

Trust Me: Natural Resources, Electoral Conduct, and Trust in Government

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Abstract

In this paper we analyse the determinants of electoral fraud and the impact of such fraud on citizens' trust. Within this analysis we provide a focus on countries with high natural resource rents and hypothesize that these rents are likely to distort the democratic process and erode trust. We use global panel data sets on election quality to examine possible determinants of electoral misconduct during 1975-2014 and find that countries with natural resource rents are more likely to experience fraudulent elections. We address endogeneity concerns by instrumenting resource rents with commodity prices. In our examination of trust we use individuals' responses to attitudinal surveys carried out in 20 African countries and find that fraudulent leadership elections do not only undermine trust in the president but also in other democratic institutions such as locally elected councils. Our global and Africa focused analysis provides evidence that democratic processes are key to the building of trust and that in economies dependent on natural resources, the holding of free and fair elections and the building of trust is particularly difficult to achieve.

1. Introduction

In January 2012, Nigeria's Finance Minister, Ngozi Nkonjo-Iweala, removed the subsidy on petrol. Dr Nkonjo-Iweala, an MIT-trained economist and former Managing Director of the World Bank, recognized that the subsidy had become a hugely costly scam, captured by powerful crooks (Nkongo-Iweala, 2012). By removing it very substantial resources would be released for important priorities. But the public reaction was the most serious anti-government riots of the entire post-1998 democratic era: the subsidy had to be restored. Rather than being seen for what it was, an overdue reform that would benefit ordinary citizens at the expense of crooks, the policy had been misinterpreted as a new level of rapacity: even the small share of Nigerian oil output that had been given directly to citizens was now being taken from them.

This disastrous public reaction, which set back the prospects of essential economic reforms, reflected a profound distrust of government. Superficially, this state of affairs was surprising: since 1998 Nigerian society had progressively cast off the prolonged curse of military dictatorship. By 2011, for the first time since the early 1980s, Nigeria was led by a Southern civilian president, an academic whose political accent had been accidental, and who had brought in as his Finance Minister a woman who commanded global respect: she had indeed been the globally-supported candidate for the Presidency of the World Bank, challenging American hegemony on the position. Why, despite all this, was trust in government so low? For Nigeria, one obvious potential explanation is oil: the rents from oil had diverted public office from public service into rent-capture. Perhaps the lack of trust reflected the assumption that politicians were in politics for themselves, the removal of the fuel subsidy being a demonstration of that self-interest. But in Nigeria politicians had to be elected: if those in power were seen as untrustworthy rent-seekers, why had people voted for them? An alternative explanation for the lack of trust is that the electoral system was seen as corrupt, with politicians relying upon ballot fraud, bribery and intimidation to get elected. The 2007 election which had brought the government to power had indeed been marred by misconduct, as analysed by Collier and Vicente (2014). Perhaps the lack of trust reflected the assumption that elected power was illegitimate.

Since each of these explanations is plausible, the lack of trust in the Nigerian government is overdetermined. However, Nigeria was typical of a wider phenomenon. Between 2005 and 2015, despite the spread of democracy, trust in the governments of African countries did not improve. Africans' have more trust in informal institutions such as religious and traditional leaders than in the formal executive agencies of the state (Bratton and Gyimah-Boadi 2016). Potentially this was due to the rising importance of natural resource revenues during the period subverting the purpose of public office, or to a decline in the legitimacy of government and incumbents learnt how to manipulate elections. In this paper we take these questions to the data. Was it the natural resource rents? Was it electoral misconduct? Or were the two apparently distinct phenomena in fact interrelated?

In this paper we examine the issues of trust and electoral fraud. First, we analyse the relationship of democratic processes and trust in Sub-Saharan Africa. We restrict our discussion to Sub-

Saharan Africa because countries in Sub-Saharan Africa have a proportionately high number of poor quality elections and we examine of the impact of electoral (mal)practice on citizens' trust. We find that fraudulent elections erode trust in all governmental institutions, e.g. trust in the president, trust in locally elected councils and trust in the courts. Thus, although most countries now hold elections to choose their leaders, many of these elections are not free and fair. These fraudulent elections do not only result in lower trust, but as a growing literature indicates, low election quality has political, social and economic consequences. While this strand of research focuses on the impact of electoral (mal)practice, there are few studies examining the determinants of low quality elections. In the second part of our paper we turn to the determinants of electoral quality. We use recent global panel datasets to examine which countries experience poor quality elections and why this may be the case. Particular attention is paid to societies rich in natural resources since previous studies indicate that these societies have a democratic deficit. We address possible endogeneity concerns by instrumenting natural resource rents with a commodity price index. The results suggest that countries rich in natural resources have a higher risk of experiencing low quality elections and we argue that this is due to reduced accountability mechanisms. Countries with natural resource incomes are less dependent on taxation and this in turn reduces citizens' demand for high quality representation. We also examine the kind of electoral manipulation that reduces the quality of the election. Electoral malpractice can happen in many different ways, e.g. through wrongful registration of voters, vote buying, intimidation and violence, miscounting of votes. We find evidence that election violence is less likely in countries with high natural resource rents. However, our results do not suggest that this is due to substituting violence for vote buying countries rich in natural resources are no more likely to experiencing vote buying.

Our paper is structured in the following way. Section 2 provides some background before we discuss the relationship between democratic processes and trust using data from Sub-Saharan Africa in Section 3. We then develop an empirical model of global electoral malpractice in Section 4. The last section concludes.

2. Background

Since 1989 most countries around the world have held elections to determine their leaders. The popular uprisings in Central and Eastern Europe provided a template for populations across the world to demand participation in the process of choosing their leaders. The end of the Cold War also meant that donors did no longer have to support authoritarian rulers for geo-strategic reasons. Thus, internal and external pressures lead to elections becoming a worldwide norm. Autocrats conceded elections because it was not possible to stay in power if they refused to hold elections. However, recent studies on the quality of elections suggest that electoral malpractice is widespread and that about half of all elections are not free and fair (Bishop and Hoeffler, 2016).

These fraudulent elections may leave a legacy of disenfranchisement and disengagement because citizens know that their contribution to public choice has been distorted. So far there is little analysis of the citizens' behavioural and attitudinal response to fraudulent elections. There are a couple of notable exceptions. Simpser (2013) investigates whether perceptions matter for voter turnout and the likelihood to vote for the opposition. Using surveys from Latin America and Africa he finds that fraudulent elections are associated with lower turnout and voting for the opposition is less likely. Marx et al (2016) examine the impact of a government campaign to encourage voting by sending text messages to voters. Their findings suggest that even though these messages increased voter turnout, the trust in the government decreased, in particular in areas that experienced election-related violence and for voters affiliated (via their ethnicity) with the side that lost the presidential election.

Many elections are not designed to provide a fair and free choice but leaders use elections for a number of different purposes. Elections provide internal and external legitimacy to their winners. They also produce information on allies, voters and adversaries and during the election process rulers can disseminate information on the power and determination of their regime. Although elections place some constraints on the autocrat they do also constrain challengers. By allowing the opportunity to challenge the regime at the polls they create constraints on non-electoral challenges. Often the autocrats' rule is threatened by the military and elections provide some 'coup-proofing' of the regime (Schedler, 2013, chapter 5). It appears that the 'fourth wave of democratization' (McFaul, 2002) has not globally delivered the quality of representation and accountability that reformers hoped for. Has this failure got implications beyond the functioning of democratic processes? Chauvet and Collier (2009) investigate the relationship between elections and government economic choices in developing countries. They find that regular elections have a structural effect, they improve the overall level of policies. However, if the elections are of low quality, they exert no significant policy discipline. For economic outcomes Collier and Hoeffler (2015) show that elections matter. Free and fair elections discipline leaders and they provide economic growth to increase their chances of political survival. Thus, election quality is important for economic, political and social outcomes and there is a small emerging literature on the effects of poor electoral quality.

There is also a small literature using empirical evidence on why some countries are more likely to experience poor quality elections. Typically the models of fraud focus on a trade-off between licit tactics and the provision of public goods and illicit tactics and the provision of private goods (e.g. Chaves et al, 2015). Empirical analysis by Birch (2011) suggests that electoral fraud is most common in patronage systems where the rewards in office are greater. Hafner-Burton et al (2014) investigate when governments resort to election violence and their results suggest that there is an important interaction between the popularity of the incumbent and constraints on the executive. Pre-election violence is less likely if the incumbent is unpopular but faces some executive constraints. Kelley (2012) assesses the role of electoral observers on election fraud and acceptability. She argues that monitoring improves election quality, how strong this effect is

depends somewhat on the type of monitors (e.g. international organisations such as the OSCE, Organization for Security and Co-operation in Europe, or independent organisations such as the Carter Center).

A related literature is the large body of work on the relationship between democracy and income (e.g. Lipset, 1959; Przeworski et al., 2000; Acemoglu et al., 2008). There is an ongoing debate whether higher incomes lead to democratisation (modernisation hypothesis) or democratisation improves incomes (institutionalist hypothesis) or whether income and democracy are both driven by deeper historical processes that happen in parallel (critical junctures hypothesis). Following the resource curse literature Fayad et al (2012) specifically consider the relationship between natural resource income and democratization. Their global panel data analysis suggests that high natural resource incomes causally hinder democratization. Other aspects of the natural resource curse are well documented, i.e. countries rich in natural resources experienced lower growth rates and thus accumulated lower incomes (for example Sachs and Warner, 2005; Auty, 2001; Gylfason, 2001). This detrimental growth effect of natural resources is abated by good institutions (Collier and Hoeffler 2009; Mehlum et al 2006; Robinson et al. 2006). The examples of Norway and Botswana show that abundance in natural resources does not necessarily determine a country's path of development. However, most high natural resource countries have poor democratic institutions. Due to their resource wealth governments in such countries are less reliant on taxes and there is therefore less of an incentive for governments to be accountable to their citizens (Brautigam and Knack 2004; Ross 2004; McGuirk 2010). One of the key economic development challenges is therefore building democratic institutions in resource rich economies and in our empirical analysis we pay particular attention to natural resource dependency. We focus on one important aspect of democracy, namely the holding of leadership elections and examine the potential structural causes of election malpractice.

3. Consequences of Electoral Fraud

Although the main focus of the paper is the analysis of the determinants of fraudulent elections, in particular the importance of natural resources, we want to begin our analysis by examining an important consequence of electoral fraud. We hypothesize that trust is associated with fraudulent elections and our analysis adds to the large body of evidence that trust plays a vital role in economic transactions.¹ Trust is considered a prerequisite for the departure from closed group transactions towards more open exchanges with anonymous others and developing a successful market economy. Nunn and Wantchekon (2011) analyse historical data to determine the origins of trust and in a pioneering contribution La Porta et al. (1997) find a strong negative association between strong hierarchical religions and formation of trust. They argue that a hierarchical religion discourages the formation of "horizontal ties" which in turn erodes trust. Others discount the role of religion and culture and instead focus on contemporary political institutions. For instance,

¹ This argument was first made by Arrow (1972) and Algan and Cahuc (2010) provide a review of this literature.

Aghion et al (2010) argue that contemporary governmental regulatory practices is what determines trust in a society, while Giuliano and Nunn (2013) emphasize the importance of democratic norms that give rise to the level of trust in a society. Lowes et al (2015) suggest that political institutions are key in the development of social norms and these in turn give rise to trust formation. Although the literature on the importance of trust and its determinants is burgeoning, little is known on the relationship between electoral fraud and its impact on citizens' trust of public institutions. We examine this relationship by estimating the following model:

$$TRUST_{i,c,t} = \alpha FRAUD_{c,t-j} + \delta Y_{c,(t-1,t-3)} + \alpha X_{i,c,t} + \partial_c + \tau_t + \varepsilon_{i,c,t} \quad (1)$$

where $TRUST_{i,c,t}$ is measured stacking the Afrobarometer surveys at the individual level i , in 20 African countries c , conducted in various years t . Countries were surveyed between 2002 to 2009. The Afrobarometer is an African survey project that measures the citizens' attitudes towards democracy and governance, the economy, civil society, and other topics.² We distinguish between seven dimensions of trust:

- Trust in the President ($PRES_{i,c,t}$)
- Trust in the National Assembly ($PARL_{i,c,t}$)
- Trust in the national electoral commission ($ELECOM_{i,c,t}$)
- Trust in the elected local government councils ($LOCAL_{i,c,t}$)
- Trust in the ruling party ($PARTY_{i,c,t}$)
- Trust in the Police ($POLICE_{i,c,t}$)
- Trust in the Courts of Law ($COURTS_{i,c,t}$)

These trust variables range from 0 to 3 where higher values indicate greater reported trust. These perception measures are also complemented with a question on whether individuals voted in previous election ($VOTE_{i,c,t}$) which is a dummy variable.

Our main variable of interest is $FRAUD_{c,t-j}$, which is a dummy variable indicating whether the last elections were flawed due to illicit tactics employed. It is measured at the country level in year $t-j$, which varies from one country-election to the other. Here we use data from the Variants of Democracy data set (V-Dem) because we are able to match all 20 Afrobarometer countries. The V-Dem database is a recent and large collaborative data collection effort (Coppedge et al 2016) and it includes an assessment of whether the election was free and fair. It is based on the question: "Taking all aspects of the pre-election period, election-day, and the post-election process into account, was the election free and fair" (V-Dem Code Book, p. 91). This question was answered

² The surveys have become progressively complete in their spatial coverage. The first survey contains only 12 countries, while the fourth survey includes 20 countries. <http://www.afrobarometer.org/>

by a number of experts in coding elections. We convert this variable into a dummy variable that takes the value one if the answer is no and zero otherwise.

Our model also includes both country-level ($Y_{c,(t-1,t-3)}$) and individual-level ($X_{i,c,t}$) control variables. At the country level, we account for the time between the survey round t and the last election ($TIMELEC_{c,(t,t-j)}$). We also control for the level of development using the logarithm of income per capita ($LN Y_{c,(t-1,t-3)}$), the size of the country ($LNPOP_{c,(t-1,t-3)}$), the quality of the *de jure* political institutions (scaled executive constraints from Polity IV, $EXEC_{c,(t-1,t-3)}$), the amount of DAC aid received as a share of GDP ($AID_{c,(t-1,t-3)}$) and tax revenues as a proportion of GDP ($TAX_{c,(t-1,t-3)}$).

We follow McGuirk (2013) and control for individual characteristics such as age ($AGE_{i,t}$), sex, ($SEX_{i,t}$) place of residence ($RURAL_{i,t}$) and a wealth index combining various characteristics, ($WEALTH_{i,t}$). We also control for interviewer characteristics and the conditions under which the survey was conducted, such as whether other persons were present for the interview ($OTHER_{i,t}$) the age of the interviewer ($AGEITW_{i,t}$), the sex of the interviewer ($SEXITW_{i,t}$), and his/her place of residence ($RURALITW_{i,t}$). Table A in Appendix presents the basic descriptive statistics of the variables used to estimate Equation 1.

Equation (1) is estimated with linear probability models. To account for the obvious endogeneity problem in the estimation of the impact of illicit tactics ($FRAUD_{c,t-j}$) on the trust measures ($TRUST_{i,c,t}$) we instrument fraudulent elections. As a source of exogenous variation we use primary commodity prices ($COMPRICES_{c,(t-1,t-3)}$). We provide a full discussion of the use of this instrument in Section 4.

The results of Table 1 columns (2) to (8) document that electoral fraud is associated with lower trust in governmental institutions, this includes trust in the president, national assembly, election commission, local government, ruling party, police and the courts. We also find trust to be higher for older citizens, somewhat higher for women, those who live in rural areas and trust recovers over time measured from the last election. Wealthier citizens tend to be less trusting.

--- Table 1 about here ---

In Table 1 we also examine whether any of these explanatory variables are associated with the self-reported election participation variable. Column (1) suggests that illicit tactics in the last election increased the probability of voting. This indicates that although poor quality elections erode trust but this is not associated with lower turn out. It may be precisely due to these illicit tactics of vote buying, intimidation and violence that participation was higher. This result contrasts the findings by Simpser (2013) and requires further research.

To summarize, our first set of results suggest that fraudulent elections significantly decrease citizens' trust in formal government institutions. We now turn to the question of what determines why some regimes resort to electoral fraud.

4. An Empirical Analysis of Global Electoral Malpractice

4.1 Model and Data

In order to examine the structural causes of electoral malpractice we estimate the following equation:

$$Prob(FRAUD_{c,t} = 1) = \alpha NRR_{c,(t-1,t-3)} + \beta X_{c,(t-1,t-3)} + \tau_t + \varepsilon_{c,t} \quad (2)$$

The probability of the occurrence of electoral malpractice in country c and election in year t , is termed $FRAUD_{c,t}$. It takes the value of one if there is malpractice and zero if the election is free and fair. $NRR_{c,(t-1,t-3)}$ is a measure of natural resource dependency and $X_{c,(t-1,t-3)}$ is a vector of other structural determinants, such as average per capita income, aid dependency and executive constraints. All the right-hand side variables are measured as three-year averages before the election year t , which varies from one country to the other. We include year dummies, τ_t , and the error term is given by $\varepsilon_{c,t}$ and is clustered at the country level. We discuss the variables in turn.

Dependent Variable

In our analysis, we consider three different definitions of the occurrence of electoral malpractice. Our main proxy of electoral malpractice is taken from the V-Dem database as described in the previous section. We use this proxy in our baseline model of electoral malpractice measure because it covers the largest number of countries and years (173 countries over the period 1900 to 2015).

An alternative measure is available from the Bishop and Hoeffler (2014) database on Free and Fair Elections (FFE) which covers 169 countries over the period 1975-2012. Bishop and Hoeffler assess the quality of the election through a set of dimensions, the electoral process is assessed by the variable 'free' and the events on the election day are assessed by the variable 'fair'. If both variables are unproblematic, we code the election as 'free and fair'. If one or both of the dimensions is problematic we code it as 'not free and fair'.

A further electoral quality measure is available from Kelley (2012), the database on the Quality of Elections (QED). It covers 172 countries over the 1977-2004 period. Again, Kelley distinguishes between pre-election and election day fraud, if either or both dimensions are problematic we coded this election as 'not free and fair'.

Throughout the paper we refer either to free and fair elections or the opposite of free and fair, which we interchangeably call cheating, fraud, electoral malpractice or low election quality.

The V-Dem, FFE and QED data measure similar aspects of election quality, but they are not perfectly correlated. The correlation coefficients range from 0.41 to 0.62 and are significant at the one percent level. Cross tabulations suggest that all data sets tend to agree on the coding of the majority of elections, the biggest discrepancy is due to the fact that V-Dem codes a number of elections as free and fair while FFE and QED suggest that there were some problems with these elections. Thus, V-Dem tends to be more lenient in the assessment whether electoral malpractice occurred or not. We provide some cross-tabulations in Table B in Appendix.

Explanatory Variables

As suggested in Section 2, one of the key explanatory variables we consider is the dependence on natural resources. The probability that government will resort to illicit tactics to win an election in year t is estimated as a function of natural resource rent, $NRR_{c,(t-1,t-3)}$, which is averaged over the three years preceding the election. We use the World Bank (2011) data on natural resource rent. The estimates of natural resources rents are calculated as the difference between the price of a commodity and the average cost of producing it. These unit rents are then multiplied by the physical quantities countries extract or harvest to determine the rents for each commodity as a share of GDP. The rents considered in this measure include oil, natural gas, coal (hard and soft), minerals, and forest rents. Our first look at the data suggests that countries with high natural resource rents are more likely to experiencing electoral fraud, but not overwhelmingly so. Categorizing countries by the median natural resource rents, we find that 58 percent of all the fraudulent V-Dem elections take place in high rent economies. When we use the FFE data this percentage is 54 and for the QED data 52 (cross-tabulation are shown in the Table C in Appendix).

The other explanatory variables are also measured before the election year, $X_{c,(t-1,t-3)}$, and averaged over the preceding three years. We control for official aid, $AID_{c,(t-1,t-3)}$, measured as a share of GDP. The data source is the OECD database and thus only includes the aid from Development Assistance Committee (DAC) members, not any of the non-OECD donors. We also control for the constraints on the executive, $EXEC_{c,(t-1,t-3)}$, using data from the POLITY IV dataset (Marshall et al, 2013). Following Hafner-Burton et al (2014) we code executive constraints as one if the POLITY variable EXCONST takes a value of five or higher. This is equivalent to substantial limitations on executive authority. Although the executive has more effective authority than any accountability group it is subjected to constraints, for example a legislature or party council modifies, or defeats proposals for action. Another example is that funds are denied to the executive. We also control for the level of development using income per capita in logarithm in constant US dollars (World Development Indicators), $LNY_{c,(t-1,t-3)}$. Our model also controls for a dummy variable indicating whether the

election took place during the fourth wave of democratization (McFaul, 2002), i.e. whether the election year is 1990 or later. We also include region and year dummies.

Descriptive statistics for all the variables included in Equation (2) are presented in Table D in Appendix.

Since the dependent variable is the probability of the use of illicit tactics in leadership elections, *i.e.* a dichotomous variable, we estimate Equation (2) by using a Probit estimator. However, as the discussion in Section 2 suggests, natural resource rents may be endogenous and the coefficient estimate may thus suffer from endogeneity bias. Countries with high levels of natural resources have worse accountability mechanisms and are therefore more likely to have low quality elections. However, it may also be the case that leaders who have come to power by committing election fraud do not deliver on public goods, such as economic growth and diversification. It may be in their interest to rely on natural resource rents as their source of income rather than encourage a diversification of the economy and receive tax income from goods and services outside the natural resource economy. To address the issue of endogeneity we also estimate Equation (2) by instrumenting for natural resource rents. In the IV Probit we use a commodity price index as an instrument for natural resource rent as a share of GDP. The basic idea behind using commodity prices is that they are determined in international markets and thus exogenous to individual countries. Using commodity prices from the UNCTAD, we construct a country-specific commodity price index as the weighted average of each commodity price, weighted by the size of this commodity in the country's exports in 1990, $COMPRICES_{c,(t-1,t-3)}$.

4.2 Results

Table 2 presents the benchmark results using the V-DEM definition of electoral fraud, termed $FRAUD_{c,t}$. In column (1), the full sample Probit estimations are presented. We find natural resource rents ($NRR_{c,(t-1,t-3)}$) increases the probability of electoral fraud. The results are statistically significant at the one percent level. In the second column, we estimate our baseline specification but where we instrument natural resource rents by aforementioned commodity price shocks. We find that Probit IV results confirm the previous results, natural resource rents significantly increase the probability of election fraud. Instrumentation broadly confirms our results from column (1) because all the other coefficient estimates are qualitatively unchanged. The effect of natural resources on the probability of experiencing a fraudulent election is strong: At the mean of all the other variables a country with no natural resource rents has a probability of experiencing a fraudulent election of 65 percent, a country with average natural resource rents a probability of 81 percent and a country with double the average resource rents has a probability of 92 percent.

As expected from the discussion in Section 2, we find that the level of development is negatively correlated with fraudulent elections, higher income countries tend to have better quality elections. If a country has double the average income, the probability of a fraudulent election decreases by

11 percent. Similarly, executive constraints reduce the likelihood of fraudulent elections, confirming the results by Hafner-Burton et al (2012). The effect of such constraints is powerful, they reduce the probability of experiencing serious electoral fraud by 29 percentage points.

--- Table 2 about here ---

The coefficient on foreign aid is negative, thus suggesting that countries receiving larger amounts of aid are more likely to have fraudulent elections. The interpretation of this result is problematic for a number of reasons. Aid could also be endogenous in this regression because donors provide aid to foster democracy and provide aid by recipient merit (for a discussion on the determinants of aid allocation see for example Alesina and Dollar 2000; Berthélemy and Tichit 2004). However, Hoeffler and Outram (2011) suggest that although DAC donors claim to support good governance, only negligible amounts of aid are allocated to for this purpose. In any case, the coefficient is only significant at the ten percent level. In our regressions using the alternative measures of election fraud, the aid variable is not significant, and we therefore do not want to put too much emphasis on these findings. Doubling aid decreases the probability of fraudulent elections by about 19 percent in our baseline.

We do not find an effect of presidential elections, the probability of fraud appears to be the same in parliamentary and presidential elections. Two regions are more likely to experience fraudulent elections than the base category (Latin America and the Caribbean), these are Europe & Central Asia and the Middle East & North Africa. The effect of the fourth wave of democratization appears weak, the coefficient being only significantly negative in column (1). Bishop and Hoeffler (2016) suggest that although the number of elections increased, i.e. the world became more democratic, a higher percentage of these recent elections were not free and fair. This could explain the insignificance of this coefficient.

Next, in columns (3) and (4) we restrict the sample to Post-Cold War observations and re-estimate the previous models. The motivation to do so is as follows: the low income countries we are mostly interested in, ‘democratized’ after the Cold War, the so-called “Fourth Wave” of democratization. Therefore, by splitting the sample into Post-Cold War period shows that our results become more pronounced, again in both economic as well as statistical significance, particularly in our (preferred) IV Probit estimations (Table 2, column 4). One interesting change in coefficients is that Sub-Saharan African countries were more likely to have fraudulent elections in this period: they are 11 percent more likely to have elections that were not free and fair.

In Table 3 we produce some robustness checks. We re-run the regressions from the previous Table but use alternative measures of electoral malpractice. Although the use of alternative measures reduces our sample size, our previous results are broadly confirmed. Panel A presents the ‘full sample’ and Post-Cold War results when we use the FFE fraudulent election variable (Bishop and

Hoefler, 2016). Like before, we notice that IV Probit coefficient estimates are much larger than Probit estimates in both full sample and Post-Cold War samples, implying a possibly negative omitted variable bias in Probit estimations. However, when we replace the V-Dem fraudulent election variable with the variable from the QED dataset (Kelley, 2012), we find slightly less pronounced results. For instance, in the IV Probit regression the coefficient on natural resource rents is no longer statistically significant. (Panel B, column 2). Nevertheless, when we limit the sample to Post-Cold War period, the variable becomes significant at the ten percent level.

--- Table 3 about here ---

We also present a focus on African countries and restrict our sample to Sub-Saharan African countries in Table 4. We use V-Dem fraud variable in Panel A, FFE fraud variable in Panel B and QED fraud variable in panel C, respectively as a dependent variable. We find largely similar results than in Tables 2 and 3: natural resource rent seems to be an important determinant of electoral fraud in Africa.

--- Table 4 about here ---

4.3 An Examination of Election Strategies

We now turn to the question whether candidates prefer specific strategies when they want to steal elections. So far we have only concentrated our analysis on whether an election was free and fair or fraudulent and have neglected that different types of manipulations are possible (Schedler 2002). All of the three data sets we use for our analysis provide detailed information on why the elections were not free and fair. The V-Dem dataset provides information on vote buying, whether the opposition had full media access, which percentage of the citizens had voting rights, whether the opposition was subjected to violence, whether there was overall violence, a ban on political parties, which percentage of votes winning candidate secured, and on the presence of domestic observers. These election strategy variables tend to be highly correlated, indicating that many elections are characterized by a number of illicit tactics. In Table 5 we examine the effect of different illicit tactics and outcomes by re-estimating Equation (2). In panel A and B of Table 5 our baseline V-Dem full sample results are presented when estimated by OLS and 2SLS respectively,³ where our earlier instrumentation regime of commodity price shocks is maintained. One possible hypothesis is that political leaders with access to resource rents may be able to steal the elections through vote buying rather than having to resort to violence. While our IV estimates suggest that natural resource rents somewhat reduce the likelihood of violence against the opposition and general violence, there is no indication that there is more vote buying in regimes with higher natural resource rents. This adds to the election violence analysis by Hafner-Burton et

³ The results are very similar when we use Probit and IVProbit estimators.

al (2014) by suggesting that resource rich countries experience less violence. Leaders in high natural resource rent economies appear to restrict the media campaign of opposition parties (column 2). The winning candidate also receives significantly more votes in states with higher resource rents. Outcome measures, such as the number of votes for the candidate, are strictly speaking not election tactics because popular candidates may achieve a high percentage of the votes without relying on illicit tactics. However, there are a number of illicit tactics that increase the vote count that are not captured by the illicit tactics examined in Table 5. Examples include ballot box stuffing, miscounting of votes, ethnic voting and public sector employment for supporters. When we restrict our sample to the Post-Cold War period (Panel C and D of Table 5), the picture becomes even less clear. Countries with higher natural resource rents do not appear to restrict citizens' rights to vote nor do they resort to vote buying. Natural resource rents appear to lower violence and media access but increase the percentage of the winning candidate and the presence of domestic observers. Based on these results, we conclude that there is not one single illicit tactic that is greatly preferred over others and we find no suggestion that certain strategies are substitutes. These results are broadly confirmed when we use the alternative data available from the FFE and QED datasets (results presented in the Tables E and F appendix).

--- Table 5 about here ---

5. Conclusions

In this paper we analyse whether fraud erodes trust in democratic institutions and what determines whether regimes hold fraudulent elections. While there is a growing literature on the consequences of election misconduct, to our knowledge there is little analysis of the impact of electoral fraud on trust. Low levels of trust have considerable developmental consequences (for an overview see Algan and Cahuc, 2010). We use data from several rounds of Afrobarometer data for 20 countries to analyse the impact of electoral fraud on individuals' trust in state institutions. We find that fraudulent elections undermine not only citizens' trust in the president but also in locally elected councils, the police and courts. However, the analysis suggests that voter turnout is not affected by previous electoral misconduct. High turnout is often interpreted as a characteristic of a 'good' election but our analysis suggests that voters' disillusionment is independent of turnout. This may be due to the fact that they are facing pressure to vote (peer pressure, intimidation, violence) or because they are incentivised to vote (presents, vote buying, promise of public sector jobs). The analysis of the Kenyan election by Marx et al (2016) suggests that although voter turnout can be increased through official campaigns, some voters' trust is further decreased through such campaigns. Further research would be useful to understand these aspects of voting behaviour in Sub-Saharan Africa. So far, our analysis provides evidence that democratic processes are key to the building of trust and that in economies dependent on natural resources, the holding of free and fair elections and the building of trust is particularly difficult to achieve.

Following the resource curse literature we pay specific attention to natural resource rents as a hindrance democratization and the building of trust. We hypothesize that leaders in high rent societies are less dependent on raising tax revenues and this in turn leads to less scrutiny and accountability. Using recent global panel data we find that societies with high natural resource rents are significantly more likely to experience electoral misconduct. We instrument natural resource rents by commodity prices to address endogeneity concerns. The effect of natural resource rents is large, a country with the average characteristics but no natural resource rents has a probability of experiencing electoral fraud of about 65 percent. Countries with high natural resource rents (twice the mean rents) have a probability of over 90 percent of experiencing electoral fraud *ceteris paribus*. We also examine which strategies are chosen to manipulate the election. In principle different strategies could be substitutes. The capacity for vote buying depends on financial resources and candidates in countries with high natural resources may be more able to buy votes. In countries with fewer resources candidates may have to resort to violence to manipulate the election. While we find that electoral violence is less likely in countries with high natural resource rents, they are no more likely to buy votes. Thus, we find little evidence that regimes substituting violence for vote buying. Further research is required to understand which tactics candidates use to steal elections.

6. Tables

Table 1: Impact of electoral fraud on trust variables (Instrumented by Commodity Price Index)

	(1) voted	(2) Presid	(3) Parliam	(4) ElecCom	(5) LocGov	(6) Rul. Party	(7) Police	(8) Courts
<i>CHEAT</i> _{c,t-i}	0.171*** (0.041)	-0.964** (0.387)	-0.678** (0.300)	-0.598** (0.236)	-0.540** (0.245)	-0.467* (0.258)	-0.899*** (0.323)	-0.558** (0.208)
<i>AGE</i> _{i,t}	0.005*** (0.001)	0.005*** (0.001)	0.004*** (0.001)	0.004*** (0.001)	0.004*** (0.001)	0.005*** (0.001)	0.004*** (0.001)	0.002*** (0.000)
<i>SEX</i> _{i,t}	-0.023*** (0.007)	0.021 (0.016)	0.018 (0.015)	0.026 (0.019)	0.040*** (0.012)	0.043*** (0.015)	0.032** (0.013)	0.028* (0.015)
<i>RURAL</i> _{i,t}	0.032*** (0.008)	0.217*** (0.021)	0.196*** (0.022)	0.213*** (0.026)	0.252*** (0.026)	0.256*** (0.021)	0.211*** (0.023)	0.166*** (0.020)
<i>WEALTH</i> _{i,t}	-0.001 (0.001)	-0.045*** (0.008)	-0.033*** (0.006)	-0.041*** (0.007)	-0.037*** (0.006)	-0.034*** (0.008)	-0.021*** (0.006)	-0.025*** (0.006)
<i>OTHER</i> _{i,t}	0.001 (0.004)	-0.013 (0.015)	-0.028* (0.016)	-0.033** (0.013)	-0.007 (0.011)	-0.012 (0.014)	0.005 (0.014)	0.012 (0.014)
<i>AGEITW</i> _{i,t}	0.001 (0.000)	0.008*** (0.002)	0.007*** (0.002)	0.004 (0.003)	0.003 (0.002)	0.005*** (0.002)	0.001 (0.003)	0.003 (0.002)
<i>SEXITW</i> _{i,t}	0.002 (0.005)	-0.002 (0.025)	0.012 (0.027)	0.027 (0.032)	0.039 (0.023)	0.045* (0.025)	-0.011 (0.022)	-0.003 (0.025)
<i>RURALITW</i> _{i,t}	-0.005 (0.007)	0.083** (0.035)	0.060* (0.035)	0.073** (0.035)	0.075** (0.031)	0.123*** (0.040)	0.076* (0.040)	0.031 (0.033)
<i>LN</i> _{c,(t-1,t-3)}	-0.365** (0.138)	1.929* (0.997)	1.280* (0.671)	1.325** (0.596)	0.923* (0.493)	1.272* (0.709)	0.766 (0.720)	0.250 (0.504)
<i>LNPOP</i> _{c,(t-1,t-3)}	-0.020 (0.276)	-3.368* (1.685)	-2.269* (1.220)	-3.386*** (0.838)	-1.155 (0.835)	-2.617** (1.202)	-1.430 (1.250)	-0.758 (0.804)
<i>TIMELEC</i> _{c,(t,t,j)}	-0.012*** (0.004)	0.044 (0.028)	0.011 (0.021)	0.079*** (0.015)	0.034** (0.017)	0.060*** (0.021)	-0.015 (0.021)	0.016 (0.013)
<i>EXEC</i> _{c,(t-1,t-3)}	0.226*** (0.051)	-1.260** (0.519)	-1.298*** (0.391)	-0.500 (0.364)	-1.131*** (0.340)	-0.490 (0.329)	-0.865** (0.429)	-0.178 (0.293)
<i>TAX</i> _{c,(t-1,t-3)}	-0.002*** (0.001)	0.012** (0.006)	0.004 (0.004)	0.006* (0.003)	0.002 (0.004)	0.007* (0.004)	0.010** (0.005)	0.004 (0.003)
<i>AID</i> _{c,(t-1,t-3)}	0.001 (0.001)	0.009* (0.005)	0.003 (0.004)	0.012*** (0.003)	0.002 (0.004)	0.008* (0.004)	-0.005 (0.005)	-0.004 (0.003)

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Note: Column (1)-(8) estimate Equation (1) by 2SLS with varying dependent variables i.e. our proxies for trust ($PRES_{i,c,t}$, $PARL_{i,c,t}$, $ELECOM_{i,c,t}$, $LOCAL_{i,c,t}$, $PARTY_{i,c,t}$, $POLICE_{i,c,t}$, $COURTS_{i,c,t}$) as well as $VOTE_{i,c,t}$. Further, robust standard errors are in parenthesis clustered at country level.

Table 2: Determinants of Fraudulent Elections (V-Dem - Benchmark)

	FULL SAMPLE		POST COLD WAR	
	(1) Probit	(2) Probit IV	(3) Probit	(4) Probit IV
Natural Resource Rent	0.030*** (0.011)	0.050*** (0.016)	0.030** (0.012)	0.074*** (0.011)
Aid % GDP	-0.035* (0.019)	-0.038* (0.021)	-0.044** (0.022)	-0.048** (0.021)
Executive constraints	-1.564*** (0.203)	-1.396*** (0.232)	-1.687*** (0.227)	-0.934*** (0.350)
Fourth democ. wave	-1.394* (0.774)	-0.471 (0.619)		
Presidential election	-0.011 (0.288)	-0.037 (0.291)	0.130 (0.336)	0.095 (0.330)
Log GDP per capita	-0.502*** (0.145)	-0.521*** (0.132)	-0.532*** (0.159)	-0.505*** (0.129)
East Asia & Pacific	0.529 (0.413)	0.459 (0.399)	0.835* (0.475)	0.599 (0.468)
Europe & Central Asia	1.430*** (0.378)	1.331*** (0.382)	2.050*** (0.389)	1.577*** (0.481)
Middle East & North Afr.	1.474*** (0.374)	1.491*** (0.345)	1.963*** (0.480)	1.969*** (0.445)
South Asia	-0.176 (0.527)	-0.150 (0.500)	0.509 (0.518)	0.515 (0.449)
Sub-Saharan Africa	0.351 (0.330)	0.316 (0.304)	0.793* (0.413)	0.679* (0.352)
Constant	5.182*** (1.382)	3.884*** (1.177)	3.409** (1.539)	2.621** (1.254)
First Stage Results				
World resource prices		0.230*** (0.053)		0.219*** (0.046)
Kleibergen-Paap LM stat. (p-value)		0.0072		0.0082
Kleibergen-Paap Wald F stat.		18.130		21.830
Observations	1072	1072	755	755

Note: Column (1) and (2) estimate Equation (2) by probit and IV probit estimators, respectively, on full sample. Columns (3) and (4) estimate the same model on post-cold war sample. Robust standard errors clustered at the country level are reported in parentheses. Time dummies are always included but not shown. Kleibergen-Paap underidentification tests meet standard criteria where Wald F-stat > 16.4 and Kleibergen-paap LM p-value < 0.10.

Table 3: Determinants of Electoral Fraud
Full sample (Robustness with FFE and QED Dataset)

	FULL SAMPLE		POST COLD WAR	
	(1) Probit	(2) Probit IV	(3) Probit	(4) Probit IV
Panel A: FFE				
Natural resource Rents	0.016** (0.008)	0.046*** (0.016)	0.017** (0.008)	0.045*** (0.016)
Observations	459	459	372	372
Panel B: QED				
Natural Resource Rents	0.014** (0.007)	0.022 (0.017)	0.032** (0.012)	0.051* (0.028)
Observations	745	745	474	474

Note: Columns (1) and (2) estimate Equation (2) using probit and IV probit estimators, respectively, on full sample. Columns (3) and (4) estimate the same model on post-cold war sample. Robust standard errors clustered at the country level are reported in the parenthesis. Time dummies and same regressors (country level controls) as in Table 2 are included in each column but not shown. In panel A, Equation (2) is re-estimated using FFE cheat variable, whereas, Panel B estimates Equation (2) using QED cheat variable.

Table 4: Determinants of Electoral Fraud
Africa Sample (V-Dem, FFE and QED Dataset)

	FULL SAMPLE		POST COLD WAR	
	(1) Probit	(2) Probit IV	(3) Probit	(4) Probit IV
Panel A: V-Dem				
Natural Resource Rents	0.031* (0.018)	0.067*** (0.018)	0.023 (0.016) [p=0.154]	0.081*** (0.013)
Observations	370	370	284	284
Panel B: FFE				
Natural Resource Rents	0.027** (0.012)	0.054*** (0.017)	0.025** (0.011)	0.053*** (0.017)
Observations	134	134	124	124
Panel C: QED				
Natural Resource Rents	0.040** (0.016)	0.041** (0.021)	0.147*** (0.054)	0.150*** (0.050)
Observations	226	226	157	157

Note: Column (1) and (2) estimate Equation (2) using probit and IV probit estimators, respectively, on full sample. Columns (3) and (4) estimate the same model on post-cold war sample. Robust standard errors clustered at the country level are reported in the parenthesis. Time dummies and same regressors (country level controls) as in Table 2 are included in each column but not shown.

Table 5: Components of V-Dem Cheat Variable

	(1) Vote Buying	(2) Opposition Media	(3) % with voting rights	(4) Violence on Opposition	(5) Violence (overall)	(6) Parties banned	(7) % winning candidate	(8) Domestic Observers
PANEL A: OLS FULL SAMPLE								
Natural resource Rents	0.000 (0.007)	0.000 (0.004)	0.012 (0.008)	-0.008 (0.005)	-0.008 (0.014)	-0.002 (0.005)	-0.102 (0.153)	0.000 (0.002)
Observations	1080	1058	1125	1068	676	1125	476	1033
PANEL B: 2SLS FULL SAMPLE								
Natural resource Rents	0.013 (0.019)	-0.023** (0.011)	0.019 (0.015)	-0.032** (0.014)	-0.037* (0.021)	-0.021 (0.015)	1.006* (0.599)	-0.000 (0.004)
Observations	1080	1058	1125	1068	676	1125	476	1033
PANEL C: OLS POST-COLD WAR								
Natural resource Rents	-0.002 (0.006)	-0.001 (0.004)	0.006 (0.006)	-0.01** (0.004)	-0.001 (0.010)	-0.005 (0.005)	0.153 (0.167)	0.000 (0.002)
Observations	758	745	784	751	479	784	331	731
PANEL D: 2SLS POST-COLD WAR								
Natural resource Rents	0.000 (0.014)	-0.021* (0.011)	0.008 (0.011)	-0.039** (0.017)	-0.032* (0.020)	-0.020* (0.011)	1.111** (0.508)	0.004* (0.002)
Observations	758	745	784	751	479	784	331	731

Legend (all the variables increase in cheating)

Vote Buying: In this national election, was there evidence of vote and/or turnout buying? (0 yes and 4 No)

Opposition Media: In this national election, Opposition parties freely allowed to run media campaign (No and 3 all parties full access)

% with voting rights: percentage of adult citizens (as defined by statute) has the legal right to vote in national elections (percentage)

Violence on opposition: In this national election, were opposition candidates/parties/campaign workers subjected to repression, intimidation, violence, or harassment by the government, the ruling party, or their agents? (0 yes, 4 none)

Violence (overall): In this national election, was the campaign period, election day, and postelection process free from of violence? (0 NO AND 4 peaceful)

Parties Banned: Are any parties banned? (0 no, 1 yes)

% wining candidate: In this presidential election, what percentage (%) of the vote was received by the winning candidate

Domestic observers: In this national election, were election monitors from all parties and independent domestic election monitors allowed to monitor the vote at polling stations across the country? 0 No 1 yes)

Robust Standard errors, clustered at the country level, are presented in the parenthesis.

7. Appendix

Table A: Descriptive Statistics on Equation 1 estimations

Variable	Obs	Mean	Std. Dev.	Min	Max
Trust Variables					
Voted in Last Election ($VOTE_{i,c,t}$)	47129	0.82	0.38	0	1
Trust in President ($PRES_{i,c,t}$)	47129	1.91	1.11	0	3
Trust Parliament ($PARL_{i,c,t}$)	47129	1.71	1.07	0	3
Trust Election Commission ($ELECOM_{i,c,t}$)	47129	1.66	1.11	0	3
Trust Local Government ($LOCAL_{i,c,t}$)	47129	1.62	1.09	0	3
Trust Ruling Party ($PARTY_{i,c,t}$)	47129	1.67	1.14	0	3
Trust in Police ($POLICE_{i,c,t}$)	47129	1.61	1.13	0	3
Trust in Courts of Law ($COURTS_{i,c,t}$)	47129	1.82	1.05	0	3
Interviewer Characteristics					
Others present ($OTHER_{i,t}$)	47129	0.35	0.48	0	1
Interviewer's age ($AGEITW_{i,t}$)	47129	28.25	6.39	18	71
Interviewer female ($SEXITW_{i,t}$)	47129	0.45	0.50	0	1
Interviewer rural ($RURALITW_{i,t}$)	47129	0.22	0.41	0	1
Individual Characteristics					
Age ($AGE_{i,t}$)	47129	37.17	14.15	18	115
Female ($SEX_{i,t}$)	47129	0.47	0.50	0	1
Rural ($RURAL_{i,t}$)	47129	0.62	0.49	0	1
Wealth Index ($WEALTH_{i,t}$)	47129	1.78	1.68	0	6.93
Country level Characteristics					
GDP per capita ($LN Y_{c,(t-1, t-3)}$)	100	6.52	0.96	5.19	8.72
Population ($LN POP_{c,(t-1, t-3)}$)	100	16.49	1.24	13.05	18.78
Time to Election ($TIMELECC_{c,(t,t-j)}$)	100	2.85	1.51	0.25	6.75
Executive Election ($EXEC_{c,(t-1, t-3)}$)	100	0.10	0.30	0	1
Tax/GDP ($TAX_{c,(t-1, t-3)}$)	100	39.28	27.20	0	82.95
Aid/GDP ($AID_{c,(t-1, t-3)}$)	100	13.70	15.91	0.25	103.85
Trade/GDP ($Trade_{c,(t-1, t-3)}$)	100	74.25	30.79	35.88	198.49
Fourth Term	100	1.00	0.00	1	1
Finite Term	100	0.95	0.22	0	1
Presidential	100	0.91	0.29	0	1
Cheat V-Dem Last ($CHEAT_{c,t-i}$)	100	0.40	0.49	0	1
Com Prices ($COMPRICES_{c,(t-1, t-3)}$)	100	30.33	41.05	1.00	170.93
NRR ($NRR_{c,(t-1, t-3)}$)	100	11.31	10.20	0.41	39.67

Note: For country level characteristics, we quote Country x Round as number of observations where we have 20 Afrobarometer countries and 5 rounds. Further, parenthesis features variable name used in text (see model 2).

Table B: Election Malpractice – First Evidence

Panel A. V-Dem and FFE Cross-Tabulation

	FFE Cheat = 0	FFE Cheat = 1	Total
V Dem Cheat = 0	499 (80%)	126 (20%)	625
V Dem Cheat = 1	19 (9%)	200 (91%)	219
Total	518	326	844

Panel B. V-Dem and QED Cross-Tabulation

	QED Cheat = 0	QED Cheat = 1	Total
V Dem Cheat = 0	355 (55%)	280 (45%)	635
V Dem Cheat = 1	32 (8%)	386 (92%)	418
Total	387	666	1,053

Note: Row-wise percentages are presented in the parenthesis. For instance, the over-lap of electoral fraud between cheat variable = 1 in FFE and V-Dem dataset occurs 91% of the time (Panel A) and between QED and V-Dem it occurs 92% of the time (Panel B).

Table C: Natural Resource Rents and Free and Fair Elections

Panel A: V-Dem Election Variable

	Low Rents	High Rents	
CHEAT = 0 (V-Dem)	351 (55%)	282 (45%)	633
CHEAT = 1 (V-Dem)	185 (42%)	254 (58%)	439
	539	536	1,072

Panel B: FFE Election Variable

	Low Rents	High Rents	
CHEAT = 0 (FFE)	124 (60%)	86 (40%)	210
CHEAT = 1 (FFE)	115 (46%)	134 (54%)	249
	239	220	459

Panel C: QED Election Variable

	Low Rents	High Rents	
CHEAT = 0 (QED)	124 (58%)	93 (42%)	217
CHEAT = 1 (QED)	258 (48%)	270 (52%)	528
	382	363	745

Note: Natural resource rents are characterized as “low rent” (and take the value of 0) if they took values lesser than median value and they are categorized as “high rent” (and take the value of 1) when they take values higher than the median value. Row-wise percentages are presented in the parenthesis. For instance, the over-lap between V-Dem dataset cheat (=1) and high natural resource rents occurs 58% of the time (Panel A), with FFE and high natural resource rents it occurs 54% of time (Panel BN), and between QED and high natural resource rents it occurs 52% of the time (Panel C).

Table D: Descriptive Statistics on Equation 2 estimations

Variable	Obs	Mean	Std. Dev.	Min	Max
V-Dem Cheat ($CHEAT_{c,t}$)	1072	0.41	0.49	0	1
FFE Cheat ($CHEAT_{c,t}$)	459	0.54	0.54	0	1
QED Cheat ($CHEAT_{c,t}$)	745	0.71	0.45	0	1
NRR ($NRR_{c,(t-1,t-3)}$)	1072	9.48	11.51	0.0032	86.048
Com Prices ($COMPRICES_{c,(t-1,t-3)}$)	1072	10.38	19.41	1.0004	194.844
AID_GDP ($AID_{c,(t-1,t-3)}$)	1072	5.56	8.35	0	107
Executive Constraints ($EXCONST_{c,(t-1,t-3)}$)	1072	0.61	0.49	0	1
Fourth wave	1072	0.75	0.43	0	1
Presidential	1072	0.85	0.36	0	1
GDP per capita ($LNY_{c,(t-1,t-3)}$)	1072	7.14	1.09	4	10
East Asia	1072	0.07	0.26	0	1
Europe & Central Asia	1072	0.1	0.3	0	1
MENA	1072	0.06	0.24	0	1
South Asia	1072	0.06	0.23	0	1
Sub-Saharan Africa	1072	0.37	0.48	0	1

Table E: Components of FFE Cheat Variable

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Ballot Access	Campaign Process	Media Access	Vote Counting	Voter Regist	Voting Process	Role of Officials
Panel A: Probit Full sample							
Natural Resource Rents	0.022** (0.008)	0.035*** (0.010)	0.008 (0.009)	0.007 (0.011)	0.014 (0.009)	0.017** (0.008)	0.038*** (0.010)
Observations	316	364	405	351	302	388	278
Panel B: IV Probit Full sample							
Natural Resource Rents	0.044** (0.020)	0.026 (0.024)	0.062*** (0.016)	0.012 (0.022)	0.045*** (0.015)	0.043** (0.017)	0.028 (0.030)
Observations	316	364	405	351	302	388	278
Panel C: Probit Post Cold War							
Natural Resource Rents	0.017** (0.008)	0.038*** (0.011)	0.008 (0.008)	0.009 (0.011)	0.015* (0.009)	0.018** (0.008)	0.039*** (0.010)
Observations	266	294	319	290	275	324	252
Panel D: IV Probit Post Cold War							
Natural Resource Rents	0.038** (0.019)	0.026 (0.024)	0.060*** (0.014)	0.009 (0.022)	0.047*** (0.015)	0.041** (0.018)	0.026 (0.029)
Observations	266	294	319	290	275	324	252

Note: Robust standard errors clustered at the country level are reported in the parenthesis. Time dummies and same regressors (country level controls) as in Table 2 are included in each column but not shown

Table F: Components of QED Cheat Variable

	(1) Pre-election political Condition	(2) Explicit election day cheating	(3) Pre-election Admin Capac	(4) Election Day Admin. Capac	(5) Pre-election Violence	(6) Election day Violence
Panel A: Probit Full Sample						
Natural Resource Rents	0.002 (0.006)	0.003 (0.007)	0.005 (0.005)	0.010 (0.007)	0.005 (0.006)	0.003 (0.008)
Observations	741	714	510	650	664	657
Panel B: IV Probit Full Sample						
Natural Resource Rents	0.012 (0.017)	0.005 (0.017)	0.032** (0.016)	0.018 (0.022)	-0.016 (0.020)	-0.002 (0.027)
Observations	741	714	510	650	664	657
Panel C: Probit Post Cold War						
Natural Resource Rents	0.004 (0.006)	0.002 (0.008)	0.002 (0.006)	0.008 (0.007)	0.011 (0.006)	0.004 (0.007)
Observations	474	463	414	470	429	452
Panel D: IV Probit Post Cold War						
Natural Resource Rents	0.022 (0.021)	0.006 (0.022)	0.031 (0.021)	0.017 (0.021)	-0.007 (0.023)	-0.010 (0.025)
Observations	474	463	414	470	429	452

Note: Robust standard errors clustered at the country level are reported in the parenthesis. Time dummies and same regressors (country level controls) as in Table 2 are included in each column but not shown

References

- Acemoglu, D., Johnson, S., Robinson, J.A., Yared, P. 2008. Income and democracy. *American Economic Review* (98): 808–842.
- Aghion, Philippe, Yann Algan, Pierre Cahuc, and Andrei Shleifer. 2010. “Regulation and Distrust.” *Quarterly Journal of Economics* 125(3): 1015–49.
- Algan, Yann, and Pierre Cahuc. 2010. “Inherited Trust and Growth.” *American Economic Review* 100(5): 2060–92.
- Alesina, Alberto and David Dollar, “Who Gives Foreign Aid to Whom and Why?” *Journal of Economic Growth* 5 (2000): 33–63.
- Arrow, K. 1972. Gifts and Exchanges, *Philosophy and Public Affairs*, 1: 343-362.
- Auty, R. (Ed.), 2001. *Resource Abundance and Economic Development*. Oxford University Press, Oxford.
- Berthélemy, Jean-Claude and Ariant Tichit 2004. “Bilateral Donors’ Aid Allocation Decisions: A Three-Dimensional Panel Analysis,” *International Review of Economics and Finance* 13: 253–74.
- Bishop S. and A. Hoeffler. 2016. Free and Fair Elections – A New Database. *Journal of Peace Research*. June issue.
- Birch, Sarah. 2011. *Electoral Malpractice*. Oxford: Oxford University Press.
- Bratton, Michael and E. Gyimah-Boadi. 2016. *Do trustworthy institutions matter for development? Corruption, trust, and government performance in Africa*. Afrobarometer Dispatch No. 112
- Brautigam, D., Knack, S., 2004. Foreign aid, institutions and governance in Sub-Saharan Africa. *Economic Development and Cultural Change* 52: 255–285.
- Chauvet, L. and P. Collier. 2009. Elections and economic policy in developing countries, *Economic Policy* 24(59): 509-550.
- Chaves, I., Fergusson, L., Robinson, J. A. 2015. He who counts elects: Economic elites, political elites, and electoral fraud. *Economics & Politics* 27(1): 124-159.
- Collier, Paul and Anke Hoeffler. 2015. Do elections matter for economic performance? *Oxford Bulletin of Economics and Statistics* 77: 1-21.
- Collier, P. and Hoeffler, A., 2009. Testing the neocon agenda: democracy in resource-rich societies. *European Economic Review*, 53(3): 293-308.
- Coppedge, Michael, John Gerring, Staffan I. Lindberg, Svend-Erik Skaaning, Jan Teorell, et al., 2016. “V-Dem Codebook v6.” Varieties of Democracy (VDem) Project. Data website <https://www.v-dem.net/en/>, last accessed 4 July 2016

- Fayad, Ghada., Robert H. Bates and Anke Hoeffler. 2012. Democracy and Income: Lipset's Law Revisited. IMF Working Paper 12/295.
- Giuliano P and N. Nunn. 2013. The Transmission of Democracy: From the Village to the Nation-State. *American Economic Review Papers and Proceedings*: 103(3): 86-92.
- Glaeser, Edward L, Rafael LaPorta, Florencio López-de-Silanes, and Andrei Shleifer. 2004. "Do Institutions Cause Growth?" *Journal of Economic Growth* 9 (3): 271-303.
- Gylfason, T., 2001. Natural resources, education, and economic development. *European Economic Review* 45, 847–859.
- Hafner-Burton, Emilie M., Susan D. Hyde, and Ryan S. Jablonski. (2014). "When do governments resort to election violence?." *British Journal of Political Science* 44(1): 149-179.
- Hoeffler, Anke, and Verity Outram. 2011. "Need, Merit, or Self-Interest—What Determines the Allocation of Aid?." *Review of Development Economics* 15(2): 237-250.
- Kelley, Judith G. 2012. *Monitoring Democracy: When International Election Observation Works, and Why it Often Fails*. Princeton University Press: Princeton. Data webpage: <http://sites.duke.edu/kelley/data/>, last accessed 4 July 2016.
- La Porta, R., Lopez-de-Silvanes, F., Shleifer, A., and Vishny, R. 1997. Trust in Large Organizations, *American Economic Review*, 87: 333-38.
- Lipset, S.M., 1959. Some social requisites of democracy: Economic development and political legitimacy. *American political science review*, 53(01): 69-105.
- Lowes, S., Nunn, N., Robinson, J. A., & Weigel, J. 2015. The evolution of culture and institutions: Evidence from the Kuba Kingdom. National Bureau of Economic Research (WP21798).
- Marshall, M.G., T.R. Gurr and K. Jagers, 2016. Polity IV project: Political regime characteristics and transitions, 1800-2015. Data User Manual <http://www.systemicpeace.org/inscr/p4manualv2015.pdf>, accessed 5 July 2016.
- Marx, B., Pons, V. and Suri, T. 2016. *The Perils of Building Democracy in Africa*. MIT Poverty Action Lab. Mimeo.
- Mehlum, H., Moene, K., Torvik, R., 2006. Institutions and the resource curse. *Economic Journal* 116, 1–20.
- McFaul, M. 2002. The Fourth Wave of Democracy and Dictatorship: Noncooperative Transitions in the Postcommunist World, *World Politics* 54: 212-244.
- McGuirk E., (2013). The illusory leader: natural resources, taxation and accountability. *Public Choice* 154 (3-4).
- Nkongo-Iweala, N. 2012. *Reforming the Unreformable: Lessons from Nigeria*. MIT Press. Cambridge MA.

- Nunn, N. and L. Wantchekon. 2011. The Slave Trade and the Origins of Mistrust in Africa. *American Economic Review*. 2011; 101(7) :3221-3252.
- Przeworski A, Alvarez MA, Cheibub JA and Limongi F. 2000. *Democracy and Development: Political Institutions and Well-Being in the World, 1950–1990*. Cambridge: Cambridge University Press.
- Robinson, J.A., Torvik, R., Verdier, T., 2006. Political foundations of the resource curse. *Journal of Development Economics* 79, 447–468.
- Ross, M.L., 2004. Does tax lead to representation? *British Journal of Political Science* 34, 229–249.
- Sachs, J.D., Warner, A.M. 2005. Natural resource abundance and economic growth. In: Meier, G.M., Rauch, J.E. (Eds.), *Leading Issues in Economic Development*, eighth ed. Oxford University Press, New York.
- Schedler, Andreas. 2002. Elections without Democracy: The Menu of Manipulation. *Journal of Democracy* 13: 37-50.
- Schedler, Andreas, 2013. *The politics of uncertainty: sustaining and subverting electoral authoritarianism*. Oxford: Oxford University Press.
- Simpser, Alberto (2013). *Why governments and parties manipulate elections: theory, practice, and implications*. Cambridge University Press.
- World Bank, 2011. *The Changing Wealth of Nations: Measuring Sustainable Development in the New Millennium*. World Bank: Washington D.C.