National or political cake? The political economy of intergovernmental transfers in Nigeria*

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Abstract

Rule-based intergovernmental transfers are often presented as the panacea to avoid the manipulation of transfers for political motives. We question that assertion in the case of Nigeria, where these transfers are highly dependent on natural resources and likely to be subject to elite capture. In this paper, we use oil windfalls as a source of exogenous variation in the political discretion an incumbent government can exert in rule-based transfers. Exploiting within-state variation between 2007 and 2015 in Nigeria, an increase in VAT transfers induced by higher oil windfalls is found to improve the electoral fortune of an incumbent government. Our results question the promotion of rule-based transfers as a one-fits-all institutional solution in resource-abundant countries with relatively weak institutions.

Keywords: Intergovernmental transfers, rule-based transfers, political manipulation, fiscal federalism, regional favouritism, fiscal decentralization, Nigeria.

JEL Classification: H70, H77, P16

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1 Introduction

The notion that incumbent politicians may benefit electorally by strategically allocating transfers to favour recipient groups is given formal expression in tactical redistributive models (e.g. Cox and McCubbins, 1986; Lindbeck and Weibull, 1993; Dixit and Londregan, 1996). Most empirical studies (Stromberg, 2004; Manacorda et al., 2011; Larcinese et al., 2013; De La O, 2013; Bracco et al., 2015; Dasgupta, 2015) tend to focus mainly on the discretionary component of public spending and targeted transfers in investigating political motivations in redistributive policies, not on rule-based intergovernmental transfers. The underlying assumptions in these studies are that incumbent politicians engage in clientelism and pork-barrel politics, and that tactical redistribution of transfers is more likely when politicians can exert some degree of discretion in the allocation of resources to favour recipient groups identifiable by partisan leanings, race or ethnicity.[1] Indeed, the general recommendation for developing countries when decentralizing is to base fiscal decentralization on a rule-based system (generally considering factors such as population, wealth, location and density) in order to avoid graft and elite capture (World Bank, 2004). In particular, countries such as Nigeria, Brazil, Ghana and India have introduced a formula-based intergovernmental system based on verifiable and objective criteria to constrain politically motivated targeting of transfers.[2]

However, an important question which remains unanswered in the extant studies is, whether an opportunistic incumbent politician can manipulate a centralized rule-based transfer system to win more votes. One would expect that such transfers are more likely to be subject to manipulability in countries with weak institutional settings and clientelistic framework. In Nigeria, anecdotal evidence suggests that the redistribution of oil revenues has been subject to abuse despite the rule-based nature of these transfers. Specifically, the Economic and Financial Crimes Commission which was established in 2004, reported that between 1960 and 1999 the country's rulers may have stolen an estimated USD 400 billion in oil revenues (Okpanachi, 2011).

[1]Prominent studies on ethnic favouritism can be found in Hodler and Raschky (2014), Burgess et al. (2015), and De Luca et al. (2015).

[2]The India's National Rural Employment Guarantee Act, as well as the Nigeria's Revenue Mobilisation Allocation and Fiscal Commission Act constitute good examples of regulations that recommend the devolution of resources to constituent parts by means of a formula-based system.

Surprisingly, the literature on tactical redistribution in developing countries (with the exceptions of Arulampalam, et al. 2009 and Banful, 2011) has focused mainly on ethnic favouritism without much attention to the political motives behind the use of redistributive politics. The democratization wave experienced in Africa over the last two decades (Rakner et al., 2008), together with the push for further decentralization reforms (Rodriguez-Pose and Gill, 2004), call for paying more attention to the risk of manipulation in intergovernmental transfers. Understanding such manipulation is key to shed light on the mixed results found on the impact of decentralization on economic performances and regional disparities in developing countries (Rodriguez-Pose and Ezcurra, 2010, 2011). In this paper, we examine how much a centralised rule-based transfer system in Nigeria could be manipulated to effectively buy political support. To that purpose, we exploit oil windfalls as a source of exogenous variation in the political discretion the central government can exert in rule-based transfers. In so doing, our paper contributes to the literature on tactical redistribution in developing countries, and also sheds light on how large increases in natural resource rents strengthen political power and the ability to buy votes (Robinson et al., 2014).

Nigeria is an interesting case to consider for several reasons. First, since the discovery of oil in commercial quantities in 1956, Nigeria's political space has been dominated by the concept of 'sharing the national cake', a phrase used to refer to any opportunity to access national wealth. Politically, this 'sharing of the national cake' has led to a prebendal system, in which elected government officials believe they are entitled to a share of government revenues, and to use them to reward their supporters.[3] The specific outcome of this act of sharing is further manifested in the structure of Nigeria's fiscal federalism. For instance, revenues from oil, combined with VAT, custom and excise duties are paid into the central pool of the Federation Account, and shared between the central and state governments at the middle of every month in accordance to pre-defined rules.[4] Thus, it is intuitive to verify whether the rules have been sufficient to avoid politically motivated targeting of transfers.

Second, Nigeria's high dependence on oil revenues and the fact that part of these revenues is

[3]Joseph Richard in his work "Democracy and Prebendal Politics in Nigeria" defines prebendal as patterns of political behaviour in Nigeria which rest on the justifying principle that state power should be treated as "a cogeries of offices" which can be competed for, appropriated and then administered for the benefit of individual occupants and their support groups.

[4]We further discuss how revenues from the central government are redistributed to states in section 2.

distributed in a proportional way to the oil and non-oil producing states allow us to exploit how exogenous variation in crude oil prices impact on transfers and the ability of the President to buy votes. Oil prices can indeed be considered as exogenous, since Nigeria accounts for less than 4% of world oil production (Abidoye and Cali, 2015). Third, although Nigeria has a dominant party framework, electoral outcomes vary greatly across states. This variation can be exploited to investigate how plausibly exogenous variations in intergovernmental transfers affect electoral support for the central government. Lastly, while states implement their own budgets independently of the central government, they do not have control over the tax base or tax rate in their jurisdiction. This means that the states' main sources of revenue are almost entirely derived from the central government transfers. Indeed, based on the Central Bank of Nigeria 2014 Annual Economic Report, the states' own internally generated revenue typically amounts to less than twenty per cent of their total revenue. It is therefore important to examine whether an incumbent government can use the centralized intergovernmental transfer system to purchase political support.

Moreover, analysing the effect of opportunistic fiscal transfers on the electoral fortune of incumbent politicians can be difficult due to problems of endogeneity in the allocation of grants (Larcinese, et al 2013). To mitigate this problem, a common empirical approach in previous studies was to implement a quasi-experimental design in which voters' behaviour in electoral districts that receive relatively higher grants are compared with those in districts that receive lower grants (see Dahlberg et al., 2008; Manacorda et al., 2011; Litschig and Morrison, 2013). However, in the absence of a quasi-experimental setting, most studies simply assume that political competition at the sub-national level is exogenous to the use of transfers or unobserved determinants of transfers. Our paper considers an instrumental variable approach to test the plausibility of this assumption. In particular, we exploit exogenous variation in oil windfalls as an instrumental variable, in order to estimate the impact of transfers on the re-election prospects of incumbent politicians. To the best of our knowledge, this is the first study to use instrumental variables to analyse the impact of tactical redistribution on election outcomes in a sub-Saharan African country.

Exploiting within-state variation between 2007 and 2015 for the 36 states in Nigeria, we find that an increase in VAT transfers induced by higher oil windfalls improves the electoral fortune of the incumbent President. Our results question the role of rule-based transfers as an efficient institutional arrangement in resource-abundant countries. It complements the results by Banful (2011) who shows that formula-based transfers were targeted towards swing districts in Ghana. We show that such political manipulation of rule-based transfers helps to buy votes for the incumbent in Nigeria.

The remainder of this paper is organized as follows. The next section provides the institutional background of the study. Section 3 describes the empirical model and identification strategy. Section 4 focuses on the results, while the last section concludes the paper.

2 Institutional Background

2.1 Political Institutions

Nigeria is a Federal Republic, with an elected President and a two chamber National Assembly, composed of the Senate and the House of Representatives. The president is elected for a 4-year term and is constitutionally allowed to seek re-election for another period of 4 years after the expiration of his first term in office. The 1999 constitution organizes a two round electoral system. In order to win in the first round, a candidate not only needs to have a simple majority of vote cast, but at least 25 percent of the votes in two-thirds of the states. The 1999 constitution of the Federal Republic of Nigeria also defines to a large extent, the country's system of fiscal federalism. The constitution defines three levels of government: the Federal, the 36 states and the Federal Capital Territory (FCT), and 774 local government areas.[5]

2.2 Intergovernmental Transfers

The 1999 constitution also outlines the manner in which revenues are shared among the three different tiers. The country operates a highly centralized revenue system. All federally collected revenues are

[5]The constitution also determines the responsibility of each level of government. The federal government is charged with the provision of public services that are of national importance, such as foreign affairs, defence, security, law and public order. The states have the responsibilities to provide for education, health and physical infrastructure, and the promotion of economic and social growth within their jurisdiction. The role of the local government varies across the country, and is not clearly defined by the constitution.

paid into the Federation Account, which is then shared among the different levels of governments. Such a distribution strictly follows a formula developed by the Revenue Mobilization Allocation and Fiscal Commission (RMAFC) and approved by the National Assembly. Additionally, about 4.18 percent of revenue accruing to the Federation account is kept in Four Special Funds.

Revenue for the Federation Account originates from oil, VAT, corporate income tax, as well as custom and excise duties. Oil accounts for almost 80 percent of total federally-collected revenue. Although oil revenues are federally-collected, the 1999 constitution requires that 13% of the gross oil revenue should be shared among oil-producing states in proportion to their production volumes. The rest is paid directly into the Federation Account and distributed among the three levels of government. About half of the Federation Account is distributed to the states and local governments according to the following horizontal allocation formula: 40% according to the level of equality; 30%, to population; 10%, land mass and terrain; 10%, to internally generated revenue, and 10% for social development such as education enrolment, health and water.[6] 50% of VAT revenues are shared equally to all states, but 30% in proportion to the state population, and 20% on the basis of the relative state contribution to VAT revenues. Since states do not have control over either the tax base or tax rate of the federal allocations, these revenues can be considered as intergovernmental transfers to the states and local government as opposed to their own internally generated revenue.[7]

[6]Distribution from the Federation Account to the different tiers of government are based on a vertical allocation formula and a horizontal allocation formula. The former assigns a specific share of the account to each level of government. Under the current vertical allocation revenue formula, gross allocations in the Federation Account is shared as follows: 52.68% for Federal government ; 26.72% for the State governments, and 20.60% for the Local governments. Note that the vertical revenue allocation formula is seldom reviewed without due consultation with major state and non-state actors across the Federation. The horizontal allocation formula redistributes then both the state and local government shares of the Federation Account among the states and local governments based on equality, population, size, internally generated revenue, and social development.

[7]While substantial source of revenues accrues to the Federation Account, the state and local governments can collect themselves a number of minor taxes such as personal income taxes, license fees, and market fees. Typically, these internally generated revenues do not account for more than twenty per cent of the total consolidated revenue. A notable exception is Lagos and Rivers States, which account for 38% and 12% of the total of internally generated revenues from all states between 2010 and 2014. We will discuss the robustness of our results to the exclusion of these two states.

2.3 Sources of political manipulation

The Federation Account is administered by a committee, the so-called *Federation Account Allocation Committee (FAAC)* in liaison with the National Revenue Mobilization Allocation and Fiscal Commission. The committee meets on a monthly basis to allocate the previous month's revenue among the three governmental tiers.[8] Members of the Revenue Mobilization Allocation and Fiscal Commission are appointed by the President, and charged primarily with the responsibility of monitoring the accruals to, and disbursement of funds from the Federation Account, and reviewing on a regular basis the data and revenue allocation formula, respectively.[9] Regarding the data revision process, the horizontal allocation formula is updated by the commission on an annual basis to ensure conformity with changing realities.

The rule-based nature of the inter-governmental transfers does not immune the system from political agency. The dearth of data on social development factors and the lack of transparency in the data updating process could open the door for political manipulation even with a rule-based intergovernmental transfer system. As illustrated in Figure 1, there is a discrepancy between the hypothetical allocation of transfers (based on the horizontal allocation formula) and the reality. For instance, the South South region from which President Goodluck is originating receives 19% of the allocations compared to the expected 16%. That represents about twenty-eight million dollars a year, in real terms. Such an amount represents on average 12% of the annual budget of the states composing that region. One channel for manipulation comes from data revision on which the transfers are based. FAAC Committee members who are politically aligned with the incumbent may strategically fiddle with the data revision process to favour the incumbent party. Indeed, given Nigeria's weak institutional setting and incentive structure in which incumbent party leaders decides *who gets what, when and how*, it is plausible to suspect political interference. As a matter of fact, while the act establishing the commission empowers the President to appoint persons with "unquestionable

[8]The FAAC comprises of the Federal Minister of Finance, and representatives from each of the states of the Federation, usually the states' Commissioners of Finance and their Accountants-General, and representatives from fiscal and monetary related federal agencies, such as the Central Bank, Customs and Federal Inland Revenue Services.

[9]The commission consists of a chairman, and one member from each state of the Federation and the Federal Capital Territory.

integrity" to the commission, there is little information about the criteria for such appointments and the political affiliation of the committee members. A more subtle source of manipulation may come from the input provided by civil servants in the data revision process. Nonetheless, we should acknowledge that the discrepancy depicted in Figure 1 cannot be interpreted as hard evidence for manipulation. Our analysis seeks to shed light on the issue by investigating how plausibly exogenous changes in transfers are used to buy votes for the incumbent President.

3 Empirical Analysis

3.1 Data and Identification Strategy

Our analysis spans over 9 years, i.e. 2007 to 2015 for 36 states in Nigeria.[10] Our main empirical analysis is to test whether transfers allocated to a state s leads to a larger vote share for the incumbent. To that purpose, we exploit electoral data for the elections of April 2007, April 2011, and April 2015, resulting in a sample of 108 observations (36 states $\times$ 3 elections). We estimate the impact of transfers on electoral outcomes in the following way:

$$electoutcome_{s,t} = \gamma \ln(\widehat{transfers}_{s,t}) + \theta' X_{s,t-1} + \alpha_s + \gamma'_{s,t} + \delta_t + \epsilon_{s,t} \quad (1)$$

Where $electoutcome_{s,t}$ refers to the vote margin between the incumbent (central) party and the other opponent in the Presidential elections. In alternative specifications, we use the percentage of votes share of the incumbent or the log of the absolute number of votes for the ruling party in the Presidential elections. Electoral data was obtained from the Independent National Electoral Commission. The timespan of the resulting dataset includes three elections periods, i.e. 2007, 2011 and 2015.[11] $transfers_{s,t}$ are the VAT transfers from the Federal government to the state s received in the quarter prior to the election. We include state fixed effects α_s to control for unobserved time invariant heterogeneity that may affect the allocation of transfers and voting behaviours at the state

[10] Federal Capital Territory (FCT-Abuja) is excluded from the analysis because funds are received directly from the Federation Account through the Federal Capital Territory Special Fund that is under the control of the Federal Government.

[11] In Figure B.1, we summarize the political and leadership transitions in Nigeria from 1999 to 2015.

level. We also introduce year fixed effects δ_t, to account for unobserved time effects. We also augment the model with state-specific time trends in alternative specifications. Standard errors are clustered at the state level using Cameron et al. (2008)'s wild bootstrap method.[12]

One well-known problem with the above approach is that the allocation of intergovernmental transfers is not random and likely to be correlated with political characteristics or other determinants of political competition in the concerned state. Even the theory is relatively ambiguous about the expected endogeneity bias. On the one hand, the proponents of the core-support hypothesis posit that a risk averse politician allocates funds to political entities that are clearly attached to the incumbent party to maximize the return to vote and reward loyalty (e.g. Cox and McCubbins, 1986). Such rewarding mechanism would lead to an upward bias. On the other hand, the opposite bias would result from the swing voter model, according to which grants are allocated to "battleground" or regions with high proportion of non-ideological voters (e.g. Lindbeck and Weibull, 1993; Dixit and Londregan, 1996). Similar endogeneity bias may arise due to unobserved state characteristics that would influence both the allocation of transfers and voting behaviours. In a rule-based system, controlling for the allocation criteria are therefore key but as pointed in Section 2, there is no guarantee such control variables are accurately measured or even manipulated for political motives.

In the absence of a quasi-experimental setting, we propose a two-stage approach more likely to draw causal inference. We use exogenous variation in oil windfalls as an instrument for transfers. Figure 2 indeed suggests a strong link between oil prices and the proportion of transfers allocated to oil-producing states. Not surprisingly, oil price variations are more strongly correlated with variations in transfers in oil-producing states compared to other states, thereby supporting the validity of the use of oil windfalls as an exogenous variation on the amount of transfers received by state authorities.[13] The first-stage regressions take the following form:

$$ln(transfers_{s,q,t}) = \beta' Oilwin_{s,q-1,t} + \theta X_{s,t-1} + \alpha_s + \gamma'_{s,t} + \gamma_q + \delta_t + \epsilon_{sqt} \tag{2}$$

[12]Given the small number of clusters (n = 36) and the use of predicted regressors originating from our first-stage regressions, which might lead to underestimation of within-group correlation, the wild bootstrap method produces estimators robust to heteroskedasticity (Cameron et al., 2008)

[13]The sharp decrease in transfers during a period of increasing oil prices observed in early 2007 for both oil-producing and non-oil producing states could be explained by the creation of a sovereign wealth funds, reducing the total amount of revenues to be reallocated to all states.

Where $transfers_{s,q,t}$ are VAT transfers from the Federal government to the state s received in the quarter q of year t, calculated based on 2007 constant Naira (199.05 NGN/USD at June 2015 exchange rate). This data was sourced from Nigeria's Federal Ministry of Finance monthly publications *FAAC Report*. We exploit quarterly variation in oil windfalls across 36 states, resulting in a sample of 1,152 observations, to predict the sum of VAT transfers occurring the quarter prior to the election.[14] $Oilwin_{s,q-1,t}$ represents oil windfalls occuring in the previous quarter q of year t. Following Abidoye and Cali (2015), oil windfalls are constructed by multiplying the oil production value at the state level in 2003 with the international oil price, i.e. $Oilwin_{s,q,t} = p^{oil}_{q,t} \times oil_s$. Prices indexes have been largely used in the economic literature (e.g. Bruckner and Ciccone, 2010; Dube and Vargas, 2013). When possible, it is common practice to weight the variations in international prices by a weight defined prior to the period of investigation. The reason is to render the constructed price index more exogenous. Since our analysis starts in 2007, using weights prior to 2006 is more likely to be exogenous. Data on oil production and prices were obtained from the Nigerian National Petroleum Corporation's Annual Statistical Bulletin[15] and Federal Reserve Economic Data (FRED). Transfers and oil windfalls are aggregated at the quarterly level to capture the possible use of transfers by the incumbent (central) party to buy votes during the next election periods, which fall in April. Thus, aggregating at the quarterly level allows us to capture the variation around the pre- and post-election periods. Similar to equation (1), state and time fixed effects are introduced. We also introduce quarter specific dummies γ_q, to account for seasonality effects. We also augment the model with state-specific time trends in alternative specifications. Like in equation (1), standard errors are clustered at the state level using Cameron et al. (2008)'s wild bootstrap method.

In equations (1) and (2), $X_{s,t-1}$ is a vector of socio-economic and political controls. First, we introduce a first set of socio-economic variables likely to approximate the horizontal allocation formula for transfers, i.e. state population, primary and secondary school enrolment rates (land mass being time-constant, its role is captured through the introduction of state fixed effects). Given that our

[14]Directly using the sample of 108 observations in the first-stage gives similar results on the impact of transfers on electoral outcomes but working at the quarterly level in the first-stage gives us more flexibility in experimenting alternative measures of oil windfalls (moving averages and quarter-specific effects) while preserving a large sample size in the first-stage regressions.

[15]These data have been kindly shared by Abidoye and Cali (2015).

grant and oil windfalls variables are defined at the quarterly level, the inclusion of the socio-economic and political variables may give rise to some concerns about measurement errors, since these data are usually available on an annual basis. It is important to emphasize that while such concerns are valid, we are only exploiting exogenous variations in oil windfalls to predict the change in transfers received the quarter prior to each election years. Moreover, changes in VAT transfers to states are usually conditioned on the statistical estimates from the previous year. Thus to mitigate this concern, we lag the socio-economic variables by one year and include state fixed effects to control for unobserved and time-constant characteristics likely to affect the allocation of transfers. Second, since the horizontal formula allocation takes into account the previous year's internally generated revenue and given the absence of regional data on GDP for the period of our study, we use nightlights intensity to proxy for state level GDP. Indeed, night light densities have been largely used as a substitute for local GDP in economics (Henderson et al., 2012; Donaldson and Storeygard, 2016). Third, we control for political variables, namely alignment likely to capture the core support hypothesis, and swing variables, related to the swing voter hypothesis.[16] The reason is that oil-producing states may have specific political characteristics that make them more likely to receive transfers and buy votes. We construct the political variables as dummy variables, defined in the previous period. Fourth, we include the lagged number of violent events occurring in each state to control for the potential use of intergovernmental transfers for counter-insurgency purposes. One concern may indeed be that oil producing states are more prone to the risk of violence due to environmental degradation and resource control agitations by armed groups such as the Movement for the Emancipation of the Niger-Delta (MEND).[17] Lastly, similar to Burgess et al. (2015), we assess the importance of ethnic and religion favouritism in determining intergovernmental transfers, and political support. Table B.1 of the Appendix summarizes the main variables of our analysis. We describe in more details the construction of our control variables in Appendix A.

[16]Swing states or "battleground" states are states in which no single party or candidate has overwhelming support. Interestingly, while oil-producing states are more likely to have an electorate supportive of the incumbent, mean comparisons indicates that such states are also less likely to be defined as aligned or swing.

[17]Interestingly, the Federal Government special amnesty programme launched in 2009 to disarm, demobilize and reintegrate the ex-agitators, as well as the elevation and subsequent election of Dr Goodluck Jonathan to the office of the President following the death of the former President in 2010, brought relative stability to the region.

3.2 Threats to Identification Strategy

A major identification concern is the validity of the instrumental variable. To be considered exogenous, two conditions need to be met. First of all, the sub-national variation in oil production should be orthogonal to the allocation of intergovernmental transfers or any time-varying omitted variable that affects election. To that purpose, we use the share of oil production prior to the period of investigation, i.e. in 2003 (and alternatively averaged between 2003 and 2005). Second, oil prices should be exogenous to shocks occurring within Nigeria. We therefore use the West Texas Intermediate price taken from FRED. Oil price is normalized to 100 for the first month of 2007. As pointed by Abidoye and Cali (2015) and Fenske and Zurimendi (2017), oil prices can be considered as exogenous since Nigeria accounts for less than 4% of world oil production. In our main results, we use the three-month lagged average price index. However, to allow for cumulative effects and changes in expectation, we check the robustness of our results to alternative price constructions: the use of 6, 9 and 12 months moving averages and the use of anomalies compared to the long-term mean value (January 1986 to December 2006).

The second condition relates to the exclusion restriction, i.e. oil price variations should not affect political variables through another channel than transfers. Given the importance of transfers in state budgets (on average 80%), there is little scope for other budgetary mechanisms. However, we may be concerned that variations in oil prices have direct effects on state-level oil production and therefore on economic activities. While we do not have quarterly state-level data on GDP per capita for the period of our study, we nonetheless assess further that identification threat using quarterly cumulative precipitation and temperature anomalies. Anomalies are constructed deviations from the long-term quarterly mean defined from 1950, divided by the long-run quarterly standard deviation to proxy for changes in economic activities. Since agriculture accounts for about 60% of Nigeria's GDP, rainfall and temperature anomalies occurring in each state can be considered as a reasonable proxy for change in economic activities. We describe in more details the construction of the climatic variables in Appendix A. As described in the next section, we also do not find any evidence of a direct link between oil windfalls and economic activities, proxied by night light densities.

Another concern is that, oil windfalls would affect voting behaviour through more subtle channels like the provision of public goods. We would like first to stress that it is not necessarily the case that the impact on the provision of public goods and local economic development will be positive. Michaels (2011) finds a positive impact of oil windfalls on long-run economic development in the U.S. On the contrary, in a middle-income country like Brazil, Caselli and Michaels (2013) find no significant improvement in the provision of public goods, infrastructure and household income following an increase in oil revenues in oil-rich municipalities in Brazil. Such results are in sharp contrast with the reported increase in spending on public goods and services, which the authors claimed, might result from a combination of patronage and/or rent sharing and embezzlement by officials. Although Nigeria is characterized by a relatively weak governance system, the literature is too limited to claim with very high confidence if the situation in Nigeria is more likely to be similar to the US case featured by Michaels (2011) or the Brazilian case in Caselli and Michaels (2013). Despite the inconclusive evidence from the literature, the short-run effects of oil windfalls on local GDP and the real income of the voters remain a concern. In this regard, we indirectly assess the importance of unobserved income shocks following large oil windfalls by investigating how oil windfalls affect socio-economic outcomes. We further discuss the issue in section 4.2.

Moreover, given the possible strategic use of intergovernmental transfers for political reasons, we may be concerned that the political characteristics of states may also be correlated with omitted variables at the state level. To reduce the problem of omitted variables, we take advantage of our unique dataset in several ways. First, we restrict the transfers variable to formula-based grants allocated by the central government to the 36 states of Nigeria. Controlling for the criteria used to allocate funds, such a restriction should limit the risk of omitted factors affecting both the dependent variable and the main variables of interest. It basically reduces the risk that omitted variables, including time-varying state-level changes, complicate the causal identification. Second, we further introduce state fixed effects, α_s, controlling for unobserved time-constant heterogeneity at the state level. For instance, the distance to the capital is likely to confound the investigated relationships. Stromberg (2004) shows, for instance, that the use of state fixed effects in his study of the New Deal in the US changes the previous support for the swing state hypothesis. We also introduce time specific dummies δ_t, to account for unobserved time effects. Third, we lag our political variables to mitigate the simultaneity issue between voting behaviours and inter-governmental transfers. Said differently, our political variables (i.e. alignment and swing) are defined based on the last election. The descriptive statistics of the main variables of interest can be found in Table 1.

4 Results

4.1 Transfers and Voting Behaviour

Panel A of Table 2 reports the first stage results. There is a positive relationship between oil windfalls and VAT transfers. This relationship is robust across various specifications, i.e. whether we include year, state, quarterly fixed effects, state-specific time trends, and control variables. A 10% increase in oil windfalls translates into a rise in VAT transfers by about 1.99% to 2.08% (i.e. columns (4) to (6) of Table 2). Table 2 also illustrates the strength of the oil windfalls as an instrumental variable. The Kleibergen-Paap rk Wald F statistics ranges between 14.78 and 18.22, well above the Stock and Yogo (2005) critical values with 10 percent absolute bias.[18]

Panel B of Table 2 provides the second stage results. Columns (1) to (2) report the baseline regressions with only year and state fixed effects, and augmented with state-specific time trends, respectively. Columns (3) to (6) include the political and socio-economic controls. Across these various specifications, we find a positive and statistically significant relationship between VAT transfers and the margin of vote obtained by the incumbents in the Presidential elections. Specifically, the baseline specification in columns (1) and (2) indicates that a 10% increase in VAT transfers to states would increase support for the incumbents by 64.23 and 60.11 percent, respectively. However, this impact reduces to between 44.76 and 56.60 percent, respectively, when we control for the political characteristics of states in column (3), and the state majority sharing the same religion and ethnicity with the incumbent President in column (4). To increase the precision of our estimates, we further control for states socio-economic characteristics that may influence both the allocation of transfers

[18] As an identification check, we have experimented with alternative instrumental variables, including the use of 6, 9 and 12 months moving averages and the use of anomalies. The coefficient on oil windfalls remains positive but provides weaker first-stage estimates in the case of the 9 and 12 months moving averages. We also do not find any evidence that future oil windfalls affect transfers, strengthening our confidence on the exogenous nature of our instrumental variable.

and voting behaviours in columns (5) and (6). The results suggest that a 10% increase in VAT transfers increases the margin of vote scored by the incumbent President by 48.47 (column 5) and 49.31 (column 6) percent, respectively.

The 2SLS estimates radically differ from the OLS estimates presented in Panel C of the same Table. An explanation for such a bias towards zero would be that transfers are targeted towards swing states where electoral victory is uncertain. The coefficients of the political variables (i.e. alignment and swing) in the first-stage regressions (Table B.2) back such an explanation. Interestingly, splitting our sample between states that are initially defined as swing and non-swing confirms our presupposition. Although less precisely estimated as a result of the smaller sample sizes, Panel A of Table 3 indicates that transfers help to buy more votes for the incumbent in swing states, compared to non-swing states (Panel B of Table 3). Another explanation may be related to the Local Average Treatment Effect (LATE) interpretation of the IV estimates (Angrist and Fernández-Val, 2013). The positive impact of transfers on incumbent votes may be driven by specific circumstances in oil-producing states, limiting the external validity of our analysis. We cannot definitely reject that possibility but simple mean comparisons do not indicate that oil-producing states are more likely to be swing or non-swing states. Similarly, our first-stage results are similar when we split the samples between aligned and non-aligned states in Section 4.3 suggesting that our analysis is not likely to capture a LATE effect.

4.2 Local Effects of Oil Production

The existence of direct local effects of oil windfalls would invalidate the exclusion restriction in our two stage framework. To explore the plausible nature of these identification threats, we assess the impact of oil windfalls on other development indicators. First, we regress night light densities on oil windfalls occurring either the same year or the preceding year. In Panel A and B of Table 4, we report the regression results for the whole period for which the nightlights data are available, while in Panel C and D, we focus on the period of our study only. Results in Table 4 do not indicate any direct effect of the oil windfalls on night light density.[19] Second, we indirectly explore how unobserved

[19] Such non-significant effect is also found when oil windfalls are defined at $t-2$ or $t-3$ (B.35 in Appendix).

income shocks following large oil windfalls affect standard health outcomes. On the one hand, we can assume that such income shocks would translate into one of the most reliable development indicators, the level of malnutrition. There is indeed a large literature seeking to compare the health outcomes for cohorts differently exposed to shocks in early childhood in contexts as diverse as natural disasters, weather variations (Maccini and Yang, 2009), conflict (Bundervoet et al., 2009), and famine (Currie and Vogl, 2013). We borrow from that literature in estimating how oil windfalls may directly affect children's health.

Exploiting the Demographic Health Surveys from 2008 and 2013, we assess how the outcome of individual i born in state s during the first 12 months of life (or the first year of birth) is affected by oil windfalls, compared to individuals from the same cohort differently exposed to the oil windfalls. More specifically, we estimate the following state and birth cohort fixed effect regressions:

$$Y_{i,s,t} = \alpha_s + \delta_t + \beta Oilwin_{s,t} + \epsilon_{s,t} \tag{3}$$

Where $Y_{i,s,t}$ refers to the health outcome of child i born in state s at time t. We focus on two of the most widely used nutrition outcomes, the height-for-age z-scores (HAZ) and the weight-for-age z-scores (WAZ). While the former is likely to capture long-term health outcomes, the later is likely to look at potential short-term responses to oil windfalls. Panels A and B of Table 5 show the results for the effects of oil windfalls on children's HAZ and WAZ scores, respectively. Specifically, the baseline specifications reported in column (1) of Table 5 indicates a null effect of oil windfalls on children's HAZ and WAZ-scores, respectively. To increase the precision of our estimates, we include climatic and violence controls, children and parental characteristics that may potentially affect children's health outcomes (columns (2) to (4)). The results in column (4) indicates that oil windfalls occurring during the year of birth have a significant but negative effects on children's HAZ and WAZ-scores. The relationship is even more negative when we include state-specific time trends to control for potential differences in health trends across Nigerian states (column 5).[20] Lastly, at some cost of reducing much variation and potentially changing the population of interest, we follow recent trends

[20] A similar conclusion is reached when we investigate the impact of cumulative windfalls over the last 3 years on HAZ (no impact on WAZ). However, such results should not receive much interpretation since it is likely to be affected by both fertility and mortality selections (Dagnelie et al., 2018).

in the literature (see Alderman et al., 2006), that seek to compare siblings by introducing mother fixed effects in column (6). Our results remains negative but becomes insignificant implying that oil windfalls do not seem to have improved children's health outcome in the period of our study. We also test the robustness of the results to a relative variation with respect to the critical period of child development. Based on the month of birth of a child, we assess the impact of oil windfalls occurring during the first 12 months of life on the child's health outcome. Panels C and D of Table 5 indicate that across various specifications, oil windfalls occurring during the first twelve months of life do not affect children's health or at best, have a negative impact on weight. In any case, our results reject the risk that oil windfalls would directly translate into more votes for the incumbent because of improved local economic development.[21]

Furthermore, we should acknowledge another concern that oil windfalls may be associated with the collection of more internal sources of revenues (e.g. taxes) to be spent on local public goods and therefore affecting the electoral outcomes through another channel (voters' satisfaction). Such channel would not be very consistent with the lack of developmental impact of oil windfalls reported above. That would also contradict the lack of impact of intergovernmental transfers on local public goods discussed in Section 4.3. Moreover, internal revenues are quite small as a share of total consolidated revenue. As pointed in Section 2, internally generated revenue account for less than 20 percent of the total consolidated revenue.[22] It is not even sure that internal revenue and VAT transfers would be positively correlated. Local authorities may even have less incentive to collect their own revenue in case of windfall and related additional VAT transfers.

Lastly, it is interesting to note that the reduced-form estimation not only gives significant coefficients of interest (Panel D of Table 2), but also very similar voting responses to variation in the oil windfalls (compared to the 2SLS combined effects). That is reassuring with respect to the risk of

[21]In an alternative specification, we extend the critical period to first 24 and 36-months of life, respectively. There is indeed a large consensus to consider the first 1,000 days as the most critical period for child's development, especially when assessing the nutritional status with indicators such as HAZ-scores (see Black et al., 2008, 2013). The results reported in Tables B.36 and B.37 in Appendix, respectively, shows a null effect of oil windfalls on HAZ once individual and parental controls are included.

[22]Our results are robust to the exclusion of Lagos and Rivers States, which constitute exceptions with high shares of total internally generated revenues (see details in Section 4.4).

weak instruments and the exclusion restriction (Angrist and Krueger, 2001).

4.3 Evidence of Vote Manipulation?

Political return for the incumbent may come from the efficient use of these funds to provide local public goods. For example, voters might be rewarding the "good" use of transfers by the incumbent in providing education, health and physical infrastructure. It is important to point out that such government spendings are unlikely to be decided within the quarter prior to the elections on which our identification relies on. To back up this intuition, we further test that alternative channel in two ways.

First, if such "public good" channel would explain our results, it would not matter whether the governors are politically aligned or not. Nonetheless, Panel C and D of Table 3 indicates that transfers help to support the incumbent only when governors are aligned to the President's party. That indirectly gives support to a mechanism where rule-based intergovernmental transfers are subject to manipulation for political purposes.

Another way to shed light on the manipulative nature of intergovernmental transfers is to see whether such transfers translate into improved education, health and physical infrastructure. To that purpose, we test whether oil-induced variations in VAT transfers improve access to public goods. In particular, we assess the probability to have access to water, sanitation services and electricity, together with the wealth index defined at the household level based on the Demographic Health Surveys from 2008 and 2013. Across year and state fixed effects specifications shown in Table 6, we do not find any statistical links between transfers occurring the quarter prior to election and these indicators for access to local public goods.[23] Intergovernmental transfers have no impact on economic development, when measured with night light density (Panel E and F of Table 4). The non-significant impacts of VAT transfers on household wealth and nightlight does not support an alternative channel through which an increase in public consumption (hiring of civil servants or salary raises) would boost private consumption and voters satisfaction.

[23]Those results are obtained based on regressions at the household level, allowing to control for the socio-economic composition within states. Not surprisingly, similar results are obtained when the development indicators are aggregated at the state level.

From a qualitative point of view, that is not really surprising since it would require transfers to materialize into public investment in a relatively short period of time. We indeed exploit variations in transfers occurring only during the quarter prior to the election. But even when we conduct the analysis using transfers occurring two quarters before the election, we do not find any statistical impact of transfers on local public good provision. However, we acknowledge that the absence of evidence is not evidence of absence and that our results are only an indirect support for manipulation. Nonetheless, we believe that the mechanism through which exogenous variation in transfers would translate to investments in public good provision is less obvious in an economy like Nigeria with weak governance system.

Another explanation for the null impact might be that oil-induced variations in VAT transfers are positively correlated with rent sharing and embezzlement by corrupt politicians (Caselli and Michaels, 2013). We indeed admit that corruption may be a salient feature in Nigeria. While we do not have data on corruption to be able to assess further that channel, we expect that if oil windfall is associated with corruption aiming at increasing personal wealth, such corruption (when known) will affect negatively the vote for the incumbent.[24] That is exactly what happens to former President Goodluck Jonathan in the 2015 Presidential elections. On the other hand, if such corruption is more salient in oil-producing states, it would mean that we are capturing a lower-bound estimate.

4.4 Robustness

Our main results rely on a number of specification choices. We therefore examine the robustness of our results to (1) alternative specification of the dependent variable, (2) alternative definition of our main variable of interest, (3) controlling for past elections, and (4) changes in the analytical sample. Table 7 provides a summary of the main model specification and a selected set of alternative specifications.

Using an alternative dependent variable (i.e. the percentage of vote share and the absolute number of valid votes cast for the incumbent) does not alter our results considerably. The impact of higher

[24] See Chong et al. (2012) for a review of literature on scandals and voter behaviour. Note that potential increased wealth among corrupted agents would increase private consumption. Our results suggesting no impact on household wealth and nightlights do not support that alternative channel.

VAT transfers on the percentage vote share and the absolute number of valid votes cast for the incumbent President in the national elections remains positive and marginally significant (Panels B and C of Table 7). The explanatory power of the two alternative variables, however, are much lower. An explanation for this may be that incumbent politicians care more about winning a simple majority rather than a high share of votes, and hence strategically target those states with high numbers of registered voters (Veiga and Veiga, 2013).

In addition, the results of the preferred model remain robust to alternative definition of our main variable of interest. In Panel D of Table 7, we use the log of net transfers, which is the gross statutory allocation plus 13% derivation for oil producing states less contractual obligation of states.[25] However, the first stage regression results presented in Table B.18 provide weaker instruments when control variables are included.[26] We also use the gross statutory transfers that exclude the 13% derivation for oil-producing states as a form of falsification test. With very weak first-stage regressions, gross statutory transfers do not affect voting behaviours as soon as auxiliary control variables are included. Given that all revenue from oil exports above the budgeted oil price are deposited in the Excess Crude Account or Sovereign Wealth Fund, we do not expect oil windfalls to have any significant effect on gross transfers. Indeed, the first stage results reported in Table B.19 confirm our presumption.

The estimation results are also robust to using the average oil production between 2003 and 2005 as weight in the construction of the instrumental variable (Panel E of Table 7), as well as controlling for past votes cast for the incumbent (Panel F of Table 7). Furthermore, we change the definition of oil-producing states by classifying Lagos and Ogun, which are considered as off-shore oil-producing states, as non-oil producing states. In this case, we find a slightly larger impact of transfers on electoral support for the incumbent (Panel G of Table 7). One possible explanation for this may be related to the political sophistication in these two states. For example, Lagos state, which is considered an economic hub of Nigeria, has a burgeoning middle class that are less likely to be constrained by ideological attachment to parties and individual leaders or engaged in a cash-for-vote

[25]The gross statutory allocation is the main component of the federal allocations, determined strictly in accordance with the horizontal allocation formula.

[26]The Kleibergen-Paap Wald F-Statistics is below the rule-of-thumb of 10 (Stock and Yogo 2005) when quarter fixed effects are included. However, such a just-identified equation is median-unbiased and therefore unlikely to be subject to weak instrumentalization (Angrist and Pischke, 2009).

exchange. We further check the robustness of our main results to the exclusion of Lagos and Rivers states, which contribute high shares of total internally generated revenues to the Federation Account, from the analysis. The results, reported in Panel H of Table 7, indicates a lower effect compared to the benchmark model. An explanation may be attributed to the size of these two states.[27]

Finally, we introduce a quarter-specific effect prior to elections in order to explore the electoral dynamics of transfers. While we do find a higher effect at the quarter just before the election, the magnitude of the difference remains very small. This effect echoes Veiga and Veiga (2013), who find that voters do reward increases in government spending in the period close to elections, but not over a full election cycle. Unfortunately, the lack of transfer data prior to 2007 does not allow us to explore further the role of political cycles in affecting the relationship between transfers and electoral support for the incumbent.

5 Conclusions

Recent developments in the theoretical and empirical literature suggest that partisan or opportunistic governments use transfers to increase their chances of re-election. Thus, to constrain political manipulation of fiscal policies, many countries like Nigeria, Brazil, Ghana, Japan have introduced a formula-based intergovernmental system based on verifiable and objective criteria. However, a continuing debate exists on whether such institutional arrangements are efficient in limiting political manipulation, especially in countries with weak governance system and clientelistic framework. This paper argues that such a system is not immune to political manipulation. Using data from Nigeria, we show that centralised rule-based transfers in the form of redistributing VAT revenues from the central government to the States was used to purchase political support for the incumbent government in the Presidential election. Our main result indicates that a 10% increase in VAT transfers increases the margin of votes scored by the incumbent President by 49.31 percent. The result is remarkably robust across a large set of alternative specifications.

[27]However, in an alternative specification, we weight the states by their initial population. While our results remain qualitatively similar, they become less efficient with the inclusion of nightlights as economic controls. The reason is that it gives less weight to oil producing states, which are in general and with the exception of Lagos and Rivers, less populated.

Although with the data at our disposal, we are unable to prove directly manipulative behaviour, our result suggests an indirect channel in which oil-induced variations in transfers do not translate to investments in public good provisions but increased support for the incumbent only when the governors are aligned to the President's party. This gives credence to a mechanism in which large increases in natural resource rents increase political power and the ability to buy votes (Robinson et al., 2014). Our study has some interesting implications. First, a rule-based transfer system in which the distributable pool or the total amount of transfer is determined by the central government in an obscure manner could also encourage patronage politics. Indeed, the dearth of data on social development factors and the lack of transparency in the data revision process might have strengthened the process for political manipulation. Second, the use of transfers to buy electoral support diminishes the ability of the state government to provide local public goods and creates a clientelistic setting where governors who are aligned with the incumbent President can be rewarded for their support. The way the direct redistribution of oil windfalls to citizens, as proposed e.g. by Moss et al. (2015) under a oil-to-cash scheme, may reduce such perverse effects remains largely unanswered. Lastly, our analysis underlines the need for an extensive dataset that would allow researchers interested in this subject to further assess the precise mechanism through which centralised rule-based transfers may be manipulated to buy political support.

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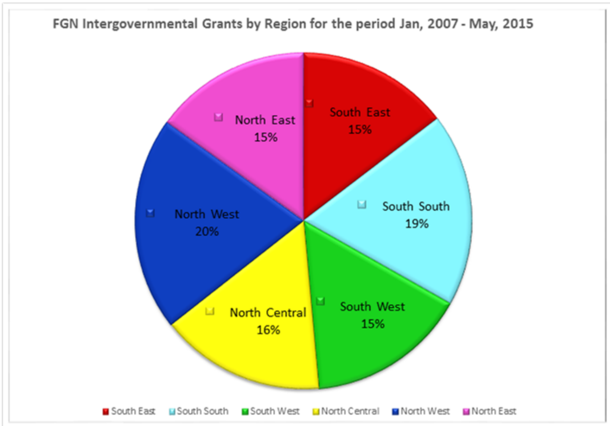
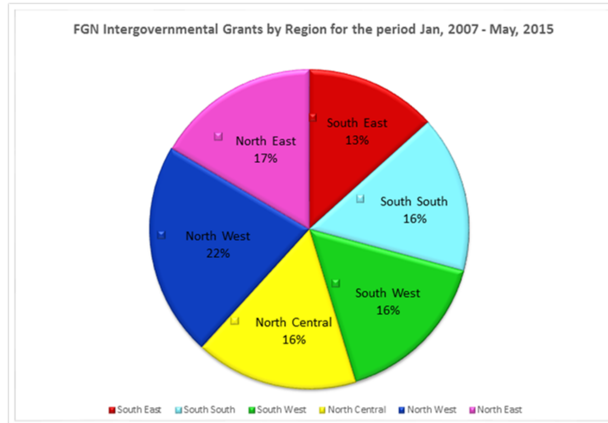


(a) Actual grants



(b) Hypothetical grants

Figure 1: Actual and hypothetical grants are based on population and landmass

Note: All grants were deflated by 2007 constant Naira (page 9). The hypothetical VAT allocation to each region were calculated applying the horizontal formula for VAT allocation to the total net VAT transfers (after deductions) available for distribution to states annually.

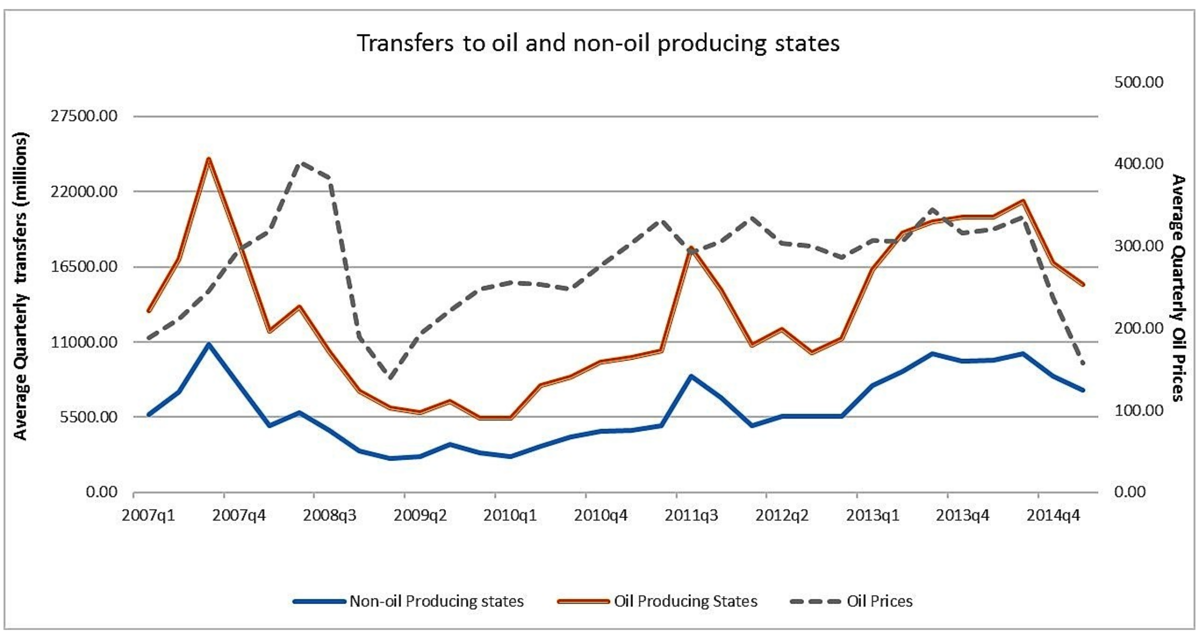


Figure 2: Real international oil prices and average VAT transfers in oil and non-oil producing States

Table 1: Descriptive Statistics

Variables	**Observations**	**Mean**	**Std. Dev.**	**Min.**	**Max.**
Percentage of votes share	108	0.638	0.268	0.051	0.999
Num. of votes share (thousands)	108	635.49	404.519	25.526	2003.521
Vote margin	108	3.805	0.728	1.889	4.610
Alignment	1152	0.687	0.464	0	1
Swing	1152	0.156	0.363	0	1
Co-ethnic	1152	0.187	0.390	0	1
Religion	1152	0.500	0.500	0	1
Population (thousands)	1152	4503.67	2005.585	1753.946	12652.398
Primary enrolment (thousands)	1152	557.329	335.487	36.508	2040.945
Secondary enrolment (thousands)	1152	163.048	105.69	26.507	694.886
Violence	1152	2.759	6.937	0	84
Gross transfers	1152	1563.536	739.727	358.164	4806.2
Net transfers	1152	2084.564	2134.878	254.031	17341.395
VAT transfers	1152	353.576	180.534	104.435	1733.413
Temperature anomalies	1152	27.351	1.658	23.186	32.785
Rainfall anomalies	1152	107.753	88.893	0	472.133
Avg. 3 months oil price (no weights)	1152	277.899	60.788	139.51	402.969
Avg. 3 months oil price (weighted by 2003 production)	1152	5.468	13.654	0	88.608
Avg. 3 months oil price (weighted by 2003/05 production)	1152	4.553	10.583	0	63.781
Avg. 6 months oil price (weighted by 2003 production)	1152	5.476	13.606	0	83.935
Avg. 6 months oil price (weighted by 2003/05 production)	1152	4.560	10.545	0	60.418
Nightlights (thousands)	1152	61.613	81.707	1.633	360.083

Source: INEC, NBS, ACLED, FMOF, FRED, and DMSP .

Note: Vote margin is expressed in log form .

Transfers are measured in Naira per capita at 2007 prices .

Table 2: Main results

Panel A. ***First-stage Estimates***	(1)	(2)	(3)	(4)	(5)	(6)
Dep. var.			**Log VAT Transfers**			
Oil windfalls	0.189***	0.196***	0.206***	0.199***	0.208***	0.208***
	(0.018)	(0.020)	(0.019)	(0.022)	(0.023)	(0.023)
Kleibergen-Paap rk Wald F	18.22	16.25	17.75	14.78	17.18	17.20
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes	Yes	Yes
Quarterly FE	Yes	Yes	Yes	Yes	Yes	Yes
State-specific time trends	No	Yes	Yes	Yes	Yes	Yes
Observations	1,152	1,152	1,152	1,152	1,152	1,152
Dep. var. (Panels B, C and D)			**Vote margin**			
Panel B. ***2SLS. Estimates***						
Pred. Transfer	6.423**	6.011**	4.476**	5.660***	4.847**	4.931*
	(2.935)	(2.504)	(1.722)	(1.799)	(1.876)	(2.455)
Adj. R-squared	0.337	0.535	0.654	0.736	0.737	0.788
Panel C. ***OLS Estimates***						
VAT transfers	-0.022	0.158	0.205	0.315	0.273	0.400
	(0.463)	(0.361)	(0.527)	(0.659)	(0.972)	(0.782)
R-squared	0.552	0.552	0.717	0.764	0.781	0.783
Panel D. ***Reduced form Estimates***						
Oil windfalls	1.177**	0.922**	1.041**	1.126**	1.009*	1.027*
	(0.561)	(0.396)	(0.438)	(0.464)	(0.549)	(0.576)
R-squared	0.572	0.730	0.739	0.772	0.785	0.787
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes	Yes	Yes
State-specific time trends	No	Yes	Yes	Yes	Yes	Yes
Observations	108	108	108	108	108	108
Controls (for all panels):						
Alignment and swing	No	No	Yes	Yes	Yes	Yes
Co-ethnic and Religion	No	No	No	Yes	Yes	Yes
Population	No	No	No	Yes	Yes	Yes
Primary and secondary enrolment	No	No	No	Yes	Yes	Yes
Violence	No	No	No	Yes	Yes	Yes
Temperature and rainfall anomalies	No	No	No	No	Yes	Yes
Nightlights	No	No	No	No	No	Yes

Notes: Standard errors clustered at the state level in parentheses.

All variables (except alignment, swing, co-ethnic and religion) are in log form.

The same regressions are estimated in both panels.

* significant at 10%, ** at 5%, *** at 1%.

Detailed results are provided in Tables B.2, B.3, B.4, and B.5 of the Appendix.

Table 3: Alternative samples definition

Panel A. ***Swing states***	(1)	(2)	(3)	(4)
Dep. var.		**Vote Margin**		
Pred. Transfer	10.836**	10.369*	8.581*	10.257
	(4.411)	(5.761)	(5.208)	(7.820)
Observations	42	42	42	42
Adj. R-squared	0.293	0.307	0.348	0.359
Panel B. ***Non-swing states***				
Pred. Transfer	3.302*	4.665**	1.794**	0.242**
	(1.718)	(2.344)	(0.866)	(0.116)
Observations	66	66	66	66
Adj. R-squared	0.511	0.636	0.682	0.704
Panel C. ***Aligned states***				
Pred. Transfer	3.539***	3.240**	2.284*	2.285*
	(1.221)	(1.537)	(1.356)	(1.340)
Observations	69	69	69	69
Adj. R-squared	0.692	0.712	0.713	0.717
Panel D. ***Non-aligned states***				
Pred. Transfer	16.891	10.953	12.217	10.871
	(15.040)	(12.327)	(9.649)	(8.298)
Observations	39	39	39	39
Adj. R-squared	0.215	0.391	0.421	0.378
Year FE	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes
State-specific time trends	Yes	Yes	Yes	Yes
Controls (for all panels):				
Co-ethnic and Religion	No	Yes	Yes	Yes
Population	No	Yes	Yes	Yes
Primary and secondary enrolment	No	Yes	Yes	Yes
Temperature and rainfall anomalies	No	Yes	Yes	Yes
Violence	No	No	Yes	Yes
Nightlights	No	No	No	Yes

Notes: Standard errors in brackets are clustered at the state level, using wild-bootstrapping as proposed by Cameron et al. (2008).
* significant at 10%, ** at 5%, *** at 1%.
Detailed results are provided in Tables B.6 and B.7 of the Appendix. The related first-stage results are provided in Tables B8 and B9 of the Appendix.

Table 4: Oil windfalls, transfers and nightlights

Panel A. ***Full sample***	(1)	(2)	(3)	(4)
Dep. var.	**Log Nightlights**			
Oil windfalls	-0.078	-0.070	-0.036	0.009
	(0.066)	(0.063)	(0.055)	(0.052)
R-squared	0.736	0.739	0.694	0.711
Panel B. ***Full sample***				
Oil windfalls *(t-1)*	-0.073	-0.064	-0.036	0.009
	(0.067)	(0.063)	(0.054)	(0.045)
R-squared	0.735	0.738	0.694	0.711
Observations	792	792	454	454
Panel C. ***Period of study***				
Oil windfalls	0.068	0.039	0.048	-0.003
	(0.139)	(0.167)	(0.175)	(0.048)
R-squared	0.686	0.689	0.682	0.735
Panel D. ***Period of study***				
Oil windfalls *(t-1)*	-0.112	0.031	-0.056	0.051
	(0.220)	(0.145)	(0.141)	(0.072)
R-squared	0.661	0.689	0.682	0.735
Observations	324	288	237	237
Panel E. ***Period of study***				
VAT transfers	-0.004	0.001	0.003	0.009
	(0.014)	(0.021)	(0.022)	(0.006)
R-squared	0.704	0.701	0.705	0.750
Observations	288	288	237	237
Panel F.				
VAT transfers *(t-1)*	-0.002	0.002	0.001	0.010
	(0.011)	(0.020)	(0.021)	(0.008)
R-squared	0.699	0.698	0.701	0.746
Observations	288	288	237	237
Year FE	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes
State-specific time trends	No	No	No	Yes
Controls (for all panels):				
Temperature and rainfall anomalies	No	Yes	Yes	Yes
Violence	No	No	Yes	Yes

Notes: In panel C and D, we are also able to control for population, primary and secondary school enrolment.

Standard errors in brackets are clustered at the state level.

All variables are in log form.

The same regressions are estimated in both panels.

* significant at 10%, ** at 5%, *** at 1%.

Detailed results are provided in Tables B.10, B.11 and B.12 of the Appendix.

Table 5: Exclusion Restriction: Oil windfalls and Health outcomes

Panel A.	(1)	(2)	(3)	(4)	(5)	(6)
Dep. var.				**HAZ-score**		
Oil windfalls during the year of birth	-0.146	-0.071	-0.335	-0.487*	-1.060***	-0.293
	(0.206)	(0.269)	(0.272)	(0.267)	(0.353)	(0.399)
R-squared	0.146	0.146	0.151	0.192	0.203	0.708
Panel B.				**WAZ-score**		
Oil windfalls during the year of birth	-0.119	-0.133	-0.317*	-0.333*	-0.686**	-0.385
	(0.161)	(0.179)	(0.172)	(0.170)	(0.255)	(0.263)
R-squared	0.147	0.147	0.149	0.182	0.192	0.712
Observations	30,826	30,826	26,721	25,398	25,398	10,499
Year of birth FE	Yes	Yes	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes	Yes	Yes
Temperature and rainfall controls	No	Yes	Yes	Yes	Yes	Yes
Violence	No	No	Yes	Yes	Yes	Yes
Individual controls	No	No	No	Yes	Yes	Yes
Parent's controls	No	No	No	Yes	Yes	No
State-specific time trends	No	No	No	No	Yes	Yes
Mother FE	No	No	No	No	No	Yes
Panel C.				**HAZ-score**		
Oil windfalls during the first 12-months of birth	0.358	0.405*	0.625	-0.126	-0.182	0.990
	(0.232)	(0.218)	(0.374)	(0.258)	(0.353)	(0.968)
R-squared	0.155	0.154	0.172	0.200	0.211	0.735
Panel D.				**WAZ-score**		
Oil windfalls during the first 12-months of birth	0.107	0.084	0.073	-0.548*	-0.537*	0.553
	(0.182)	(0.218)	(0.228)	(0.272)	(0.310)	(0.681)
R-squared	0.149	0.149	0.184	0.209	0.216	0.726
Observations	30,826	26,932	9,238	8,787	8,787	1,856
Year of birth FE	Yes	Yes	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes	Yes	Yes
Month of birth FE	Yes	Yes	Yes	Yes	Yes	Yes
Temperature and rainfall controls	No	Yes	Yes	Yes	Yes	Yes
Violence	No	No	Yes	Yes	Yes	Yes
Individual controls	No	No	No	Yes	Yes	Yes
Parent's controls	No	No	No	Yes	Yes	No
State-specific time trends	No	No	No	No	Yes	Yes
Mother FE	No	No	No	No	No	Yes

Notes: Individual controls include child's sex, age (in months) and birth order. Parent's control include mother and father's age (in months), educational attainments, occupation and total number of children under 5.

Standard errors in brackets are clustered at the state level.

R-squared retrieved from regressions with standard errors clustered at the state level.

* significant at 10%, ** at 5%, *** at 1%.

Detailed results are provided in Tables B.13 and B.14 of the Appendix.

Table 6: VAT transfers and Public goods

Panel A.	(1)	(2)	(3)	(4)	(5)	(6)
Dep. var.			**Access to drinking water**			
Pred. Transfer	12.878*	13.993**	-1.434	-1.282	3.305	0.920
	(7.052)	(7.108)	(1.344)	(1.470)	(9.763)	(17.902)
R-squared	0.072	0.073	0.075	0.075	0.075	0.101
Panel B.			**Access to sanitation facilities**			
Pred. Transfer	3.934	4.103	1.863	1.493	9.334	5.867
	(7.417)	(6.933)	(1.389)	(1.402)	(9.194)	(8.102)
R-squared	0.140	0.141	0.141	0.142	0.144	0.213
Panel C.			**Access to electricity**			
Pred. Transfer	-3.229	-3.667	-0.029	-0.372	-1.021	-5.216
	(7.272)	(7.816)	(1.523)	(1.445)	(8.376)	(8.617)
R-squared	0.196	0.196	0.196	0.196	0.196	0.283
Panel D.			**Net attendance ratio in primary school**			
Pred. Transfer	24.606***	19.935*	-1.229	-1.622	14.171	8.197
	(8.983)	(11.648)	(3.481)	(2.733)	(15.417)	(12.096)
R-squared	0.528	0.530	0.530	0.530	0.530	0.575
Panel E.			**Wealth index**			
Pred. Transfer	-1.138	0.393	3.101	3.067	25.444	10.260
	(109.487)	(39.208)	(10.607)	(7.662)	(54.728)	(27.791)
R-squared	0.390	0.390	0.390	0.391	0.391	0.555
Year of survey FE	Yes	Yes	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	69,967	69,967	69,967	69,967	69,967	69,392
Controls (for all panels):						
Population	No	Yes	Yes	Yes	Yes	Yes
Primary and secondary enrolment	No	Yes	Yes	Yes	Yes	Yes
Temperature and rainfall anomalies	No	No	Yes	Yes	Yes	Yes
Violence	No	No	No	Yes	Yes	Yes
Nightlights	No	No	No	No	Yes	Yes
Household controls	No	No	No	No	No	Yes

Notes: Household control include household size, sex, age and education of household's head.

Standard errors in parentheses are clustered at the surveys' cluster level, using wild bootstrap method (Cameron et al. 2008).

R-squared retrieved from regressions with standard errors clustered at the state level.

* significant at 10%, ** at 5%, *** at 1%.

Detailed results are provided in Tables B.24, B.25, and B.26 of the Appendix.

Table 7: Robustness to alternative samples and dependent variables

Dependent Variable	**Vote Margin**				
	(1)	(2)	(3)	(4)	(5)
Panel A. Main results	6.011**	4.476**	5.660***	4.847**	4.931*
	(2.504)	(1.722)	(1.799)	(1.876)	(2.455)
Panel B. Using incumbents' % vote shares	1.640*	1.470*	1.731**	1.283*	1.285*
as dep. var.	(0.822)	(0.772)	(0.802)	(0.667)	(0.672)
Panel C. Using number of valid vote	2.916	2.494*	2.020	1.497*	1.495*
as dep. var.	(4.256)	(1.371)	(1.458)	(0.817)	(0.858)
Panel D. Using net transfers	8.568**	6.498**	7.934***	6.541**	6.669*
	(3.569)	(2.499)	(2.522)	(2.531)	(3.321)
Panel E. Using 2003-2005 oil productions	6.130**	4.657***	5.844***	4.955***	4.795**
as weight	(2.466)	(1.582)	(1.857)	(1.650)	(2.323)
Panel F. Controlling for past elections	6.598	4.546**	5.120**	6.250**	5.704*
	(4.064)	(2.165)	(2.136)	(2.709)	(2.859)
Panel G. Classifying Lagos and Ogun	4.733**	3.559**	6.389**	4.468**	5.373*
as non-oil producing states	(2.062)	(1.399)	(2.372)	(2.149)	(2.699)
Panel H. Dropping Lagos and Rivers states	5.138**	4.378***	5.489**	4.110**	4.308*
	(2.201)	(1.541)	(1.969)	(1.727)	(2.279)
Year FE	Yes	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes	Yes
State-specific time trends	Yes	Yes	Yes	Yes	Yes
Controls (for all panels):					
Alignment and swing	No	Yes	Yes	Yes	Yes
Co-ethnic and Religion	No	No	Yes	Yes	Yes
Population	No	No	Yes	Yes	Yes
Primary and secondary enrolment	No	No	Yes	Yes	Yes
Violence	No	No	Yes	Yes	Yes
Temperature and rainfall anomalies	No	No	No	Yes	Yes
Nightlights	No	No	No	No	Yes

Notes: Standard errors in brackets are clustered at the state level, using wild-bootstrapping as proposed by Cameron et al. (2008).

* significant at 10%, ** at 5%, *** at 1%.

Detailed results are provided in Tables B.15, B.16, B.17, B.20, B.21, B.22 and B.23 of the Appendix.

Appendix

May 22, 2018

A Description of control variables

Additional information on the construction of control variables

- **Population.** The last population census in Nigeria was conducted in 2006. The population figures used are projected estimates as computed by the Nigerian National Bureau of Statistics.

- **Nightlights intensity.** To calculate the nightlights intensity, satellite data from the Defence Meteorological Satellite Program (DMSP) was used. The 30 arc second data ($\sim$ 1km2 at equator), covers the period from 1992 to 2013 (Small and Elvidge, 2013). For the remaining time period (i.e. 2014 to 2015), we did a linear extrapolation for missing values of nightlights. Two datasets of stable lights exist: 1) average DN value image composites; and 2) average DN value multiplied by the percent frequency of light detection image composites. We use the average DN value image composites. Six different DMSP satellites, F10 to F18, resulting in time series of 33 datasets, exist in total during this time period. We used the "stable lights" data, which shows the lights from cities, towns, and other sites with persistent lighting, thereby removing the ephemeral lights and background noises associated with the data (Small et al., 2005).

- **Swing and Aligned.** To construct the political variables, we consider the fact that decisions relating to grant allocations to a state are delayed by one time-period. Thus, allocations that is due in January 31st of a financial year are made in Mid-February of that financial year. The alignment indicator is defined as 1 if the central government and state government belong to the same political party on the 30th of the previous month and there is no emergency rule in the state as at that date.[28] To construct the swing dummy, we first identify the last Presidential election occurring in each state s prior to financial year t. Then we define for each election year, the winning margin, which is the difference between the percentage vote share of the two political parties that secure the highest number of votes in state s. We then classify a state

[28] In the case of an emergency rule, the Nigeria constitution empowers the President to replace an elected Governor with a Sole Administrator who oversee the affairs of the state for a limited period of three months. While a state of emergency was declared in Borno state where "Boko Haram" crisis was rife, the elected Governor remains in office through out the period.

as swing state (equals one) if the winning margin is less than or equal to 10 percent, or non-swing state (equals zero), otherwise.We use this cut-off value because electoral race in Nigeria are not usually very “tight” in most states, hence by using a 10% cut-off value, we reduce the risks of having few states as swings. Additionally, we increase the cut-off value to 20% to see if this affect our results; although not reported here, the results are robust to this alternative definition. Using a winning margin of less than or equal to 20% do not substantially alter our results.

- **Violent events.** Geo-referenced conflict event data have been aggregated at the quarterly and state level using the Armed Conflict Location and Event Dataset (ACLED). A conflict event is defined as a single altercation, where force is used between one or more politically organised groups at a particular time and location (Raleigh et al., 2010).

- **Co-ethnic and religious variables.** The co-ethnic and religion variables are constructed as dummy variables that take the value of one for states where at least 50% of the population has the same ethnic affiliation and religion as the incumbent President.

- **Rainfall and temperature anomalies.** Cumulative precipitation and average temperature are constructed based on climatic data provided by University of East Anglia Climatic Research Unit (UEA-CRU 2013). The UEA-CRU time-series datasets report average temperatures and total precipitation by months at data points of a high-resolution grid (of 0.5 × 0.5 degree), which are based on measurements from weather stations distributed around the world (Harris et al., 2014; Mitchell and Jones, 2005).We transform the gridded UEA-CRU temperature and precipitation data to one (centered) data point by state.

B Supplementary Tables

Table B.1: **Description of variables**

Variables	**Description**	**Source**
Percentage of vote shares	This is the percentage of valid votes scored by the party of the incumbent (central) government at the presidential elections.	Independent National Electoral Commission (INEC)
Number of vote shares	This is the absolute number of valid votes scored by the party of the incumbent (central) government at the presidential elections.	INEC
Alignment	An indicator variable that takes the value of one if the central and state governments belong to the same political party on the 30th of the previous month, and there is no emergency rule in the state as at that date.	Constructed from INEC data and various newspaper publications relating to party affiliations of states
Swing	An indicator variable that takes the value of one if the winning margin (i.e. the difference between the percentage votes share of the two political parties that secure the highest number of votes in a state) is less than or equal to 10 percent.	Constructed from election data provided by INEC
Population	The estimated total number of persons inhabiting a state at any given period of time.	National Bureau of Statistics (NBS)
Primary enrolment	The total number of pupils of official primary school age who are enrolled in primary education.	NBS
Secondary enrolment	The total enrolment in secondary education, regardless of age.	NBS
Violence	Altercation, where force is used between one or more politically organised groups at a particular time and location.	Armed Conflict Location and Event Dataset (ACLED)
VAT transfers	VAT transfers account for 15% of total (net) federal allocations to states. Transfers from the VAT pool is based on equality, population, and relative state's contributions to VAT revenues.	Federal Ministry of Finance (FMF)
Gross Statutory transfers	This is the main component of the Federal Allocations, determined strictly according to the horizontal allocation formula. Gross statutory transfers account for (about) 75% of the total federal allocations to states.	FMF
Net transfers	This is gross Statutory allocations plus 13% derivation for oil producing states less contractual obligations of states.	FMF
Oil price index	This index is constructed by multiplying the production value at the state level in 2003 with the international oil price.	Federal Reserve Economic Data (FRED).

Source: Authors' own construction.

Table B.2: VAT Transfers and Oil Windfalls (First Stage Results)

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent Variable			**Log VAT Transfers**			
Oil windfalls	0.189***	0.196***	0.206***	0.199***	0.208***	0.208***
	(0.018)	(0.020)	(0.019)	(0.022)	(0.023)	(0.023)
Alignment			-0.046**	-0.047**	-0.048**	-0.048**
			(0.019)	(0.022)	(0.022)	(0.022)
Swing			0.027*	0.024	0.025	0.025
			(0.013)	(0.015)	(0.016)	(0.016)
Co-ethnic				0.022	0.033	0.034
				(0.042)	(0.042)	(0.042)
Religion				0.001	0.006	0.006
				(0.027)	(0.027)	(0.027)
Population				0.040	-0.007	-0.004
				(0.068)	(0.067)	(0.089)
Primary enrolment				0.004	0.003	0.003
				(0.018)	(0.018)	(0.018)
Secondary enrolment				0.028	0.028*	0.028*
				(0.017)	(0.017)	(0.017)
Violence				-0.008	-0.006	-0.006
				(0.006)	(0.006)	(0.006)
Temperature Anomalies					-0.019***	-0.019***
					(0.007)	(0.007)
Rainfall anomalies					0.007*	0.007*
					(0.004)	(0.004)
Nightlights						-0.002
						(0.037)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes	Yes	Yes
Quarterly FE	Yes	Yes	Yes	Yes	Yes	Yes
State-specific time trends	No	Yes	Yes	Yes	Yes	Yes
Observations	1,152	1,152	1,152	1,152	1,152	1,152
Kleibergen-Paap rk Wald F	18.22	16.25	17.75	14.78	17.18	17.20
Number of States	36	36	36	36	36	36

Notes: Standard errors clustered at the state level in parentheses.

All variables (except alignment, swing, co-ethnic and religion) are in log form.

* significant at 10%, ** at 5%, *** at 1%.

Table B.3: Election Outcome and VAT Transfers (Second Stage Results)

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent Variable			**Vote Margin**			
Pred. Transfer	6.423**	6.011**	4.476**	5.660***	4.847**	4.931*
	(2.935)	(2.504)	(1.722)	(1.799)	(1.876)	(2.455)
Alignment			0.423	0.255	0.171	0.327
			(0.644)	(0.340)	(0.336)	(0.374)
Swing			-1.106***	-1.239***	-1.216***	-1.262***
			(0.329)	(0.362)	(0.353)	(0.364)
Co-ethnic				-0.572	-0.767	-1.073**
				(0.340)	(0.495)	(0.459)
Religion				-9.945***	-9.421***	3.046
				(2.907)	(2.972)	(1.890)
Population				14.856***	15.520***	12.326***
				(0.000)	(0.000)	(4.262)
Primary enrolment				-0.239	-0.158	-0.067
				(0.245)	(0.281)	(0.275)
Secondary enrolment				-0.029	-0.049	0.120
				(0.136)	(0.149)	(0.210)
Violence				-0.023	-0.068	0.030
				(0.122)	(0.156)	(0.151)
Temperature Anomalies					0.192	0.253
					(0.165)	(0.159)
Rainfall anomalies					0.110	0.074
					(0.094)	(0.099)
Nightlights						3.372**
						(1.500)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes	Yes	Yes
State-specific time trends	No	Yes	Yes	Yes	Yes	Yes
Observations	108	108	108	108	108	108
Adj. R-squared	0.337	0.535	0.654	0.736	0.737	0.788
Number of States	36	36	36	36	36	36

Notes: Standard errors clustered at state level in parentheses using wild-bootstrapping as proposed by Cameron et al. (2008).

All variables (except percentage of votes share, alignment, swing, co-ethnic and religion) are in log form.

* significant at 10%, ** at 5%, *** at 1%.

Table B.4: Election Outcome and VAT Transfers (OLS Results)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Dependent Variable				**Vote margin**			
VAT transfers	-0.191	-0.022	0.158	0.205	0.315	0.273	0.400
	(0.173)	(0.463)	(0.361)	(0.527)	(0.659)	(0.972)	(0.782)
Alignment				0.266	-0.033	-0.089	0.073
				(0.548)	(0.395)	(0.365)	(0.412)
Swing				-1.055***	-1.175***	-1.125***	-1.172***
				(0.323)	(0.299)	(0.283)	(0.318)
Co-ethnic					-0.155	-0.270	-0.582
					(0.303)	(0.470)	(0.465)
Religion					-6.065***	-5.357**	-2.773
					(2.173)	(2.308)	(2.591)
Population					14.749***	14.674***	11.589**
					(3.651)	(3.863)	(4.160)
Primary enrolment					-0.152	-0.054	0.023
					(0.342)	(0.363)	(0.301)
Secondary enrolment					-0.031	-0.024	0.143
					(0.247)	(0.242)	(0.250)
Violence					-0.026	-0.076	0.019
					(0.183)	(0.208)	(0.203)
Temperature Anomalies						0.045	0.110
						(0.178)	(0.164)
Rainfall anomalies						0.244	0.208
						(0.143)	(0.153)
Nightlights							3.371*
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State FE	No	Yes	Yes	Yes	Yes	Yes	Yes
State-specific time trends	No	No	Yes	Yes	Yes	Yes	Yes
Observations	108	108	108	108	108	108	108
R-squared	0.019	0.552	0.552	0.717	0.764	0.781	0.783
Number of States	36	36	36	36	36	36	36

Notes: Standard errors clustered at the state level in parentheses.

All variables (except percentage of votes share, alignment, swing, co-ethnic and religion) are in log form.

* significant at 10%, ** at 5%, *** at 1%.

Table B.5: Election Outcome and Oil Windfalls (Reduced Form)

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent Variable			**Vote margin**			
Oil windfalls	1.177**	0.922**	1.041**	1.126**	1.009*	1.027*
	(0.561)	(0.396)	(0.438)	(0.464)	(0.549)	(0.576)
Alignment		0.215	0.250	-0.010	-0.061	0.091
		(0.497)	(0.456)	(0.331)	(0.308)	(0.347)
Swing		-0.987***	-0.979***	-1.106***	-1.097***	-1.140***
		(0.305)	(0.307)	(0.236)	(0.244)	(0.261)
Co-ethnic			-0.208	-0.449	-0.605	-0.908*
			(0.390)	(0.340)	(0.507)	(0.480)
Religion			-2.737	-9.939***	-9.392**	-6.816*
			(2.059)	(2.631)	(3.412)	(3.644)
Population				15.084***	15.484***	12.307***
				(3.416)	(3.713)	(4.119)
Primary enrolment				-0.216	-0.145	-0.055
				(0.281)	(0.293)	(0.277)
Secondary enrolment				0.130	0.088	0.260
				(0.235)	(0.234)	(0.232)
Violence				-0.067	-0.096	0.001
				(0.165)	(0.184)	(0.179)
Temperature Anomalies					0.099	0.158
					(0.153)	(0.145)
Rainfall anomalies					0.144	0.109
					(0.136)	(0.147)
Nightlights						3.361*
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes	Yes	Yes
State-specific time trends	Yes	Yes	Yes	Yes	Yes	Yes
Observations	108	108	108	108	108	108
R-squared	0.572	0.730	0.739	0.772	0.785	0.787
Number of States	36	36	36	36	36	36

Notes: Standard errors clustered at the state level in parentheses.

All variables (except percentage of votes share, alignment, swing, co-ethnic and religion) are in log form.

* significant at 10%, ** at 5%, *** at 1%.

Table B.6: Election Outcome and VAT Transfers (Second Stage Results)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dependent Variable	**Vote margin**							
	Swing States				**Non-swing States**			
Pred. Transfer	10.836**	7.549*	8.581*	10.257	3.302*	1.544**	1.794**	0.242**
	(4.411)	(4.579)	(5.208)	(7.820)	(1.718)	(0.720)	(0.866)	(0.116)
Alignment	0.583	0.362	0.192	0.356	0.212	0.268	0.222	0.208
	(0.867)	(0.380)	(0.309)	(0.304)	(0.154)	(0.258)	(0.245)	(0.226)
Swing	-0.521	-0.309	-0.433*	-0.260	-1.499***	-1.443***	-1.361***	-1.258***
	(0.346)	(0.631)	(0.233)	(0.232)	(0.020)	(0.026)	(0.029)	(0.029)
Co-ethnic		-0.175*	-0.163*	-0.165*		0.046	0.064	0.065
		(0.087)	(0.086)	(0.086)		(0.056)	(0.057)	(0.057)
Religion		0.049*	0.051*	0.050*		-0.013	-0.009	-0.009
		(0.026)	(0.025)	(0.025)		(0.040)	(0.040)	(0.040)
Population		-0.006	-0.032	-0.290		3.217	2.196	2.342
		(0.113)	(0.108)	(0.192)		(3.187)	(2.948)	(2.891)
Primary enrolment		0.015	0.014	0.019		0.013	0.007	0.007
		(0.028)	(0.028)	(0.029)		(0.041)	(0.040)	(0.039)
Secondary enrolment		0.054	0.055	0.058		0.043	0.045	0.044
		(0.037)	(0.036)	(0.037)		(0.034)	(0.032)	(0.032)
Temperature Anomalies		0.211	-0.015	-0.016*		0.219***	0.229***	0.201***
		(0.179)	(0.009)	(0.009)		(0.009)	(0.009)	(0.009)
Rainfall anomalies		0.537	0.007	0.008		-0.018	0.006	0.006
		(0.460)	(0.006)	(0.006)		(0.015)	(0.005)	(0.005)
Violence			0.011	0.011			0.000	0.000
			(0.014)	(0.014)			(0.009)	(0.009)
Nightlights				0.165*				-0.038
				(0.082)				(0.059)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State-specific time trends	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	42	42	42	42	66	66	66	66
Adj. R-squared	0.293	0.307	0.348	0.359	0.511	0.636	0.682	0.704
Number of States	14	14	14	14	22	22	22	22

Notes: Standard errors clustered at state level in parentheses using wild-bootstrapping as proposed by Cameron et al. (2008).

All variables (except alignment, swing, co-ethnic and religion) are in log form.

* significant at 10%, ** at 5%, *** at 1%.

Table B.7: Election Outcome and VAT Transfers (Second Stage Results)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dependent Variable	**Vote margin**							
	Align States				**Non-align States**			
Pred. Transfer	3.539***	2.574**	2.284*	2.285*	16.891	12.328	12.217	10.871
	(1.221)	(1.237)	(1.356)	(1.340)	(15.040)	(12.327)	(9.649)	(8.298)
Co-Ethnic		0.149	0.046	0.046		-0.193	-0.226	-0.234
		(0.104)	(0.075)	(0.077)		(0.157)	(0.170)	(0.163)
Religion		-2.171***	-1.752*	-0.793		-2.074***	-0.703	-0.994
		(0.728)	(0.926)	(0.566)		(0.724)	(0.536)	(1.126)
Population		1.039	1.111	1.356		-3.971	-1.376	-1.618
		(1.106)	(1.147)	(1.471)		(2.694)	(1.501)	(1.580)
Primary enrolment		-0.357*	-0.333	-0.337		-0.171	-0.102	-0.100
		(0.194)	(0.289)	(0.289)		(0.369)	(1.019)	(0.309)
Secondary enrolment		-0.052	-0.066	-0.071		-0.036	-0.166	-0.262
		(0.146)	(0.151)	(0.147)		(0.308)	(0.206)	(0.149)
Temperature Anomalies		0.142**	0.128**	0.128***		0.406	0.392	0.367
		(0.057)	(0.053)	(0.047)		(0.341)	(0.301)	(0.319)
Rainfall anomalies		0.072	0.056*	0.055		-0.005	0.058*	0.058*
		(0.036)	(0.032)	(0.033)		(0.020)	(0.031)	(0.033)
Violence			0.000	0.002			0.010	0.027
			(0.019)	(0.051)			(0.069)	(0.704)
Nightlights				0.090				0.496
				(0.358)				((0.309))
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State-specific time trends	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	69	69	69	69	39	39	39	39
Adj. R-squared	0.692	0.712	0.713	0.717	0.215	0.391	0.421	0.378
Number of States	23	23	23	23	13	13	13	13

Notes: Standard errors clustered at state level in parentheses using wild-bootstrapping as proposed by Cameron et al. (2008). All variables (except alignment, swing, co-ethnic and religion) are in log form.

* significant at 10%, ** at 5%, *** at 1%.

Table B.8: VAT Transfers and Oil Windfalls (First Stage Results)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dependent Variable				**Log VAT Transfers**				
		Swing States				**Non-swing States**		
Oil windfalls	0.181***	0.189***	0.192***	0.186***	0.201***	0.173***	0.163***	0.163***
	(0.038)	(0.043)	(0.041)	(0.041)	(0.020)	(0.023)	(0.025)	(0.025)
Co-ethnic		-0.154*	-0.153*	-0.155*		0.184***	0.181***	0.183***
		(0.083)	(0.084)	(0.085)		(0.050)	(0.048)	(0.048)
Religion		0.052*	0.053*	0.051*		-0.080*	-0.078*	-0.078*
		(0.029)	(0.029)	(0.028)		(0.039)	(0.038)	(0.038)
Population		-0.060	-0.083	-0.384		0.762	0.562	0.572
		(0.115)	(0.129)	(0.228)		(0.857)	(0.984)	(1.000)
Primary enrolment		0.012	0.012	0.018		-0.024	-0.023	-0.019
		(0.027)	(0.026)	(0.028)		(0.015)	(0.015)	(0.015)
Secondary enrolment		0.043	0.042	0.047		0.013	0.015	0.014
		(0.034)	(0.034)	(0.036)		(0.010)	(0.010)	(0.009)
Temperature Anomalies		-0.016	-0.017*	-0.017*		-0.016*	-0.017*	-0.017*
		(0.009)	(0.009)	(0.009)		(0.009	(0.009)	(0.009)
Rainfall anomalies		0.007	0.009	0.008		0.002	0.002	0.002
		(0.006)	(0.006)	(0.006)		(0.003)	(0.003)	(0.003)
Violence			0.010	0.016			0.000	0.002
			(0.013)	(0.014)			(0.008)	(0.009)
Nightlights				-0.125**				0.031
				(0.056)				(0.024)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State-specific time trends	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	448	448	448	448	704	704	704	704
Kleibergen-Paap rk Wald F	5.85	4.36	4.48	4.92	11.54	8.27	8.68	8.70
Number of States	14	14	14	14	22	22	22	22

Notes: Standard errors clustered at the state level in parentheses.

All variables (except alignment, swing, co-ethnic and religion) are in log form.

* significant at 10%, ** at 5%, *** at 1%.

Table B.9: VAT Transfers and Oil Windfalls (First Stage Results)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dependent Variable	**Log VAT Transfers**							
	Align States				**Non-align States**			
Oil windfalls	0.226***	0.230***	0.231***	0.231***	0.128***	0.126***	0.122***	0.121***
	(0.021)	(0.025)	(0.024)	(0.025)	(0.029)	(0.035)	(0.034)	(0.034)
Co-ethnic		0.070	0.070	0.070		-0.010	-0.008	-0.009
		(0.054)	(0.054)	(0.054)		(0.067)	(0.069)	(0.069)
Religion		-0.009	-0.009	-0.009		0.022	0.019	0.019
		(0.040)	(0.040)	(0.040)		(0.027)	(0.027)	(0.027)
Population		1.965	1.967	2.042		-0.031	-0.010	-0.081
		(3.045)	(3.058)	(3.036)		(0.052)	(0.049)	(0.076)
Primary enrolment		0.007	0.007	0.007		0.000	0.002	0.001
		(0.040)	(0.040)	(0.040)		(0.004)	(0.004)	(0.005)
Secondary enrolment		0.040	0.040	0.040		0.009*	0.013**	0.014**
		(0.032)	(0.032)	(0.032)		(0.005)	(0.004)	(0.005)
Temperature Anomalies		-0.023**	-0.023**	-0.023**		-0.010	-0.009	-0.009
		(0.009)	(0.009)	(0.009)		(0.007)	(0.007)	(0.007)
Rainfall anomalies		0.006	0.006	0.006		0.009*	0.009*	0.009*
		(0.004)	(0.004)	(0.004)		(0.004)	(0.005)	(0.004)
Violence			0.010	0.009			-0.010	-0.011
			(0.008)	(0.009)			(0.009)	(0.009)
Nightlights				-0.029				-0.017
				(0.050)				(0.030)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State-specific time trends	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	736	736	736	736	416	416	416	416
Kleibergen-Paap rk Wald F	15.33	12.77	15.99	16.00	5.25	5.79	4.36	4.45
Number of States	23	23	23	23	13	13	13	13

Notes: Standard errors clustered at the state level in parentheses.

All variables (except alignment, swing, co-ethnic and religion) are in log form.

* significant at 10%, ** at 5%, *** at 1%.

Table B.10: Exclusion Restriction: Oil windfalls and Nightlights (full sample)

Panel A	(1)	(2)	(3)	(4)
Dep. var.		**Log nightlights**		
Oil windfalls	-0.078	-0.070	-0.036	0.009
	(0.066)	(0.063)	(0.055)	(0.052)
Rainfall anomalies		-0.025	-0.015	-0.014
		(0.024)	(0.025)	(0.014)
Temperature anomalies		-0.076	-0.101	0.063**
		(0.058)	(0.063)	(0.027)
Violence			-0.028**	-0.010
			(0.011)	(0.006)
Year FE	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes
State-specific time trends	No	No	No	Yes
Observations	792	792	454	454
R-squared	0.736	0.739	0.694	0.711
Panel B				
Dep. var.		**Log nightlights**		
Oil windfalls *(t-1)*	-0.073	-0.064	-0.036	0.009
	(0.067)	(0.063)	(0.054)	(0.045)
Oil windfalls				0.008
				(0.046)
Rainfall anomalies		-0.024	-0.015	-0.014
		(0.024)	(0.025)	(0.014)
Temperature anomalies		-0.080	-0.102	0.062**
		(0.059)	(0.062)	(0.026)
Violence			-0.028**	-0.011
			(0.011)	(0.007)
Year FE	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes
State-specific time trends	No	No	No	Yes
Observations	792	792	454	454
R-squared	0.735	0.738	0.694	0.711

Notes: Standard errors clustered at the state level in parentheses. * significant at 10%, ** at 5%, *** at 1%. The same regressions are estimated in both panels. All variables are in log form.

Table B.11: Exclusion Restriction: Oil windfalls and Nightlights (period of study only)

Panel A	(1)	(2)	(3)	(4)
Dep. var.		**Log nightlights**		
Oil windfalls	0.068	0.039	0.048	-0.009
	(0.139)	(0.167)	(0.175)	(0.052)
Population	3.090***	3.083***	2.985***	1.291***
	(0.690)	(0.700)	(0.730)	(0.326)
Primary enrolment	0.038	0.038	0.062	0.035
	(0.047)	(0.046)	(0.051)	(0.043)
Secondary enrolment	0.161*	0.157*	0.152	-0.089*
	(0.081)	(0.081)	(0.094)	(0.049)
Rainfall anomalies		0.033	0.036	0.037
		(0.020)	(0.034)	(0.033)
Temperature anomalies		0.135	0.169	0.063
		(0.145)	(0.161)	(0.075)
Violence			-0.010	0.013
			(0.024)	(0.016)
Year FE	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes
State-specific time trends	No	No	No	Yes
Observations	288	288	237	288
R-squared	0.686	0.689	0.682	0.727
Panel B				
Dep. var.		**Log nightlights**		
Oil windfalls *(t-1)*	-0.112	0.031	-0.056	0.051
	(0.220)	(0.145)	(0.141)	(0.072)
Population	3.931***	3.084***	2.960***	1.306***
	(0.936)	(0.708)	(0.739)	(0.331)
Primary enrolment	0.084*	0.038	0.062	0.035
	(0.048)	(0.046)	(0.050)	(0.042)
Secondary enrolment	0.159*	0.156*	0.150	-0.090*
	(0.094)	(0.081)	(0.094)	(0.050)
Rainfall anomalies		0.035	0.033	0.040
		(0.021)	(0.036)	(0.035)
Temperature anomalies		0.151	0.159	0.074
		(0.128)	(0.148)	(0.080)
Violence			-0.013	0.012
			(0.024)	(0.015)
Year FE	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes
State-specific time trends	No	No	No	Yes
Observations	324	288	237	237
R-squared	0.661	0.689	0.682	0.735

Notes: Standard errors clustered at the state level in parentheses. * significant at 10%, ** at 5%, *** at 1%. The same regressions are estimated in both panels. All variables are in log form.

Table B.12: Interpretation: VAT transfers and Nightlights

Panel A	(1)	(2)	(3)	(4)
Dep. var.	**Log nightlights**			
VAT transfers	-0.004	0.001	0.003	0.009
	(0.014)	(0.021)	(0.022)	(0.006)
Population	2.306***	2.302***	2.313***	1.411***
	(0.436)	(0.465)	(0.455)	(0.136)
Primary enrolment	0.026	0.029	0.030	0.016
	(0.037)	(0.038)	(0.039)	(0.028)
Secondary enrolment	0.129*	0.131*	0.129*	-0.028***
	(0.066)	(0.067)	(0.066)	(0.009)
Rainfall anomalies		-0.006	-0.006	-0.002
		(0.004)	(0.004)	(0.002)
Temperature anomalies		-0.002	0.001	0.006**
		(0.017)	(0.016)	(0.003)
Violence			-0.019	-0.001
			(0.012)	(0.003)
Year FE	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes
State-specific time trends	No	No	No	Yes
Observations	288	288	237	237
R-squared	0.704	0.701	0.705	0.750
Panel B				
Dep. var.	**Log nightlights**			
VAT transfers *(t-1)*	-0.002	0.002	0.001	0.010
	(0.011)	(0.020)	(0.021)	(0.008)
Population	2.300***	2.291***	2.306***	1.438***
	(0.425)	(0.451)	(0.440)	(0.139)
Primary enrolment	0.033	0.032	0.033	0.015
	(0.036)	(0.038)	(0.038)	(0.028)
Secondary enrolment	0.124*	0.126*	0.125*	-0.026***
	(0.067)	(0.067)	(0.067)	(0.008)
Rainfall anomalies		-0.007*	-0.007*	-0.002
		(0.003)	(0.003)	(0.002)
Temperature anomalies		0.003	0.004	0.009**
		(0.018)	(0.017)	(0.003)
Violence			-0.017	-0.000
			(0.013)	(0.003)
Year FE	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes
State-specific time trends	No	No	No	Yes
Observations	288	288	237	237
R-squared	0.699	0.698	0.701	0.746

Notes: Standard errors clustered at the state level in parentheses. * significant at 10%, ** at 5%, *** at 1%. The same regressions are estimated in both panels. All variables are in log form.

Table B.13: Exclusion Restriction: Oil windfalls and Health outcomes

Panel A	(1)	(2)	(3)	(4)	(5)	(6)
Dep. var.			**HAZ-score**			
Oil windfalls	-0.146	-0.071	-0.335	-0.487*	-1.060***	-0.293
	(0.206)	(0.269)	(0.272)	(0.267)	(0.353)	(0.399)
Temperature anomalies		-0.272	-0.066	-0.078	0.467	0.647*
		(0.394)	(0.351)	(0.340)	(0.322)	(0.349)
Rainfall anomalies		-0.050	-0.077	-0.051	0.020	-0.032
		(0.092)	(0.098)	(0.094)	(0.081)	(0.125)
Violence			-0.094	-0.095	-0.132***	-0.105**
			(0.085)	(0.079)	(0.038)	(0.051)
Individual controls	No	No	No	Yes	Yes	Yes
Parent's controls	No	No	No	Yes	No	No
Year of birth FE	Yes	Yes	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes	Yes	Yes
State-specific time trends	No	No	No	No	Yes	Yes
Mother FE	No	No	No	No	No	Yes
Observations	30,826	30,826	26,721	25,398	25,398	10,499
R-squared	0.146	0.146	0.151	0.192	0.203	0.708
Panel B						
Dep. var.			**WAZ-score**			
Oil windfalls	-0.119	-0.133	-0.317*	-0.333*	-0.686**	-0.385
	(0.161)	(0.179)	(0.172)	(0.170)	(0.255)	(0.263)
Temperature anomalies		0.157	0.261	0.253	0.623***	0.694***
		(0.191)	(0.179)	(0.183)	(0.183)	(0.241)
Rainfall anomalies		0.125*	0.116	0.129*	0.143*	0.205**
		(0.065)	(0.074)	(0.069)	(0.076)	(0.086)
Violence			-0.036	-0.038	0.031	0.028
			(0.033)	(0.032)	(0.025)	(0.037)
Observations	30,826	30,826	26,721	25,398	25,398	10,499
R-squared	0.147	0.147	0.149	0.182	0.192	0.712

Notes: Individual controls include child's sex, age (in months) and birth order. Parent's control include mother and father's age (in months), educational attainments, occupation and total number of children under 5. Standard errors in parentheses are clustered at the state level. * significant at 10%, ** at 5%, *** at 1%. The same regressions are estimated in both panels. R-squared retrieved from regressions with standard errors clustered at the state level.

Table B.14: Exclusion Restriction: Oil windfalls and Health outcomes

Panel A	(1)	(2)	(3)	(4)	(5)	(6)
Dep. var.				**HAZ-score**		
Oil windfalls (1st 12-months of birth)	0.358	0.405*	0.625	-0.126	-0.182	0.990
	(0.232)	(0.218)	(0.374)	(0.258)	(0.353)	(0.968)
Temperature anomalies		0.013	0.098	0.126**	0.144***	-0.084
		(0.029)	(0.061)	(0.062)	(0.049)	(0.162)
Rainfall anomalies		-0.030	-0.064	-0.042	-0.042	0.059
		(0.025)	(0.041)	(0.038)	(0.033)	(0.077)
Violence			0.003	-0.015	-0.029	-0.151
			(0.077)	(0.069)	(0.054)	(0.130)
Individual controls	No	No	No	Yes	Yes	Yes
Parent's controls	No	No	No	Yes	No	No
Month of birth FE	Yes	Yes	Yes	Yes	Yes	Yes
Year of birth FE	Yes	Yes	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes	Yes	Yes
State-specific time trends	No	No	No	No	Yes	Yes
Mother FE	No	No	No	No	No	Yes
Observations	30,826	26,932	9,238	8,787	8,787	1,856
R-squared	0.155	0.154	0.172	0.200	0.211	0.735
Panel B						
Dep. var.				**WAZ-score**		
Oil windfalls (1st 12-months of birth)	0.107	0.084	0.073	-0.548*	-0.537*	0.553
	(0.182)	(0.218)	(0.228)	(0.272)	(0.310)	(0.681)
Temperature anomalies		0.026	0.079	0.118**	0.119**	0.172
		(0.024)	(0.056)	(0.049)	(0.049)	(0.116)
Rainfall anomalies		-0.024	-0.054**	-0.038	-0.037*	0.080
		(0.017)	(0.024)	(0.024)	(0.022)	(0.063)
Violence			0.022	0.008	0.008	-0.062
			(0.044)	(0.043)	(0.039)	(0.086)
Observations	30,826	26,932	9,238	8,787	8,787	1,856
R-squared	0.149	0.149	0.184	0.209	0.216	0.726

Notes: Individual controls include child's sex, age (in months) and birth order. Parent's control include mother and father's age (in months), educational attainments, occupation and total number of children under 5. Standard errors in parentheses are clustered at the state level. * significant at 10%, ** at 5%, *** at 1%. The same regressions are estimated in both panels. R-squared retrieved from regressions with standard errors clustered at the state level.

Table B.15: Alternative specifications: Using percentage votes share

	(1)	(2)	(3)	(4)
Dependent Variable	**Incumbents' Percentage Votes Share**			
Pred. Transfer	1.470*	1.731**	1.283*	1.285*
	(0.772)	(0.802)	(0.667)	(0.672)
Alignment	0.132	0.144	0.104	0.108
	(0.090)	(0.098)	(0.072)	(0.079)
Swing	-0.085*	-0.092**	-0.077	-0.078
	(0.042)	(0.042)	(0.050)	(0.055)
Co-ethnic		-0.159	-0.198	-0.205
		(0.137)	(0.161)	(0.152)
Religion		-2.096***	-1.696*	-0.738
		(0.732)	(0.896)	(0.532)
Population		0.959	1.082	0.996
		(1.070)	(1.141)	(1.332)
Primary enrolment		-0.031	0.006	0.008
		(0.092)	(0.058)	(0.050)
Secondary enrolment		-0.070**	-0.072	-0.068
		(0.034)	(0.044)	(0.051)
Violence		0.030	0.013	0.016
		(0.049)	(0.038)	(0.043)
Temperature Anomalies			0.050	0.052
			(0.040)	(0.038)
Rainfall anomalies			0.056*	0.055
			(0.032)	(0.033)
Nightlights				0.089
				(0.326)
Year FE	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes
State-specific time trends	Yes	Yes	Yes	Yes
Observations	108	108	108	108
Adj. R-squared	0.893	0.888	0.899	0.895
Number of States	36	36	36	36

Notes: Standard errors clustered at state level in parentheses using wild-bootstrapping as proposed by Cameron et al. (2008).

All variables (except percentage of votes share, alignment, swing, co-ethnic and religion) are in log form.

* significant at 10%, ** at 5%, *** at 1%.

Table B.16: Alternative specifications: Number of Valid Votes

	(1)	(2)	(3)	(4)
Dependent Variable	**Log Number of Valid Votes**			
Election Outcome and VAT Transfers (2SLS)				
Pred. Transfer	2.494*	2.020	1.497*	1.495*
	(1.371)	(1.458)	(0.817)	(0.858)
Alignment	0.425	0.334	0.293	0.290
	(0.306)	(0.387)	(0.310)	(0.304)
Swing	-0.151	-0.137	-0.119	-0.118
	(0.190)	(0.150)	(0.174)	(0.177)
Ethnicity		-0.227	-0.244	-0.238
		(0.612)	(0.826)	(0.699)
Religion		-2.716	-2.232	-2.980
		(2.412)	(2.819)	(2.158)
Population		-1.186	-1.130	-1.075
		(3.133)	(3.393)	(4.070)
Primary enrolment		0.380	0.417	0.416
		(0.448)	(0.467)	(0.475)
Secondary enrolment		-0.203	-0.201	-0.204
		(0.186)	(0.224)	(0.302)
Violence		0.273	0.256	0.254
		(0.238)	(0.221)	(0.185)
Temperature Anomalies			0.043	0.042
			(0.168)	(0.151)
Rainfall anomalies			0.054	0.055
			(0.124)	(0.137)
Nightlights				-0.060
				(1.076)
Year FE	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes
State-specific time trends	Yes	Yes	Yes	Yes
Observations	108	108	108	108
Adj. R-squared	0.815	0.812	0.799	0.791
Number of States	36	36	36	36

Notes: Standard errors clustered at state level in parentheses using wild-bootstrapping as proposed by Cameron et al. (2008).

All variables (except percentage of votes share, alignment, swing, co-ethnic and religion) are in log form.

* significant at 10%, ** at 5%, *** at 1%.

Table B.17: Alternative specifications: Net Transfers

	(1)	(2)	(3)	(4)
Dependent Variable		**Vote margin**		
Election Outcome and Net Transfers (2SLS)				
Pred. Transfer	6.498**	7.934***	6.541**	6.669*
	(2.499)	(2.522)	(2.531)	(3.321)
Alignment	0.454	0.284	0.186	0.341
	(0.684)	(0.347)	(0.336)	(0.366)
Swing	-0.846***	-0.920***	-0.946***	-0.988**
	(0.273)	(0.269)	(0.274)	(0.353)
Co-ethnic		-0.220	-0.524	-0.822**
		(0.255)	(0.434)	(0.387)
Religion		-10.049***	-9.503***	2.964
		(2.937)	(2.998)	(1.890)
Population		13.667***	14.380***	11.449**
		(0.000)	(0.000)	(4.212)
Primary enrolment		-0.137	-0.076	0.019
		(0.250)	(0.318)	(0.190)
Secondary enrolment		0.169	0.107	0.275
		(0.210)	(0.204)	(0.213)
Violence		-0.026	-0.079	0.019
		(0.134)	(0.162)	(0.159)
Temperature Anomalies			0.260	0.322*
			(0.185)	(0.182)
Rainfall anomalies			0.169*	0.134
			(0.092)	(0.108)
Nightlights				3.177**
				(1.525)
Year FE	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes
State-specific time trends	Yes	Yes	Yes	Yes
Observations	108	108	108	108
Adj. R-squared	0.730	0.772	0.785	0.787
Number of States	36	36	36	36

Notes: Standard errors clustered at state level in parentheses using wild-bootstrapping as proposed by Cameron et al. (2008).

All variables (except percentage of votes share, alignment, swing, co-ethnic and religion) are in log form.

* significant at 10%, ** at 5%, *** at 1%.

Table B.18: Alternative specifications: Net Transfers

	(1)	(2)	(3)	(4)
Dependent Variable		**Log Net Transfers**		
Net Transfers and Oil Windfalls (First Stage Results)				
Oil windfalls	0.142***	0.142***	0.154***	0.154***
	(0.046)	(0.045)	(0.046)	(0.046)
Alignment	-0.037*	-0.037	-0.038	-0.037
	(0.022)	(0.022)	(0.023)	(0.023)
Swing	-0.022	-0.023	-0.023	-0.023
	(0.030)	(0.028)	(0.029)	(0.028)
Ethnicity		-0.029	-0.012	-0.013
		(0.031)	(0.031)	(0.032)
Religion		0.014	0.017	0.017
		(0.021)	(0.021)	(0.020)
Population		0.179	0.169	0.129
		(0.113)	(0.116)	(0.206)
Primary enrolment		-0.010	-0.011	-0.011
		(0.018)	(0.018)	(0.017)
Secondary enrolment		-0.005	-0.003	-0.002
		(0.014)	(0.014)	(0.012)
Violence		-0.005	-0.003	-0.003
		(0.007)	(0.007)	(0.007)
Temperature Anomalies			-0.025***	-0.025***
			(0.007)	(0.007)
Rainfall anomalies			-0.004	-0.004
			(0.008)	(0.008)
Nightlights				0.028
				(0.117)
Year FE	Yes	Yes	Yes	Yes
Quarterly FE	Yes	Yes	Yes	Yes
State-specific time trends	Yes	Yes	Yes	Yes
Observations	1,152	1,152	1,152	1,152
Kleibergen-Paap rk Wald F	4.88	4.54	5.33	5.31
Number of States	36	36	36	36

Notes: Standard errors clustered at the state level in parentheses.

All variables (except alignment, swing, ethnicity and religion) are in log form.

* significant at 10%, ** at 5%, *** at 1%.

Table B.19: Falsification Test: Gross Transfers

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Dependent Variable				**Log Gross Transfers**			
Gross Transfers and Oil Windfalls (First Stage Results)							
Oil windfalls	0.182***	0.068*	0.080*	0.084*	0.082	0.098	0.097
	(0.038)	(0.041)	(0.046)	(0.047)	(0.059)	(0.069)	(0.069)
Alignment				-0.016	-0.018	-0.019	-0.019
				(0.019)	(0.019)	(0.019)	(0.019)
Swing				0.014	0.011	0.012	0.012
				(0.024)	(0.024)	(0.025)	(0.025)
Co-ethnic					-0.027	-0.007	-0.007
					(0.029)	(0.030)	(0.030)
Religion					0.010	0.015	0.015
					(0.018)	(0.018)	(0.018)
Population					0.177	0.153	0.144
					(0.238)	(0.227)	(0.255)
Primary enrolment					0.000	-0.001	-0.001
					(0.015)	(0.015)	(0.015)
Secondary enrolment					0.001	0.003	0.003
					(0.015)	(0.015)	(0.015)
Violence					-0.009	-0.006	-0.006
					(0.007)	(0.007)	(0.007)
Temperature Anomalies						-0.030***	-0.030***
						(0.006)	(0.006)
Rainfall anomalies						-0.002	-0.002
						(0.006)	(0.006)
Nightlights							0.006
							(0.067)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Quarterly FE	No	Yes	Yes	Yes	Yes	Yes	Yes
State-specific time trends	No	No	Yes	Yes	Yes	Yes	Yes
Observations	1,152	1,152	1,152	1,152	1,152	1,152	1,152
Kleibergen-Paap rk Wald F	22.56	2.81	2.99	3.25	2.44	2.14	2.13
Number of States	36	36	36	36	36	36	36

Notes: Standard errors clustered at the state level in parentheses.

All variables (except alignment and swing) are in log form.

* significant at 10%, ** at 5%, *** at 1%.

Table B.20: Alternative specifications: Using 2003-2005 as a weight

	(1)	(2)	(3)	(4)
Dependent Variable		**Vote Margin**		
Pred. Transfer	4.657***	5.844***	4.955***	4.795**
	(1.582)	(1.857)	(1.650)	(2.323)
Alignment	0.419	0.252	0.168	0.307
	(0.638)	(0.327)	(0.318)	(0.375)
Swing	-1.108***	-1.241***	-1.219***	-1.259***
	(0.329)	(0.363)	(0.353)	(0.363)
Co-ethnic		-0.570	-0.756	-1.029**
		(0.339)	(0.453)	(0.440)
Religion		-9.794***	-9.277***	3.431*
		(2.863)	(2.927)	(1.767)
Population		14.952***	15.594***	12.431***
		(0.000)	(0.000)	(4.298)
Primary enrolment		-0.259	-0.178	-0.082
		(0.237)	(0.265)	(0.247)
Secondary enrolment		-0.030	-0.049	0.118
		(0.136)	(0.153)	(0.210)
Violence		-0.030	-0.072	0.024
		(0.123)	(0.153)	(0.162)
Temperature Anomalies			0.191	0.243
			(0.153)	(0.151)
Rainfall anomalies			0.100	0.073
			(0.091)	(0.101)
Nightlights				3.283**
				(1.512)
Year FE	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes
State-specific time trends	Yes	Yes	Yes	Yes
Observations	108	108	108	108
Adj. R-squared	0.657	0.741	0.740	0.788
Number of States	36	36	36	36

Notes: Standard errors clustered at state level in parentheses using wild-bootstrapping as proposed by Cameron et al. (2008).

All variables (except percentage of votes share, alignment, swing, co-ethnic and religion) are in log form.

* significant at 10%, ** at 5%, *** at 1%.

Table B.21: Alternative specifications: controlling for past elections

	(1)	(2)	(3)	(4)
Dependent Variable		**Vote Margin**		
Pred. Transfer	4.546**	5.120**	6.250**	5.704*
	(2.165)	(2.136)	(2.709)	(2.859)
Alignment	0.426	0.232	0.184	0.328
	(0.636)	(0.395)	(0.379)	(0.412)
Swing	-1.107***	-1.230***	-1.204***	-1.253***
	(0.328)	(0.358)	(0.347)	(0.360)
Co-ethnic		-0.619	-0.391	-0.852
		(0.400)	(0.661)	(0.664)
Religion		-9.526***	-9.997***	3.049
		(2.773)	(3.140)	(1.952)
Lag vote share (opposition)	-0.006	0.053	-0.301	-0.167
	(0.252)	(0.119)	(0.283)	(0.252)
Population		14.725***	15.875***	12.650***
		(0.000)	(0.000)	(4.356)
Primary enrolment		-0.186	-0.356	-0.181
		(0.355)	(0.372)	(0.344)
Secondary enrolment		-0.025	-0.045	0.116
		(0.146)	(0.150)	(0.211)
Violence		-0.029	-0.070	0.025
		(0.120)	(0.155)	(0.173)
Temperature Anomalies			0.199	0.255
			(0.165)	(0.159)
Rainfall anomalies			0.272	0.165
			(0.169)	(0.181)
Nightlights				3.238**
				(1.454)
Year FE	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes
State-specific time trends	Yes	Yes	Yes	Yes
Observations	108	108	108	108
Adj. R-squared	0.643	0.723	0.736	0.782
Number of States	36	36	36	36

Notes: Standard errors clustered at state level in parentheses using wild-bootstrapping as proposed by Cameron et al. (2008).

All variables (except percentage of votes share, alignment, swing, co-ethnic and religion) are in log form.

* significant at 10%, ** at 5%, *** at 1%.

Table B.22: Alternative specifications: Ten Oil Producing States

	(1)	(2)	(3)	(4)
Dependent Variable		**Vote margin**		
Election Outcome and VAT Transfers (2SLS)				
Pred. Transfer	3.559**	6.389**	4.468**	5.373*
	(1.399)	(2.372)	(2.149)	(2.699)
Alignment	0.406	0.336	0.187	0.407
	(0.621)	(0.280)	(0.285)	(0.334)
Swing	-1.106***	-1.262***	-1.212***	-1.277***
	(0.329)	(0.369)	(0.351)	(0.368)
Co-ethnic		-0.787*	-0.786	-1.212**
		(0.439)	(0.578)	(0.552)
Religion		-10.537***	-9.027**	-6.995*
		(3.080)	(3.814)	(3.483)
Population		15.120***	15.355***	12.151**
		(0.000)	(0.000)	(4.584)
Primary enrolment		-0.226	-0.127	-0.051
		(0.257)	(0.291)	(0.317)
Secondary enrolment		-0.076	-0.065	0.106
		(0.165)	(0.163)	(0.219)
Violence		-0.030	-0.072	0.031
		(0.145)	(0.160)	(0.166)
Temperature Anomalies			0.142	0.227
			(0.149)	(0.146)
Rainfall anomalies			0.123	0.062
			(0.098)	(0.108)
Night lights				3.567**
				(1.546)
Year FE	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes
State-specific time trends	Yes	Yes	Yes	Yes
Observations	108	108	108	108
Adj. R-squared	0.639	0.732	0.726	0.784
Number of States	36	36	36	36

Notes: In this table, we change the definition of oil-producing states by classifying Lagos and Ogun States, which are considered as off-shore oil states as non-oil producing states.

Standard errors clustered at state level in parentheses using wild-bootstrapping as proposed by Cameron et al. (2008).

All variables (except percentage of votes share, alignment, swing, co-ethnic and religion) are in log form.

* significant at 10%, ** at 5%, *** at 1%.

Table B.23: Alternative specifications: Excluding Lagos and Rivers States

	(1)	(2)	(3)	(4)
Dependent Variable		**Vote margin**		
Election Outcome and VAT Transfers (2SLS)				
Pred. Transfer	4.378***	5.489**	4.110**	4.308*
	(1.541)	(1.969)	(1.727)	(2.279)
Alignment	0.444	0.246	0.122	0.279
	(0.692)	(0.348)	(0.287)	(0.331)
Swing	-1.041***	-1.203***	-1.147***	-1.208***
	(0.308)	(0.349)	(0.329)	(0.345)
Co-ethnic		-0.550	-0.645	-1.021*
		(0.496)	(0.588)	(0.576)
Religion		15.226***	16.680***	14.370***
		(4.413)	(0.000)	(4.471)
Population		14.953***	15.327***	12.373***
		(0.000)	(4.398)	(4.069)
Primary enrolment		-0.301	-0.198	-0.103
		(0.237)	(0.273)	(0.246)
Secondary enrolment		0.015	0.020	0.189
		(0.175)	(0.150)	(0.235)
Violence		-0.026	-0.072	0.037
		(0.131)	(0.169)	(0.139)
Temperature Anomalies			0.176	0.237
			(0.163)	(0.151)
Rainfall anomalies			0.145	0.103
			(0.095)	(0.121)
Night lights				3.377**
				(1.346)
Year FE	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes
State-specific time trends	Yes	Yes	Yes	Yes
Observations	102	102	102	102
Adj. R-squared	0.635	0.712	0.714	0.769
Number of States	34	34	34	34

Notes: Standard errors clustered at state level in parentheses using wild-bootstrapping as proposed by Cameron et al. (2008).

All variables (except percentage of votes share, alignment, swing, co-ethnic and religion) are in log form.

* significant at 10%, ** at 5%, *** at 1%.

Table B.24: Interpretation: VAT transfers and Public goods

Panel A	(1)	(2)	(3)	(4)	(5)	(6)
Dep. var.			**Access to drinking water**			
Pred. Transfer	12.878*	13.993**	-1.434	-1.282	3.305	0.920
	(7.052)	(7.108)	(1.344)	(1.470)	(9.763)	(17.902)
Population		-1.977	-2.538	-2.728	-2.116	-1.844
		(2.026)	(2.178)	(2.148)	(2.097)	(1.948)
Primary enrolment		-0.190**	-0.006	-0.012	-0.066	-0.037
		(0.091)	(0.035)	(0.036)	(0.113)	(0.117)
Secondary enrolment		-0.334**	0.001	-0.007	-0.112	-0.057
		(0.148)	(0.048)	(0.063)	(0.202)	(0.209)
Temperature Anomalies			-0.008	-0.036	0.048	0.012
			(0.034)	(0.042)	(0.174)	(0.286)
Rainfall anomalies			-0.140**	-0.010	-0.043	-0.033
			(0.070)	(0.039)	(0.043)	(0.039)
Violence				0.039**	0.037*	0.044**
				(0.017)	(0.020)	(0.019)
Nightlights					0.023	0.016
					(0.214)	(0.195)
Household controls	No	No	No	No	No	Yes
Year of survey FE	Yes	Yes	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	69,967	69,967	69,967	69,967	69,967	69,392
R-squared	0.072	0.073	0.075	0.075	0.075	0.101
Panel B						
Dep. var.			**Access to sanitation facility**			
Pred. Transfer	3.934	4.103	1.863	1.493	9.334	5.867
	(7.417)	(6.933)	(1.389)	(1.402)	(9.194)	(8.102)
Population		-1.689	-0.735	-1.014	-0.946	-0.613
		(1.826)	(2.021)	(2.069)	(1.876)	(1.653)
Primary enrolment		-0.007	0.016	0.020	-0.048	0.003
		(0.155)	(0.039)	(0.038)	(0.113)	(0.064)
Secondary enrolment		-0.085	-0.037	-0.023	-0.258	-0.182
		(0.145)	(0.040)	(0.047)	(0.206)	(0.175)
Temperature Anomalies			0.025	-0.003	0.153	0.102
			(0.035)	(0.020)	(0.150)	(0.131)
Rainfall anomalies			-0.239***	-0.000	-0.014	0.000
			(0.077)	(0.004)	(0.055)	(0.005)
Violence				0.013	0.012	0.022
				(0.017)	(0.023)	(0.019)
Nightlights					0.533***	0.544***
					(0.198)	(0.183)
Observations	69,967	69,967	69,967	69,967	69,967	69,392
R-squared	0.140	0.141	0.141	0.142	0.144	0.213

Notes: Household control include household size, sex, age and education of household's head. Standard errors in parentheses are clustered at the surveys' cluster level, using wild bootstrap method (Cameron et al. 2008). * significant at 10%, ** at 5%, *** at 1%. The same regressions are estimated in both panels. R-squared retrieved from regressions with standard errors clustered at the surveys' cluster level.

Table B.25: Interpretation: VAT transfers and Public goods

Panel A	(1)	(2)	(3)	(4)	(5)	(6)
Dep. var.			**Access to electricity**			
Pred. Transfer	-3.229	-3.667	-0.029	-0.372	-1.021	-5.216
	(7.272)	(7.816)	(1.523)	(1.445)	(8.376)	(8.617)
Population		-0.426	-0.500	-0.798	-0.600	-0.318
		(2.382)	(2.300)	(2.226)	(2.296)	(2.142)
Primary enrolment		0.030	-0.013	-0.011	-0.003	0.055
		(0.097)	(0.046)	(0.041)	(0.525)	(0.100)
Secondary enrolment		0.073	-0.006	0.007	0.014	0.107
		(0.181)	(0.046)	(0.055)	(0.151)	(0.188)
Temperature Anomalies			-0.028	-0.039	-0.044	-0.107
			(0.034)	(0.040)	(0.137)	(0.141)
Rainfall anomalies			-0.096*	0.011	0.008	0.024
			(0.058)	(0.043)	(0.044)	(0.040)
Violence				-0.018	-0.014	-0.002
				(0.021)	(0.030)	(0.029)
Nightlights					0.037	0.034
					(0.288)	(0.217)
Household controls	No	No	No	No	No	Yes
Year of survey FE	Yes	Yes	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	69,967	69,967	69,967	69,967	69,967	69,392
R-squared	0.196	0.196	0.196	0.196	0.196	0.283
Panel B						
Dep. var.			**Net attendance ratio in primary school**			
Pred. Transfer	24.606***	19.935*	-1.229	-1.622	14.171	8.197
	(8.983)	(11.648)	(3.481)	(2.733)	(15.417)	(12.096)
Population (aged 6-12)	0.767***	0.766***	0.766***	0.766***	0.766***	0.540***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Population		11.154***	10.123***	9.288***	10.039***	10.606***
		(0.000)	(0.000)	(2.823)	(3.051)	(0.000)
Primary enrolment		-0.319**	-0.064	-0.068	-0.253	-0.163
		(0.130)	(0.106)	(0.092)	(0.173)	(0.139)
Secondary enrolment		-0.238	0.208***	0.201**	-0.128	-0.007
		(0.363)	(0.000)	(0.079)	(0.392)	(0.260)
Temperature Anomalies			0.157**	-0.049	0.210	0.123
			(0.072)	(0.073)	(0.256)	(0.205)
Rainfall anomalies			-0.192***	-0.045	-0.118*	-0.086
			(0.068)	(0.124)	(0.068)	(0.054)
Violence				0.003	-0.017	0.007
				(0.043)	(0.101)	(0.045)
Nightlights					-0.054	-0.065
					(0.435)	(0.323)
Observations	69,967	69,967	69,967	69,967	69,967	69,392
R-squared	0.528	0.530	0.530	0.530	0.530	0.575

Notes: Household control include household size, sex, age and education of household's head. Standard errors in parentheses are clustered at the surveys' cluster level, using wild bootstrap method (Cameron et al. 2008). * significant at 10%, ** at 5%, *** at 1%. The same regressions are estimated in both panels. R-squared retrieved from regressions with standard errors clustered at the surveys' cluster level.

Table B.26: Interpretation: VAT transfers and Public goods

	(1)	(2)	(3)	(4)	(5)	(6)
Dep. var.	**Wealth index**					
Pred. Transfer	-1.138	0.393	3.101	3.067	25.444	10.260
	(109.487)	(39.208)	(10.607)	(7.662)	(54.728)	(27.791)
Population		-3.505	-2.467	-2.535	-3.191	-2.186
		(19.316)	(17.520)	(16.931)	(18.910)	(7.345)
Primary enrolment		-0.060	-0.095	-0.094	-0.332	-0.115
		(0.660)	(0.234)	(0.194)	(0.645)	(0.359)
Secondary enrolment		-0.095	-0.165	-0.154	-0.665	-0.329
		(1.243)	(0.195)	(0.261)	(1.044)	(0.590)
Temperature Anomalies			0.059	0.013	0.379	0.152
			(0.114)	(0.200)	(0.857)	(0.465)
Rainfall anomalies			-0.583***	0.002	-0.038	0.022
			(0.189)	(0.069)	(0.528)	(0.146)
Violence				-0.035	-0.070	-0.029
				(0.318)	(0.251)	(0.103)
Nightlights					0.398	0.396
					(0.998)	(0.505)
Household controls	No	No	No	No	No	Yes
Year of survey FE	Yes	Yes	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	69,967	69,967	69,967	69,967	69,967	69,392
R-squared	0.390	0.390	0.390	0.391	0.391	0.555

Notes: Household control include household size, sex, age and education of household's head. Standard errors in parentheses are clustered at the surveys' cluster level, using wild bootstrap method (Cameron et al. 2008). * significant at 10%, ** at 5%, *** at 1%. The same regressions are estimated in both panels. R-squared retrieved from regressions with standard errors clustered at the surveys' cluster level.

Table B.27: VAT Transfers and Oil Windfalls (First Stage Results)

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent Variable			**Log VAT Transfers**			
Oil windfalls	0.127	0.127	0.126	0.145*	0.145*	0.140*
	(0.091)	(0.091)	(0.093)	(0.083)	(0.079)	(0.079)
Alignment			-0.017	-0.014	-0.013	-0.013
			(0.027)	(0.033)	(0.032)	(0.032)
Swing			-0.015	-0.019	-0.026	-0.027
			(0.023)	(0.020)	(0.021)	(0.021)
Co-ethnic				-0.064	-0.061	-0.057
				(0.044)	(0.044)	(0.046)
Religion				0.008	0.004	0.006
				(0.027)	(0.027)	(0.027)
Population				-0.106	-0.008	-0.035
				(0.149)	(0.186)	(0.226)
Primary enrolment				0.047	0.062	0.063
				(0.042)	(0.049)	(0.049)
Secondary enrolment				0.025	0.035	0.033
				(0.016)	(0.021)	(0.024)
Violence				0.018*	0.027**	0.028*
				(0.011)	(0.012)	(0.014)
Temperature Anomalies					-0.019	-0.019
					(0.012)	(0.012)
Rainfall anomalies					0.000	-0.000
					(0.009)	(0.009)
Night lights						0.015
						(0.049)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes	Yes	Yes
Quarterly FE	Yes	Yes	Yes	Yes	Yes	Yes
State-specific time trends	No	Yes	Yes	Yes	Yes	Yes
Observations	108	108	108	108	108	108
Kleibergen-Paap rk Wald F	1.45	0.77	1.75	2.63	3.08	2.84
Number of States	36	36	36	36	36	36

Notes: Standard errors clustered at the state level in parentheses.

All variables (except alignment, swing, co-ethnic and religion) are in log form.

* significant at 10%, ** at 5%, *** at 1%.

Table B.28: Election Outcome and VAT Transfers (Second Stage Results)

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent Variable			**Vote Margin**			
Pred. Transfer	1.348	1.348	1.218	0.841	0.267	0.325
	(0.926)	(0.929)	(0.940)	(1.087)	(0.661)	(0.845)
Alignment			0.129	0.142	0.075	0.075
			(0.123)	(0.147)	(0.087)	(0.088)
Swing			-0.022	-0.017	-0.063	-0.065
			(0.056)	(0.064)	(0.059)	(0.065)
Co-ethnic				0.081*	0.011	0.013
				(0.048)	(0.050)	(0.050)
Religion				-0.494	-0.002	0.034
				(0.491)	(1.304e+19)	(0.295)
Population				0.040	0.675**	0.629*
				(0.473)	(0.331)	(0.333)
Primary enrolment				-0.197**	-0.017	-0.013
				(0.093)	(0.181)	(2.489)
Secondary enrolment				-0.117**	-0.056	-0.059
				(0.048)	(0.045)	(0.043)
Violence				-0.022	0.030	0.033
				(0.042)	(0.041)	(0.055)
Temperature Anomalies					-0.046**	-0.048**
					(0.020)	(0.023)
Rainfall anomalies					0.124**	0.123**
					(0.053)	(0.051)
Night lights						0.025
						(0.102)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes	Yes	Yes
State-specific time trends	No	Yes	Yes	Yes	Yes	Yes
Observations	108	108	108	108	108	108
Adj. R-squared	0.237	0.285	0.542	0.621	0.734	0.781
Number of States	36	36	36	36	36	36

Notes: Standard errors clustered at state level in parentheses using wild-bootstrapping as proposed by Cameron et al. (2008).

All variables (except percentage of votes share, alignment, swing, co-ethnic and religion) are in log form.

* significant at 10%, ** at 5%, *** at 1%.

Table B.29: VAT Transfers and Oil Windfalls (First Stage Results)

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent Variable			**Log VAT Transfers**			
Oil windfalls	0.085	0.085	0.084	0.125*	0.119*	0.121*
	(0.079)	(0.079)	(0.080)	(0.063)	(0.060)	(0.062)
Alignment			-0.019	-0.023	-0.025	-0.026
			(0.034)	(0.038)	(0.038)	(0.039)
Swing			-0.013	-0.014	-0.020	-0.020
			(0.016)	(0.015)	(0.018)	(0.018)
Co-ethnic				-0.065	-0.061	-0.063
				(0.042)	(0.042)	(0.042)
Religion				0.018	0.007	0.009
				(0.013)	(0.010)	(0.023)
Population				-0.159	-0.106	-0.082
				(0.120)	(0.101)	(0.161)
Primary enrolment				0.069	0.079	0.080
				(0.050)	(0.054)	(0.054)
Secondary enrolment				0.029**	0.036**	0.038*
				(0.014)	(0.017)	(0.020)
Violence				0.014*	0.019**	0.018**
				(0.007)	(0.008)	(0.009)
Temperature Anomalies					-0.014	-0.014
					(0.011)	(0.011)
Rainfall anomalies					0.013	0.013
					(0.010)	(0.011)
Night lights						-0.011
						(0.047)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes	Yes	Yes
Quarterly FE	Yes	Yes	Yes	Yes	Yes	Yes
State-specific time trends	No	Yes	Yes	Yes	Yes	Yes
Observations	180	180	180	180	180	180
Kleibergen-Paap rk Wald F	1.64	0.92	1.94	3.23	2.83	3.72
Number of States	36	36	36	36	36	36

Notes: Standard errors clustered at the state level in parentheses.

All variables (except alignment, swing, co-ethnic and religion) are in log form.

* significant at 10%, ** at 5%, *** at 1%.

Table B.30: Election Outcome and VAT Transfers (Second Stage Results)

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent Variable			**Vote Margin**			
Pred. Transfer	12.758**	12.758**	10.200**	6.634**	5.533	5.584
	(5.329)	(5.421)	(4.098)	(2.817)	(3.859)	(3.664)
Alignment			0.359	0.314	0.261	0.261
			(0.236)	(0.213)	(0.267)	(0.265)
Swing			-0.921***	-1.013***	-0.972***	-0.971***
			(0.292)	(0.321)	(0.308)	(0.308)
Co-ethnic				0.665***	0.537**	0.535**
				(0.211)	(0.245)	(0.258)
Religion				-2.980**	-2.346	-2.482*
				(1.305)	(1.564)	(1.498)
Population				3.194***	2.556**	2.625**
				(0.000)	(1.026)	(1.114)
Primary enrolment				-0.635***	-0.617*	-0.621**
				(0.236)	(0.315)	(0.305)
Secondary enrolment				-0.093	-0.158	-0.155
				(0.122)	(0.171)	(0.190)
Violence				-0.045	-0.086	-0.088
				(0.052)	(0.076)	(0.066)
Temperature Anomalies					0.191***	0.192***
					(0.000)	(0.000)
Rainfall anomalies					0.037	0.037
					(0.089)	(0.089)
Night lights						-0.030
						(0.208)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes	Yes	Yes
State-specific time trends	No	Yes	Yes	Yes	Yes	Yes
Observations	180	180	180	180	180	180
Adj. R-squared	0.589	0.589	0.756	0.769	0.779	0.779
Number of States	36	36	36	36	36	36

Notes: Standard errors clustered at state level in parentheses using wild-bootstrapping as proposed by Cameron et al. (2008).

All variables (except percentage of votes share, alignment, swing, co-ethnic and religion) are in log form.

* significant at 10%, ** at 5%, *** at 1%.

Table B.31: VAT Transfers and Oil Windfalls (First Stage Results)

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent Variable			**Log VAT Transfers**			
Oil windfalls	0.088	0.088	0.087	0.126*	0.120*	0.122*
	(0.082)	(0.082)	(0.081)	(0.065)	(0.063)	(0.065)
Alignment			-0.019	-0.025	-0.026	-0.027
			(0.034)	(0.038)	(0.036)	(0.037)
Swing			-0.010	-0.011	-0.021	-0.022
			(0.013)	(0.014)	(0.017)	(0.018)
Co-ethnic				-0.063	-0.061	-0.063
				(0.042)	(0.041)	(0.041)
Religion				0.004	0.006	0.007
				(0.031)	(0.015)	(0.018)
Population				-0.203	-0.165	-0.147
				(0.137)	(0.113)	(0.155)
Primary enrolment				0.072	0.081	0.081
				(0.052)	(0.055)	(0.055)
Secondary enrolment				0.029*	0.037**	0.038*
				(0.015)	(0.018)	(0.020)
Violence				0.012*	0.018**	0.017**
				(0.007)	(0.008)	(0.009)
Temperature Anomalies					-0.015	-0.015
					(0.010)	(0.010)
Rainfall anomalies					0.016	0.016
					(0.011)	(0.012)
Night lights						-0.008
						(0.044)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes	Yes	Yes
Quarterly FE	Yes	Yes	Yes	Yes	Yes	Yes
State-specific time trends	No	Yes	Yes	Yes	Yes	Yes
Observations	216	216	216	216	216	216
Kleibergen-Paap rk Wald F	0.86	1.24	1.64	2.73	2.78	2.22
Number of States	36	36	36	36	36	36

Notes: Standard errors clustered at the state level in parentheses.

All variables (except alignment, swing, co-ethnic and religion) are in log form.

* significant at 10%, ** at 5%, *** at 1%.

Table B.32: Election Outcome and VAT Transfers (Second Stage Results)

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent Variable			**Vote Margin**			
Pred. Transfer	1.882**	1.882**	1.510***	1.900**	3.109***	3.241***
	(0.803)	(0.803)	(0.482)	(0.810)	(0.000)	(0.000)
Alignment			0.166	0.200	0.228	0.222
			(0.171)	(0.184)	(0.186)	(0.185)
Swing			-1.027***	-1.045***	-0.966***	-0.972***
			(0.328)	(0.334)	(0.308)	(0.310)
Co-ethnic				0.306**	0.342**	0.313***
				(0.124)	(0.138)	(0.120)
Religion				-0.579	-1.073**	-1.361**
				(0.436)	(0.514)	(0.549)
Population				1.463*	1.406*	1.951*
				(0.797)	(0.788)	(1.007)
Primary enrolment				-0.328***	-0.466***	-0.465***
				(0.113)	(0.149)	(0.148)
Secondary enrolment				-0.014	-0.121	-0.086
				(0.103)	(0.112)	(0.126)
Violence				-0.021	-0.077*	-0.083**
				(0.038)	(0.043)	(0.040)
Temperature Anomalies					0.137***	0.140***
					(0.000)	(0.000)
Rainfall anomalies					-0.002	0.001
					(0.017)	(0.013)
Night lights						-0.243
						(0.247)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes	Yes	Yes
State-specific time trends	No	Yes	Yes	Yes	Yes	Yes
Observations	216	216	216	216	216	216
Adj. R-squared	0.603	0.603	0.772	0.779	0.787	0.789
Number of States	36	36	36	36	36	36

Notes: Standard errors clustered at state level in parentheses using wild-bootstrapping as proposed by Cameron et al. (2008).

All variables (except percentage of votes share, alignment, swing, co-ethnic and religion) are in log form.

* significant at 10%, ** at 5%, *** at 1%.

Table B.33: VAT Transfers and Oil Windfalls (First Stage Results)

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent Variable			**Log VAT Transfers**			
Oil windfalls	0.055	0.055	0.054	0.101**	0.095**	0.095**
	(0.041)	(0.041)	(0.041)	(0.039)	(0.036)	(0.036)
Alignment			-0.020	-0.026	-0.025	-0.025
			(0.031)	(0.035)	(0.033)	(0.034)
Swing			-0.011	-0.011	-0.016	-0.017
			(0.012)	(0.013)	(0.014)	(0.015)
Co-ethnic				-0.062	-0.060	-0.061
				(0.041)	(0.041)	(0.041)
Religion				0.012	0.009	0.017
				(0.018)	(0.011)	(0.010)
Population				-0.197	-0.183	-0.168
				(0.139)	(0.126)	(0.139)
Primary enrolment				0.066	0.071	0.071
				(0.050)	(0.051)	(0.052)
Secondary enrolment				0.028**	0.036**	0.037*
				(0.013)	(0.016)	(0.019)
Violence				0.010	0.014*	0.014*
				(0.006)	(0.008)	(0.008)
Temperature Anomalies					-0.014	-0.014*
					(0.008)	(0.008)
Rainfall anomalies					0.005	0.005
					(0.007)	(0.007)
Night lights						-0.007
						(0.039)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes	Yes	Yes
Quarterly FE	Yes	Yes	Yes	Yes	Yes	Yes
State-specific time trends	No	Yes	Yes	Yes	Yes	Yes
Observations	288	288	288	288	288	288
Kleibergen-Paap rk Wald F	1.57	1.70	2.17	5.01	5.08	4.94
Number of States	36	36	36	36	36	36

Notes: Standard errors clustered at the state level in parentheses.

All variables (except alignment, swing, co-ethnic and religion) are in log form.

* significant at 10%, ** at 5%, *** at 1%.

Table B.34: Election Outcome and VAT Transfers (Second Stage Results)

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent Variable			**Vote Margin**			
Pred. Transfer	0.674**	0.674**	0.511***	0.758***	1.454**	1.536***
	(0.260)	(0.260)	(0.000)	(0.274)	(0.575)	(0.575)
Alignment			0.135	0.165	0.179	0.166
			(0.162)	(0.169)	(0.173)	(0.168)
Swing			-1.028***	-1.033***	-0.997***	-1.012***
			(0.330)	(0.331)	(0.320)	(0.324)
Co-ethnic				0.214**	0.232**	0.186**
				(0.097)	(0.097)	(0.081)
Religion				0.209	-0.033	-0.343
				(0.347)	(0.563)	(0.442)
Population				0.611	0.627	1.387
				(0.834)	(0.829)	(1.065)
Primary enrolment				-0.244**	-0.315***	-0.301***
				(0.106)	(0.101)	(0.113)
Secondary enrolment				-0.005	-0.070	-0.015
				(0.074)	(0.110)	(0.146)
Violence				-0.008	-0.037	-0.044*
				(0.032)	(0.028)	(0.025)
Temperature Anomalies					0.089***	0.093***
					(0.000)	(0.000)
Rainfall anomalies					0.020	0.026
					(0.052)	(0.051)
Night lights						-0.345
						(0.232)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes	Yes	Yes
State-specific time trends	No	Yes	Yes	Yes	Yes	Yes
Observations	288	288	288	288	288	288
Adj. R-squared	0.620	0.620	0.786	0.791	0.796	0.799
Number of States	36	36	36	36	36	36

Notes: Standard errors clustered at state level in parentheses using wild-bootstrapping as proposed by Cameron et al. (2008).

All variables (except percentage of votes share, alignment, swing, co-ethnic and religion) are in log form.

* significant at 10%, ** at 5%, *** at 1%.

Table B.35: Exclusion Restriction: Oil windfalls and Nightlights (full sample)

Panel A	(1)	(2)	(3)	(4)
Dep. var.		**Log nightlights**		
Oil windfalls *(t-2)*	-0.066	-0.056	-0.045	0.154
	(0.070)	(0.066)	(0.058)	(0.148)
Rainfall anomalies		-0.023	-0.013	0.157*
		(0.025)	(0.025)	(0.094)
Temperature anomalies		-0.085	-0.101	0.062
		(0.059)	(0.062)	(0.041)
Violence			-0.029**	0.038
			(0.011)	(0.051)
Year FE	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes
State-specific time trends	No	No	No	Yes
Observations	792	792	454	454
R-squared	0.734	0.737	0.695	0.761
Panel B				
Dep. var.		**Log nightlights**		
Oil windfalls *(t-3)*	-0.071	-0.062	-0.038	0.124
	(0.073)	(0.069)	(0.058)	(0.087)
Rainfall anomalies		-0.022	-0.015	0.032
		(0.025)	(0.025)	(0.028)
Temperature anomalies		-0.087	-0.104*	0.061
		(0.060)	(0.062)	(0.058)
Violence			-0.028**	0.016
			(0.011)	(0.013)
Year FE	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes
State-specific time trends	No	No	No	Yes
Observations	792	792	454	454
R-squared	0.734	0.737	0.694	0.805

Notes: Standard errors clustered at the state level in parentheses. * significant at 10%, ** at 5%, *** at 1%. The same regressions are estimated in both panels. All variables are in log form.

Table B.36: Exclusion Restriction: Oil windfalls and Health outcomes

Panel A	(1)	(2)	(3)	(4)	(5)	(6)
Dep. var.			**HAZ-score**			
Oil windfalls (1st 24-months of birth)	1.633***	1.789**	1.138	0.589	0.639	0.800
	(0.587)	(0.663)	(0.681)	(0.783)	(1.002)	(1.853)
Temperature anomalies		-0.005	0.002	0.072	0.101	-0.248
		(0.029)	(0.058)	(0.063)	(0.061)	(0.159)
Rainfall anomalies		-0.008	-0.050	-0.040	-0.038	0.095
		(0.023)	(0.042)	(0.037)	(0.033)	(0.078)
Violence			0.038	0.018	0.010	-0.109
			(0.075)	(0.062)	(0.049)	(0.138)
Individual controls	No	No	No	Yes	Yes	Yes
Parent's controls	No	No	No	Yes	No	No
Month of birth FE	Yes	Yes	Yes	Yes	Yes	Yes
Year of birth FE	Yes	Yes	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes	Yes	Yes
State-specific time trends	No	No	No	No	Yes	Yes
Mother FE	No	No	No	No	No	Yes
Observations	30,826	26,932	9,238	8,787	8,787	1,856
R-squared	0.147	0.145	0.157	0.192	0.202	0.716
Panel B						
Dep. var.			**WAZ-score**			
Oil windfalls (1st 24-months of birth)	0.641	0.604	0.373	-0.032	0.226	1.864
	(0.425)	(0.506)	(0.512)	(0.560)	(0.635)	(1.456)
Temperature anomalies		0.025	0.036	0.092**	0.097**	0.038
		(0.021)	(0.046)	(0.043)	(0.047)	(0.112)
Rainfall anomalies		-0.018	-0.055**	-0.047**	-0.042*	0.116*
		(0.014)	(0.023)	(0.022)	(0.021)	(0.068)
Violence			0.051	0.039	0.052	0.036
			(0.042)	(0.036)	(0.033)	(0.089)
Observations	30,826	26,932	9,238	8,787	8,787	1,856
R-squared	0.147	0.146	0.178	0.204	0.210	0.708

Notes: Individual controls include child's sex, age (in months) and birth order. Parent's control include mother and father's age (in months), educational attainments, occupation and total number of children under 5. Standard errors in parentheses are clustered at the state level. * significant at 10%, ** at 5%, *** at 1%. The same regressions are estimated in both panels. R-squared retrieved from regressions with standard errors clustered at the state level.

Table B.37: Exclusion Restriction: Oil windfalls and Health outcomes

Panel A	(1)	(2)	(3)	(4)	(5)	(6)
Dep. var.			**HAZ-score**			
Avg. oil windfalls (1st 36-months of birth)	0.798**	0.853**	0.872**	0.038	-0.080	1.220
	(0.334)	(0.329)	(0.370)	(0.308)	(0.418)	(1.098)
Temperature anomalies		0.015	0.095	0.127**	0.145***	-0.095
		(0.028)	(0.062)	(0.062)	(0.049)	(0.163)
Rainfall anomalies		-0.029	-0.063	-0.042	-0.042	0.061
		(0.025)	(0.041)	(0.038)	(0.033)	(0.077)
Violence			0.008	-0.012	-0.028	-0.148
			(0.076)	(0.067)	(0.054)	(0.130)
Individual controls	No	No	No	Yes	Yes	Yes
Parent's controls	No	No	No	Yes	No	No
Month of birth FE	Yes	Yes	Yes	Yes	Yes	Yes
Year of birth FE	Yes	Yes	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes	Yes	Yes
State-specific time trends	No	No	No	No	Yes	Yes
Mother FE	No	No	No	No	No	Yes
Observations	30,826	26,932	9,238	8,787	8,787	1,856
R-squared	0.155	0.154	0.172	0.200	0.210	0.735
Panel B						
Dep. var.			**WAZ-score**			
Avg. oil windfalls (1st 36-months of birth)	0.290	0.251	0.151	-0.521	-0.519	1.091
	(0.254)	(0.302)	(0.250)	(0.318)	(0.383)	(0.793)
Temperature anomalies		0.027	0.079	0.121**	0.122**	0.156
		(0.024)	(0.056)	(0.048)	(0.049)	(0.116)
Rainfall anomalies		-0.023	-0.054**	-0.039	-0.038*	0.082
		(0.017)	(0.024)	(0.023)	(0.022)	(0.062)
Violence			0.023	0.009	0.009	-0.057
			(0.044)	(0.043)	(0.039)	(0.086)
Observations	30,826	26,932	9,238	8,787	8,787	1,856
R-squared	0.149	0.149	0.185	0.209	0.216	0.727

Notes: Individual controls include child's sex, age (in months) and birth order. Parent's control include mother and father's age (in months), educational attainments, occupation and total number of children under 5. Standard errors in parentheses are clustered at the state level. * significant at 10%, ** at 5%, *** at 1%. The same regressions are estimated in both panels. R-squared retrieved from regressions with standard errors clustered at the state level.

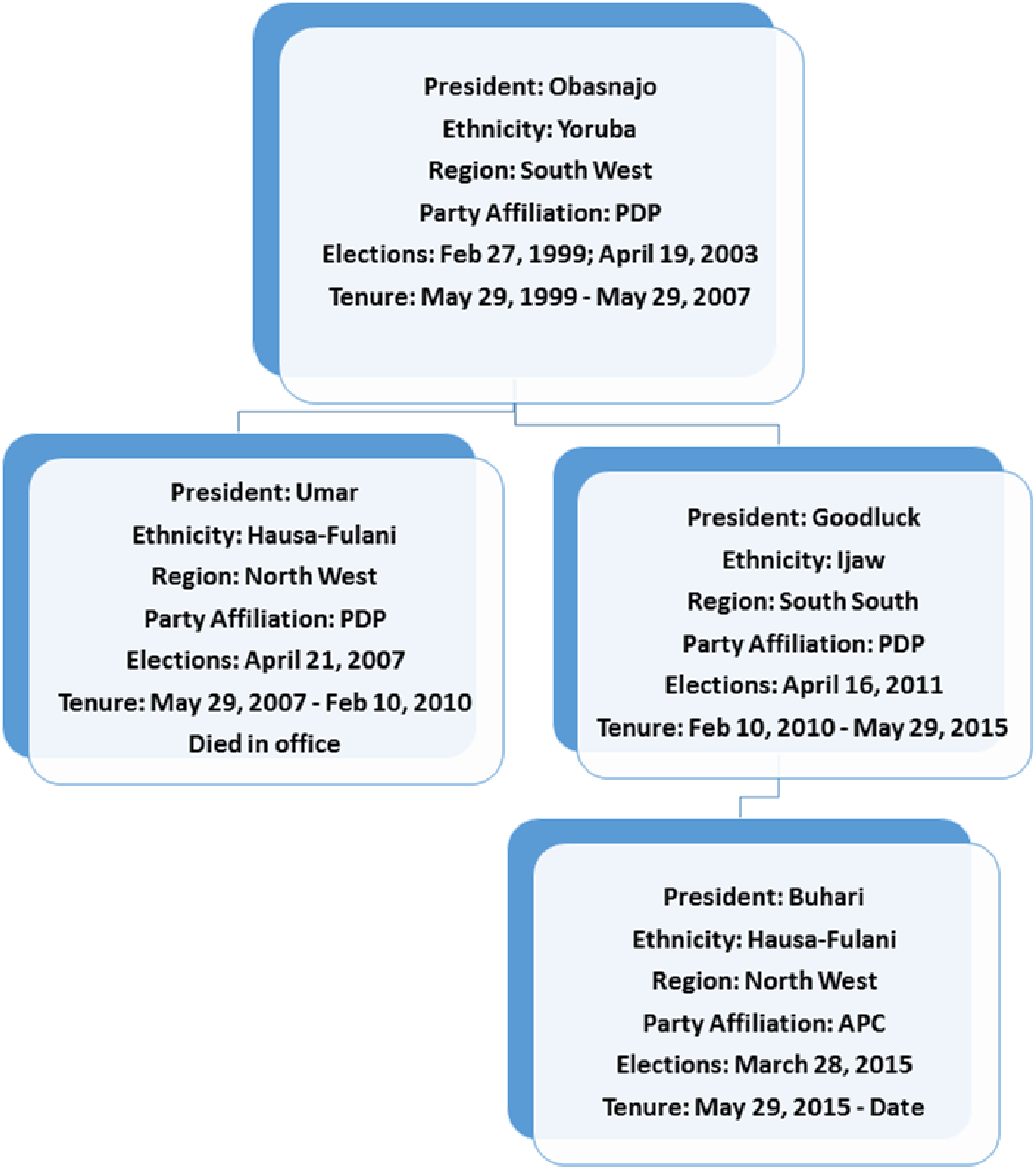


Figure B.1: Political and Leadership Transitions in Nigeria, 1999 - Date