Protest Matters: The Effects of Protests on Economic Redistribution*

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Abstract

Can citizen-led protests lead to meaningful economic redistribution and nudge governments to increase redistributive efforts of fiscal resources? We study the effects of protests on fiscal redistribution using evidence from Nigeria. We digitized twenty-six years of public finance data from 1988 to 2016 to examine the effects of protests on intergovernmental transfers. We find that protests increase transfers to protesting regions, but only in areas that are politically aligned with disbursing governments. Evidence from the large-scale 2012 Occupy Nigeria protests confirms these results. Protesters also face increased police violence. The results show that protests can influence fiscal redistribution.

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1 Introduction

"We turn out in the streets and nothing seems to happen. Maybe we're doing it wrong"

- Nathan Heller, *The New Yorker, August 14, 2017*

On September 17, 2011, hundreds of people marched on Zuccotti Park in Manhattan to protest income and wealth inequality in the United States under the banner of 'Occupy Wall Street'.[1] The march marked the start of months long protests against economic inequality in the US and around the world, labeled the Occupy movement. Just three months after the movement began, another series of demonstrations erupted in Nigeria under the banner of "Occupy Nigeria", after the removal of a long-standing fuel subsidy in January 2012. The removal of the subsidy led to an overnight spike in gasoline prices (a 115% increase) in the country, and the subsidy was removed without warning by the federal government on January 1, 2012 (Akanle, Adebayo, and Adetayo, 2014). The protests began the following day on January 2, 2012, and millions of Nigerians across the country are estimated to have participated, making the protests the largest mass mobilization of Nigerian citizens in the country's history, at the time (Adebayo, 2015; Adigun, 2018). Drawing inspiration from the economic redistribution demands made under the Occupy Wall Street movement, the protesters demanded the reversal of the subsidy removal, since the subsidies were viewed as the most observable/directly impactful form of economic redistribution from the government to citizens (Akanle, Adebayo, and Adetayo, 2014). The protests lasted for almost 2 weeks, with numerous protesters killed or injured by police and security forces.[2] Given that a major stated driver of citizen participation in protests, like the ones highlighted in the

[1]Source: https://www.history.com/this-day-in-history/september-17/occupy-wall-street-begins-zuccotti-park

[2]Source: Vanguard News, https://www.vanguardngr.com/2012/01/12-killed-as-subsidy-protests-turn-bloody/

Occupy movement, are demands for economic redistribution, can protests actually lead to meaningful changes in government policy, particularly around the redistribution of economic resources? This is a difficult empirical question to answer partly due to both the complexity of fiscal systems around the world, and the paucity of data on subnational public financing.

We circumvent these empirical difficulties and address this question using evidence from Nigeria, Africa's most populous country and the 6th most populous country in the world by United Nations estimates. Nigeria's highly centralized, rule-based intergovernmental fiscal transfer system makes it an informative region to study how governments might deploy fiscal resources in response to citizen-led protests. Nigeria is also one of more than 30 countries with revenue sharing schemes based on revenues from natural resources[3]. This allows us to more carefully study the effects of protests on the distribution of revenues from a plausibly exogenous source (oil in the Nigerian case), where federal or central governments do not depend on subnational entities or citizens for revenue. It also allows us to study these effects under a heavily consolidated- top-down revenue sharing system where the central government can choose to respond to, ostensibly economic grievance-driven, protests by directly disbursing fiscal resources to assuage contentious regions and quell protests. We construct a new dataset from 26 years of archival records on public finance from 1988 to 2016, assembling data on revenues and expenditures, along with geocoded information on protests to test our hypotheses in Nigeria. The breadth of data over these years and the richness of Nigeria's political history also allow us to test hypotheses from the electoral politics literature on differential responses of central governments to protests under democratic versus autocratic regimes[4] (Ellman and Wantchekon, 2000; Hollyer, Rosendorff, and Vreeland, 2015).

The aim of this paper is to investigate the effects of protests on fiscal redistribution and

[3]As shown in Figure A1 in the Appendix (Oates, 1999).

[4]Nigeria has a military government for most of the period from 1970 to 1999, and a democratic government post 1999.

examine how governments respond to protests when they can directly control the distribution of fiscal resources. We do this in four steps. First, to fix ideas about the links between protests and intergovernmental transfers, we outline a simple principal-agent conceptual framework in which the principal is the federal government leader (e.g. the president) with full control of disbursement over centrally collected revenues and the agent is a state government leader (e.g. a governor) dependent on the principal for revenue transfers. The objective of the principal is to quell protests that may be destabilizing to their tenure in office. This requires some level of cooperation or effort from state government leaders to quell protests. Assume agents cannot be perfectly monitored and the principal must motivate them by sharing some portion of revenues with them. Then, given simple assumptions around the cost of agent effort, one prediction of the framework is that the principal may transfer more or less revenues to agents in protesting regions depending on the perceived cost of agent effort in quelling protests. When the agent's optimal effort is positive, as may be the case with agents that share political preferences or are politically aligned with the principal and hence have an incentive to keep the principal in office, the principal may transfer a greater share of revenues to the agent. When the perceived agent effort is null, as may be the case for non-aligned agents, the principal reduces transfers to the agent. Concretely, the principal or federal government leader and the agent or state government leader are considered politically aligned if they belong to the same political party. The principal will be able to more effectively use transfers in response to protests in these ways when citizens have information asymmetry about the distribution of transfers.

In step two, we test the predictions from the framework and examine the associations between protests and transfers. In the Nigerian context, there are two primary types of transfers from federal governments to state governments called allocation transfers and VAT transfers. Allocation transfers are regularly publicized in news media and information about their distribution among states are made readily available to citizens, while the distribution

of VAT transfers is less transparent and not similarly publicized/made readily available to citizens. We measure protests at the state level in two ways: first, as protest intensity or the state-level z-scores relative to the national mean within a particular month and year, and also as an indicator that equals one if the state's total number of protests is above the national mean in a month and year. Our main measure is the first which captures the relative intensity of protests within a state, and the sensitivity of federal government responses to marginal deviations in a state's level of protests from the national average. The results show that higher levels of protests in a state are associated with both increases and decreases in revenue transfers from federal governments to protesting states over the democratic period, though the effects are imprecise. The results change when we examine the effects of protests on transfers by political alignment, following the conceptual framework. The estimates show that a 1 standard deviation increase in protests is associated with a 0.5% decrease in monthly VAT transfers in non-aligned states.[5] In contrast, protests increase transfers in aligned states, with a 1 standard deviation increase in protests associated with a relative 1.6% increase in monthly VAT transfers and a total 1.1% increase in monthly VAT transfers. The magnitude of the effects of protests on VAT transfers by alignment is larger when we examine yearly protest and transfer outcomes. A 1 standard deviation increase in protests in a year is associated with a 1.5% decrease in yearly VAT transfers in non-aligned states. It is associated with a relative 3.7% increase in yearly VAT transfers to aligned states and a total 2.2% increase in yearly VAT transfers. While the signs on the effects of protests on allocation transfers are qualitatively similar to the VAT transfers results, the effects are not robust. The results on VAT, but not allocation transfers are in line with the conceptual

[5]Over the democratic period, between 2000 and 2016, the average monthly allocation and VAT transfers to each state were approximately 4 billion Naira and 640 million Naira, respectively, in real 2010 figures. The corresponding average yearly allocation and VAT transfers were 44 billion Naira and 7 billion Naira, respectively. The average exchange rate in 2010 was 1 US Dollar = 150 Nigerian Naira (https://fred.stlouisfed.org/series/FXRATENGA618NUPN). Details about the data are provided in Section 4.

framework highlighting the role of citizen information asymmetry around VAT, but not allocation transfers, in government effectiveness in using transfers to respond to protests.

In the third step, we estimate the causal effect of protests on intergovernmental transfers using evidence from the Occupy Nigeria demonstrations. The results show that protests have no significant effect on VAT transfers in the post January 2012 period, though the sign is positive. However, the effect of the protests differs significantly by political alignment, as before. A 1 standard deviation increase in protests decreases VAT transfers to non-aligned states by 0.9% in the post January 2012 period. Conversely, a 1 standard deviation increase in protests resulted in a relative increase of 1.5% in VAT transfers to aligned states in the post January 2012 period; this is equivalent to a total increase of 0.6% in VAT transfers to aligned states in the post period. The trends in the causal difference-in-differences estimates of the effects of protests using evidence from the Occupy Nigeria demonstrations echo the OLS results. We conduct a number of falsification tests and show that our results are robust to alternate specifications of our protest measure and examining the effects of protests on VAT transfers over the military period. Our results are not driven by other conflict events, and protests in aligned states are not associated with increases in non-transfer revenue like internally generated revenue.

Finally, in step four, we explore other government responses to protests, specifically policing and state expenditure. Government responses to protests are not only fiscal, but often include increased violence towards protesters. We examine the effects of protests on policing and find suggestive evidence that protests increase policing and police violence against protesters, particularly in states that are not politically aligned with disbursing federal governments. A 1 standard deviation increase in the protest measure is associated with a 2.6 percentage point (pp) increase in the police share of actors at protests. The effects differ significantly for politically aligned versus non-aligned states. While protests

are associated with an increase in police share in non-aligned areas of 4.9 pp, they are associated with a relative reduction (-4.6 pp) in police share in politically aligned states. The total effect of a 1 standard deviation increase in protests in aligned states is a 0.3 pp increase in the police share of actors. We find no robust effects of protests on recurrent and capital state expenditure. Altogether, the results provide evidence that protests can influence fiscal redistribution. The ways in which they do this depends on the political relationships between disbursing federal governments and protesting states. Governments can also respond to protests with increased state violence against protesters.

We add to two distinct literatures. First, we add to the literature on the political economy of protest (Cantoni et al., 2019; El-Mallakh, 2020; Madestam et al., 2013; Acemoglu, Hassan, and Tahoun, 2018; Mazumder, 2018). Previous work has highlighted the role of social media in lowering collective action costs and mobilizing protests (Enikolopov, Makarin, and Petrova, 2020; Manacorda and Tesei, 2020; Battaglini, 2017) and examined the effects of protests on voting behavior and electoral competition (Madestam et al., 2013; El-Mallakh, 2020; Ellman and Wantchekon, 2000), stock market valuations (Acemoglu, Hassan, and Tahoun, 2018; Ba, Rivera, and Whitefield, 2023), women's labor market outcomes (El-Mallakh, Maurel, and Speciale, 2018), and political attitudes (Mazumder, 2018), but there is almost no research on the effects of protests on economic redistribution. Most of the work on the effects of protests on economic outcomes more generally, have focused on the economic costs of protests, with evidence showing that protests decrease stock market valuations of politically connected firms (Acemoglu, Hassan, and Tahoun, 2018) and decrease property values (Collins and Margo, 2007). Given that a major stated driver of citizen participation in protests are demands for economic redistribution, whether these protests can nudge governments to engage in more fiscal redistribution is an important, but as yet largely unaddressed part of the literature.

We also contribute to the economics literature on fiscal federalism and fiscal decentralization and a related literature on the role of party affiliation and regional favoritism in the distribution of fiscal resources (Oates, 1999, 1993; Musgrave, 1997; Poterba, 1994; Buchanan, 1950; Hoover and Pecorino, 2005; Zhuravskaya, 2000; Boadway and Shah, 2007; Hodler and Raschky, 2014; Gerber, Huber, and Washington, 2010). While this work has mostly focused on explaining the incentive structure of revenue sharing schemes under democratic regimes separately from authoritarian contexts, we show that the incentive constraints of government entities in revenue sharing environments can remain stable under both democratic and non-electoral regimes. The social science literature on regional favoritism has highlighted the role of politician origin in economic outcomes, (Hodler and Raschky, 2014; Fiva and Halse, 2016), the role of political party alignment in economic and political outcomes (Cullen, Turner, and Washington, 2019; Gerber, Huber, and Washington, 2010), and the distortions in incentives of political stakeholders that can arise as a result of regional and party favoritism (Zantman, 2002; Zhuravskaya, 2000; Casey, 2015). We add to this literature and show that political alignment matters for the disbursement behavior of central governments in response to protests. We also provide suggestive evidence that alignment can affect governments' use of violence in response to protests.

The paper is organized as follows: Section 2 provides context and historical background on intergovernmental transfers and protests in Nigeria. Section 3 outlines a simple conceptual framework. Section 4 describes the data on public finance and protests. Section 5 reports quantitative estimates of the effects of protests on intergovernmental transfers. Section 6 examines policing and state expenditure outcomes. Section 7 concludes.

2 Fiscal Redistribution and Protests in Nigeria

2.1 Intergovernmental Transfers

Nigeria is a federation comprised of a democratically elected federal government and 37 administrative 'states', consisting of 36 official states, as designated by the 1999 constitution, and a Federal Capital Territory (FCT) at Abuja.[6] (Archibong, 2019) Following Nigeria's discovery of oil in 1956, independence from British colony status in 1960 and a civil war from 1967 to 1970, partly over control over oil resources, the country has operated under fiscal federalism, where the distribution of government revenue, 80% of which comes from oil receipts, are distributed centrally from the federal government to subnational entities- states and local government areas (LGA) (Archibong, 2019; Maystadt and Salihu, 2019).

The country experienced almost three decades of military rule from 1970 to 1999[7], followed by democratic governance after 1999. Under both regimes, revenue disbursement was and continues to be extremely centralized. Apart from a constitutional requirement that 13% of gross oil revenue be shared among oil producing states in proportion to their production volumes, all revenues are remitted to the federal government (Maystadt and Salihu, 2019). The remaining revenue is paid into a Federation Account. Included in the Federation Account are revenues from oil, corporate income taxes, custom and excise duties and, notably, VAT revenue from state governments under Nigeria's highly centralized fiscal system (Alm and Boex, 2008). Given the significant share of revenues from oil in the Account, the gross amount in the Account fluctuates closely with plausibly exogenous changes in the

[6]The states can be further subdivided into 774 local government areas (LGAs), the smallest administrative unit in the country, and 6 geopolitical zones, with geographies correlating strongly with ethnicity in Nigeria as shown in Figure A2 in Appendix A.1. Of the 6 political zones, encompassing the states and LGAs, broadly, the North-West is dominated by the Hausa and Fulani ethnic groups, the North-East is largely populated by the Kanuri ethnic group, the South-West is dominated by the Yoruba ethnic group, and the South-East is dominated by the Igbo ethnic group. The Ijaw/Edo/Bini/Ibibio weakly dominate the SouthSouth zone while the North-Central is home to the Tiv, Nupe and other smaller ethnic populations (Archibong, 2019).

[7]There were brief periods of civilian rule between 1979 and 1983, and for a few months in 1993.

export price of oil (Maystadt and Salihu, 2019). Revenues are then shared by the federal government among the three levels of government according to a vertical and horizontal formula.

The vertical formula has changed over the years, ranging from 48.5% to 55% for the federal government, 24% to 30.5% for states and 10% to 20.6% for LGAs between 1981 and 2016 (Okauru, 2012; Onuigbo and Innocent, 2015). There is also a horizontal allocation formula that determines how much of this disbursed revenue should go to each state and local government. The horizontal allocation formula has also fluctuated over the years and weighted five main factors between 1981 and 2016 as follows: (1) equality of states, where each state should get an equal share (40% to 50%); (2) population (30% to 50%); (3) internal revenue generation efforts of each state (0% to 10%); (4) landmass and terrain (0% and 10%) and (5) social development factors like school enrollment, health and water (0% and 15%). Transfers to states consist of transfers from the Federation Account known as Allocations and VAT transfers remitted back to states. The VAT transfers also follow the general horizontal allocation formula, with around 50% of transfers to states shared equally, 30% in proportion to population and 20% based on the individual state's relative contribution to VAT revenues (Maystadt and Salihu, 2019).

State and local governments, including oil producing states, do not have direct control over the rate of federal transfers. The only tax revenue they directly raise and control are internally generated revenues (IGR) largely from personal income taxes and business registration and land leasing fees (Ekpo, 1994; Maystadt and Salihu, 2019; Salami, 2011). Total state revenues largely comprise of transfers and IGR. States are heavily dependent on federal transfers for revenue; between 1988 and 2016, 65% of state revenues came from Allocations or allocation transfers, 15% of state revenues came from VAT transfers, with total transfers from the federal government comprising 80% of state revenues on average. In

contrast, IGR has remained relatively small at only 20% of state revenues, on average, over the military and democratic periods.[8]

The determination of the formulas and their distribution are opaque processes in Nigeria. Since the 1980s, the Account has been administered by a federally appointed committee, currently known as the Federation Account Allocation Committee (FAAC), which meets monthly to allocate the previous month's revenue among the three levels of government. These disbursements generally occur around the middle of the month and are supposed to be publicly announced through media outlets like newspapers and tv news[9] (Maystadt and Salihu, 2019). Despite the ostensibly rule based nature of revenue sharing, there is virtually no information released by the federal government on the data components used in the formula.

At the state level, while data on the distribution of allocation transfers, making up over 60% of state revenues, are regularly publicized in media and federal documents[10], data on VAT transfers to states are much less transparent, with relatively little information shared by the federal government on the components and distribution of VAT transfers. Figure 1 shows Google Trends search rankings for 'allocation' versus 'VAT' terms in Nigeria between 2011 and 2021[11] and provides suggestive evidence of the relatively more well publicized nature of allocation versus VAT transfers in Nigeria.[12] The lack of transparency, combined with

[8]Source: Author calculations from archival data. Details provided in Section 4.

[9]The committee consists of the Federal Minister of Finance, state representatives and representatives from the Central Bank and Federal Inland Revenue Service, among others. See Maystadt and Salihu (2019) for details.

[10]For example, as highlighted in this BBC news article written in one of the local languages, Nigerian pidgin: https://www.bbc.com/pidgin/media-53470429

[11]The figure looks similar if we examine trends from the earliest available date in 2004, though after 2010, Google reports that there was a reassessment of the data for geographic location accuracy so we report trends after the reassessment in 2010.

[12]The top 5 most related search query terms for allocation and VAT in Nigeria in Table A1 in Appendix A.1 also provide further suggestive qualitative evidence that Nigerian citizens have a higher level of knowledge/information about allocation transfers than VAT transfers; people are more likely to search questions about the distribution of allocation transfers and the definition of VAT.

relatively weak institutions around monitoring leakages in Nigeria has made the Federation Account transfers a source of contention, and susceptible to political manipulation, despite the formula-based nature of revenue sharing in the country[13] (Maystadt and Salihu, 2019; Ekpo, 1994; Salami, 2011). It also allows us to examine how federal governments may use intergovernmental transfers to respond to protests within the country, despite the formula.

2.2 Protests and Government Responses

While citizens who participate in protests have many reasons for doing so, research on the drivers of protests have highlighted that, over time, poor economic conditions and economic grievances combined with factors that lower the cost of communication and organizing protests are strong predictors of higher levels of protests within countries (Enikolopov, Makarin, and Petrova, 2020; Manacorda and Tesei, 2020; Battaglini, 2017; Madestam et al., 2013). This is also true in Nigeria where many large-scale protests have been linked to economic grievances among the population. The responses to these protests from the Nigerian government have been a mixture of concession/appeasement, generally in the form of economic transfers to protesters or retractions of policies, and repression through state-sponsored violence and security clampdowns. We outline examples of notable protests over Nigeria's military and democratic periods here.

2.2.1 Military Rule

Many protests have been highlighted throughout Nigeria's history of military rule. To illustrate the different ways in which governments responded to protests, we highlight one here: the so-called 'economic riots' of the Structural Adjustment Program (SAP) era of the 1980s and 1990s (Shettima, 1993). Over the debt crisis of the 1980s, Nigeria was one of a group of African countries that qualified for loans from international financial institutions like the International Monetary Fund (IMF) and the World Bank. The loans were under

[13]Echoing issues identified with formula-based fiscal schemes in other countries in the region (Banful, 2011).

strict conditions that stipulated that countries needed to implement more free-market based policies to qualify for debt relief under so-called Structural Adjustment Programs (SAP) (Archibong, Coulibaly, and Okonjo-Iweala, 2021). Some of the SAP policies, like the removal of agricultural subsidies that kept food prices low, led to increases in food prices that were blamed for the stagnation of economic growth and increases in youth unemployment and poverty over this period (Archibong, Coulibaly, and Okonjo-Iweala, 2021; Sender, 1999). The poor economic conditions sparked a number of university student and labor union led protests over the 1980s and 1990s that were labelled "economic riots" in international news reporting[14] (Sneyd, Legwegoh, and Fraser, 2013; Shettima, 1993). The responses from the military government were a combination of concession/appeasement, in the form of transfers, like salary payments to workers, and repression- beating, arrests and killing of protest participants (Shettima, 1993).

2.2.2 Democratic Period and Occupy Nigeria Movement

As in the military period, the drivers of protest over the democratic period in Nigeria, since 1999, have been varied, with the common theme being protests around economic conditions led by labor unions and opposition party leaders in the country (Sneyd, Legwegoh, and Fraser, 2013; Bellemare, 2015; Omotola, 2009). Poor economic conditions coupled with periodic non-payment of salaries of public sector workers are often highlighted as reasons for protests, with unions organizing workers from teachers to healthcare workers to protest against government non-payment of salaries and for an improvement in working conditions[15] (Adeloye et al., 2017). Additionally there have been numerous protests in southern Nigeria, particularly in the country's southeast region where most of the nation's petroleum is located, over poor economic and environmental conditions linked to environmental degradation from oil extraction in these areas (Nwajiaku-Dahou, 2012).

[14] A headline from the New York Times from this period is shown in Figure A7.

[15] An example from recent newspaper headlines highlighting protests of government workers over non-payment of salaries is shown in Figure A8 in Appendix A.2.

Three notable protests in the past few decades include the 2007 electoral protests, the 2020 End SARS protests and the 2012 Occupy Nigeria fuel subsidy protests.[16] Among these protests in the post-military period, the 2012 Occupy Nigeria protests stand out as among the first, large-scale protests of the democratic period and one of the largest protests in the country's history (Adebayo, 2015; Adigun, 2018). As discussed previously, the 2012 Occupy Nigeria protests followed the removal of long standing fuel subsidies under the leadership of then President Goodluck Jonathan, which led to an overnight spike in gasoline prices (a 115% increase) in the country (Akanle, Adebayo, and Adetayo, 2014). The fuel subsidies were removed without warning by the federal government on January 1, 2012, and the protests began the following day on January 2, 2012. Millions of Nigerians across the country are estimated to have participated in the protests (Adebayo, 2015). The protesters demanded the reversal of the subsidy removal, since the subsidies were viewed as the most observable/directly impactful form of economic redistribution from the government to citizens (Akanle, Adebayo, and Adetayo, 2014). Labor unions played a significant role in organizing protesters, organizing strikes as part of protest activity. The most intense period of the protests lasted for almost 2 weeks, with numerous protesters killed or injured by police and security forces in the process.[17] The protests subsided after President Jonathan announced a partial reinstatement of the fuel subsidy, reducing fuel prices by 45% relative to the post subsidy removal price.

[16]The 2007 electoral protests followed the election of then president Umaru Yar'Adua and perceptions that the voting was rigged, and that the incumbent party, the People's Democratic Party (PDP) that had been in power for all of the democratic period at the time, had not done enough to improve economic conditions in the country (Omotola, 2009). The 2020 End SARS protests was partly inspired by the BLM anti-police brutality protests. The protests centered around calling for an end to police brutality spearheaded by one police unit in particular, the Special Anti-Robbery Squad (SARS), against local populations and for an improvement in economic conditions for youth. Source: https://www.bbc.com/news/world-africa-54662986

[17]Source: Vanguard News, https://www.vanguardngr.com/2012/01/12-killed-as-subsidy-protests-turn-bloody/

3 Conceptual Framework

As illustrated in the historical accounts in Section 2.2, the response to protests by federal governments is generally two-fold: a combination of concession/appeasement and repression focused tactics with the aim of quelling protests that may threaten the federal government leader's tenure in office. To fix ideas about the links between protests and intergovernmental transfers, we outline a simple conceptual framework as follows. In a principal-agent framework, there are two actors operating under a revenue sharing fiscal system: the principal is the federal government leader, f, with full control of disbursement over centrally collected revenues R and the agent is a state government leader dependent on f for revenue transfers. The objective of f is to maximize tenure in office either through minimizing the risk of coups under military governments or maximizing the probability of re-election under democratic regimes. This requires some level of cooperation or effort from state government leaders to quell protests that can jeopardize f's tenure in office. Assume agents cannot be perfectly monitored and the principal must motivate them by sharing θR with them. We consider a subset of cases where the total level of R within the country is exogenously determined, as in the case where federal government revenues come from natural resources like oil, with the value of R dependent on external natural resource price shocks.

Suppose there are n agents, and e_i refers to agent $i's$ effort, with $i = 1, ..., n$, and $e_i \in [0, +\infty)$. The agent i can choose to exert $e_i > 0$ and assist f in quelling protests or choose not to (which the f may interpret as being in opposition to f's objectives or even a sign of support for the protesters) by exerting $e_i = 0$. The cost of effort to agent i is $c(e_i)$ which we assume to be increasing and convex with $c(0) = 0$.

Under a revenue sharing scheme, agent $i's$ transferred revenue is composed of a share θ_i of the federally collected natural resource revenues. θ_i is defined such that for $(\theta_1, \theta_2, ..., \theta_n)$, $\theta_i \geq 0$ for all i and $\sum_i \theta_i \leq 1$.

The principal's objective function when the agent exerts effort e is:

$$\max_{\theta_i}(1-\theta_i)R(p,\delta)e_i \tag{1}$$

where $R(.)$ is a strictly increasing function of exogenous natural resource prices p and δ is a stochastic component of natural resource revenues[18]. The corresponding agent $i's$ function is:

$$\max_{e_i}(\theta_i)R(p,\delta)e_i - c(e_i) \tag{2}$$

and agent i chooses effort, e_i^*, so that

$$\frac{d}{de_i}(\theta_i R(p,\delta)e_i - c(e_i)) = 0; \tag{3}$$

and

$$\theta_i = \frac{c'(e_i^*)}{R(p,\delta)} \tag{4}$$

$R(p,\delta)$ is some constant term that we can assume, WLOG, equals one.

Prediction 1: *A mechanical implication of Equation 4 is that an increase in the marginal cost of the agent's effort in complying with the principal's objectives, all else equal, will be associated with an increase in the share of revenues transferred to the agent.*

Prediction 1a: *A follow up to Prediction 1 is that the principal may transfer a greater share of revenues to agent i when $e_i^* > 0$, but will reduce transfers to i when $e_i^* = 0$.*

We argue here that under a system of heterogeneous political preferences of principals

[18]Assuming the principal's country is a price-taker, δ can include factors like political instability, causing price shocks in natural resource markets.

and agents, reflected by, for example, political party systems, agents that share the same political preferences as the principal, i.e. who are from the same political party as the principal or politically aligned with the principal, have an incentive to keep the principal in office and will exert non-negative effort to do so; one way they might do this is by facilitating transfers to satisfy the unpaid salary demands of protesting public sector workers as highlighted in Section 2.2. In contrast, agents who are not from the same political party and hence have incentives to remove the principal from office may exert $e_i^* = 0$, by, for example, funding media campaigns to criticize the principal for poor economic conditions and unpaid public sector salaries or funding fellow opposition party members involved in protests to further fuel protests and signal dissatisfaction with the principal's party as highlighted in the electoral protests case described in Section 2.2. Accordingly, Prediction 1a will hold for these agents. Important to note here is that since the principal imperfectly monitors agent effort, Prediction 1a still holds if the principal only assumes or perceives negative agent effort.

Additionally, areas with higher levels of protests may have greater numbers of people with enough social capital to mobilize communities for protest, which makes it more politically costly for agents to quell protests in these regions (Bratton and Van de Walle, 1992). Accordingly, agents in these regions may need to exert more effort to quell protests, in line with the principal's objectives, and may need more resources to do so, so Prediction 1 will hold and transfers will increase in the marginal cost of agent effort. Key here is that f will respond to protests with increased transfers, θ_i, to aligned regions, based on the marginal cost of agent effort, but not to other events, like armed conflicts, battles or civil wars in states. This is because citizen-led protests against governments directly reveal citizens' relatively higher levels of social capital, reflected in their ability to mobilize against the government through protests that can threaten the principal's objective of maximizing tenure in office.[19]

[19]Areas with higher levels of social capital, among less fractionalized populations where the costs of

The principal will be more effective in using transfers in the ways described here if there is information asymmetry among citizens about the transfers, where citizens are not well informed about the distribution of the transfers.

In the Nigerian context, the principal is the federal government leader or president and the agent is the state government leader or governor. Under military rule, all agents or state governors are politically aligned since state governors were military president appointees. In contrast, under democratic regimes, political alignment is signaled by party alignment between state government leaders and the federal government head, following results from the electoral politics literature (Ellman and Wantchekon, 2000; Cox and McCubbins, 1986). As discussed in Section 2.1, information about allocation transfers are more readily available to citizens than VAT transfers, and Nigerian residents' knowledge/information about VAT transfers is relatively low.[20]

4 Description of Data

4.1 Public Finance

To assess the effects of protests on fiscal transfers from the federal government, we digitized twenty-six years of archival data on state revenues and expenditures from the Nigerian Annual Abstract of Statistics (AAS) and Ministry of Finance FAAC Reports between 1988 and 2016. The AAS are statistical reports submitted on an annual basis and contain data on allocation and VAT transfers, internally generated revenue (IGR) and recurrent and capital expenditures at the state level from 1988 to 1996, over the military period.[21] The FAAC

coordinating protests are lower, may experience high levels of protests that clearly signal this social capital to regimes, especially during economic downturns (Enikolopov, Makarin, and Petrova, 2020; González, 2020). In contrast, other citizen to citizen conflict events like battles between citizens or civil war, instead signal low levels of social capital and polarized populations that do not threaten f's objective (Montalvo and Reynal-Querol, 2005).

[20] With previous research showing that this information asymmetry makes the category more susceptible to clientelistic uses during elections (Maystadt and Salihu, 2019).

[21] There is no available complete public finance data between 1997 and 1999. An example of the archival data from the AAS reports is shown in Figure A3.

reports report monthly and total yearly transfers and allocations to states from 2000-2016, over the democratic period. It reports IGR and expenditure data at the year level only. These data sources and the variables we use in our analysis are described in detail in the data appendix in Appendix A.1.1.

Figure 2 show maps of Nigeria with its states outlined, and the shares of VAT and allocation transfers and IGR in total state revenues over the democratic period from 2000 to 2016. The spatial distribution of state revenues has remained relatively stable between the military and democratic periods, reflected in the significant positive correlations between state revenues in the military and democratic periods[22]. As documented in previous work[23], increases in plausibly exogenous oil prices are strongly positively associated with total allocation and VAT transfers to states (Maystadt and Salihu, 2019).

As mentioned in Section 2, transfers from allocations and transfers make up most of state revenues, with allocation transfers comprising 65% of total state revenues over both the military and democratic periods. VAT transfers make up 14% and 16% of total state revenues in the military and democratic eras respectively. There are no clear spatial patterns in the distribution of transfers, with transfers featuring more or less prominently in total state revenues in different regions of the country. In contrast, internally generated revenues appear to make up a larger share of total state revenues in Nigeria's relatively wealthier southern states as shown in Figure 2[24]. Between 2000 and 2016, states received, on average, 32 billion and 7.4 billion Naira each year for allocation and VAT transfers, respectively[25].

[22]Figure A5 in the Appendix shows the spatial distribution of revenue shares over the military period. The correlation between state revenues in both periods is largest for IGR at 0.66 ($p < 0.001$), followed by VAT transfers (0.61, $p < 0.001$) and allocation transfers (0.51, $p < 0.01$).

[23]And shown in Figure A4 in Appendix A.1.

[24]Located in the country's southern region, Lagos and Rivers states were the only states where IGR, not transfers, made up the the majority of state revenues. 68% and 61% of Lagos state's revenue came from IGR in the military and democratic eras respectively, while the corresponding figures for Rivers state were 53% and 63%.

[25]In real 2010 currency.

While there is no detail provided on the breakdown of the state expenditures, 65% and 56% of total state spending come from recurrent expenditures in the military and democratic periods respectively; the corresponding figures for capital expenditures are 35% and 44%. Table A2 in Appendix A.1 provides a detailed summary of the public finance statistics.

4.2 Protests

To measure protests, we use two sets of geocoded data spanning the time period of our public finance data from 1988 to 2016. For protests from the democratic period between 2000 and 2016, we employ data from the widely used Armed Conflict Location and Event Data (ACLED) project which provides geocoded data on conflict events from media, newspaper and news agency sources (e.g. The Washington Post, The Associated Press, etc.), starting in 1997 (Raleigh et al., 2010). There are eight conflict event categories recorded in the ACLED database including organized group "battles" among others; our main variable of interest is the "protests and riots" category which we refer to as protest here. Since ACLED does not contain data from the military period from 1988 to 1996, we use another dataset, the Global Data on Events Location and Tone (GDELT) project, which similarly records geocoded data on conflict and mediation events similarly extracted from media and news agency sources over the 1979 to 1999 military period in our sample[26] (Ward et al., 2013). ACLED describes protests as "demonstrations against a political entity such as a government institution" while battles are described as "violent interactions between two politically organized armed groups at a particular time and location" (Raleigh et al., 2010). Protests tend to be less violent than battles and generally result in lower fatalities.[27]

[26]GDELT includes twenty main event categories, including classifications like organized group "fights" or battles and, our main variable of interest, "protest", including reported protest and riot events. For the period of ACLED/GDELT data overlap, from 1997 to 1999 in our sample, there is a high, significant positive correlation between the number of protests recorded in the ACLED and GDELT datasets of 0.86 ($p < 0.001$).

[27]There were 4,060 fatalities recorded among protests in Nigeria between 2000 and 2016 versus 30,943 fatalities recorded from battles in the ACLED data.

Figure 3 shows the spatial distribution of protests and battles from 2000-2016.[28] Southern states, especially in the southeast region as discussed in Section 2.2.2, have a relatively higher share of protests, while the northeast region has experienced a higher share of battles over this period, following increases in attacks from the Islamic terrorist group, Boko Haram, in the country (Ekhator and Asfaw, 2018). The likelihood of high intensity, above the national mean number of protests, is higher in the democratic period than in the military period, while high intensity battles are more common in the military period than the democratic period.[29] The ACLED and GDELT datasets also list actors involved in protests for a small ($< 10\%$) subset of the data. The top three, non-state security forces, actors involved in protests in the democratic period from 2000 to 2016 are labor unions, students and political party members.[30]

4.3 Political Parties

To test hypotheses around the role of political alignment as a potential channel linking protests and revenue transfers, outlined in the framework in Section 3, we assemble a dataset of the political parties of state governors and presidents from 2000 to 2016 from publicly available data from various sources.[31] While at the presidential level, two parties, the People's Democratic Party (PDP) and, more recently, the All Progressives Congress (APC), have dominated presidential elections, with the president coming from PDP in 88% of years from 2000 to 2016, state level, gubernatorial elections have historically been a more competitive landscape. Between 2000 and 2016, ten parties elected governors into office in Nigeria. Gubernatorial elections are concurrent with presidential elections in approximately 87% of years over the democratic period, and there have been 4 elections between 2000 and 2016

[28] Figure A6 shows the spatial distribution of protests and battles from 1988-1996 in the military period.

[29] As shown in Figure A6 and Table A4.

[30] The GDELT categories are less detailed than their ACLED counterparts, with the top actors for protest participants in the military period listed as 'Nigerians' against the 'government'. Table A4 provides a summary of protest and public finance statistics in the democratic and military periods.

[31] Details are provided in Appendix A.3. There is limited publicly available complete data on vote shares over the 4 electoral years between 2000 and 2016 in Nigeria, and we provide available details in Section 5.

in 2003, 2007, 2011 and 2015[32]. State electoral politics often assume a very local character, with ethnic/ethnoregional politics playing a major role in citizen preferences over parties in gubernatorial elections (Azeez, 2009)[33]. This translates to notable heterogeneity in the likelihood of a governor being politically aligned with the president as shown in Figure 4. Notable after 2010, is the drop in the likelihood of governor-president party alignment, following the sudden death of then president Umaru Yar'Adua and the appointment of the first ever president from the south-south ethnic region, then vice-president Goodluck Jonathan.[34] Further details on party politics in Nigeria are provided in Appendix A.3.

5 Protests and Fiscal Redistribution

5.1 Protests and Intergovernmental Transfers

We can examine the relationship between protests and intergovernmental transfers by estimating the following equation:

$$y_{smt} = \phi \text{Protest}_{smt} + \mu_s + \delta_{mt} + \epsilon_{smt} \tag{5}$$

where y_{smt} is the outcome of interest for state s at month m and year t. The main outcome of interest is total transfers (allocation or VAT) to state s in month m and year t. This specification includes a set of unrestricted state fixed effects, denoted by μ_s, which capture unobserved differences that are fixed across states, like population levels and geographic

[32]Table A3 shows the distribution of parties over time. Governors are limited to 2 terms, with elections occurring every 4 years. State governor party affiliations have remained largely stable over time; only in 1.5% of cases in the democratic sample do individual governors switch parties for reelection. And in 56% of those switches, the governor switches to an opposition party from the president's party or from one opposition party to another.

[33]As mentioned in Section 2, geographies correlate strongly with ethnicity in Nigeria, which in turn correlate strongly with local party politics in the country (Azeez, 2009).

[34]The appointment was met with subsequent electoral backlash in the southwest ethnic region in the 2011 elections, with PDP partly losing gubernatorial elections to a rival southwest ethnic region voting base heavy opposition party, the Alliance for Democracy (AD) as shown in Figure A9 in Appendix A.3.

characteristics like landmass and terrain that are determinants of the standard formula for transfers as described in Section 2.1. The month-year fixed effects, δ_{mt}, control for changes in national policies (e.g. fiscal policies) and other macro factors that are changing at the month-year level. Standard errors are clustered at the state level to allow for arbitrary correlations, and all regressions include both state and month-year fixed effects. The specification captures the month to month disbursement structure of Nigeria's allocation transfers, which generally occur around mid-month as discussed in Section 2. In alternate specifications, to examine the association between protests and internally generated revenue and state expenditures where data is only available at the year level, we estimate Equation 5 at the state-year level, with state and year fixed effects.

As described in Section 4.2, we measure "Protest" in two ways designed to capture both extensive and intensive margin effects of protests. Our main protest measure is the Protest (Continuous) measure, which is the z-score, calculated as standard deviations of the total number of protests in each state from the national mean in each month and year.[35] As a robustness check, our alternate protest measure is Protest (Indicator), which is an indicator that equals one if the total number of protests in each state and month-year is greater than the national mean level of protests in each month and year.

Our protest measures are not simply measuring the numbers of protests but capturing the relative number of protests to test the hypothesis in Section 3 that federal governments will respond to relatively high, notable levels of protests within a state, and not just the raw numbers. While protests do not appear to be correlated with geographic and institutional state characteristics (Table A4 in Appendix A.4), we interpret the results from Equation 5 as robust correlations due to the possible endogeneity of the protest measure. In Section 5.3, we address these endogeneity concerns and estimate the causal effect of protests on inter-

[35]Measured as $\frac{(x_{it}-\bar{x}_t)}{\sigma_t}$ where x_{it} is the sum of protest events in state i at time t, $\bar{x}_t$ is the average number of protests in month-year t and σ_t is the standard deviation.

governmental transfers by exploiting the sudden increase in protests following the removal of the fuel subsidy in January 2012 and the subsequent Occupy Nigeria protests, as discussed in Section 2.2.2.

5.1.1 Mechanisms: The Role of Political Alignment

To test the hypothesis presented in Section 3 that the primary channel linking protests and intergovernmental transfers is political alignment, with federal governments increasing transfers to aligned states and reducing transfers to non-aligned states, we estimate Equation 6 below:

$$y_{smt} = \alpha \text{Protest}_{smt} + \beta \text{GP Aligned}_{st} + \gamma \underbrace{\text{Protest}_{smt} \times \text{GP Aligned}_{st}}_{} + \mu_s + \delta_{mt} + \epsilon_{smt} \quad (6)$$

where "GP Aligned" is an indicator that equals one if the president and state governor come from the same political party. Note, that as mentioned in Section 3, during the military period, "GP Aligned" is always equal to one and Equation 6 estimates the same model as Equation 5, since state governors are military president appointees. Our key parameter of interest γ[36] provides a statistical test of the difference in transfers in aligned versus non-aligned states.

5.2 OLS Estimates

We focus on results from the democratic period, which allows us to estimate the effects of political alignment explicitly. Figure 5 shows average VAT and allocation transfers in each year from 2000 to 2016. Trends in the unconditional means point to higher transfers in protesting areas, though with notably more variance among the less publicized VAT transfers than the more publicly announced allocation transfers; this pattern is in line with the account

[36] γ in Equation 6 equals ϕ in Equation 5 during the military period.

provided in in Section 2.1 of federal government leaders being able to more effectively use the transfer category where citizens have less information about the distribution, the VAT transfers, to respond to protests.

We estimate Equation 5 for the democratic period and examine the effects of protests on intergovernmental transfers and IGR outcomes. Panel A of Table 1 reports estimates of the effects of protests on transfers at the month-year level. The results in Table 1 show that higher levels of protests in a state are associated with both increases (column (1)) and decreases (column (2)) in revenue transfers, though the estimates are imprecise. The results change when we examine the effects of protests on transfers by political alignment in Panel B of Table 1. A 1 standard deviation increase in protests is associated with a 0.5% decrease in monthly VAT transfers in non-aligned states. In contrast, protests increase transfers in aligned states, with a 1 standard deviation increase in protests associated with a relative 1.6% increase in monthly VAT transfers and a total 1.1% increase in monthly VAT transfers. The magnitude of the effects of protests on VAT transfers by alignment is larger when we examine yearly protest and transfer outcomes in Table 2. Panel B of Table 2 shows that a 1 standard deviation increase in protests in a year is associated with a 1.5% decrease in yearly VAT transfers in non-aligned states (column (1)). It is associated with a relative 3.7% increase in yearly VAT transfers to aligned states and a total 2.2% increase in yearly VAT transfers (column (1)). While the signs on the effects of protests on allocation transfers are qualitatively similar to the VAT transfers results, the effects are not robust (column (2)). The results are robust to alternate measures of protest intensity with the indicator measure (columns (3) and (4) of Table 1 and Table 2).

To test if protests in aligned states only increase transfer revenues or if all state revenue is increased, we examine the yearly internally generated revenue outcomes in Table 2.[37]. The

[37]The internally generated revenue (IGR) is not available at the month-year level

effect of protests on IGR is negative but not robust (columns (3) and (6) of Panel A). When we examine the effects by alignment, the results show opposite results of protests on transfers by alignment with large, but imprecise estimates using our main measure of protests (column (3) of Panel B). Higher intensity protests in non-aligned regions are positively associated with IGR, while higher intensity protests in aligned regions are negatively associated with IGR. The specification is more robust with the indicator measure of protests (column (6) of Panel B). Altogether, the results show that protests are positively associated with increases in VAT transfers in aligned states, but negatively associated with VAT transfers in non-aligned states. Protests in aligned states are not associated with increases in non-transfer, internally generated revenue. One hypothesis from the IGR results is that high protest intensity states that are aligned with disbursing federal governments and receive more transfers may experience a substitution effect, where they collect less IGR as a result and vice versa; though the results on IGR should be interpreted with caution due to imprecisely measured estimates. The OLS estimates of the effects of protests on VAT transfers in Table 1 and Table 2 are robust correlations, but do not estimate a causal effect of protests on transfers, since there may be omitted variables that affect both protests and transfers not captured in the OLS equations. To address this concern and estimate a causal effect of protests on transfers, we use an event study approach exploiting the sudden increase in protests during the 2012 Occupy Nigeria demonstrations after the removal of the fuel subsidy, described in Section 2.2.2.

5.3 Evidence from the 2012 Occupy Nigeria Protests

To estimate the causal effects of protests on intergovernmental transfers, we study the fiscal response to protests using evidence from the Occupy Nigeria demonstrations that erupted after the removal of the fuel subsidy in January 2012 and shown in Figure 6. We conduct our strategy in two steps. First, we use an event study specification centered on January

2012, tracing out transfers six months before and after January 2012. This allows us to more precisely identify the effects of the 2012 Occupy Nigeria protests on transfers without confounding effects from unrelated longer-run shocks and protests that may have occurred prior (Figure 6). The baseline event study strategy is:

$$\text{Transfers}_{smt} = \alpha_s + \gamma_{mt} + \sum_{\ell \neq -1} \beta_\ell \, \mathbf{1}\{\tau_{mt} = \ell\} \text{Protest}_{smt} + \varepsilon_{smt}, \tag{7}$$

where "Protest" is the protest intensity or main z-score, standard deviation measure of protests at the state (s), month (m), year (t) level. α_s and γ_{mt} are state and month-year fixed effects respectively. τ_{mt} denotes the event time, measured in months relative to the fuel subsidy removal and onset of the 2012 Occupy Nigeria protests (January 2012). Our empirical test for identification is that, in the 6-month lead before the January 2012 fuel subsidy removal and Occupy Nigeria protests, states with higher protest intensity did not have different amounts of transfers than lower protest intensity states; or, in other words, that high protest and low protest states were following parallel pre-trends, and the β_ℓ coefficients are close to zero and not statistically significant. We also test Equation 7 replacing "Protest" with our political alignment ("GP Aligned") measure to test if there are any pre-trends in the amount of transfers going to aligned vs non-aligned states over the same period. In the second step, if the parallel pre-trends assumption holds, we can then estimate a simplified difference-in-differences (DD) specification in Equation 8:

$$\text{Transfers}_{smt} = \alpha_s + \gamma_{mt} + \theta \, \text{Protest}_{smt} + \beta \left(\text{Protest}_{smt} \times \text{Post}_{mt} \right) + \varepsilon_{smt}, \tag{8}$$

where "Post" is an indicator that equals one for months after January 2012 and 0

before. θ is the main effect of protests on transfers in the pre-fuel subsidy removal period (January 2012). β in Equation 8 is the DD estimate measuring how the effect of protests on transfers changes in the post-period (after January 2012) relative to the pre-period. We explore the political alignment channel with Equation 9 below:

$$\text{Transfers}_{smt} = \alpha_s + \gamma_{mt} + \eta\left(\text{Post}_{mt} \times \text{Protest}_{smt}\right) + \delta\left(\text{Post}_{mt} \times \text{Protest}_{smt} \times \text{GP Aligned}_{st}\right) + \varepsilon_{smt} \tag{9}$$

where η measures the effect of protests on transfers in the post-period (after January 2012) for non-aligned states, and δ measures the differential effect of protests on transfers in aligned states, relative to non-aligned states, in the post-period. The parsimonious model in Equation 9 assumes that there are no pre-trends in the effects of protests on transfers prior to the January 2012 period ("Protest" omitted), and that there is no alignment effect of protests on transfers outside the post-period ("Protest x GP Aligned" omitted). It also assumes that there is no separate "Post $\times$ Aligned" difference in transfers or that alignment does not affect transfers simply because it's in the post period ("Post $\times$ Aligned" omitted). If we find no pre-trends in Equation 7, and no trends in the alignments and transfers event study, this would provide empirical support for these assumptions. The parsimonious model also provides for easy interpretation of the total effect of protests on transfers in aligned areas, which is the sum of η and δ in Equation 9. As a robustness check, we also provide results from the fully saturated triple interaction model, including the omitted variables.[38]

5.3.1 DD Estimates

The event study plot in the top panel of Figure 7 shows no pre-trends in the effects of protests on VAT transfers over the study period pre January 2012. In the post January 2012 period,

[38]Excluding the "post" and "GP Aligned" main effects which are dropped from the estimation because of collinearity.

following the removal of the fuel subsidy and sudden spike in protest activity, there is a notable increase in VAT transfers in the month following the protests, though the estimate is imprecise, followed by decreases in VAT transfers in the proceeding months. The parallel trends assumption does not hold for allocation transfers in the bottom panel of Figure 7. There are no differential trends in the effects of political alignment on transfers over the study period in Figure 8. Since the event study plots show no pre-trends in the effects of protests on VAT transfers and no trends in alignment on transfers over the study period, this validates the DD designs in Equation 8 and Equation 9 with VAT transfers as the outcome. The results in column (1) of Table 3 show that protests have no significant effect on VAT transfers in the post January 2012 period, though the sign is negative. Column (2) of Table 3 presents the results from Equation 9. A 1 standard deviation increase in protests decreases VAT transfers to non-aligned states by 0.9% in the post January 2012 period. Conversely, a 1 standard deviation increase in protests results in a relative increase of 1.5% in VAT transfers to aligned states in the post January 2012 period; this is equivalent to a total increase of 0.6% in VAT transfers to aligned states in the post period. The results by alignment are robust to the fully saturated model specification in column (3) of Table 3. The DD results from the January 2012 Occupy Nigeria protests provide evidence for a causal effect of protests on VAT transfers by political alignment, echoing the results from the OLS estimates in Section 5.2.

5.4 Falsification Tests

We conduct a number of falsification tests on our results and explore alternate hypotheses. The results in Table 1 are robust to dropping the most populous states[39] from the sample (Table A5 in Appendix A.4) and to other measures of protests using total protests per capita or the raw total protests figure[40] (Table A6 in Appendix A.4). We show here that the results

[39]Lagos and Kano states.

[40]These specifications rely explicitly on population levels, which is a major component of the intergovernmental transfer formula as discussed in Section 2.

are robust to the military period and other conflict events, and explore close elections as a potential channel.

5.4.1 Military Period

We present the OLS estimates for the effects of protests on intergovernmental transfers over the military period in Table 4. As discussed in Section 3, all state governors are politically aligned with the president under the military period, so the effects of protests on transfers is functionally the effects of protests for aligned states on transfers in this period. The results in column (1) of Table 4 show that a 1 standard deviation increase in protests (aligned) is associated with a 3% increase in VAT transfers in the military period. Similar to the democratic period, there is no robust effect of protests in increasing allocation transfers or IGR (columns (2) and (3)).

5.4.2 Other Conflict Events

To test that our results on protests changing the distribution of VAT transfers by alignment are driven by protests and not other conflict events, we examine the relationship between battles and transfers (Table 5) and all conflict events and transfers (Table A7).The OLS results show no effect of battles on VAT transfers, including by alignment (column (1) of Panels A and B of Table 5). Battles are positively associated with allocation transfers (column (1) of Panel A), but not differentially by alignment (column (2) of Panel B). Using the event study approach, there are pre-trends in the effects of battles on VAT transfers in the top panel of Figure A11. There are no pre-trends in the effects of battles on allocation transfers in the bottom panel of Figure A11, but the post January 2012 period trend also looks largely flat, suggesting that the associations between battles and allocation transfers are not linked to the Occupy Nigeria protests.[41] There is no effect of all conflict events on

[41]The federal government often provides more allocation transfers to high battle areas in the Northeast to combat Boko Haram terror attacks, and this is publicized in news media (Abiodun, Asaolu, and Ndubuisi, 2020)

transfers (Table A7).

5.4.3 Close Elections

An alternate potential channel through which protests might affect transfers is through direct electoral competition during close elections. During close elections, the incumbent president may feel more pressured to provide transfers to protesting regions where the president's party is engaged in close elections with the opposition. While we have limited data on vote shares from the 4 gubernatorial elections between 2000 and 2016, as mentioned in Section 4.3, we examine the effects of protests on fiscal transfers by vote margins from close elections, using 3 years of available data from 2007, 2011 and 2015.[42] The results in Table A8 of Appendix A.4 do not show robust effects of protests on transfers by close election status[43], and close elections alone do not affect transfers.

6 Other Government Responses to Protests: Policing and State Expenditure

So far, our framework has examined the effects of protests on protesting citizens indirectly, through intergovernmental transfers as a game between federal and state government leaders. However, protesters may also face more direct consequences of protests in the form of violent repression from governments through increased police violence and incarceration. We test this hypothesis here.

The Nigerian Police Force is a national body under the general operational and administrative authority of an Inspector General appointed by the president and charged with

[42]The measure of close elections is 1 minus the difference between the vote share going to the winners of the gubernatorial elections and the 2nd place contestants during elections where the incumbent president's party is in the top 2 spots (all 3 elections in 2007, 2011 and 2015 where the incumbent president's party, the PDP, was running in the top 2 spots). Hence, the measure is a continuous number between 0 and 1, where higher values indicate a closer election.

[43]Column (3) of Table A8 provides suggestive evidence, using the indicator protest measure that higher protests in close election states may be associated with increases in VAT transfers versus decreases in transfers for higher protests in non-close election states.

maintaining security in the country (Archibong and Obikili, 2020). The police are also a primary instrument of state violence.[44] To test the hypothesis that governments may also respond to protests by increasing state-sponsored violence against protesters, we examine whether protests are associated with more policing, measured as the share of police among protest actors documented in the ACLED data.[45] The ACLED data over the democratic period provides the most detailed record of actors in protests as discussed in Section 4, so we report results from this dataset here. The data is available in complete form at the year level, so we evaluate OLS estimates at the state-year level. Since more policing does not necessarily mean more police violence, we check the ACLED notes for qualitative details from newspaper accounts coded by independent researchers describing actions of police towards protesters. While the notes are usually unique, non-repeating entries, the most frequently occurring note, repeated at least six times in the notes sample, is "Police disperse protest violently". 58% of cases involving police as actors during protests include mentions of police firing tear gas, shooting, killing, or otherwise clashing with protesters. The notes provide suggestive evidence that a higher share of policing in protesting areas is associated with more police violence against protesters.

As a falsification test, we examine the share of other major actors in protests, including the military, political parties, and labor unions.Table 6 reports the estimates of the effects of protests on policing. The results show that protests are strongly positively associated with policing. A one standard deviation increase in the protest measure is associated with a 2.6 percentage point (pp) increase in the police share of actors on average (column (1)). The effects differ significantly for politically aligned versus non-aligned states as shown in column (2). While protests are associated with a 4.9 pp increase in police share in non-aligned

[44]A fact which was a major driver of protests in the anti police brutality End SARS movement described in Section 2.2.

[45]The data on actors is incomplete at the month level so we aggregate to the state-year level to examine the share of police and other actors, among all protest actors.

areas, they are associated with a relative reduction (-4.6 pp) in police share in politically aligned states. The total effect of a 1 standard deviation increase in protests in aligned states is a 0.3 pp increase in the police share of actors. There is no effect of protests on the share of military actors involved (column (3) and column (4)). Columns (5)-(7) present suggestive evidence that protests are associated with increased political party actor and union involvement, in line with the historical account in Section 2.2, but not differentially by political alignment. Taken altogether, the results in Table 6 suggest that protests increase policing and police violence against protesters, particularly in states that are not politically aligned with disbursing federal governments.

We also examine yearly incarceration rates as a response to protests by governments in Table A12 in Appendix A.5. The association between protests and incarceration is positive but insignificant in the democratic period in column (1). The signs by alignment are qualitatively similar to the policing results, but imprecise in column (2). Protests are positively associated with incarceration rates in the military period (column (3)).[46] The results provide suggestive evidence that while protests can result in higher transfers to protesting regions, they can also be costly for protesters, especially under autocratic regimes.

We find no robust effects of protests on recurrent and capital state expenditure (Table A13), with the results discussed in detail in Appendix A.5.

7 Conclusion

Can protests lead to meaningful changes in government policy, particularly around the redistribution of economic resources? We address this question and examine the effects of protests on fiscal redistribution using evidence from Nigeria over its military and democratic periods

[46]The military government also incarcerated a higher share of people than democratic regimes (Figure A13). While governors and presidents are aligned in the military period, without an electoral signal, military governments are unable to collect information about which citizens are supporters and which are not, and as a result, may indiscriminately punish protesters with incarceration, reflected in the results in Table A12.

from 1988 to 2016. We construct a new dataset from 26 years of archival records on public finance in Nigeria. The dataset provides an important addition to the sparse data landscape on subnational public financing, particularly in African countries. We test the predictions of a conceptual framework that federal governments with full control of revenue transfers to states will transfer more or less revenues to states in response to protests depending on the perceived marginal cost of effort on the part of state government leaders to quell protests that may be destabilizing to the federal government leader's tenure in office. We proxy this cost of effort with political alignment between federal and state government leaders and find differing effects of protests on intergovernmental transfers by whether or not leaders are aligned or belong to the same political party. The government strategy of using transfers to respond to protests and engage in fiscal redistribution is most effective for transfers where citizens have high amounts of information asymmetry about their distribution, like VAT transfers in our setting.

Protests increase VAT transfers from disbursing federal governments to states only in states that are politically aligned with the federal government; protests reduce VAT transfers to non-aligned states. We estimate the causal effect of protests on VAT transfers using an event study approach exploiting sudden spikes in protests in the Occupy Nigeria movement following the removal of the fuel subsidy in January 2012. The results from the difference-in-differences strategy show a causal effect of protests on VAT transfers by alignment, in line with the OLS results. The positive relationship between protests in aligned areas and VAT transfers holds in both the democratic and military periods. While higher protests in aligned states can lead to more fiscal transfers to those states, protesters also face increased violence from governments, reflected in higher policing in high protest regions, particularly in states that are not aligned with federal governments. This violence may be higher under military/autocratic regimes, reflected in higher incarceration in response to protests under these regimes. Altogether, the results provide evidence that protests can influence fiscal

redistribution. The ways in which they do this depend on the political relationships between disbursing federal governments and protesting states. Further research is needed to assess the links between protests and other economic redistribution like public good provision within states.

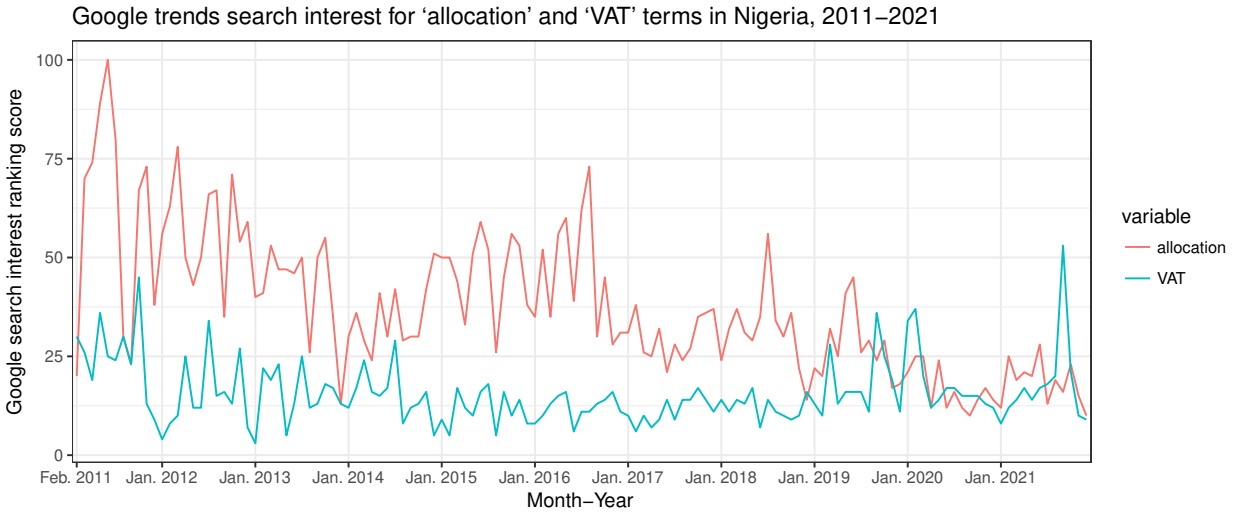


Figure 1: Google trends search interest ranking scores for 'allocation' and 'VAT' terms in Nigeria, 2011-2021

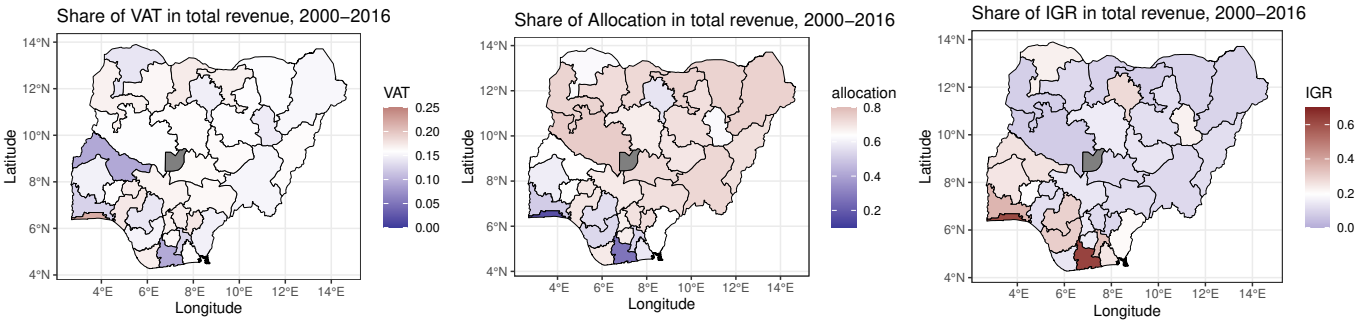


Figure 2: Share of intergovernmental transfers (VAT and Allocation) and internally generated revenue (IGR) in total revenues in democratic (2000-2016) period

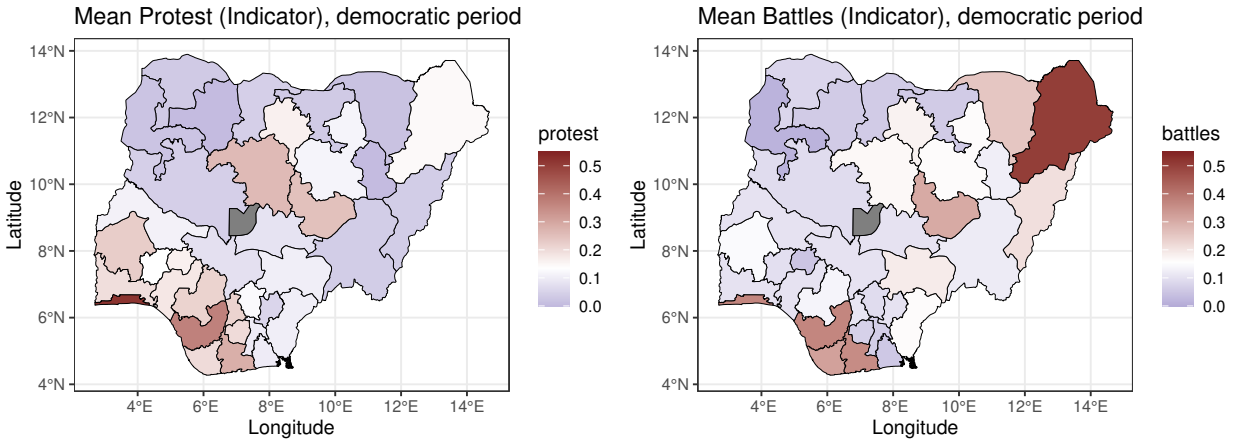


Figure 3: Mean protest and battles (indicator measure) in democratic period (2000-2016)

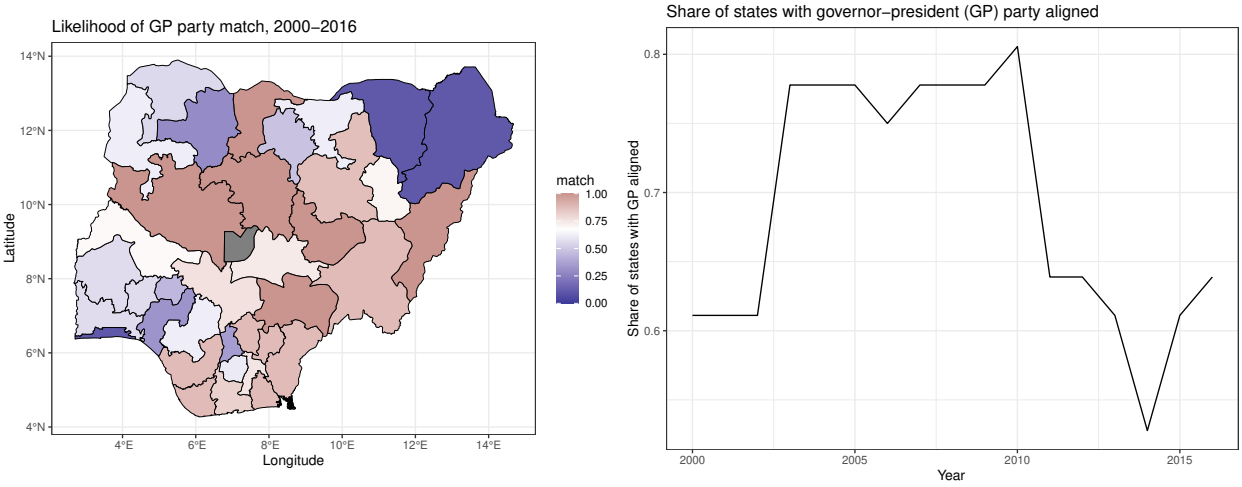


Figure 4: Likelihood of governor-president (GP) party alignment in the democratic period

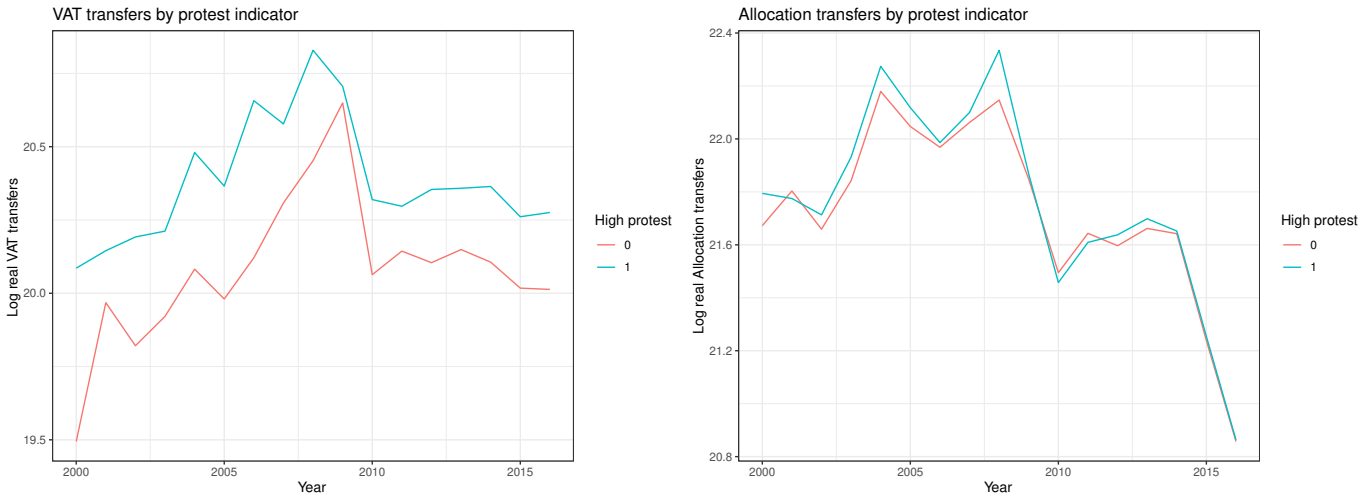


Figure 5: Average monthly VAT and Allocation transfers by protest intensity (indicator). Higher variance in VAT transfers than allocation transfers in relatively high vs low protest areas

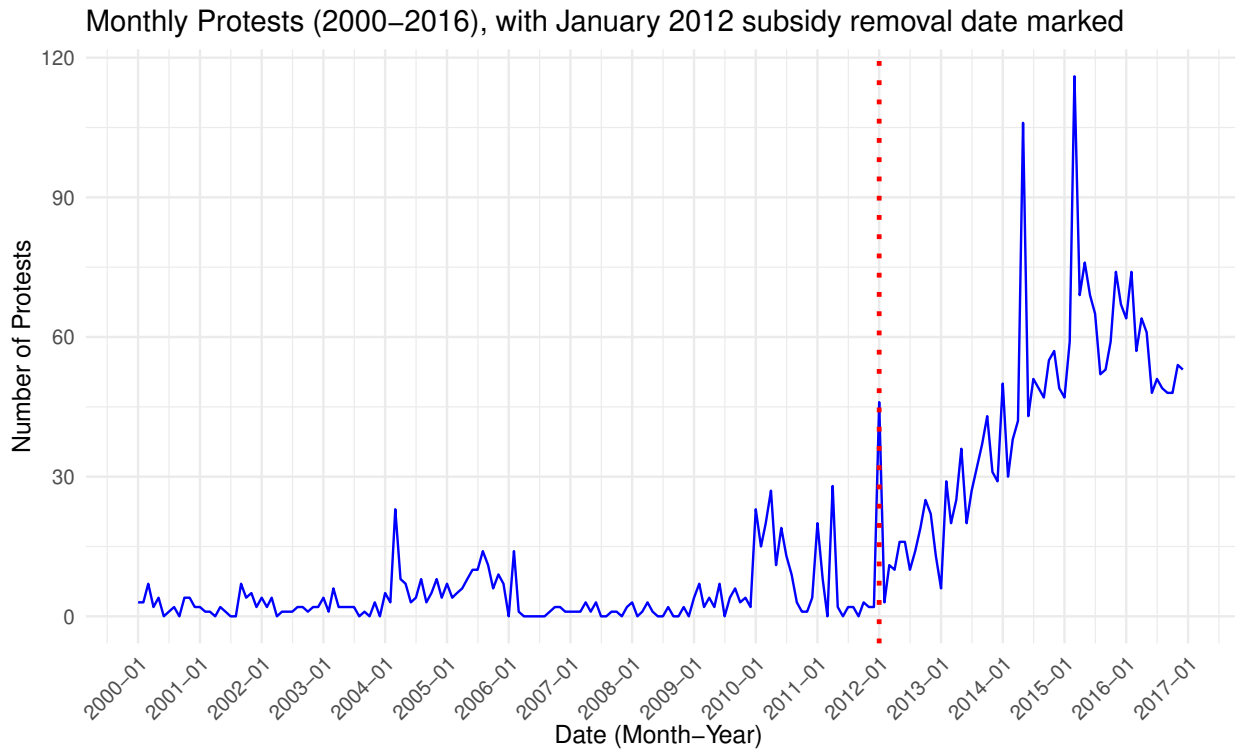


Figure 6: Total number of protests each month, with the January 2012 subsidy removal period marked, 2000-2016

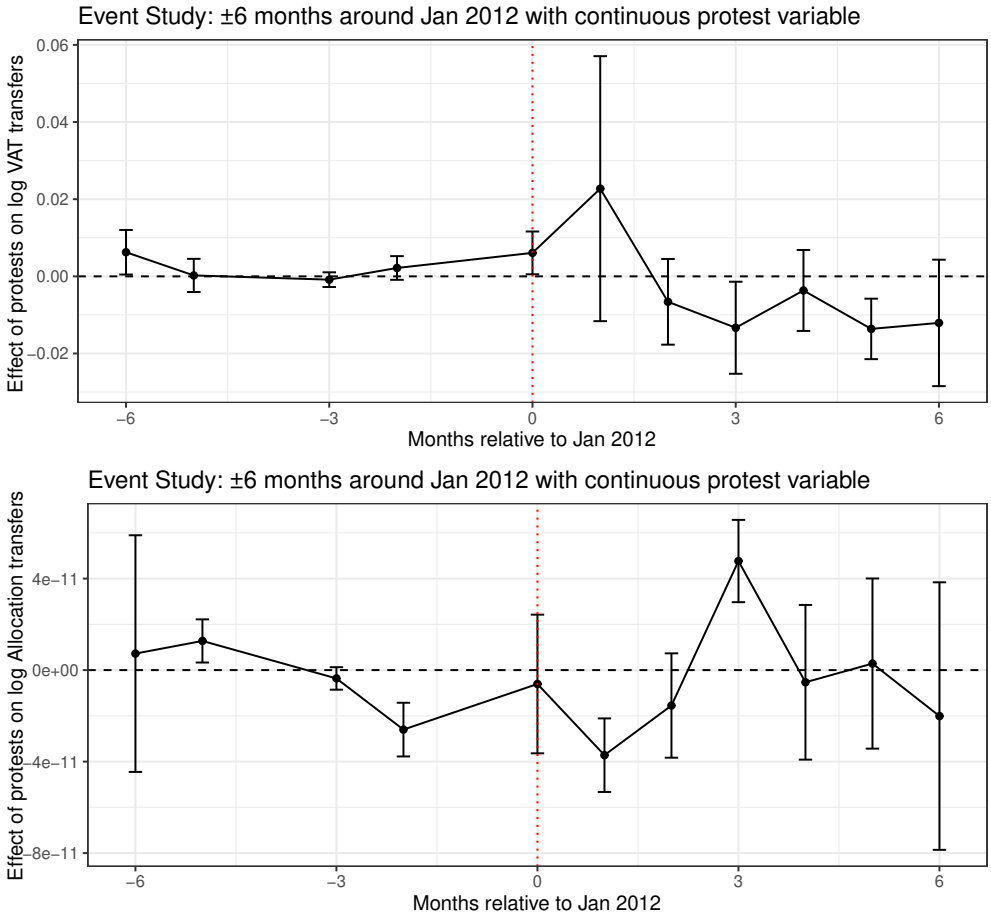


Figure 7: Event study coefficients of effects of protests on intergovernmental transfers (VAT and Allocation) over the January 2012 subsidy removal/Occupy Nigeria protests

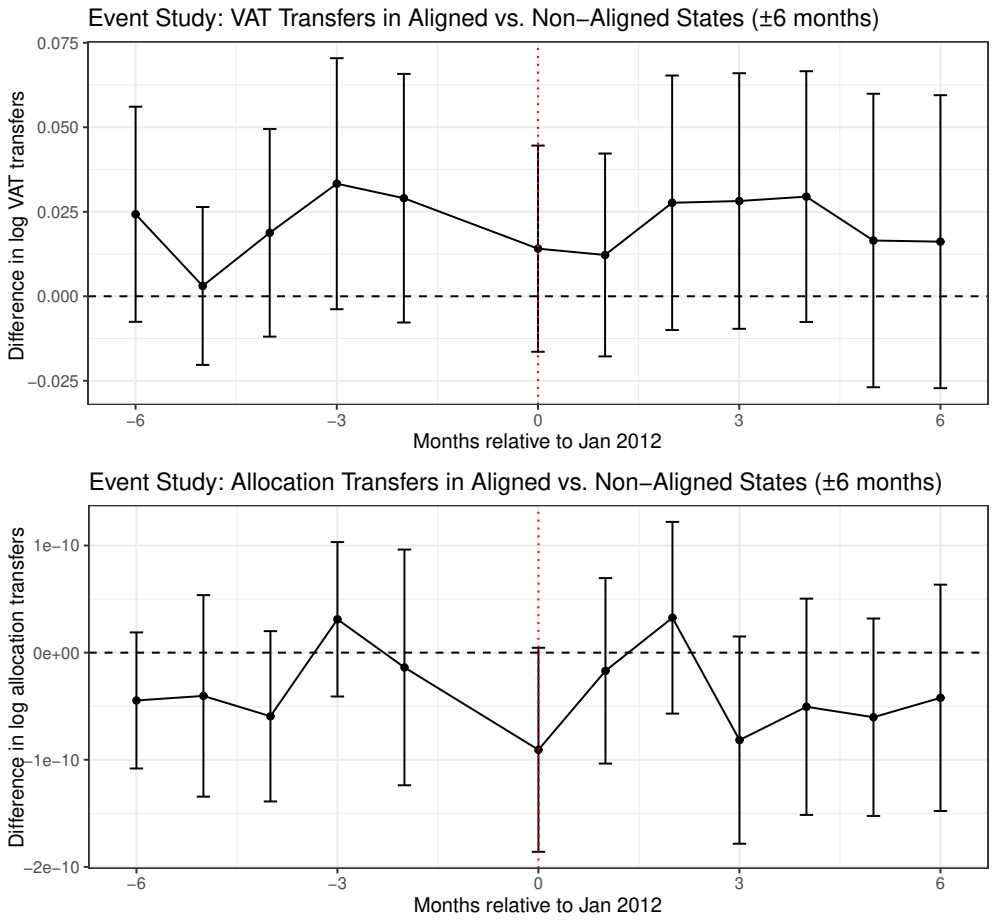


Figure 8: Event study coefficients of effects of political alignment on intergovernmental transfers (VAT and Allocation) over the January 2012 subsidy removal/Occupy Nigeria protests

Table 1: OLS Estimates: Effect of protests on intergovernmental transfers (VAT, Allocation)

	Panel A: Protest and State Revenue Outcomes			
Covariate Measure:	Protest (Continuous)		Protest (Indicator)	
Outcome:	VAT	Allocation	VAT	Allocation
	(1)	(2)	(3)	(4)
Protest	0.004	−0.002*	0.001	−0.006**
	(0.002)	(0.001)	(0.006)	(0.003)
Mean of outcome	20.120	21.726	20.120	21.726
Observations	6,696	6,696	6,696	6,696
Clusters	36	36	36	36
	Panel B: Protest and State Revenue Outcomes, by GP Alignment			
Covariate Measure:	Protest (Continuous)		Protest (Indicator)	
Outcome:	VAT	Allocation	VAT	Allocation
	(1)	(2)	(3)	(4)
Protest	−0.005*	−0.002*	−0.013	−0.007**
	(0.003)	(0.001)	(0.010)	(0.003)
Governor-President (GP) Aligned	0.023**	0.001	0.017*	0.0003
	(0.009)	(0.004)	(0.009)	(0.004)
Protest x GP Aligned	0.016***	0.0001	0.028**	0.003
	(0.005)	(0.003)	(0.013)	(0.005)
Mean of outcome	20.120	21.916	20.120	21.916
Observations	6,696	6,696	6,696	6,696
Clusters	36	36	36	36
State FE	Yes	Yes	Yes	Yes
Month-Year FE	Yes	Yes	Yes	Yes

Notes: Regressions estimated by OLS. Robust standard errors in parentheses clustered by state. Dependent variables are intergovernmental transfers: log real VAT and state allocations at the state and month-year level as described in text. Protest is the continuous z-score measure of protests from the ACLED data in columns (1) to (2) and the indicator that equals one if the total number of protests is greater than the national mean in that month and year in columns (3) to (4) as described in text and based on monthly data. Governor-President (GP) Aligned is an indicator that equals one if the president and governor of the state come from the same political party. State and month-year fixed effects included in all regressions. Observations are monthly outcomes. ***Significant at the 1 percent level, **Significant at the 5 percent level, *Significant at the 10 percent level.

Table 2: OLS Estimates: Effects of protests on intergovernmental transfers (VAT, Allocation) and internally generated revenue (IGR), yearly

	Panel A: Protest and State Revenue and IGR Outcomes					
Covariate Measure:	Protest (Continuous)			Protest (Indicator)		
Outcome:	VAT	Allocation	IGR	VAT	Allocation	IGR
	(1)	(2)	(3)	(4)	(5)	(6)
Protest	0.004	−0.003**	−0.009	−0.0002	−0.004	−0.077
	(0.003)	(0.001)	(0.050)	(0.005)	(0.003)	(0.093)
Mean of outcome	22.488	24.098	22.727	22.488	24.098	22.727
Observations	612	612	180	612	612	180
Clusters	36	36	36	36	36	36
	Panel B: Protest and State Revenue and IGR Outcomes, by GP Alignment					
Covariate Measure:	Protest (Continuous)			Protest (Indicator)		
Outcome:	VAT	Allocation	IGR	VAT	Allocation	IGR
	(1)	(2)	(3)	(4)	(5)	(6)
Protest	−0.015**	−0.002	0.085	−0.028**	−0.010*	0.209*
	(0.006)	(0.002)	(0.098)	(0.013)	(0.005)	(0.126)
Governor-President (GP) Aligned	0.026***	−0.001	−0.038	0.006	−0.003	0.133
	(0.009)	(0.005)	(0.161)	(0.007)	(0.005)	(0.164)
Protest x GP Aligned	0.037***	−0.002	−0.153	0.048**	0.008	−0.460**
	(0.011)	(0.004)	(0.128)	(0.020)	(0.007)	(0.181)
Mean of outcome	22.488	24.098	22.727	22.488	24.098	22.727
Observations	612	612	180	612	612	180
Clusters	36	36	36	36	36	36
State FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes

Notes: Regressions estimated by OLS. Robust standard errors in parentheses clustered by state. Dependent variables are intergovernmental transfers: log real VAT and state allocations and internally generated revenue (IGR) at the state and year level as described in text. Protest is the continuous z-score measure of protests from the ACLED data in columns (1) to (3) and the indicator that equals one if the total number of protests is greater than the national mean in that month and year in columns (4) to (6) as described in text and based on monthly data. Governor-President (GP) Aligned is an indicator that equals one if the president and governor of the state come from the same political party. State and year fixed effects included in all regressions. Observations are yearly outcomes. ***Significant at the 1 percent level, **Significant at the 5 percent level, *Significant at the 10 percent level.

Table 3: Effect of the Jan. 2012 fuel subsidy removal and Occupy Nigeria protests on intergovernmental transfers (VAT)

Outcome:	VAT Transfers		
	(1)	(2)	(3)
Protest x post	−0.007	−0.009***	−0.016**
	(0.006)	(0.002)	(0.007)
Protest x post x GP Aligned		0.015**	0.018**
		(0.008)	(0.009)
Protest	0.006		0.007
	(0.004)		(0.007)
Protest x GP Aligned			−0.002
			(0.007)
post x GP Aligned			0.002
			(0.007)
Mean of outcome	20.185	20.185	20.185
Observations	468	468	468
Clusters	36	36	36
State FE	Yes	Yes	Yes
Month-Year FE	Yes	Yes	Yes

Notes: Regressions estimated by OLS. Robust standard errors in parentheses clustered by state. Dependent variables are intergovernmental transfers: log real VAT at the state and month level as described in text. Protest is the continuous z-score measure of protests from the ACLED data in columns (1) to (2) based on monthly data. Governor-President (GP) Aligned is an indicator that equals one if the president and governor of the state come from the same political party. Post is an indicator that equals one if the month-year observation is after January 2012. State and month-year fixed effects included in all regressions. All interactions included in the regressions and main effects "post" and "GP Aligned" dropped because of collinearity in saturated model in column (3). Observations are monthly outcomes 6 months before and after the January 2012 fuel subsidy removal. ***Significant at the 1 percent level, **Significant at the 5 percent level, *Significant at the 10 percent level.

Table 4: OLS Estimates: Protest and intergovernmental transfers (VAT, Allocation) and internally generated revenue (IGR), military period

	Protest and State Revenue Outcomes, Military Period					
Covariate Measure:	**Protest (Continuous)**			**Protest (Indicator)**		
Outcome:	VAT	Allocation	IGR	VAT	Allocation	IGR
	(1)	(2)	(3)	(4)	(5)	(6)
Protest	0.030***	0.017	−0.019	0.091*	0.023	−0.150
	(0.007)	(0.015)	(0.025)	(0.047)	(0.066)	(0.117)
Mean of outcome	8.022	9.821	8.448	8.022	9.821	8.448
Observations	73	110	106	73	110	106
Clusters	32	34	33	32	34	33
State FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes

Notes: Regressions estimated by OLS. Robust standard errors in parentheses clustered by state. Dependent variables are intergovernmental transfers: log real VAT and state allocations, and log real internally generated revenue (IGR) at the state-year level as described in text. Protest is the continuous z-score measure of protests from the GDELT data in columns (1) to (3) and the indicator that equals one if the total number of protests is greater than the national mean in that year in columns (4) to (6) as described in text. ***Significant at the 1 percent level, **Significant at the 5 percent level, *Significant at the 10 percent level.

Table 5: OLS Estimates: Battles and intergovernmental transfers (VAT, Allocation) and internally generated revenue (IGR), democratic period

	Panel A: Battles and State Revenue Outcomes			
Covariate Measure:	Battles (Continuous)		Battles (Indicator)	
Outcome:	VAT	Allocation	VAT	Allocation
	(1)	(2)	(3)	(4)
Battles	0.001	0.002***	−0.0004	0.003*
	(0.005)	(0.001)	(0.009)	(0.002)
Mean of outcome	20.120	21.726	20.120	21.726
Observations	6,696	6,696	6,696	6,696
Clusters	36	36	36	36
	Panel B: Battles and State Revenue Outcomes, by GP Alignment			
Covariate Measure:	Battles (Continuous)		Battles (Indicator)	
Outcome:	VAT	Allocation	VAT	Allocation
	(1)	(2)	(3)	(4)
Battles	−0.007	0.003**	−0.017	0.006**
	(0.011)	(0.001)	(0.020)	(0.002)
Governor-President (GP) Aligned	0.022**	0.001	0.018**	0.002
	(0.010)	(0.004)	(0.008)	(0.004)
Battles x GP Aligned	0.012	−0.002	0.025	−0.005
	(0.012)	(0.002)	(0.020)	(0.003)
Mean of outcome	20.120	21.726	20.120	21.726
Observations	6,696	6,696	6,696	6,696
Clusters	36	36	36	36
State FE	Yes	Yes	Yes	Yes
Month-Year FE	Yes	Yes	Yes	Yes

Notes: Regressions estimated by OLS. Robust standard errors in parentheses clustered by state. Dependent variables are intergovernmental transfers: log real VAT and state allocations at the state and month-year level as described in text. Battles is the continuous z-score measure of battles from the ACLED data in columns (1) to (2) and the indicator that equals one if the total number of battles is greater than the national mean in that month and year in columns (3) to (4) as described in text and based on monthly data. Governor-President (GP) Aligned is an indicator that equals one if the president and governor of the state come from the same political party. State and month-year fixed effects included in all regressions. Observations are monthly outcomes. ***Significant at the 1 percent level, **Significant at the 5 percent level, *Significant at the 10 percent level.

Table 6: OLS Estimates: Protest and policing, share of other major actors in events

Outcome:	Police Share		Military Share		Party Share		Union Share	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Protest	0.026**	0.049***	−0.002	−0.005	0.014*	0.024**	0.008*	0.004
	(0.012)	(0.013)	(0.009)	(0.012)	(0.008)	(0.012)	(0.005)	(0.004)
Governor-President (GP) Aligned		−0.026		−0.001		−0.019		0.023
		(0.027)		(0.015)		(0.017)		(0.014)
Protest x GP Aligned		−0.046**		0.005		−0.021		0.010
		(0.018)		(0.009)		(0.013)		(0.006)
Mean of outcome	0.151	0.151	0.026	0.026	0.074	0.074	0.032	0.032
Observations	352	352	352	352	352	352	352	352
Clusters	36	36	36	36	36	36	36	36
State FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: Regressions estimated by OLS. Robust standard errors in parentheses clustered by state. Dependent variables are shares of police, military, political party or labor union actors in all protest events over 2000 to 2016 years of available data as described in text. Protest is the continuous z-score measure of protests from the ACLED data as described in text. Observations at the state-year level. ***Significant at the 1 percent level, **Significant at the 5 percent level, *Significant at the 10 percent level.

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A.1 Data Appendix

A.1.1 Data and Variable Descriptions

- Protest data from the military period is from the Global Data on Events, Location and Tone (GDELT) database, which codes contact events from newspapers over the 1979-1999 military period. The dataset can be found online here: https://www.gdeltproject.org/. It includes a classification for protests/riots, along with other event root codes like "fights" or armed battles and "provide aid", among others. Protest are explicitly coded protest/riot events, while battle events are explicitly coded as previously mentioned. Protest data from the democratic period comes form the Armed Conflict Location and Event Data (ACLED) project, which codes conflict events from newspaper reports starting in 1997 but not before. The latest version of the ACLED 2016 dataset code can be found online here: https://acleddata.com. It includes a classification for Protests and Riots combined in a single category here for comparability with the GDELT data. It also includes a category for "Violence against Civilians" and "Battles". Summary statistics are provided in Table A2.

- Data on political parties and vote shares were digitized from WorldStatemen.org. Data on vote shares in gubernatorial elections in 2007 is from Ijim-Agbor (2007). Data from 2011 elections is from the African Elections Database, and from 2015 is from ProshareNG.

- Public finance data from the military period with complete data from 1988 to 1996 were digitized from the Nigerian Annual Abstract of Statistics as shown in Figure A3. The data from the democratic period from 2000-2016 were digitized from the Annual Abstract of Statistics and the Nigerian National Bureau of Statistics (NBS) website here: https://nigerianstat.gov.ng/elibrary. Night Light Density data are from the National Oceanic and Atmospheric Administration (NOAA) database. Summary

statistics are provided in Table A2.

- Data on police, military and political party actors participation in protest and battles events comes from the ACLED dataset.

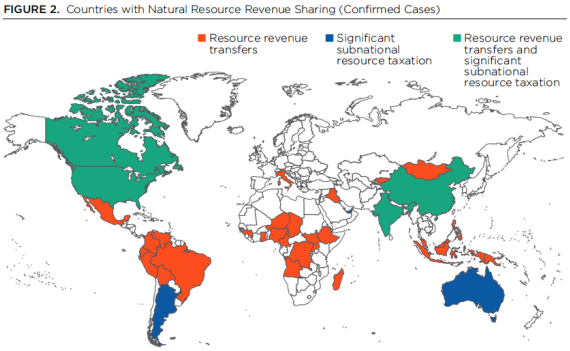


Figure A1: Countries with Natural Resource Revenue-Sharing Arrangements. Source: UNDP, 2016

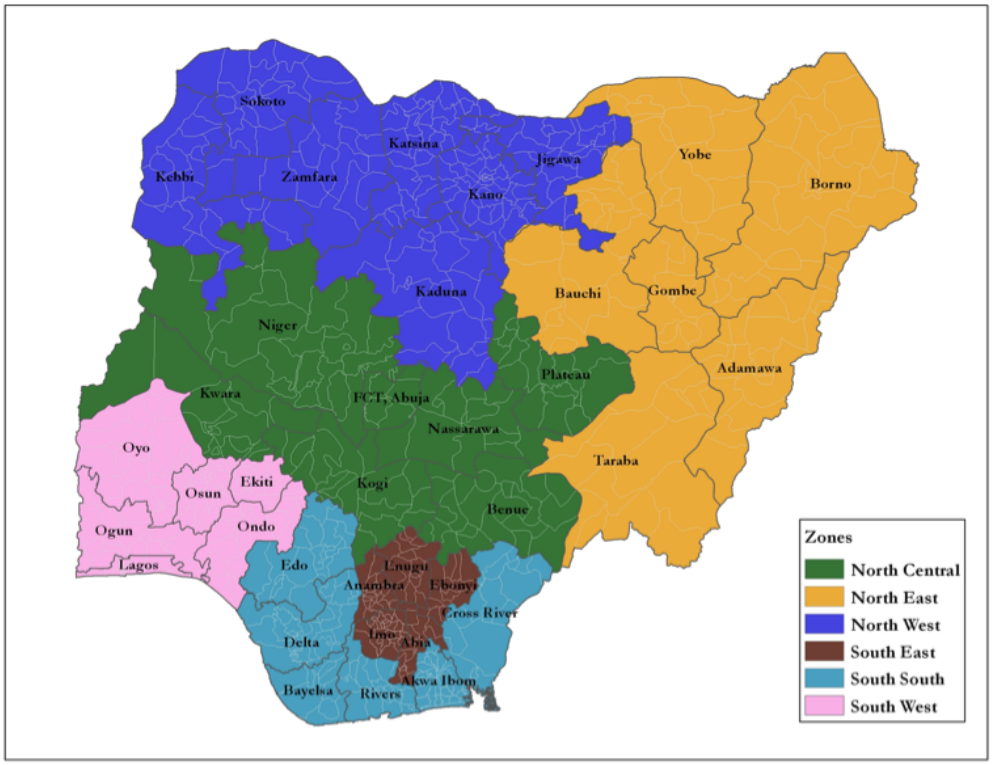


Figure A2: Nigeria with 6 geopolitical (ethnic region proxy) zones colored, LGAs outlined and state names labeled

Table A1: Google trends top related search query terms to 'allocation' and 'vat' in Nigeria, 2011-2016

Allocation	
Top 5 allocation related Google queries, February, 2011 to December, 2021	
Query	Ranking
revenue allocation	100
federal allocation	78
revenue allocation in nigeria	51
faac allocation	42
faac	36
VAT	
Top 5 VAT related Google queries, February, 2011 to December, 2021	
Query	Ranking
nigeria vat	100
vat in nigeria	85
what is vat	28
vat number	18
vat meaning	15

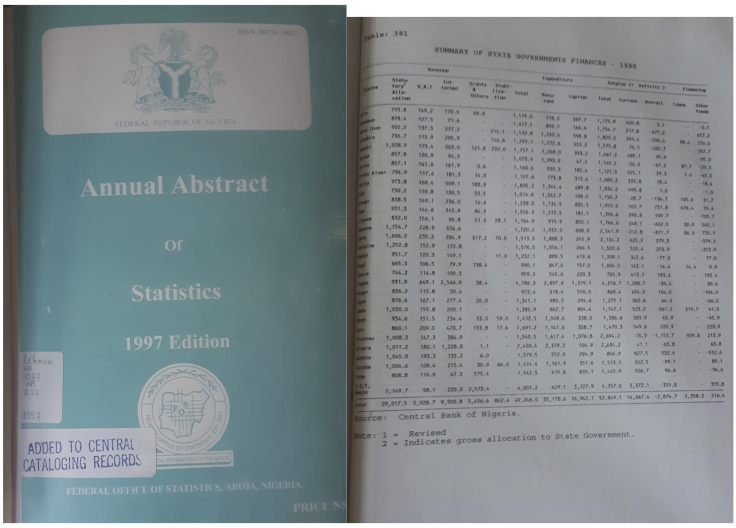


Figure A3: Example of archival data (1990) on public finance from the 1997 Annual Abstract of Statistics

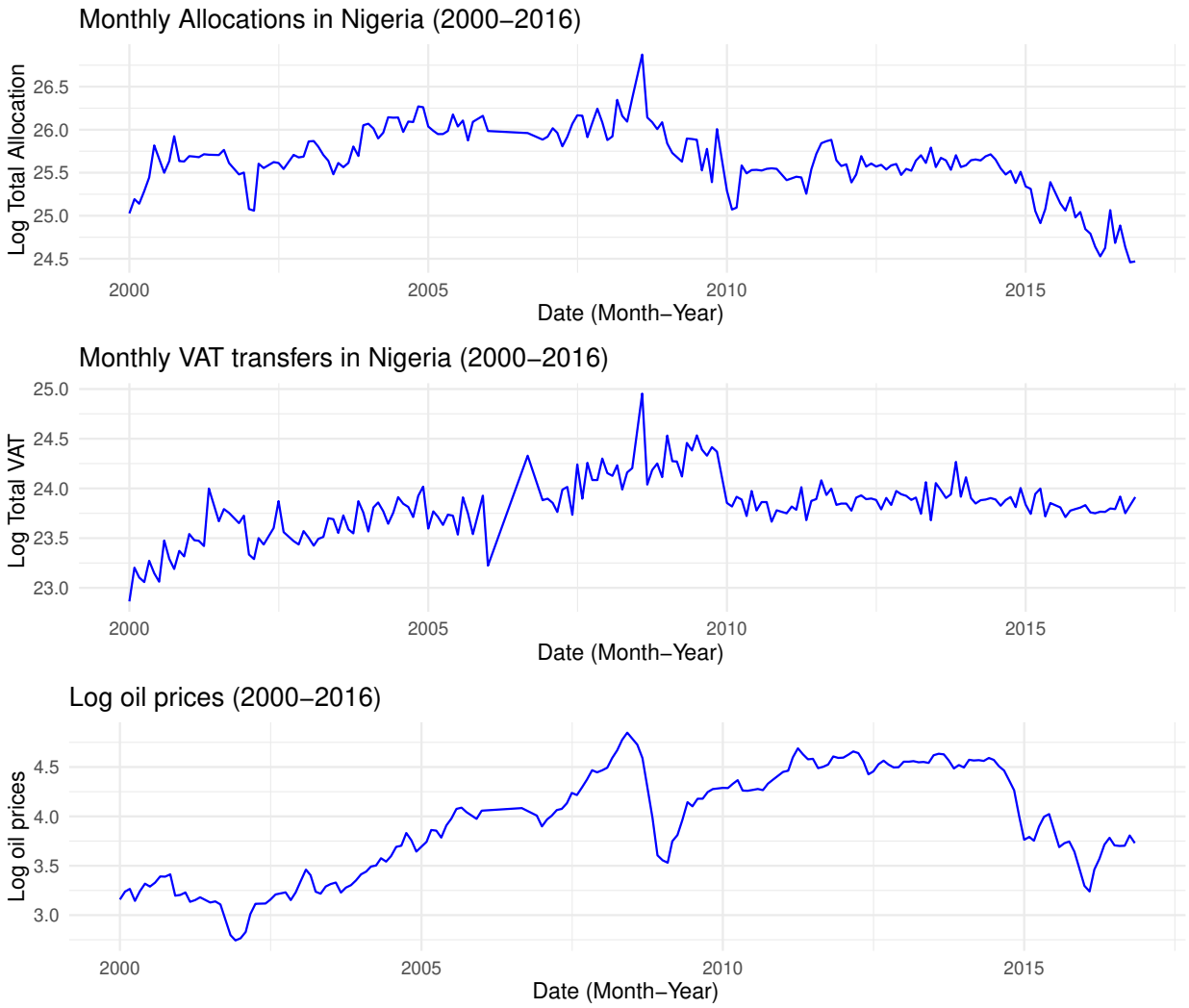


Figure A4: Oil prices and intergovernmental transfers, monthly

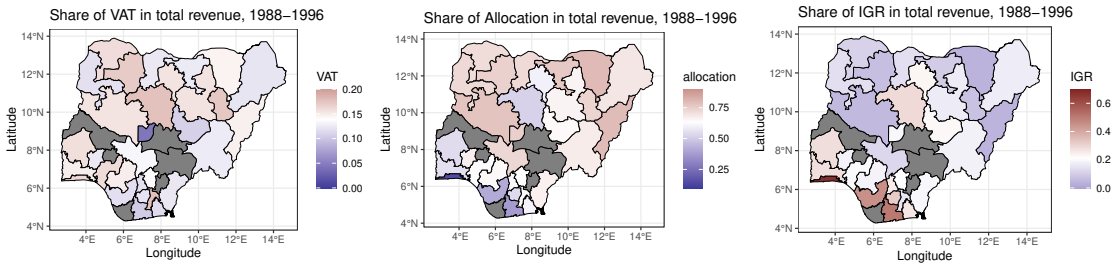


Figure A5: Share of intergovernmental transfers (VAT and Allocation) in total revenues in military period

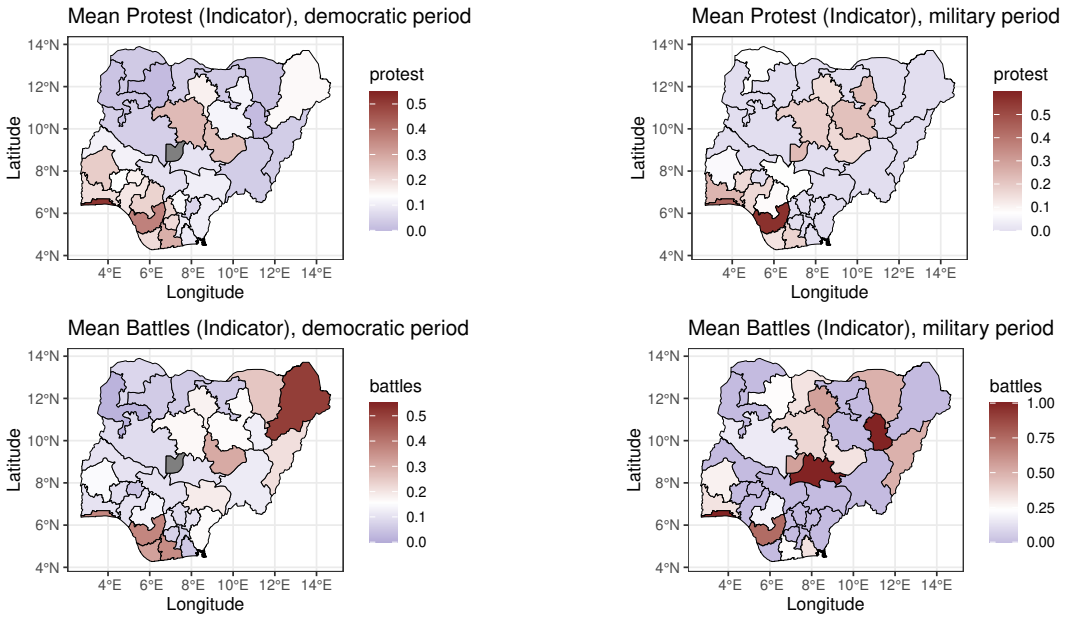


Figure A6: Mean protest and battles (indicator measure) in democratic period (2000-2016) and military period (1988-1996)

Table A2: Summary Statistics

Statistic	N	Mean	St. Dev.	Min	Max
			Public Finance and Protest, Democratic Period		
VAT	6,696	20.120	0.464	18.823	22.801
Allocation	6,696	21.916	0.583	20.462	24.372
VAT (monthly, Naira)	6,696	640,189,725	618,238,113	149,540,541	7,987,811,179
Allocation (monthly, Naira)	6,696	4,048,422,217	3,525,079,642	770,379,071	38,413,456,285
VAT (yearly, Naira)	612	7,004,428,753	6,926,934,854	1,316,174,530	75,956,027,632
Allocation (yearly, Naira)	612	44,298,219,658	39,302,844,326	8,727,354,474	363,000,000,000
Governor-President (GP) Aligned	6,696	0.683	0.465	0	1
Protest, Continuous	6,696	−0.026	0.889	−0.913	5.918
Protest, Indicator	6,696	0.142	0.349	0	1
Battles, Continuous	6,696	0.005	0.996	−0.691	5.918
Battles, Indicator	6,696	0.160	0.366	0	1
IGR	180	22.727	1.002	20.639	26.371
Recurrent Expenditure	180	24.416	0.597	23.030	26.200
Capital Expenditure	180	23.635	3.679	0.000	26.510
VAT Share	180	0.157	0.027	0.077	0.248
Allocation Share	180	0.646	0.136	0.118	0.805
IGR Share	180	0.197	0.144	0.023	0.736
Recurrent Expenditure Share	180	0.558	0.195	0.129	1.000
Capital Expenditure Share	180	0.442	0.195	0.000	0.871
			Public Finance and Protest, Military Period		
VAT	73	8.022	0.845	6.393	10.723
Allocation	110	9.871	0.783	7.297	11.629
VAT (yearly, Naira)	73	4,677.243	6,240.649	597.839	45,372.190
Allocation (yearly, Naira)	110	25,787.940	21,182.590	1,475.679	112,273.600
Protest, Continuous	145	0.349	1.422	-0.390	5.918
Protest, Indicator	145	0.090	0.287	0	1
Battles, Continuous	145	0.349	1.422	-0.390	5.918
Battles, Indicator	145	0.276	0.448	0	1
IGR	106	8.448	1.179	5.648	12.098
Recurrent Expenditure	108	9.929	0.835	7.534	12.219
Capital Expenditure	108	9.160	0.994	6.820	12.471
VAT Share	69	0.139	0.034	0.041	0.210
Allocation Share	69	0.615	0.159	0.131	0.836
IGR Share	69	0.245	0.157	0.036	0.748
Recurrent Expenditure Share	108	0.664	0.172	0.144	0.958
Capital Expenditure Share	108	0.336	0.172	0.042	0.856

Notes: Democratic period data is from 2000-2016. Military period data is from 1988-1996. Protest, Continuous is a z-score representing standard deviations from the national mean. Protest, Indicator is an indicator that equals one if the total number of protests is greater than the national mean. VAT and Allocation public finance values are logs of real values relative to 2010. IGR is internally generated revenue and VAT are transfers from the Value Added Tax revenue. Allocation (monthly, Naira) is the total monthly allocation in real 2010 Naira. Allocation (yearly, Naira) is the total yearly allocation in real 2010 Naira. VAT Share, Allocation Share and IGR Share are share of total yearly VAT, Allocation and IGR revenue in the sum of the total of these 3 revenue categories.

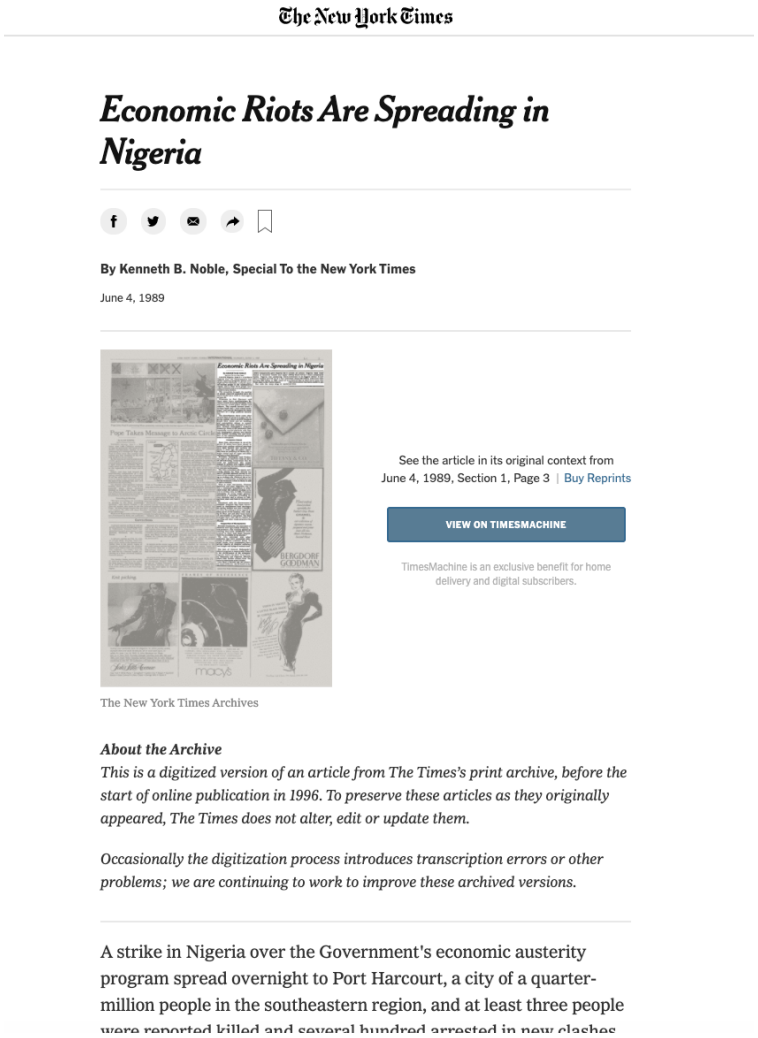
A.2 Further Detail on Protests in Nigeria

Another example of protests in Nigeria comes from the anti-oil protests in Nigeria's southern Niger Delta region. The anti-oil protests in the Niger Delta were driven by residents in Nigeria's southern oil producing region, who protested the environmental damage caused by oil production, including uncompensated oil spills and damage to farming and fishery, the primary livelihood of residents in the region from operating companies like Royal Dutch Shell (Frynas, 2001; Osaghae, 1995). The protests were ongoing for many years, with the most famous instance being the anti-Shell protests led by the Movement for the Survival of the Ogoni People (MOSOP) and culminating in the infamous execution of the movement's leader, Ken Saro-Wiwa, by then military head of state Sani Abacha, to much international outcry in 1995 (Frynas, 2001). The protests led to a number of concessions from the federal government, like the creation of an Oil Mineral Producing Areas Development Commission (OMPADEC) that allocated 1.5% to 3% of government revenue to these regions. It also led to the introduction of the 13% derivation to oil producing areas rule in the 1999 constitution. The protests were also followed by repressive tactics from military governments, including killings, arrests and floggings of protesters (Osaghae, 1995). Protests continue in this region till the present, with state residents demanding an increase in transfers and ownership rights from the federal government for exploitation of oil resources in their region (Frynas, 2001).

Sixteen states account for all of the high intensity protests in the military period, while 24 states account for 65% of this sample in the democratic period. 31% of high intensity protests in the military period were in the Niger Delta region, and 13% of protest in the SAP protests region in southwestern Nigeria following the historical account in Section 2[47]. In the democratic period, 33% of high intensity protests were in the Niger Delta region, 33% were in states where the likelihood of the president and state governor being from the

[47]The Niger Delta states include Delta, Rivers, Bayelsa, Edo and Ondo.The SAP protests were concentrated in Lagos, Ogun and Osun states.

same party was relatively low, following accounts of opposition party led protests described in Section 2. Altogether, the Niger Delta and opposition party states account for 66% of the high intensity protests in the democratic period[48].



The New York Times

Economic Riots Are Spreading in Nigeria

By Kenneth B. Noble, Special To the New York Times

June 4, 1989

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A strike in Nigeria over the Government's economic austerity program spread overnight to Port Harcourt, a city of a quarter-million people in the southeastern region, and at least three people were reported killed and several hundred arrested in new clashes

Figure A7: New York Times article on "Economic Riots" in Nigeria (1989)

[48]The Niger Delta states include Delta, Edo, Rivers, Bayelsa, Imo Ondo, Akwa-Ibom and Abia. The opposition party states include Ekiti, Lagos, Osun, Ogun, Oyo, Kware, Kogi and Borno.



Workers protest non-payment of over three years salaries in Cross River

Published on May 25, 2021
By **Edem Edem**



Figure A8: News headlines from the 2000s: Workers protest over unpaid salaries in Nigeria

A.3 Party Politics in Nigeria

Though political parties have a long history pre the 1999 democratic elections in Nigeria, only 3 of 9 existing parties (namely Alliance for Democracy (AD), the All People's Party (APP), and the People's Democratic Party (PDP)) were granted registration by the then military president Abdulsalami Abubakar in 1999 upon transition to democracy (Azeez, 2009). The PDP then dominated presidential elections for 15 years with 88% of presidents elected between 2000 and 2016 coming from PDP. Gubernatorial elections in Nigeria are usually very localized events, with citizens focused on regional issues, often along ethnic lines (Azeez, 2009). Ten parties have elected governors between 2010 and 2016 as shown in Table A3. Most governors over the democratic period have come from the main PDP party, with a drop-off after 2010 following the sudden death of then PDP party president Umaru Yar'Adua in 2010 as shown in Figure A9.

The president's death and the appointment and subsequent election of his vice president, Goodluck Jonathan, the first president from the south-south ethnic region in Nigeria, was heavily contested, with many groups contesting the election of a president from the south-south ethnic region (Owen and Usman, 2015). Jonathan's loss in the 2015 election was reportedly partly as a result of the backlash from his contravening the country's unofficial "power-sharing" rule, an unofficial agreement to alternate power sharing between the northern and southern ethnic regions of the country, by running for re-election (Owen and Usman, 2015). Multiple opposition parties (ACN, ANPP, CPC and APGA) consolidated forces to form the APC party in 2013 ahead of the 2015 elections, and then president Jonathan lost the presidential elections in 2015 becoming the first incumbent to lose re-election in Nigeria's democratic history, and changing the balance of power among parties of elected state governors as well to majority APC as shown in Figure A9 (Owen and Usman, 2015). Figure A10 shows the strong ethnoregional clustering of parties of elected state governors in Nigeria.

Table A3: Distribution of state governor and president parties, 2000-2016

State Governor Party	Share of Total
PDP	0.649
APC	0.118
ANPP	0.109
AD	0.036
ACN	0.029
APGA	0.021
APP	0.015
LP	0.013
PPA	0.007
CPC	0.003

President Party	Share of Total
PDP	0.882
APC	0.118

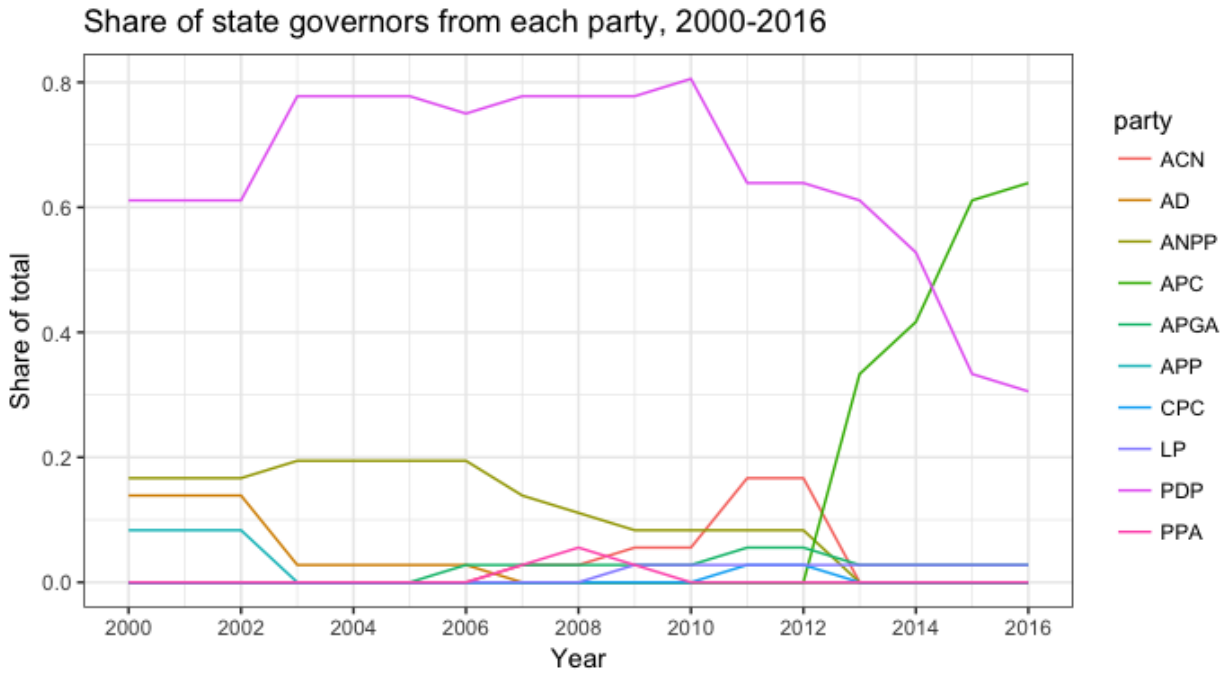


Figure A9: Share of state governors from registered political parties, 2000-2016

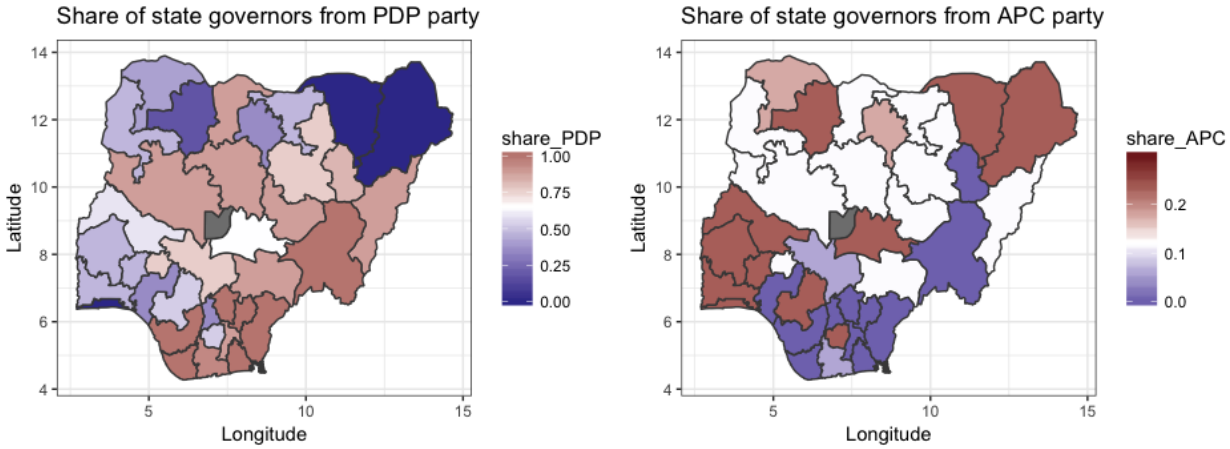


Figure A10: Share of state governors from PDP versus other opposition parties (APC) by state, 2000-2016

A.4 Robustness

Table A4: Balance on geographic and institutional characteristics

	Protest Average and State Characteristics							
	Geographic						Institutional	
	Petrol	Malaria	Suitability	Elevation	Dist. Coast	Dist. Capital	Slavery	Centralization
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Protest (Indicator)	0.376	−0.054	−0.130	319.411	0.398	33.413	−243961.509	0.023
	(0.200)	(0.041)	(0.697)	(452.600)	(0.431)	(215.557)	(187416.445)	(0.955)
Observations	36	36	36	36	36	36	36	36
R^2	0.771	0.246	0.438	0.530	0.911	0.529	0.462	0.490
Zone FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: Regressions estimated by OLS. Robust standard errors in parentheses. Observations at the state level averages over 2000-2016. Zone is geopolitical zone. 'Protest (Indicator)' is the share of years where the state is experiencing high levels (above the national average in total numbers) of protests, taking the long-run average of the Protest indicator. Petrol is an indicator that equals 1 if the state has recorded deposits of petroleum from the PRIO dataset. Suitability is land suitability for agriculture from FAO data. Elevation is mean elevation in km from the Global Climate database. Seacoast is an indicator that equals one if the state shares a border with the sea coast. Dist. Capital is average distance to the capital in km. Malaria stability is from the malaria ecology index from Kiszewski et al., (2004). Pop. Density is the average LGA population density in 2006. Slavery is the total exports of slaves from the region during the Atlantic slave trade. Centralization index is the level of precolonial centralization from Murdock ethnicity data (Murdock, 1967) (following Archibong (2019)). ***Significant at the 1 percent level, **Significant at the 5 percent level, *Significant at the 10 percent level.

Table A5: OLS Estimates: Protest and intergovernmental transfers (VAT, Allocation) dropping most populous states, Lagos and Kano

Sample:	No Lagos		No Kano	
Outcome:	VAT	Allocation	VAT	Allocation
	(1)	(2)	(3)	(4)
Protest	−0.007*	−0.003**	−0.006**	−0.002*
	(0.004)	(0.001)	(0.003)	(0.001)
Governor-President (GP) Aligned	0.018**	0.003	0.025***	0.001
	(0.008)	(0.004)	(0.009)	(0.005)
Protest x GP Aligned	0.013**	0.003**	0.017***	0.0001
	(0.006)	(0.001)	(0.005)	(0.003)
Mean of outcome	20.066	21.912	20.107	21.909
Observations	6,510	6,510	6,510	6,510
Clusters	36	36	36	36
State FE	Yes	Yes	Yes	Yes
Month-Year FE	Yes	Yes	Yes	Yes

Notes: Regressions estimated by OLS. Robust standard errors in parentheses clustered by state. Dependent variables are intergovernmental transfers: log real VAT and state allocations at the state and month-year level as described in text. Protest is the continuous z-score measure of protests from the ACLED data as described in text and based on monthly data. Governor-President (GP) Aligned is an indicator that equals one if the president and governor of the state come from the same political party. State and month-year fixed effects included in all regressions. Observations are monthly outcomes. ***Significant at the 1 percent level, **Significant at the 5 percent level, *Significant at the 10 percent level.

Table A6: OLS Estimates: Other protest measures and intergovernmental transfers (VAT, Allocation)

Outcome:	**Panel A: Other Protest Measures and State Revenue Outcomes**			
	VAT	Allocation	VAT	Allocation
	(1)	(2)	(3)	(4)
Protests per cap.	0.014	−0.031		
	(0.104)	(0.064)		
Total Protests			0.004	−0.004***
			(0.007)	(0.001)
Mean of outcome	20.120	21.726	20.120	21.726
Observations	6,696	6,696	6,696	6,696
Clusters	36	36	36	36
Outcome:	**Panel B: Other Measures and State Revenue Outcomes, by GP Alignment**			
	VAT	Allocation	VAT	Allocation
	(1)	(2)	(3)	(4)
Protests per cap.	−0.097	−0.012		
	(0.129)	(0.064)		
Total Protests			−0.00001	−0.004***
			(0.008)	(0.001)
Governor-President (GP) Aligned	0.018*	0.001	0.017*	0.001
	(0.010)	(0.004)	(0.009)	(0.004)
Protests per cap. x GP Aligned	0.296**	−0.035		
	(0.146)	(0.056)		
Total Protests x GP Aligned			0.010**	−0.001
			(0.005)	(0.002)
Mean of outcome	20.120	21.916	20.120	21.916
Observations	6,696	6,696	6,696	6,696
Clusters	36	36	36	36
State FE	Yes	Yes	Yes	Yes
Month-Year FE	Yes	Yes	Yes	Yes

Notes: Regressions estimated by OLS. Robust standard errors in parentheses clustered by state. Dependent variables are intergovernmental transfers: log real VAT and state allocations at the state and month-year level as described in text. Protests per cap. is total numbers of protests per 100,000 population (2016 population). Total protests is the total number of protests. Governor-President (GP) Aligned is an indicator that equals one if the president and governor of the state come from the same political party. State and month-year fixed effects included in all regressions. Observations are monthly outcomes. ***Significant at the 1 percent level, **Significant at the 5 percent level, *Significant at the 10 percent level.

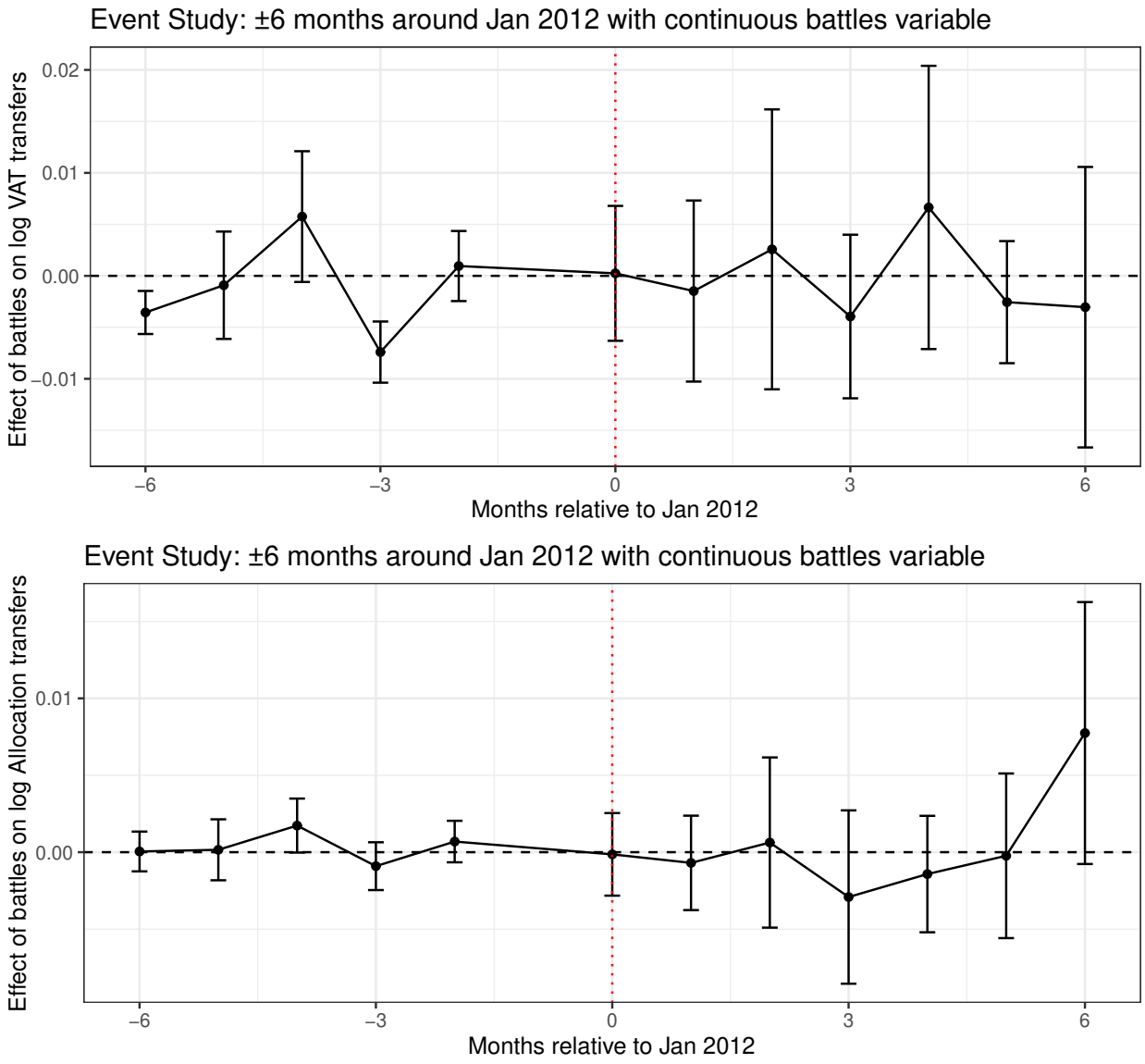


Figure A11: Event study coefficients of effects of battles on intergovernmental transfers (VAT and Allocation) over the January 2012 subsidy removal

Table A7: OLS Estimates: All conflict events and intergovernmental transfers (VAT, Allocation)

	Panel A: All Events and State Revenue Outcomes			
Covariate Measure:	All Events (Continuous)		All Events (Indicator)	
Outcome:	VAT	Allocation	VAT	Allocation
	(1)	(2)	(3)	(4)
All Events	0.002	0.001*	0.001	0.0002
	(0.005)	(0.001)	(0.005)	(0.001)
Mean of outcome	20.120	21.726	20.120	21.726
Observations	6,696	6,696	6,696	6,696
Clusters	36	36	36	36
	Panel B: All Events and State Revenue Outcomes, by GP Alignment			
Covariate Measure:	All Events (Continuous)		All Events (Indicator)	
Outcome:	VAT	Allocation	VAT	Allocation
	(1)	(2)	(3)	(4)
All Events	−0.012	0.003*	−0.020	0.003
	(0.013)	(0.001)	(0.016)	(0.003)
Governor-President (GP) Aligned	0.024**	0.001	0.015**	0.002
	(0.010)	(0.004)	(0.006)	(0.004)
All Events x GP Aligned	0.021	−0.002	0.031	−0.004
	(0.015)	(0.002)	(0.021)	(0.005)
Mean of outcome	20.120	21.916	20.120	21.916
Observations	6,696	6,696	6,696	6,696
Clusters	36	36	36	36
State FE	Yes	Yes	Yes	Yes
Month-Year FE	Yes	Yes	Yes	Yes

Notes: Regressions estimated by OLS. Robust standard errors in parentheses clustered by state. Dependent variables are intergovernmental transfers: log real VAT and state allocations at the state and month-year level as described in text. All Events is the continuous z-score measure of all conflict events from the ACLED data in columns (1) to (2) and the indicator that equals one if the total number of events is greater than the national mean in that month and year in columns (3) to (4) as described in text and based on monthly data. Governor-President (GP) Aligned is an indicator that equals one if the president and governor of the state come from the same political party. State and month-year fixed effects included in all regressions. Observations are monthly outcomes. ***Significant at the 1 percent level, **Significant at the 5 percent level, *Significant at the 10 percent level.

Table A8: OLS Estimates: Protest and intergovernmental transfers (VAT, Allocation) by close election vote margin

Covariate Measure:	**Protest (Continuous)**		**Protest (Indicator)**		**Vote Margin**	
Outcome:	VAT	Allocation	VAT	Allocation	VAT	Allocation
	(1)	(2)	(3)	(4)	(5)	(6)
Protest	0.001	−0.001	−0.050*	−0.010		
	(0.006)	(0.004)	(0.029)	(0.011)		
Vote Margin (Close Election, CE)	−0.020	−0.003	−0.033	−0.004	−0.019	−0.005
	(0.031)	(0.014)	(0.038)	(0.014)	(0.030)	(0.015)
Protest x CE	0.007	−0.007	0.096*	−0.005		
	(0.013)	(0.007)	(0.053)	(0.023)		
Mean of outcome	20.120	21.916	20.120	21.916	20.120	21.916
Observations	1,039	1,039	1,039	1,039	1,039	1,039
Clusters	36	36	36	36	36	36
State FE	Yes	Yes	Yes	Yes	Yes	Yes
Month-Year FE	Yes	Yes	Yes	Yes	Yes	Yes

Notes: Regressions estimated by OLS. Robust standard errors in parentheses clustered by state. Dependent variables are intergovernmental transfers: log real VAT and state allocations at the state and month-year level as described in text. Protest is the continuous z-score measure of protests from the ACLED data in columns (1) to (2) and the indicator that equals one if the total number of protests is greater than the national mean in that month and year in columns (3) to (4) as described in text and based on monthly data. Vote Margin is 1 minus the vote margin, which is the difference between the share of votes by the winner of the gubernatorial elections and the 2nd place party when the incumbent president's party (PDP) is running in elections, and generally placed within the top 2 candidates in the 2007, 2011 and 2015 elections. ***Significant at the 1 percent level, **Significant at the 5 percent level, *Significant at the 10 percent level.

Table A9: OLS Estimates: Battles and policing, share of other major actors in events

Outcome:	Police Share		Military Share		Party Share		Union Share	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Battles	0.023**	0.038***	0.012	0.004	0.008	0.004	−0.004	−0.006
	(0.010)	(0.010)	(0.011)	(0.006)	(0.010)	(0.005)	(0.003)	(0.004)
Governor-President (GP) Aligned		−0.033		−0.003		−0.021		0.021
		(0.027)		(0.013)		(0.018)		(0.013)
Battles x GP Aligned		−0.021		0.012		0.008		0.001
		(0.015)		(0.012)		(0.016)		(0.005)
Mean of outcome	0.151	0.151	0.026	0.026	0.074	0.074	0.032	0.032
Observations	352	352	352	352	352	352	352	352
Clusters	36	36	36	36	36	36	36	36
State FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: Regressions estimated by OLS. Robust standard errors in parentheses clustered by state. Dependent variables are shares of police, military, political party or labor union actors in all battles events over 2000 to 2016 years of available data as described in text. Battles is the continuous z-score measure of battles from the ACLED data as described in text. ***Significant at the 1 percent level, **Significant at the 5 percent level, *Significant at the 10 percent level.

Table A10: Petroleum prices and protest

Outcome:	Protest (Continuous)	Protest (Indicator)
	(1)	(2)
Petrol x Petrol Price	−0.001	−0.0003
	(0.001)	(0.0004)
Mean of outcome	−0.026	0.142
N	6,696	6,696
Clusters	36	36
State FE	Yes	Yes
Month-Year FE	Yes	Yes

Notes: Regressions estimated by OLS. Robust standard errors in parentheses clustered by state. Dependent variables are protest variables. Protest is the continuous z-score measure of protests from the ACLED data in column (1) and the indicator that equals one if the total number of protests is greater than the national mean in that month and year in columns (2) as described in text and based on monthly data. Petrol is an indicator that equals one if the state is a petroleum producing area. Petrol Price is the log oil price of petroleum over 2000-2016. Observations are at the month-year level and month-year fixed effects are included in all specifications. ***Significant at the 1 percent level, **Significant at the 5 percent level, *Significant at the 10 percent level.

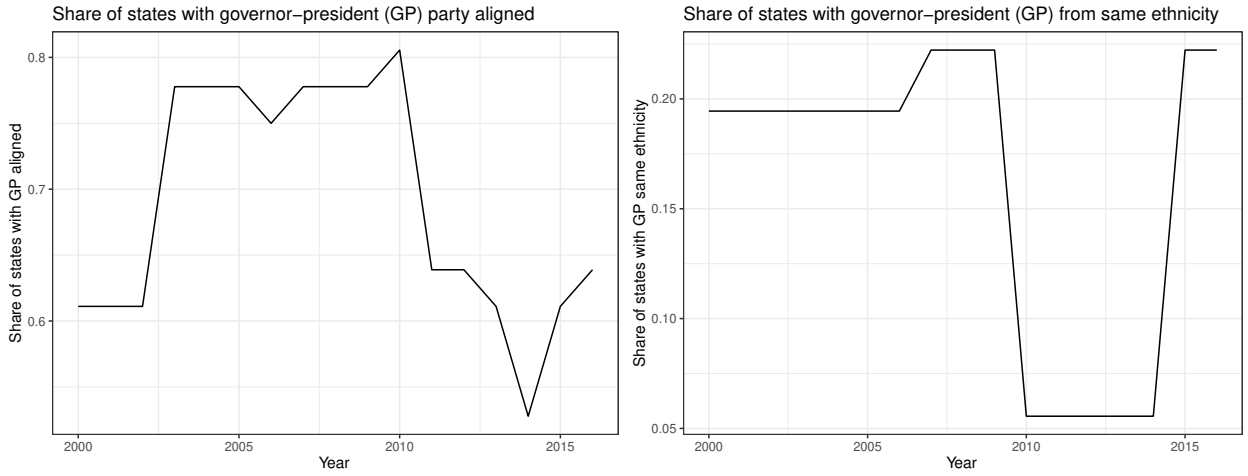


Figure A12: Share of governors from the same political party (left) and from the same ethnicity (right) as the president

Table A11: OLS Estimates: Protests and intergovernmental transfers (VAT, Allocation), by shared governor-president ethnicity

Covariate Measure:	Protest (Continuous)		Protest (Indicator)	
Outcome:	VAT	Allocation	VAT	Allocation
	(1)	(2)	(3)	(4)
Protest	0.009	−0.002	0.011	−0.006**
	(0.006)	(0.001)	(0.011)	(0.003)
Governor-President (GP) Same Ethnicity	−0.010	0.018***	−0.0001	0.017***
	(0.023)	(0.004)	(0.022)	(0.005)
Protest x GP Same Ethnicity	−0.035**	0.003	−0.076*	0.008
	(0.014)	(0.002)	(0.040)	(0.006)
Mean of outcome	20.120	21.916	20.120	21.916
Observations	6,696	6,696	6,696	6,696
Clusters	36	36	36	36
State FE	Yes	Yes	Yes	Yes
Month-Year FE	Yes	Yes	Yes	Yes

Notes: Regressions estimated by OLS. Robust standard errors in parentheses clustered by state. Dependent variables are intergovernmental transfers: log real VAT and state allocations at the state and month-year level as described in text. Protest is the continuous z-score measure of protests from the ACLED data in columns (1) to (2) and the indicator that equals one if the total number of protests is greater than the national mean in that month and year in columns (3) to (4) as described in text and based on monthly data. Governor-President (GP) Same Ethnic is an indicator that equals one if the president and governor of the state come from the same ethnicity. State and month-year fixed effects included in all regressions. Observations are monthly outcomes. ***Significant at the 1 percent level, **Significant at the 5 percent level, *Significant at the 10 percent level.

A.5 Government Responses to Protests: State Expenditure and Night Light Density, Incarceration

In Section 2.2, we document that a major stated grievance among protesters, including protesting public sector union workers is, and has historically been economic reasons like non-payment of salaries, generally poor economic conditions and low levels of public service provision. Do states with more protests, especially aligned states that receive more revenue have higher state spending and economic activity? We examine correlations between protests, state expenditure and economic activity outcomes. The economic activity outcomes are proxied by night light density using available yearly satellite data from the National Oceanic and Atmospheric Administration (NOAA) Defense Meteorological Satellite Program's Operational Linescan System (DMSP-OLS) from 1992-2013.[49]

While there is no publicly available data on the details of state spending in Nigeria, evidence from the scholarly literature highlights that the major category for state recurrent expenditure is spending on salaries and personnel costs of public sector employees, while capital spending includes spending on new infrastructure like schools and health facilities (Asimiyu, Kizito et al., 2014). The results in Table A13 show no significant association between our main protest measure and recurrent and capital expenditure (column (1) and (2) of Panels A and C), especially in politically aligned states (column (1) and column (2) of Panel B). The estimates while imprecise show similar signs across all specifications with the sign positive for protests in aligned regions and recurrent and capital expenditure in Panel B and negative for protests in non-aligned regions, though we do not interpret any coefficients here since these estimates are not robust. While protests are positively associated with higher economic activity or night light density in column (1) of Table A14, aligned areas do not

[49]Night light density frequently used as a measure of economic activity, correlates positively with per capita income as shown in other studies (Pinkovskiy and Sala-i Martin, 2016).

have higher night light density (column (3)).[50] The results here are suggestive correlations and estimates should be taken with caution. Further research is needed to estimate the effects of protests on state expenditure and public service provision.

The results from the regressions estimating the effects of protests on state recurrent and capital expenditure, night light density outcomes are shown here.

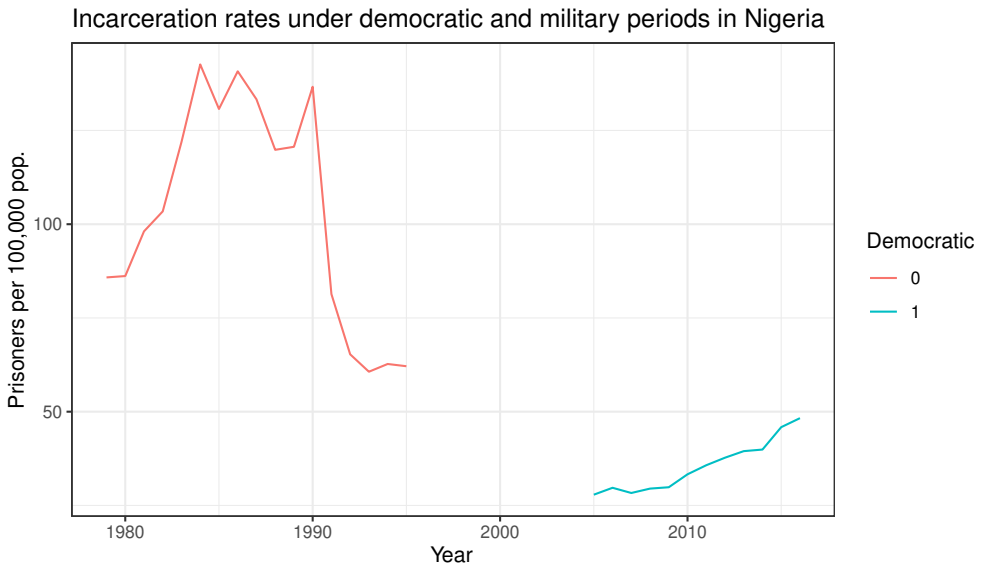


Figure A13: Incarceration rates under military and democratic periods in Nigeria

[50]The positive effect of protests on night light density appears to be driven by non-aligned states in column (3) of Table A14. One hypothesis is that since protesting regions that are non-aligned receive less intergovernmental transfers, there may be a substitution towards investing in raising more internally generated revenues in those regions, which may explain the positive sign on the estimates as discussed in Section **??**.

Table A12: Effect of protests on incarceration rates in the military and democratic periods

Time Period:	Democratic		Military
Outcome:	Total Prisoners per 100,000 pop.		
	(1)	(2)	(3)
Protest	0.532	0.582	6.324***
	(0.498)	(0.838)	(2.260)
Governor-President (GP) Aligned		−2.420*	
		(1.405)	
Protest x GP Aligned		−0.324	
		(1.242)	
Mean of outcome	35.533	35.533	80.500
Observations	424	424	116
Clusters	36	36	33
State FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes

Notes: Regressions estimated by OLS. Robust standard errors in parentheses clustered by state. Dependent variable is incarceration rates of total number of prisoners per 100,000 population in the democratic period (2000-2016) and military period (1988-1996). Protest is the continuous z-score measure of protests from the ACLED and GDELT datasets as described in text. Governor-President (GP) Aligned is an indicator that equals one if the president and governor of the state come from the same political party in the democratic period. ***Significant at the 1 percent level, **Significant at the 5 percent level, *Significant at the 10 percent level.

Table A13: OLS Estimates: Protest and state recurrent and capital expenditures

	Panel A: Protest and State Expenditure, Democratic Period			
Covariate Measure:	**Protest (Continuous)**		**Protest (Indicator)**	
Outcome:	Recurrent	CapEx	Recurrent	CapEx
	(1)	(2)	(3)	(4)
Protest	−0.026	−0.083	−0.105**	0.261
	(0.028)	(0.400)	(0.044)	(0.740)
Mean of outcome	24.416	23.635	24.416	23.635
Observations	180	180	180	180
Clusters	36	36	36	36
	Panel B: Protest and State Expenditure, Democratic Period [by GP Aligned]			
Covariate Measure:	**Protest (Continuous)**		**Protest (Indicator)**	
Outcome:	Recurrent	CapEx	Recurrent	CapEx
	(1)	(2)	(3)	(4)
Protest	−0.049	−0.789	−0.127	−0.803
	(0.042)	(1.196)	(0.082)	(1.866)
Governor-President (GP) Aligned	−0.138*	0.614	−0.152**	−0.100
	(0.070)	(0.949)	(0.059)	(0.631)
Protest x GP Aligned	0.037	1.145	0.037	1.710
	(0.055)	(1.416)	(0.107)	(2.213)
Mean of outcome	24.416	23.635	24.416	23.635
Observations	180	180	180	180
Clusters	36	36	36	36
	Panel C: Protest and State Expenditure, Military Period			
Covariate Measure:	**Protest (Continuous)**		**Protest (Indicator)**	
Outcome:	Recurrent	CapEx	Recurrent	CapEx
	(1)	(2)	(3)	(4)
Protest	−0.025	−0.001	−0.137	−0.043
	(0.022)	(0.036)	(0.084)	(0.195)
Mean of outcome	9.929	9.160	9.929	9.160
Observations	108	108	108	108
Clusters	34	34	34	34
State FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes

Notes: Regressions estimated by OLS. Robust standard errors in parentheses clustered by state. Dependent variables are expenditures, namely log real recurrent expenditures and capital expenditures (CapEx) at the state level as described in text. Protest is the continuous z-score measure of protests in columns (1) to (2) and the indicator that equals one if the total number of protests is greater than the national mean in columns (3) to (4) as described in text. ***Significant at the 1 percent level, **Significant at the 5 percent level, *Significant at the 10 percent level.

Table A14: OLS Estimates: Protest and night light density

Covariate Measure:	Protest (Continuous)	Protest (Indicator)	Protest (Continuous)	Protest (Indicator)
Outcome:	Night Light Density			
	(1)	(2)	(3)	(4)
Protest	0.131***	0.164*	0.127*	0.049
	(0.045)	(0.093)	(0.072)	(0.141)
Governor-President (GP) Aligned			0.214	0.139
			(0.155)	(0.176)
Protest x GP Aligned			0.025	0.195
			(0.097)	(0.170)
Mean of outcome	4.914	4.914	4.914	4.914
Observations	504	504	504	504
Clusters	36	36	36	36
State FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes

Notes: Regressions estimated by OLS. Robust standard errors in parentheses clustered by state. Dependent variable is night light density calculated from yearly NOAA DMSP-OLS data available between 1992 and 2013. Protest is the continuous z-score measure of protests from the ACLED data in columns (1) to (2) and the indicator that equals one if the total number of protests is greater than the national mean in that month and year in columns (3) to (4) as described in text. Governor-President (GP) Aligned is an indicator that equals one if the president and governor of the state come from the same political party. ***Significant at the 1 percent level, **Significant at the 5 percent level, *Significant at the 10 percent level.