: All regressions control for state by time fixed effects and local government area (LGA) fixed effects. Standard errors are adjusted for two way clustering by time and LGA with stars indicating *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 5: Robustness: Controlling flexibly for formula inputs

	Type of Event			Groups involved			Between which groups	
	(1) Any Event	(2) Battle	(3) Civilians	(4) Military	(5) Pol Militia	(6) Comm Militia	(7) Military vs Pol Militia	(8) Pol Militia vs Civilians
Panel A: Population Weight Decile x Time FE								
LGC Allocations	0.109	0.090**	0.110**	0.061	0.142**	0.009	0.087**	0.109*
	(0.090)	(0.044)	(0.052)	(0.052)	(0.070)	(0.028)	(0.035)	(0.059)
Elected × LGC Allocations	-0.083**	-0.052**	-0.045*	-0.047**	-0.081***	-0.021*	-0.054***	-0.054**
	(0.037)	(0.022)	(0.025)	(0.022)	(0.030)	(0.013)	(0.019)	(0.027)
Kleibergen-Paap weak IV	120	120	120	120	120	120	120	120
Panel B: Landmass Weight Decile x Time FE								
LGC Allocations	0.145***	0.034	0.078**	0.054*	0.102**	0.025*	0.030	0.070**
	(0.053)	(0.025)	(0.032)	(0.030)	(0.040)	(0.014)	(0.024)	(0.033)
Elected × LGC Allocations	-0.076**	-0.034*	-0.037*	-0.036*	-0.069***	-0.023**	-0.040**	-0.045**
	(0.030)	(0.020)	(0.021)	(0.020)	(0.024)	(0.010)	(0.017)	(0.022)
Kleibergen-Paap weak IV	198.2	198.2	198.2	198.2	198.2	198.2	198.2	198.2
Panel C: Public Good Access Index Deciles x Time FE								
LGC Allocations	0.154***	0.051*	0.072**	0.059*	0.120***	0.026*	0.046	0.071*
	(0.057)	(0.031)	(0.035)	(0.035)	(0.045)	(0.015)	(0.029)	(0.038)
Elected × LGC Allocations	-0.067**	-0.029	-0.025	-0.028	-0.066**	-0.017*	-0.036**	-0.039*
	(0.031)	(0.021)	(0.021)	(0.020)	(0.025)	(0.010)	(0.017)	(0.023)
Kleibergen-Paap weak IV	186.9	186.9	186.9	186.9	186.9	186.9	186.9	186.9
Panel D: Water supply spread Index Deciles x Time FE								
LGC Allocations	0.145***	0.034	0.078**	0.054*	0.102**	0.025*	0.030	0.070**
	(0.053)	(0.025)	(0.032)	(0.030)	(0.040)	(0.014)	(0.024)	(0.033)
Elected × LGC Allocations	-0.076**	-0.034*	-0.037*	-0.036*	-0.069***	-0.023**	-0.040**	-0.045**
	(0.030)	(0.020)	(0.021)	(0.020)	(0.024)	(0.010)	(0.017)	(0.022)
Kleibergen-Paap weak IV	198.2	198.2	198.2	198.2	198.2	198.2	198.2	198.2
Panel E: Hospital beds Index Deciles x Time FE								
LGC Allocations	0.156***	0.058**	0.090***	0.066**	0.120***	0.030**	0.051**	0.078**
	(0.049)	(0.024)	(0.028)	(0.028)	(0.038)	(0.014)	(0.023)	(0.031)
Elected × LGC Allocations	-0.070**	-0.032*	-0.035*	-0.032*	-0.068***	-0.019*	-0.039**	-0.045**
	(0.029)	(0.019)	(0.020)	(0.019)	(0.024)	(0.010)	(0.016)	(0.021)
Kleibergen-Paap weak IV	188.1	188.1	188.1	188.1	188.1	188.1	188.1	188.1
Observations	140713	140713	140713	140713	140713	140713	140713	140713
Number of LGCs	774	774	774	774	774	774	774	774
Mean of DV	.0239	.00906	.0112	.0084	.0133	.00491	.00487	.00828

Notes: All regressions control for state by time fixed effects and local government area (LGA) fixed effects. Standard errors are adjusted for two way clustering by time and LGA with stars indicating *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 6: Robustness: Removing election related violence from estimating sample

	Type of Event			Groups involved			Between which groups	
	(1) Any Event	(2) Battle	(3) Civilians	(4) Military	(5) Pol Militia	(6) Comm Militia	(7) Military vs Pol Militia	(8) Pol Militia vs Civilians
Panel A: Removing 1 month window around election								
LGC Allocations	0.162***	0.056**	0.095***	0.067**	0.127***	0.030**	0.052**	0.084**
	(0.051)	(0.025)	(0.028)	(0.028)	(0.040)	(0.014)	(0.023)	(0.032)
Elected × LGC Allocations	-0.071**	-0.033	-0.034*	-0.031	-0.071***	-0.020*	-0.037**	-0.044*
	(0.030)	(0.021)	(0.020)	(0.019)	(0.025)	(0.011)	(0.016)	(0.022)
Kleibergen-Paap weak IV	187.1	187.1	187.1	187.1	187.1	187.1	187.1	187.1
Observations	134606	134606	134606	134606	134606	134606	134606	134606
Number of LGCs	774	774	774	774	774	774	774	774
Mean of DV	.0236	.00888	.011	.00827	.0131	.00484	.00478	.00822
Panel B: Removing 3 month window around election								
LGC Allocations	0.167***	0.060**	0.095***	0.071**	0.136***	0.031**	0.057**	0.087**
	(0.053)	(0.027)	(0.029)	(0.030)	(0.042)	(0.014)	(0.025)	(0.034)
Elected × LGC Allocations	-0.074**	-0.036	-0.032	-0.031	-0.078***	-0.023*	-0.038**	-0.047*
	(0.033)	(0.024)	(0.023)	(0.021)	(0.028)	(0.012)	(0.018)	(0.025)
Kleibergen-Paap weak IV	195.5	195.5	195.5	195.5	195.5	195.5	195.5	195.5
Observations	126340	126340	126340	126340	126340	126340	126340	126340
Number of LGCs	774	774	774	774	774	774	774	774
Mean of DV	.0237	.00894	.011	.00828	.0132	.00484	.0048	.00827
Panel C: Removing 6 month window around election								
LGC Allocations	0.183***	0.070**	0.102***	0.087***	0.146***	0.036**	0.064**	0.091**
	(0.057)	(0.029)	(0.032)	(0.033)	(0.045)	(0.015)	(0.027)	(0.037)
Elected × LGC Allocations	-0.085**	-0.041	-0.036	-0.031	-0.087***	-0.026**	-0.041*	-0.053*
	(0.037)	(0.028)	(0.025)	(0.025)	(0.031)	(0.013)	(0.022)	(0.027)
Kleibergen-Paap weak IV	203.8	203.8	203.8	203.8	203.8	203.8	203.8	203.8
Observations	112506	112506	112506	112506	112506	112506	112506	112506
Number of LGCs	774	774	774	774	774	774	774	774
Mean of DV	.0237	.0089	.011	.00822	.0131	.00492	.00474	.00831

Notes: All regressions control for state by time fixed effects and local government area (LGA) fixed effects. Standard errors are adjusted for two way clustering by time and LGA with stars indicating *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 7: Robustness: Controlling for State-Governor Specific LGA Fixed Effects

	Type of Event			Groups involved			Between which groups	
	(1) Any Event	(2) Battle	(3) Civilians	(4) Military	(5) Pol Militia	(6) Comm Militia	(7) Military vs Pol Militia	(8) Pol Militia vs Civilians
Panel A: OLS								
LGC Allocations	0.060**	0.033	0.016	0.010	0.055***	-0.001	0.016	0.041**
	(0.028)	(0.023)	(0.017)	(0.018)	(0.020)	(0.009)	(0.016)	(0.020)
Observations	49661	49661	49661	49661	49661	49661	49661	49661
Number of LGCs	768	768	768	768	768	768	768	768
Mean of DV	.0292	.0112	.0152	.0108	.0191	.00495	.00767	.0127
Panel B:								
LGC Allocations	0.042**	0.013	0.013	-0.002	0.042***	0.002	0.007	0.031**
	(0.020)	(0.018)	(0.012)	(0.016)	(0.015)	(0.009)	(0.014)	(0.014)
Elected × LGC Allocations	-0.029	-0.010	-0.014	-0.004	-0.041**	-0.007	-0.018	-0.029**
	(0.021)	(0.020)	(0.011)	(0.016)	(0.018)	(0.008)	(0.014)	(0.013)
Observations	139621	139621	139621	139621	139621	139621	139621	139621
Number of LGCs	768	768	768	768	768	768	768	768
Mean of DV	.0233	.00895	.011	.00809	.013	.00488	.00474	.00811

Notes: All regressions control for state by time fixed effects and local government area (LGA) fixed effects. Standard errors are adjusted for two way clustering by time and LGA with stars indicating *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 8: LGA Allocations and Individual Level Victimisation and Participation in Conflict

	Fear of political violence		Physically attacked		Engage in violence	
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: OLS						
LGC Allocations 12 months prior to survey	0.165**	0.169**	0.061**	0.073**	0.017	0.026
	(0.080)	(0.078)	(0.027)	(0.029)	(0.014)	(0.016)
Elected × LGC Allocations 12 months prior to survey	-0.068	-0.067	-0.040**	-0.047**	-0.010	-0.020*
	(0.051)	(0.052)	(0.020)	(0.021)	(0.010)	(0.012)
Observations	4642	4570	13988	12485	6909	5508
Number of LGCs	371	371	579	578	361	359
Mean of DV	.687	.686	.143	.15	.03	.0271
Panel B: Reduced form						
Index Weight x Oil Price [avg of last 12 months]	32.785***	32.632***	3.311*	3.989*	1.306*	1.566*
	(8.855)	(8.890)	(1.960)	(2.242)	(0.790)	(0.880)
Elected × Index Weight x Oil Price [avg of last 12 months]	-6.714***	-6.220**	-1.886	-2.028	-0.643	-0.983*
	(2.523)	(2.498)	(1.219)	(1.294)	(0.502)	(0.567)
Observations	4642	4570	13988	12485	6909	5508
Number of LGCs	371	371	579	578	361	359
Mean of DV	.687	.686	.143	.15	.03	.0271
Panel C: IV						
LGC Allocations 12 months prior to survey	0.321***	0.316***	0.066**	0.078**	0.023	0.030*
	(0.086)	(0.087)	(0.033)	(0.037)	(0.014)	(0.016)
Elected × LGC Allocations 12 months prior to survey	-0.183***	-0.174***	-0.046**	-0.051**	-0.015	-0.022*
	(0.068)	(0.067)	(0.022)	(0.024)	(0.011)	(0.012)
Kleibergen-Paap weak IV	222.4	210.4	295.1	290.5	237.3	221.1
Observations	4642	4570	13988	12485	6909	5508
Number of LGCs	371	371	579	578	361	359
Mean of DV	.687	.686	.143	.15	.03	.0271
Respondent controls		X		X		X

Notes: All regressions control for time fixed effects and local government area (LGA) fixed effects. Standard errors are clustered by LGA level with stars indicating *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Respondent controls include the respondents age, educational attainment, employment status, gender and an indicator whether the household lives in an urban area.

Table 9: LGA Allocations and Grievances

	Approval of LGC Council		LGC Councillors corrupt		Trust in LGC	
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: OLS						
LGC Allocations 12 months prior to survey	-0.156***	-0.164***	0.154**	0.152**	-0.120**	-0.109*
	(0.057)	(0.058)	(0.065)	(0.064)	(0.059)	(0.065)
Elected × LGC Allocations 12 months prior to survey	0.096**	0.089*	-0.095**	-0.088*	0.061	0.050
	(0.048)	(0.045)	(0.048)	(0.048)	(0.043)	(0.043)
Observations	12826	11429	9161	9030	13205	11754
Number of LGCs	577	576	526	526	579	578
Mean of DV	2.84	2.9	3.77	3.78	2.51	2.58
Panel B: Reduced form						
Index Weight x Oil Price [avg of last 12 months]	-8.085**	-8.195**	11.877**	11.662**	-8.819*	-7.167
	(3.574)	(3.723)	(5.145)	(5.281)	(4.888)	(5.180)
Elected × Index Weight x Oil Price [avg of last 12 months]	1.761	1.223	-2.841	-2.537	1.039	0.557
	(2.410)	(2.284)	(2.485)	(2.509)	(2.424)	(2.401)
Observations	12826	11429	9161	9030	13205	11754
Number of LGCs	577	576	526	526	579	578
Mean of DV	2.84	2.9	3.77	3.78	2.51	2.58
Panel C: IV						
LGC Allocations 18 months prior to survey	-0.103**	-0.100**	0.122**	0.118**	-0.103**	-0.082
	(0.044)	(0.043)	(0.050)	(0.050)	(0.050)	(0.053)
Elected × LGC Allocations 18 months prior to survey	0.048	0.042	-0.064*	-0.060*	0.037	0.026
	(0.034)	(0.032)	(0.034)	(0.034)	(0.029)	(0.030)
Kleibergen-Paap weak IV	279.4	266.6	276.1	269.5	319.4	304.4
Observations	12826	11429	9161	9030	13205	11754
Number of LGCs	577	576	526	526	579	578
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. Standard errors are clustered by LGA level with stars indicating *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Respondent controls include the respondents age, educational attainment, employment status, gender and an indicator whether the household lives in an urban area.

Appendix to "Does Democracy Moderate Resource-induced Conflicts?"

For Online Publication

Thiemo Fetzer Stephan Kyburz

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A Data Appendix

This section provides further details on the underlying data used in the empirical exercises.

A.1 The Excess Crude Account

The Excess Crude Account (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. 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).

The Excess Crude Account was surrounded by controversies throughout its existence (Central Bank of Nigeria, 2012). The ECA was subject to the whims of political leaders, which raised serious concerns about transparency and accountability. It was meant to delink 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 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.

B Additional Tables and Figures

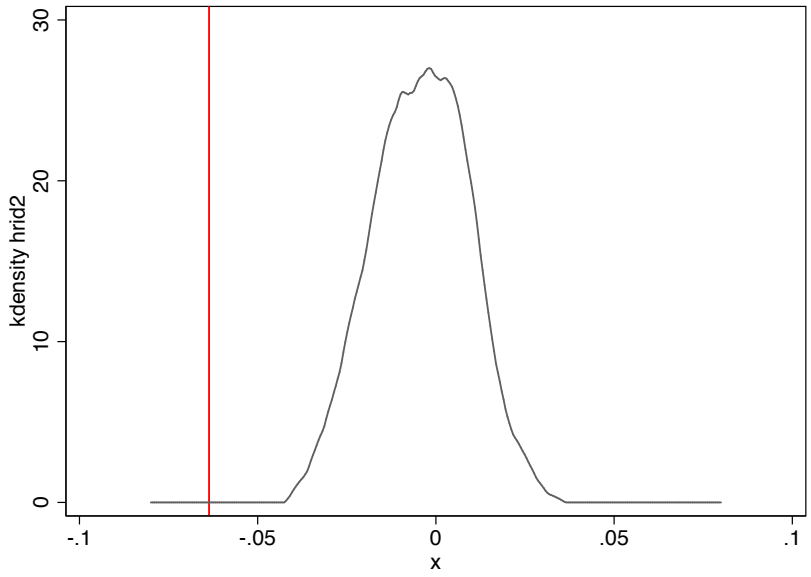

Figure A1: Permutation test on the interaction effect between gross statutory allocations and the elected status dummy. 100 permutations were constructed by randomly reordering spells of appointed vs elected governments at the LGA level. Each model is estimated including state by time and LGA fixed effects. 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.

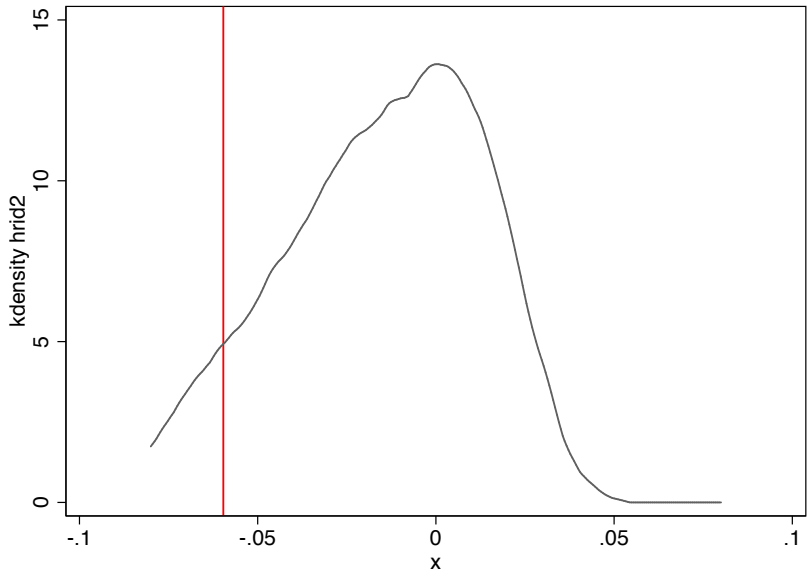

Figure A2: Permutation test after permuting the election status dummy across the 37 states, thus ignoring part of the local variation. 100 permutations were constructed by randomly reordering spells of appointed vs elected governments at the state level. Each model is estimated including time and LGA 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.

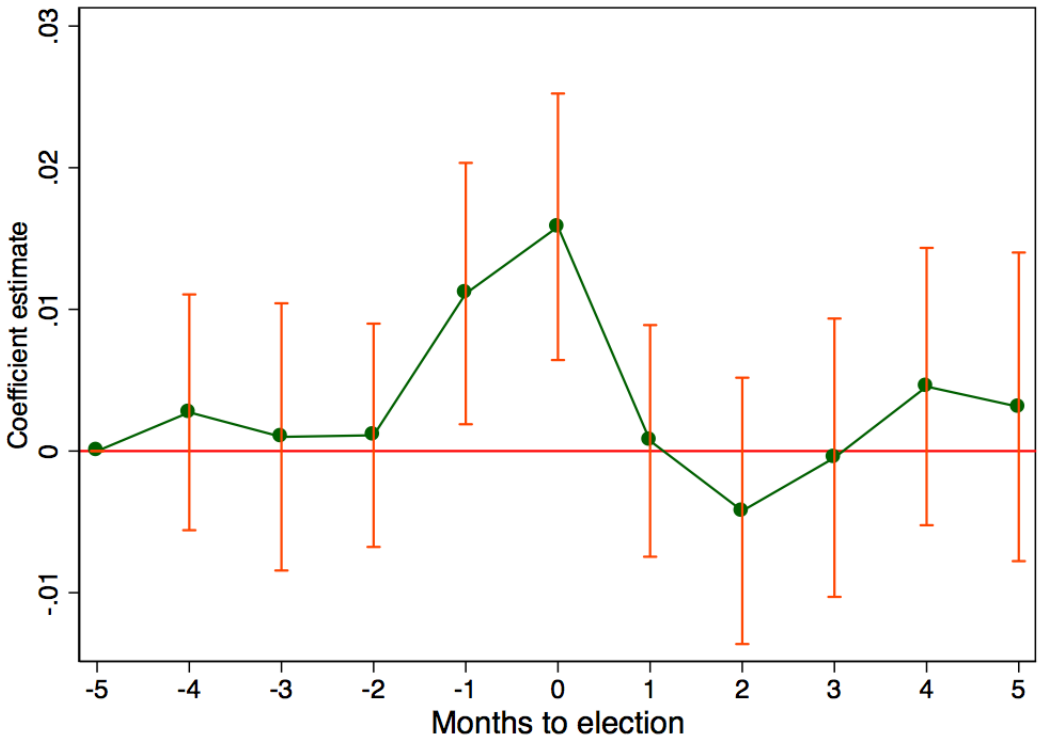

Figure A3: Conflict around election months. Figure presents estimated coefficients from a regression with the left hand side being a dummy variable indicating whether there was any conflict event in an LGA and month. The regression removes LGA fixed effects and time fixed effects prior and then regresses 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.

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: Table presents a decomposition of the variation in the FAAC allocations within- and between LGA's.

Table A2: 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	147276	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 A3: 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: NG Budget Oil Price									
Total index × Oil price	28.795***	28.795***	28.795***	13.854***	13.854***	13.854***	6.926***	6.926***	6.926***
	(1.892)	(1.897)	(1.917)	(0.563)	(0.563)	(0.574)	(0.981)	(0.981)	(1.013)
LGC FE		X	X		X	X		X	X
Time FE			X			X			X
R2	.684	.703	.972	.865	.869	.989	.16	.161	.965
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 × crudeNGA	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 local government area (LGA) fixed effects and state by time fixed effects. Standard errors 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 A4: Effect of Resource rents on civil conflict *without elected LGA's*: Different temporal resolution of the data

	Type of Event			Groups involved			Between which groups	
	(1) Any Event	(2) Battle	(3) Civilians	(4) Military	(5) Pol Militia	(6) Comm Militia	(7) Military vs Pol Militia	(8) Pol Militia vs Civilians
Panel A: Annual								
LGC Allocations	0.046***	0.032***	0.039***	0.040***	0.045***	0.017**	0.034***	0.027**
	(0.014)	(0.011)	(0.012)	(0.012)	(0.014)	(0.007)	(0.011)	(0.011)
Observations	4565	4565	4565	4565	4565	4565	4565	4565
Number of LGCs	768	768	768	768	768	768	768	768
Mean of DV	.165	.0793	.0973	.0714	.117	.0401	.0493	.0824
Panel B: Quarterly								
LGC Allocations	0.062**	0.033**	0.049***	0.047***	0.068***	0.017**	0.040***	0.052***
	(0.025)	(0.016)	(0.015)	(0.018)	(0.021)	(0.007)	(0.014)	(0.016)
Observations	17015	17015	17015	17015	17015	17015	17015	17015
Number of LGCs	768	768	768	768	768	768	768	768
Mean of DV	.0694	.0287	.0374	.0282	.0459	.0133	.0195	.0306
Panel C: Monthly								
LGC Allocations	0.085**	0.035*	0.055***	0.041*	0.085***	0.021***	0.038**	0.060***
	(0.034)	(0.021)	(0.021)	(0.022)	(0.028)	(0.008)	(0.019)	(0.023)
Observations	51530	51530	51530	51530	51530	51530	51530	51530
Number of LGCs	768	768	768	768	768	768	768	768
Mean of DV	.0311	.0117	.0159	.0113	.0202	.00507	.00811	.0133

Notes: All regressions control for time fixed effects and local government area (LGA) fixed effects. Standard errors are adjusted for clustering at the LGA with stars indicating *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A5: 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 which groups	
	(1) Events	(2) Battle	(3) Civilians	(4) Military	(5) Pol Militia	(6) Comm Militia	(7) Military vs Pol Militia	(8) Pol Militia vs Civilians
Panel A: OLS								
LGC Allocations	0.452***	0.142***	0.201***	0.151***	0.328***	0.066***	0.119***	0.174***
	(0.130)	(0.044)	(0.049)	(0.048)	(0.103)	(0.017)	(0.042)	(0.056)
Observations	4565	4565	4565	4565	4565	4565	4565	4565
Number of LGCs	768	768	768	768	768	768	768	768
Mean of DV	.632	.195	.255	.199	.42	.0705	.147	.23
Panel B: Poisson								
LGC Allocations	0.506***	0.647***	0.640***	0.600**	0.609**	0.602***	0.794**	0.505**
	(0.180)	(0.222)	(0.231)	(0.267)	(0.239)	(0.230)	(0.371)	(0.247)
Observations	2375	1431	1716	1347	1859	857	978	1410
Number of LGCs	363	218	262	202	284	129	148	217
Mean of DV	1.21	.623	.678	.675	1.03	.376	.684	.744
Panel C: NB								
LGC Allocations	0.229***	0.453***	0.408***	0.307***	0.198***	0.570***	0.350**	0.224**
	(0.065)	(0.116)	(0.104)	(0.111)	(0.072)	(0.168)	(0.157)	(0.097)
Observations	2375	1431	1716	1347	1859	857	978	1410
Number of LGCs	363	218	262	202	284	129	148	217
Mean of DV	1.21	.623	.678	.675	1.03	.376	.684	.744

Notes: The dependent variables throughout are the count number of events per LGA and year for the period covering 1999-2014. All regressions control for time fixed effects and local government area (LGA) fixed effects. Standard errors are adjusted for clustering at the LGA with stars indicating *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A6: Effect of Resource rents on civil conflict *without elected LGA's*: Different transformations of dependent variables

	Type of Event			Groups involved			Between which groups	
	(1) Any Event	(2) Battle	(3) Civilians	(4) Military	(5) Pol Militia	(6) Comm Militia	(7) Military vs Pol Militia	(8) Pol Militia vs Civilians
Panel A: Any conflict								
LGC Allocations	0.046***	0.032***	0.039***	0.040***	0.045***	0.017**	0.034***	0.027**
	(0.014)	(0.011)	(0.012)	(0.012)	(0.014)	(0.007)	(0.011)	(0.011)
Observations	4565	4565	4565	4565	4565	4565	4565	4565
Number of LGCs	768	768	768	768	768	768	768	768
Mean of DV	.165	.0793	.0973	.0714	.117	.0401	.0493	.0824
Panel B: Levels								
LGC Allocations	0.241**	0.063	0.118**	0.072	0.195*	0.045***	0.063	0.110**
	(0.122)	(0.044)	(0.047)	(0.056)	(0.099)	(0.015)	(0.043)	(0.055)
Observations	4565	4565	4565	4565	4565	4565	4565	4565
Number of LGCs	768	768	768	768	768	768	768	768
Mean of DV	.632	.195	.255	.199	.42	.0705	.147	.23
Panel C: log(Levels per capita)								
LGC Allocations	0.069***	0.031**	0.043***	0.038***	0.059***	0.020***	0.032***	0.033***
	(0.021)	(0.012)	(0.013)	(0.013)	(0.019)	(0.007)	(0.011)	(0.013)
Observations	4565	4565	4565	4565	4565	4565	4565	4565
Number of LGCs	768	768	768	768	768	768	768	768
Mean of DV	-.279	-.391	-.371	-.397	-.342	-.433	-.419	-.386
Panel C: Levels per capita								
LGC Allocations	0.055	0.030	0.037	0.017	0.065	0.022**	0.021	0.033
	(0.070)	(0.026)	(0.029)	(0.033)	(0.061)	(0.009)	(0.028)	(0.032)
Observations	4565	4565	4565	4565	4565	4565	4565	4565
Number of LGCs	768	768	768	768	768	768	768	768
Mean of DV	.407	.129	.163	.131	.276	.0441	.0983	.149

Notes: All regressions control for time fixed effects and local government area (LGA) fixed effects. Standard errors are adjusted for clustering at the LGA with stars indicating *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A7: LGA Extra Allocations and Conflict: Difference in Difference

	Type of Event			Groups involved			Between which groups	
	(1) Any Event	(2) Battle	(3) Civilians	(4) Military	(5) Pol Militia	(6) Comm Militia	(7) Military vs Pol Militia	(8) Pol Militia vs Civilians
Panel A: OLS								
LGC Extra Allocations	0.108**	0.048	0.042**	0.032	0.086***	0.009	0.027	0.055**
	(0.045)	(0.030)	(0.020)	(0.022)	(0.029)	(0.013)	(0.020)	(0.024)
Observations	49662	49662	49662	49662	49662	49662	49662	49662
Number of LGCs	768	768	768	768	768	768	768	768
Mean of DV	.0292	.0112	.0152	.0108	.0191	.00495	.00767	.0127
Panel B: Reduced form								
Total index × Oil price	4.714***	1.908**	2.724***	2.106**	3.519***	0.956**	1.714**	2.155**
	(1.445)	(0.736)	(0.836)	(0.815)	(1.167)	(0.390)	(0.713)	(0.930)
Observations	51154	51154	51154	51154	51154	51154	51154	51154
Number of LGCs	768	768	768	768	768	768	768	768
Mean of DV	.031	.0117	.0158	.0112	.0201	.00506	.00805	.0133
Panel C: IV								
LGC Extra Allocations	0.843***	0.319**	0.471**	0.395**	0.592**	0.196**	0.283**	0.367*
	(0.317)	(0.150)	(0.183)	(0.167)	(0.241)	(0.085)	(0.137)	(0.187)
Kleibergen-Paap weak IV	22.69	22.69	22.69	22.69	22.69	22.69	22.69	22.69
Observations	49662	49662	49662	49662	49662	49662	49662	49662
Number of LGCs	768	768	768	768	768	768	768	768
Mean of DV	.0292	.0112	.0152	.0108	.0191	.00495	.00767	.0127

Notes: All regressions control for local government area (LGA) fixed effects and state by time fixed effects. Standard errors are adjusted for two way clustering by time and LGA with stars indicating *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A8: LGA Statutory Allocations and Conflict: Difference in Difference

	Type of Event			Groups involved			Between which groups	
	(1) Any Event	(2) Battle	(3) Civilians	(4) Military	(5) Pol Militia	(6) Comm Militia	(7) Military vs Pol Militia	(8) Pol Militia vs Civilians
Panel A: OLS								
LGC Statutory Allocations	0.237***	0.116**	0.153***	0.118**	0.199***	0.065**	0.099**	0.136**
	(0.077)	(0.048)	(0.051)	(0.046)	(0.062)	(0.027)	(0.042)	(0.055)
Observations	49662	49662	49662	49662	49662	49662	49662	49662
Number of LGCs	768	768	768	768	768	768	768	768
Mean of DV	.0292	.0112	.0152	.0108	.0191	.00495	.00767	.0127
Panel B: Reduced form								
Total index × Oil price	4.714***	1.908**	2.724***	2.106**	3.519***	0.956**	1.714**	2.155**
	(1.445)	(0.736)	(0.836)	(0.815)	(1.167)	(0.390)	(0.713)	(0.930)
Observations	51154	51154	51154	51154	51154	51154	51154	51154
Number of LGCs	768	768	768	768	768	768	768	768
Mean of DV	.031	.0117	.0158	.0112	.0201	.00506	.00805	.0133
Panel C: IV								
LGC Statutory Allocations	0.368***	0.139**	0.205***	0.173***	0.259***	0.086***	0.124**	0.160**
	(0.118)	(0.059)	(0.067)	(0.063)	(0.092)	(0.033)	(0.054)	(0.075)
Kleibergen-Paap weak IV	468.2	468.2	468.2	468.2	468.2	468.2	468.2	468.2
Observations	49662	49662	49662	49662	49662	49662	49662	49662
Number of LGCs	768	768	768	768	768	768	768	768
Mean of DV	.0292	.0112	.0152	.0108	.0191	.00495	.00767	.0127

Notes: All regressions control for local government area (LGA) fixed effects and state by time fixed effects. Standard errors are adjusted for two way clustering by time and LGA with stars indicating *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A9: Different temporal resolution of the data

	Type of Event			Groups involved			Between which groups	
	(1) Any Event	(2) Battle	(3) Civilians	(4) Military	(5) Pol Militia	(6) Comm Militia	(7) Military vs Pol Militia	(8) Pol Militia vs Civilians
Panel A: Annual								
LGC Allocations	0.022***	0.010*	0.024***	0.025***	0.021***	0.001	0.018***	0.017***
	(0.007)	(0.006)	(0.006)	(0.007)	(0.007)	(0.005)	(0.006)	(0.006)
Elected × LGC Allocations	-0.013***	-0.007**	-0.013***	-0.013***	-0.015***	0.002	-0.013***	-0.013***
	(0.004)	(0.003)	(0.003)	(0.003)	(0.004)	(0.003)	(0.003)	(0.003)
Observations	12369	12369	12369	12369	12369	12369	12369	12369
Number of LGCs	774	774	774	774	774	774	774	774
Mean of DV	.139	.0689	.079	.0599	.0889	.0415	.0366	.0614
Panel B: Quarterly								
LGC Allocations	0.051***	0.019**	0.034***	0.039***	0.050***	0.005	0.029***	0.034***
	(0.014)	(0.009)	(0.010)	(0.011)	(0.013)	(0.006)	(0.008)	(0.011)
Elected × LGC Allocations	-0.018**	-0.014***	-0.019***	-0.017***	-0.030***	0.001	-0.019***	-0.022***
	(0.007)	(0.005)	(0.005)	(0.006)	(0.006)	(0.003)	(0.005)	(0.005)
Observations	49476	49476	49476	49476	49476	49476	49476	49476
Number of LGCs	774	774	774	774	774	774	774	774
Mean of DV	.0566	.0236	.0287	.0218	.0327	.0134	.0127	.0212
Panel C: Monthly								
LGC Allocations	0.082***	0.018	0.040***	0.042***	0.056***	0.006	0.026***	0.038***
	(0.023)	(0.012)	(0.013)	(0.015)	(0.018)	(0.007)	(0.009)	(0.015)
Elected × LGC Allocations	-0.019**	-0.013**	-0.022***	-0.012**	-0.032***	-0.001	-0.017***	-0.025***
	(0.009)	(0.006)	(0.006)	(0.006)	(0.007)	(0.003)	(0.005)	(0.006)
Observations	148428	148428	148428	148428	148428	148428	148428	148428
Number of LGCs	774	774	774	774	774	774	774	774
Mean of DV	.0251	.0093	.0116	.0087	.0137	.00519	.00509	.00862

Notes: All regressions control for time fixed effects and local government area (LGA) fixed effects. Standard errors are adjusted for clustering at the LGA with stars indicating *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A10: Effect of Resource rents on civil conflict: Different transformations of dependent variables

	Type of Event			Groups involved			Between which groups	
	(1) Any Event	(2) Battle	(3) Civilians	(4) Military	(5) Pol Militia	(6) Comm Militia	(7) Military vs Pol Militia	(8) Pol Militia vs Civilians
Panel A: Any conflict								
LGC Allocations	0.022***	0.010*	0.024***	0.025***	0.021***	0.001	0.018***	0.017***
	(0.007)	(0.006)	(0.006)	(0.007)	(0.007)	(0.005)	(0.006)	(0.006)
Elected × LGC Allocations	-0.013***	-0.007**	-0.013***	-0.013***	-0.015***	0.002	-0.013***	-0.013***
	(0.004)	(0.003)	(0.003)	(0.003)	(0.004)	(0.003)	(0.003)	(0.003)
Observations	12369	12369	12369	12369	12369	12369	12369	12369
Number of LGCs	774	774	774	774	774	774	774	774
Mean of DV	.139	.0689	.079	.0599	.0889	.0415	.0366	.0614
Panel B: Levels								
LGC Allocations	0.279**	0.035	0.078***	0.078**	0.135**	0.008	0.052**	0.074**
	(0.110)	(0.029)	(0.027)	(0.035)	(0.055)	(0.015)	(0.021)	(0.029)
Elected × LGC Allocations	-0.063	-0.036***	-0.051***	-0.035**	-0.104***	0.002	-0.044***	-0.055***
	(0.041)	(0.014)	(0.015)	(0.016)	(0.030)	(0.007)	(0.013)	(0.017)
Observations	12369	12369	12369	12369	12369	12369	12369	12369
Number of LGCs	774	774	774	774	774	774	774	774
Mean of DV	.516	.153	.189	.149	.262	.0875	.0868	.142
Panel C: log(Levels per capita)								
LGC Allocations	0.049***	0.013*	0.028***	0.029***	0.034***	0.003	0.020***	0.024***
	(0.013)	(0.007)	(0.007)	(0.008)	(0.011)	(0.005)	(0.006)	(0.008)
Elected × LGC Allocations	-0.018***	-0.010***	-0.017***	-0.013***	-0.024***	0.001	-0.014***	-0.017***
	(0.006)	(0.004)	(0.004)	(0.004)	(0.005)	(0.003)	(0.003)	(0.004)
Observations	12369	12369	12369	12369	12369	12369	12369	12369
Number of LGCs	774	774	774	774	774	774	774	774
Mean of DV	-.315	-.412	-.4	-.419	-.386	-.439	-.444	-.42
Panel C: Levels per capita								
LGC Allocations	0.078	0.018	0.022	0.025	0.043	0.006	0.021*	0.021
	(0.049)	(0.014)	(0.014)	(0.017)	(0.029)	(0.006)	(0.012)	(0.015)
Elected × LGC Allocations	-0.040	-0.022**	-0.025**	-0.023**	-0.051**	-0.001	-0.024**	-0.025**
	(0.024)	(0.009)	(0.010)	(0.011)	(0.020)	(0.004)	(0.009)	(0.010)
Observations	12369	12369	12369	12369	12369	12369	12369	12369
Number of LGCs	774	774	774	774	774	774	774	774
Mean of DV	.31	.0952	.116	.0898	.166	.0529	.0563	.0892

Notes: All regressions control for time fixed effects and local government area (LGA) fixed effects. Standard errors are adjusted for clustering at the LGA with stars indicating *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A11: Effect of Resource rents on civil conflict: Alternative functional forms to account for count data

	Type of Event			Groups involved			Between which groups	
	(1) Events	(2) Battle	(3) Civilians	(4) Military	(5) Pol Militia	(6) Comm Militia	(7) Military vs Pol Militia	(8) Pol Militia vs Civilians
Panel A: OLS								
LGC Allocations	0.407***	0.109***	0.169***	0.130***	0.263***	0.053***	0.097***	0.143***
	(0.102)	(0.033)	(0.039)	(0.035)	(0.076)	(0.020)	(0.029)	(0.042)
Elected x LGC Allocations	-0.066	-0.039***	-0.051***	-0.039**	-0.109***	0.005	-0.047***	-0.056***
	(0.040)	(0.014)	(0.015)	(0.015)	(0.030)	(0.008)	(0.013)	(0.016)
Observations	12369	12369	12369	12369	12369	12369	12369	12369
Number of LGCs	774	774	774	774	774	774	774	774
Mean of DV	.516	.153	.189	.149	.262	.0875	.0868	.142
Panel B: Poisson								
LGC Allocations	0.220**	0.235*	0.315**	0.168	0.298*	0.175	0.258	0.310*
	(0.101)	(0.138)	(0.142)	(0.122)	(0.153)	(0.195)	(0.211)	(0.169)
Elected x LGC Allocations	-0.052	-0.079	-0.109**	-0.083	-0.134***	0.066	-0.154**	-0.139**
	(0.042)	(0.052)	(0.053)	(0.052)	(0.050)	(0.078)	(0.068)	(0.057)
Observations	8257	5498	6215	4999	6452	4234	3578	5143
Number of LGCs	517	344	389	313	404	265	224	322
Mean of DV	.773	.344	.376	.368	.501	.256	.3	.342
Panel C: NB								
LGC Allocations	0.117***	0.142***	0.222***	0.184***	0.167***	0.063	0.237***	0.232***
	(0.034)	(0.049)	(0.050)	(0.053)	(0.044)	(0.063)	(0.073)	(0.061)
Elected x LGC Allocations	-0.041*	-0.041	-0.068**	-0.066*	-0.065**	0.021	-0.100**	-0.085**
	(0.024)	(0.035)	(0.032)	(0.036)	(0.030)	(0.050)	(0.048)	(0.037)
Observations	8257	5498	6215	4999	6452	4234	3578	5143
Number of LGCs	517	344	389	313	404	265	224	322
Mean of DV	.773	.344	.376	.368	.501	.256	.3	.342

Notes: The dependent variables throughout are the count number of events per LGA and year for the period covering 1999-2014. All regressions control for time fixed effects and local government area (LGA) fixed effects. Standard errors are adjusted for clustering at the LGA with stars indicating *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A12: Effect of Resource rents on civil conflict: Different transformations of dependent variables

	ACLED			UCDP GED		GTD	
	(1) Events	(2) Fatalities	(3) Non Boko Haram	(4) Events	(5) Fatalities	(6) Events	(7) Fatalities
Panel A: Any conflict *without elected LGA*							
LGC Allocations	0.272***	0.196***	0.101***	0.138***	0.115**	0.146***	0.130***
	(0.068)	(0.050)	(0.030)	(0.051)	(0.045)	(0.049)	(0.045)
Kleibergen-Paap weak IV	229.4	229.4	229.4	229.4	229.4	229.4	229.4
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: Any conflict *with elected LGA*							
LGC Allocations	0.189***	0.131***	0.066***	0.103***	0.087***	0.106***	0.094***
	(0.046)	(0.032)	(0.020)	(0.033)	(0.028)	(0.030)	(0.028)
Elected × LGC Allocations	-0.062***	-0.052***	-0.030***	-0.051***	-0.049***	-0.052***	-0.048***
	(0.019)	(0.015)	(0.009)	(0.017)	(0.015)	(0.016)	(0.015)
Kleibergen-Paap weak IV	207.2	207.2	207.2	207.2	207.2	207.2	207.2
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 C: Levels *without elected LGA*							
LGC Allocations	0.537***	5.265**	0.120***	0.384*	2.654*	0.286**	4.092*
	(0.174)	(2.057)	(0.040)	(0.226)	(1.537)	(0.119)	(2.325)
Kleibergen-Paap weak IV	229.4	229.4	229.4	229.4	229.4	229.4	229.4
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
Panel D: Levels *with elected LGA*							
LGC Allocations	0.404***	3.481***	0.085***	0.285*	1.948**	0.218***	2.869*
	(0.117)	(1.183)	(0.027)	(0.145)	(0.941)	(0.076)	(1.572)
Elected × LGC Allocations	-0.132**	-2.042***	-0.043***	-0.159**	-1.288**	-0.126***	-1.899**
	(0.064)	(0.707)	(0.014)	(0.077)	(0.552)	(0.046)	(0.861)
Kleibergen-Paap weak IV	207.2	207.2	207.2	207.2	207.2	207.2	207.2
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. Standard errors are adjusted for clustering at the LGA with stars indicating *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A13: LGA Extra Allocations and Conflict: Difference in Difference

	Type of Event			Groups involved			Between which groups	
	(1) Any Event	(2) Battle	(3) Civilians	(4) Military	(5) Pol Militia	(6) Comm Militia	(7) Military vs Pol Militia	(8) Pol Militia vs Civilians
Panel A: OLS								
LGC Extra Allocations	0.119**	0.058**	0.053**	0.045**	0.109***	0.000	0.041**	0.064**
	(0.046)	(0.025)	(0.022)	(0.022)	(0.034)	(0.009)	(0.020)	(0.028)
Elected × LGC Extra Allocations	-0.089**	-0.056	-0.040**	-0.050*	-0.102***	-0.006	-0.058**	-0.051**
	(0.038)	(0.034)	(0.017)	(0.027)	(0.036)	(0.010)	(0.024)	(0.023)
Observations	140713	140713	140713	140713	140713	140713	140713	140713
Number of LGCs	774	774	774	774	774	774	774	774
Mean of DV	.0239	.00906	.0112	.0084	.0133	.00491	.00487	.00828
Panel B: Reduced form								
Total index × Oil price	3.780***	1.478***	2.252***	1.571**	3.074***	0.607**	1.327**	1.992***
	(1.168)	(0.553)	(0.624)	(0.651)	(0.908)	(0.296)	(0.542)	(0.706)
Elected × Total index × Oil price	-1.600**	-0.623	-0.859**	-0.563	-1.530***	-0.318*	-0.800**	-1.024**
	(0.629)	(0.387)	(0.417)	(0.405)	(0.536)	(0.181)	(0.343)	(0.457)
Observations	148428	148428	148428	148428	148428	148428	148428	148428
Number of LGCs	774	774	774	774	774	774	774	774
Mean of DV	.0251	.0093	.0116	.0087	.0137	.00519	.00509	.00862
Panel C: IV								
LGC Extra Allocations	0.620***	0.226**	0.357***	0.262**	0.501***	0.118**	0.218**	0.334**
	(0.212)	(0.104)	(0.122)	(0.115)	(0.170)	(0.056)	(0.096)	(0.136)
Elected × LGC Extra Allocations	-0.323**	-0.142	-0.163*	-0.148*	-0.314***	-0.086*	-0.174**	-0.211**
	(0.139)	(0.088)	(0.093)	(0.087)	(0.117)	(0.046)	(0.074)	(0.102)
Kleibergen-Paap weak IV	23.95	23.95	23.95	23.95	23.95	23.95	23.95	23.95
Observations	140713	140713	140713	140713	140713	140713	140713	140713
Number of LGCs	774	774	774	774	774	774	774	774
Mean of DV	.0239	.00906	.0112	.0084	.0133	.00491	.00487	.00828

Notes: All regressions control for local government area (LGA) fixed effects and state by time fixed effects. Standard errors are adjusted for two way clustering by time and LGA with stars indicating *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A14: LGA Statutory Allocations and Conflict: Difference in Difference

	Type of Event			Groups involved			Between which groups	
	(1) Any Event	(2) Battle	(3) Civilians	(4) Military	(5) Pol Militia	(6) Comm Militia	(7) Military vs Pol Militia	(8) Pol Militia vs Civilians
Panel A: OLS								
LGC Statutory Allocations	0.199***	0.077**	0.127***	0.086**	0.171***	0.042**	0.072**	0.121***
	(0.062)	(0.034)	(0.037)	(0.035)	(0.049)	(0.019)	(0.030)	(0.041)
Elected × LGC Statutory Allocations	-0.098**	-0.037	-0.054**	-0.038	-0.096***	-0.028**	-0.049**	-0.073**
	(0.041)	(0.028)	(0.028)	(0.026)	(0.034)	(0.014)	(0.023)	(0.030)
Observations	140713	140713	140713	140713	140713	140713	140713	140713
Number of LGCs	774	774	774	774	774	774	774	774
Mean of DV	.0239	.00906	.0112	.0084	.0133	.00491	.00487	.00828
Panel B: Reduced form								
Total index × Oil price	3.780***	1.478***	2.252***	1.571**	3.074***	0.607**	1.327**	1.992***
	(1.168)	(0.553)	(0.624)	(0.651)	(0.908)	(0.296)	(0.542)	(0.706)
Elected × Total index × Oil price	-1.600**	-0.623	-0.859**	-0.563	-1.530***	-0.318*	-0.800**	-1.024**
	(0.629)	(0.387)	(0.417)	(0.405)	(0.536)	(0.181)	(0.343)	(0.457)
Observations	148428	148428	148428	148428	148428	148428	148428	148428
Number of LGCs	774	774	774	774	774	774	774	774
Mean of DV	.0251	.0093	.0116	.0087	.0137	.00519	.00509	.00862
Panel C: IV								
LGC Statutory Allocations	0.261***	0.092**	0.154***	0.109**	0.204***	0.046**	0.084**	0.136***
	(0.083)	(0.039)	(0.046)	(0.045)	(0.064)	(0.022)	(0.036)	(0.051)
Elected × LGC Statutory Allocations	-0.101**	-0.046	-0.050*	-0.047	-0.101***	-0.028*	-0.058**	-0.068**
	(0.044)	(0.030)	(0.030)	(0.029)	(0.036)	(0.015)	(0.024)	(0.032)
Kleibergen-Paap weak IV	246.2	246.2	246.2	246.2	246.2	246.2	246.2	246.2
Observations	140713	140713	140713	140713	140713	140713	140713	140713
Number of LGCs	774	774	774	774	774	774	774	774
Mean of DV	.0239	.00906	.0112	.0084	.0133	.00491	.00487	.00828

Notes: All regressions control for local government area (LGA) fixed effects and state by time fixed effects. Standard errors 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 Allocations and Individual Level Victimisation and Participation in Conflict

	Fear of political violence		Physically attacked		Engage in violence	
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: OLS						
LGC Allocations 6 months prior to survey	0.407**	0.414**	0.114**	0.136**	0.042	0.063*
	(0.186)	(0.182)	(0.058)	(0.062)	(0.029)	(0.034)
Elected × LGC Allocations 6 months prior to survey	-0.158	-0.153	-0.073*	-0.086*	-0.025	-0.047*
	(0.116)	(0.118)	(0.044)	(0.045)	(0.022)	(0.025)
Observations	4642	4570	13988	12485	6909	5508
Number of LGCs	371	371	579	578	361	359
Mean of DV	.687	.686	.143	.15	.03	.0271
Panel B: Reduced form						
Index Weight x Oil Price [avg of last 6 months]	48.737***	49.449***	2.600	3.115	1.346*	1.610*
	(15.889)	(15.962)	(1.868)	(2.160)	(0.795)	(0.889)
Elected × Index Weight x Oil Price [avg of last 6 months]	-6.266***	-5.793**	-1.591	-1.646	-0.662	-1.008*
	(2.409)	(2.436)	(1.234)	(1.310)	(0.513)	(0.582)
Observations	4642	4570	13988	12485	6909	5508
Number of LGCs	371	371	579	578	361	359
Mean of DV	.687	.686	.143	.15	.03	.0271
Panel C: IV						
LGC Allocations 6 months prior to survey	0.700***	0.700***	0.120*	0.139*	0.053	0.066*
	(0.208)	(0.209)	(0.071)	(0.081)	(0.032)	(0.037)
Elected × LGC Allocations 6 months prior to survey	-0.390***	-0.373***	-0.087*	-0.094*	-0.035	-0.049*
	(0.137)	(0.138)	(0.051)	(0.054)	(0.024)	(0.027)
Kleibergen-Paap weak IV	134.7	129.3	177.9	157.4	212.9	200.2
Observations	4642	4570	13988	12485	6909	5508
Number of LGCs	371	371	579	578	361	359
Mean of DV	.687	.686	.143	.15	.03	.0271
Respondent controls		X		X		X

Notes: All regressions control for time fixed effects and local government area (LGA) fixed effects. Standard errors are clustered by LGA level with stars indicating *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Respondent controls include the respondents age, educational attainment, employment status, gender and an indicator whether the household lives in an urban area.

Table A16: LGA Allocations and Individual Level Victimisation and Participation in Conflict

	Fear of political violence		Physically attacked		Engage in violence	
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: OLS						
LGC Allocations 18 months prior to survey	0.119**	0.121**	0.043**	0.051***	0.012	0.017*
	(0.051)	(0.050)	(0.018)	(0.019)	(0.009)	(0.010)
Elected × LGC Allocations 18 months prior to survey	-0.051	-0.050	-0.028**	-0.033**	-0.007	-0.013*
	(0.034)	(0.034)	(0.013)	(0.014)	(0.007)	(0.008)
Observations	4642	4570	13988	12485	6909	5508
Number of LGCs	371	371	579	578	361	359
Mean of DV	.687	.686	.143	.15	.03	.0271
Panel B: Reduced form						
Index Weight x Oil Price [avg of last 18 months]	23.591***	23.587***	3.978**	4.755**	1.259	1.507*
	(6.841)	(6.877)	(1.978)	(2.228)	(0.777)	(0.865)
Elected × Index Weight x Oil Price [avg of last 18 months]	-6.094**	-5.634**	-1.983*	-2.173*	-0.625	-0.957*
	(2.555)	(2.543)	(1.157)	(1.222)	(0.494)	(0.558)
Observations	4642	4570	13988	12485	6909	5508
Number of LGCs	371	371	579	578	361	359
Mean of DV	.687	.686	.143	.15	.03	.0271
Panel C: IV						
LGC Allocations 18 months prior to survey	0.189***	0.187***	0.050**	0.058**	0.015	0.019*
	(0.052)	(0.053)	(0.022)	(0.024)	(0.010)	(0.011)
Elected × LGC Allocations 18 months prior to survey	-0.109***	-0.104**	-0.032**	-0.036**	-0.010	-0.014*
	(0.041)	(0.040)	(0.014)	(0.015)	(0.007)	(0.008)
Kleibergen-Paap weak IV	290.9	272	281.1	268.9	253.8	239.1
Observations	4642	4570	13988	12485	6909	5508
Number of LGCs	371	371	579	578	361	359
Mean of DV	.687	.686	.143	.15	.03	.0271
Respondent controls		X		X		X

Notes: All regressions control for time fixed effects and local government area (LGA) fixed effects. Standard errors are clustered by LGA level with stars indicating *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Respondent controls include the respondents age, educational attainment, employment status, gender and an indicator whether the household lives in an urban area.

Table A17: LGA Allocations and Grievances towards National Parliament

	Approval of MP		National MP's are corrupt		Trust in National Assembly	
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: OLS						
LGC Allocations 12 months prior to survey	-0.073	-0.070	0.019	0.006	-0.089	-0.086
	(0.056)	(0.054)	(0.063)	(0.062)	(0.057)	(0.060)
Elected × LGC Allocations 12 months prior to survey	0.008	0.009	0.049	0.056	-0.003	0.001
	(0.048)	(0.046)	(0.048)	(0.047)	(0.045)	(0.044)
Observations	12775	11377	9126	9000	13098	11639
Number of LGCs	579	578	526	526	577	576
Mean of DV	2.83	2.9	3.73	3.73	2.51	2.59
Panel B: Reduced form						
Index Weight x Oil Price [avg of last 12 months]	-5.526	-3.785	9.454*	8.339	-7.311*	-4.897
	(3.534)	(3.197)	(5.112)	(5.163)	(3.938)	(4.058)
Elected × Index Weight x Oil Price [avg of last 12 months]	-1.286	-1.259	2.982	3.075	-1.918	-1.603
	(2.319)	(2.200)	(2.396)	(2.461)	(2.365)	(2.357)
Observations	12775	11377	9126	9000	13098	11639
Number of LGCs	579	578	526	526	577	576
Mean of DV	2.83	2.9	3.73	3.73	2.51	2.59
Panel C: IV						
LGC Allocations 18 months prior to survey	-0.061	-0.040	0.061	0.050	-0.079*	-0.054
	(0.042)	(0.038)	(0.049)	(0.049)	(0.047)	(0.048)
Elected × LGC Allocations 18 months prior to survey	0.007	0.001	0.010	0.014	0.003	-0.000
	(0.031)	(0.029)	(0.034)	(0.033)	(0.032)	(0.032)
Kleibergen-Paap weak IV	300.6	300.7	287.3	281.8	310	304.7
Observations	12775	11377	9126	9000	13098	11639
Number of LGCs	579	578	526	526	577	576
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. Standard errors are clustered by LGA level with stars indicating *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Respondent controls include the respondents age, educational attainment, employment status, gender and an indicator whether the household lives in an urban area.