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# Violent conflicts and state capacity: Evidence from Sub-Saharan Africa☆

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ABSTRACT

This paper investigates the impacts of conflicts on state-capacity in Sub-Saharan Africa (SSA), a region that has recorded a disproportionate number of armed conflicts and has a high presence in the Fragile States Index rankings. Individually, both conflicts and state-capacity are known to have important implications for economic development, which underscore their relevance for developing countries. Our aim here is to analyze the relationship between them and for this, we analyze a panel of 49 SSA countries spanning 2000–2015. Our results suggest that the effect of conflicts on state-capacity depends on the variable used to proxy state-capacity is important: conflicts diminish state-capacity when *tax revenue* is used as the proxy, but the effect is positive when proxied by *military expenditure*. Other proxies consider include *regulatory quality, rule of law,* and *government effectiveness*.

## 1. Introduction

From a historical perspective the frequency of conflicts has decreased in recent decades globally, but then has increased recently. The number of violent conflicts and the number of conflict-related deaths increased from relative lows of 57 and 27,274 in 2006, to 139 and 77,392 respectively in 2018 (see UCDP).[1] Notably, this has been disproportionately affected Sub-Saharan Africa (SSA) and the Middle East. Moreover, among the 30 most fragile countries in the 2019 Fragile States Index, 21 of them are in Africa.[2]

Several studies have analysed the impacts of conflicts on various aspects of economic growth and development, and the consensus is that the detriments are significant (see Adelaja and George, 2019; Martin-Shields and Stojetz, 2019). Other studies have assessed state-capacity *vis-à-vis* welfare and development (see Cingolani *et al.* 2015 and Asadullah and Savoia, 2018), highlighting the significance. Further, economic successes chopped by countries like Hong Kong, Singapore, South Korea, and Taiwan (the Asian Tigers), guided public policies, underscore the importance of the state (see Evans 1995 and Kang 2002). The inference here is that *both* armed conflicts and low state-capacity are likely to have deleterious effects on economic growth and development. Thus, the relation between them becomes crucial for government and economic development, and with significant policy implications. This is particularly relevant for developing countries that have a higher likelihood of conflicts, hence our focus on SSA.

Referencing Europe's fortunes, some of the seminal research on conflicts and development make a direct link between state-capacity and conflicts. For example, Tilly (1975, 1992) argues that "states made war, and war made states". Tilly posits that because the ability to finance war was key for survival, and armed conflict forced Europe's 16th-century monarchs to create effective fiscal infrastructures. More recently Besley and Persson (2009, 2011) suggest that countries with a history of conflicts have greater fiscal capacity and propose models in which war is viewed as a common-interest public good that facilitates investments in state-building. From another perspective, high state-capacity countries have generally been associated with fewer conflicts (see Hegre & Sambanis 2006, Besley and Persson 2009, Di Guiseppe *et al.*, 2012).[3] As mentioned earlier, the consensus in the extant literature is that con-

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[1] See Uppsala Conflict Data Program (UCDP) website (https://ucdp.uu.se/encyclopedia).

[2] Other broader definitions of the Middle East exist e.g., 'Greater Middle East', used by the George Bush administration (United States), includes Afghanistan and Pakistan.

[3] In the earlier studies, State Capacity referred to the power of the state to raise revenue. However, more recent literature has broadened the scope to capture a wider range of state acquired competencies in the development process, including the power to enforce contracts and to regulate markets (see for example, Piano (2019). In this study, we follow this broader definition and State Capacity is defined as the ability of the state to implement its policies effectively.

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flicts have had a damaging effect on Africa and resulted significantly in the destruction of lives, livelihoods, and infrastructure, and contributed to the continent's heavy presence in the Fragile States Index rankings. Thus, such studies suggest that better state-capacity may be necessary to reduce conflicts .

More broadly, while much of the research on economic development tends to focus on expansion of the market economy and capital accumulation, the role of state and public provision is also considered necessary for such expansions. Some issues arise in the context of our study. First, if Tilly's (1975, 1992) argument that '…wars made states' holds for 16th century Europe', how plausible is that argument for today's SSA? Second, there are few studies on the impacts of conflict on state-capacity in SSA. This study aims to contribute to addressing these. Given the well-documented deleterious implications of conflicts for development, this study focuses on the implications for state-capacity in SSA. Specifically, we further investigate whether there is any significant difference between the effects of internal (civil) conflicts and external (interstate) conflicts on state-capacity. We posit that better understanding of the dynamics of the relationship between conflicts and state-capacity can inform policy-formulation regarding state-capacity. We find that the variable used to proxy state-capacity is important i.e., conflicts deplete state-capacity when *tax revenue* is used as the proxy, but the effect is positive when proxied by *military expenditure*. For completeness, we also consider other proxies: *Regulatory quality, Rule of law,* and *Government effectiveness.* The impacts of internal and external conflicts also differ *vis-à-vis* the state-capacity measure. However, the central message is that a country that experiences intermittent conflicts, whether internal or external, would suffer from overall economic instability and unintended social consequences (Ganegodage and Rambaldi, 2014).

The remainder of this paper is structured as follows. Section 2 presents some background and related literature; Section 3 sets out the empirical strategy adopted and describes the data used. Section 4 presents and discusses the estimated results while Section 5 concludes.

## 2. Background and related literature

Several theoretical strands of the literature link armed conflicts with humanitarian disasters, destruction of infrastructure, and breakdown of political authority, making it instructive to better understand causative factors of armed conflicts. One strand of the literature attributes the causes to political and/or economic factors including economic greed or societal grievance (Taydas and Peksen, 2012). A second cites political views leading to grievance, injustice, deprivation, and inequality as providing aggrieved groups with motivation to resort to violence against the state (Regan and Norton, 2005). Other strands point to the role of socioeconomic realities including poverty Nannyonjo (2005), inequality (Sen, 2003; Besançon, 2005), economic growth Basu (2000) and expected payoff from the insurgencies (Collier and Hoeffler, 2004). Despite the lack of consensus among researchers as to the major causes of conflict and its impacts on the economy of the state, there is widespread consensus on the importance of state-capacity in quelling conflicts (Fearon and Laitin 2003; Besley and Persson 2011).

Noticeably, interest in state-capacity has turned to political opportunity, which influences potential rebels' decisions to fight (see Tilly 1978). More specifically, rationality is placed at the center of the conflict decision, and the decision to rebel considers government's capacity to repress or accommodate rebellion. Higher ability of the state to repress rebellions will imply higher likelihood of capture, hence lower proclivity for engaging in rebellions and armed conflicts.

There are, however, divergent opinions on the role of state-capacity Ottervik (2013). On the one hand, high state-capacity can provide public goods such as human security, medical and health care, and the social and physical infrastructure that promote human development (Rotberg, 2003). Further, Wang (2003), Fukuyama (2005), and Carothers (2002) argue that for democracy to be consolidated and successful over time, high state-capacity is fundamental. Furthermore, high state-capacity countries are typically associated with a high share of taxes as a percentage of GDP, with proceeds from taxes redistributed back to citizens or invested in public goods. The military strength of such states is also regarded as very high and there is a high degree of trust in politicians and the functioning of political replacement mechanisms. In response to grievance, states can opt for accommodation or repression. Like repression of grievances, accommodation requires states to have enough capacity to accommodate the grievances through formal processes e.g., redistribution, granting autonomy rights, non-alienation of dissenting views, to reduce motivations for violent rebellions. In either response scenarios, state-capacity is central. On the other hand, low state-capacity, being limited in their ability to provide such services, can lead to diminished social trust (Rothstein and Stolle, 2008), low development levels, or even state failure Skocpol (1979). The above arguments suggest that low state-capacity countries, unable to provide such basic economic functions or to protect property rights may be more exposed to conflicts. However, conflicts can also arise due to other reasons, which can then deplete state-capacity. Specifically, the extant literature has considered the effect of state-capacity on conflicts. However, there are limited studies on the impact of conflict on state-capacity.

In the development economics and political economics literature, other indirect factors including ethnic fractionalisation, economic growth, political institutions, natural resource rents and climate (Blattman and Miguel, 2009; Sambanis, 2002) have been investigated *vis-à-vis* their potential to cause conflicts. Noticeably, majority of SSA countries have been categorised as having either 'weak', 'failing' or 'ineffective capacity' i.e., lacking the capacity to create environments in which security and markets can function (see DiJohn, 2008). Such studies' emphasis on the limitations in these countries is somewhat explained by the state of political drivers of development, the state of their political institutions and poverty levels (Mkandawire 2001; Olukoshi 2007).

## 3. Empirical methods and data

### 3.1. Empirical model

Based on the discussion above, and to allow for some comparison, we begin with a baseline OLS estimation that takes the following form:

$$SC_{it} = \beta_0 + \beta_1 C_{it} + \gamma' X_{it} + \psi' D_t + \varepsilon_t \quad (1)$$

where $SC_{it}$ is the measure of state-capacity in country $i$ in year $t$; $X_{it}$ is a vector consisting of the control variables: Ln(GDP per capita), population, polity (a measure of political stability), and a measure of foreign aid (the Net Overseas Development Assistance). $D_t$ is a composite of variables representing year and country-effects. $C_{it}$ is the total number of conflicts in country $i$ in year $t$ and is a combination of both *internal* and *external* conflicts. However, following Besley and Persson's (2008) arguments, that the two forms of conflict may, indeed, have opposite effects on the incentives to invest in state-capacity, we revise Eq. (1) accordingly as:

$$SC_{it} = \alpha_0 + \beta_2 IC_{it} + \beta_3 EC_{it} + \eta' X_{it} + \varphi' D_t + \epsilon_t \quad (2)$$

where $IC_{it}$ and $EC_{it}$ are the measures of internal and external conflicts respectively.

To account for the possible effects of initial conditions, the level of development, other sources of unobserved time-invariant heterogeneity, and the potential persistence of the state-capacity, we consider and estimate a dynamic panel model (the GMM estimator) which allows us to obtain unbiased, efficient, and consistent estimates. In this study, the GMM estimator is also used to control for the country-specific effects, which cannot be captured by country-specific dummies, due to the dynamic structure of the regression equation. Eq. (2) is modified to:

$$SC_{it} = \alpha_0 + \delta_1 SC_{it-1} + \alpha_1 IC_{it} + \alpha_2 EC_{it} + \theta' X_{it} + \lambda' D_t + \epsilon_{it} \quad (3)$$

where $\epsilon_{it} = \mu_{it} + \upsilon_{it}$ and $E[\epsilon_{it}] = E[\mu_{it}] = E[\upsilon_{it}] = E[\mu_{it}\upsilon_{it}]$ and $\mu_{it}$ are country fixed-effects and $\upsilon_{it}$ are idiosyncratic shocks.[4] We note that both state-capacity and the probability of conflict may be affected by external shocks (e.g. political reforms, climate), which are unobserved. We employ the system-GMM (Arellano and Bover, 1995) estimator which addresses the problems of simultaneity bias and inverse causality by using the lagged dependant variables as instruments. Specifically, by using lagged levels as instruments for first difference equations and the lagged first differences as instruments for level equations. The consistency of the GMM estimators, however, depends on the validity of the instruments and the assumption that the error term is not serially correlated. Typical diagnostic tests include the autoregressive test (testing that the error term is not serially correlated in both the difference regression and the system difference-level regression) and either the Sargan or Hansen test of over-identifying restrictions, which tests the overall validity of instruments by analysing the sample analog of the moment conditions used in the estimation process. In this paper, to check the validity of instruments used in the estimation of the equations above, we perform the Hansen test of over-identifying restrictions (see Arellano and Bond (1991) and Arellano and Bover (1995)).

### 3.2. Data and variable definitions

We analyze an annual frequency dataset spanning 2000–2015 for 49 SSA countries,[5] comprising fiscal measures, legal measures, state-capacity measures, and measures of conflict. The conflict data is sourced from the Armed Conflict Location and Event Data Project (ACLED) and UCDP/PRIO Armed Conflict datasets, whereas data for the dependent and control variables are sourced from World Bank's World Development Indicators, except for the polity variable, which is sourced from center for Systemic Peace and the Societal-Systems Research Institute.[6]

Given the aims of this study, state-capacity, defined here as 'the degree of control that state agents exercise over persons, activities, and resources within their government's territorial jurisdiction' (McAdam et al., 2001), is considered the dependent variable. Although there is no one-accepted measure, a commonly used measure is the amount of taxes the state collects (Besley and Persson, 2008; Fukuyama, 2013). Similarly, Wang & Hu, 2001 and Schumpeter, 1991 also argue that the state's capacity to mobilise and extract financial resources is central to capacity building and is the foundation of the state's ability to realize its other capacities. We note that a widely used measure i.e., *taxation to GDP ratio (%)* has both advantages and disadvantages (see Fukuyama, 2013). It captures not only the capacity to tax, but also the willingness, hence ability to collect taxes increases a state's degree of institutionalization, bureaucratic organization, and perceived legitimacy. A criticism of this measure is that a large government is not necessarily a capable or efficient government, and even if the state can collect taxes, corruption, trust, and transparency may also affect the allocation of these tax revenues.

In this study, we measure state-capacity in two ways: *fiscal capacity* and *legal* capacity. First, we measure fiscal capacity as (i) t*otal tax revenue to GDP ratio (%)* as in Centeno, (2002) and Thies (2010) and (ii) *military expenditure to GDP ratio (%)* as in Hendrix (2010). Next, for *legal* capacity, we use the *Rule of Law, Regulatory Quality, and Government Effectiveness* (see Hegre et al., 2001 and Marshall and Jaggers 2009).

As previously mentioned, we use data from ACLED and the Armed Conflict Data (ACD) database recently developed by the International Peace Research Institute of Oslo, Norway, and the University of Uppsala, Sweden (referred to as PRIO/Uppsala).[7] Armed conflict is defined in the PRIO/Uppsala database as "a contested incompatibility which concerns government and/or territory where the use of armed force between two parties, of which at least one is the government of a state, results in at least 25 battle-related deaths." In empirical work, it is worth noting that this definition of conflict may mean that some types of organised violence that do not directly affect the state are not captured. For example, clashes among pastoralist groups in Northern Kenya or crimes related to drug trades (which are of considerable research interest in their own right) might not be captured. in this study, we measure conflict as the number of conflicts that occur in a particular year in a country, which we then disaggregate into *external* and *internal* conflicts to capture potential differences in impacts on state-capacity. Internal conflicts, being defined as conflicts between the government and internal opposition groups, without intervention from other states. External conflicts, on the other hand, are those that involve two or more independent states inclusive of wars.

For the explanatory variables, we rely on relevant literature. First, we consider incomes by including *natural logarithm of GDP per capita* to account for the views expressed in the extant literature that countries with high levels of economic development are less likely to experience internal violent conflicts (see Barbieri and Reuvney 2005, Fearon and Laitin 2003, Gleditsch et al., 2002). Intuitively, high national incomes should imply fewer conflicts because it is assumed that citizens have an adequate standard of living, which encourages less violence. Fearon and Laitin (2003), for example, attribute armed rebellion to structural conditions which reduce the opportunity cost of uprisings, and thereby increase the likelihood. Specifically, they find that low economic development (proxied by GDP-per-capita) significantly increases the probability of civil wars, thereby reducing the state-capacity. The relevance is underscored by the fact that our dependent variable (particularly, the fiscal measure) can be affected by global phenomena, including economic crises. In this study, we include year effects, which partly account for this. Similarly, the amount of tax revenue received is expected to be dependent on income levels.. Overall, we posit and investigate state-capacity as a function of a county's level of economic development.

Second, to control for the expected positive association between high population growth rates and the likelihood of conflict, we include the *natural logarithm of total population*. Typically, responsible states must satisfy resource demands which increase with population and, efficient taxation in a high population environment requires significant investment in the capacity to monitor the population and also implement credible measures to effectively discourage non-payment. From another perspective, Hendrix (2010), posits that a state can enhance its military capacity if the population is relatively high, as more people can sign up to join the military. If the government utilises the large population to its advantage by equipping and educating its citizens, state-capacity can increase. However, a state that is prone to conflict and increased population will dampen state-capacity. Also, the higher the number of people below the poverty line, the higher the likelihood of conflicts, thereby negatively affecting state-capacity. In summary, the impact of population growth on state-capacity is ambiguous.

Third, the role of *Foreign Aid (Net ODA received (constant US$, NODA)* is of interest. Intuitively, access to foreign capital directly increases a state's economic capacity by providing it with resources that it would

[4] It is worth acknowledging that notwithstanding the advantages of the dynamic structure in Equation (3), there is the possibility of potential endogeneity of the lagged dependent variable term, which is standard in dynamic panel data models (Arellano and Bond, 1991; Blundell and Bond, 1998).

[5] The sample period and the countries covered are dictated by availability of data.

[6] Databases: https://acleddata.com/#/dashboard; https://www.prio.org/Data/Armed-Conflict/UCDP-PRIO/ and http://www.systemicpeace.org/

[7] The ACLED data consists of disaggregated conflict analysis and crisis mapping. The database consists of armed conflict for different countries from 1997 – present and codes locations, dates and additional characteristics of individuals, battle events in states affected by wars, protests, or violent riots. The ACD database also uniquely records all conflicts with a threshold of 25 battle deaths per year, in addition to classifying conflicts by the standard 1,000-death threshold, thus including more small conflicts in the analysis.

**Table 1**
Descriptive Statistics.

| Variable | *Obs.* | *Mean* | *Std Dev.* | *Min* | *Max* |
|---|---|---|---|---|---|
| ***Panel A:*** | | | | | |
| ***Dependent Variable:*** | | | | | |
| Tax Revenue (% of GDP) | 411 | 15.91 | 8.707 | 0.231 | 58.28 |
| Military Expenditure (% of GDP) | 673 | 2.040 | 2.262 | 0.146 | 32.66 |
| Rule of Law | 695 | −0.692 | 0.625 | −2.114 | 1.057 |
| Regulatory Quality | 695 | −0.663 | 0.597 | −2.261 | 1.123 |
| Government Effectiveness | 695 | −0.734 | 0.594 | −2.171 | 1.036 |
| ***Panel B:*** | | | | | |
| ***Explanatory Variables:*** | | | | | |
| ln(Number of Conflicts) | 704 | 3.25 | 1.83 | 0 | 8.05 |
| ln(Internal conflicts) | 703 | 3.21 | 1.84 | 0 | 8.05 |
| ln(External conflicts) | 247 | 1.37 | 1.34 | 0 | 5.08 |
| ***Panel C:*** | | | | | |
| ***Control Variables:*** | | | | | |
| ln(GDP per capita) | 735 | 6.981 | 1.079 | 5.268 | 9.912 |
| ln(population) | 748 | 15.731 | 1.580 | 11.303 | 19.008 |
| Population (annual growth) | 748 | 2.504 | 0.877 | −2.629 | 5.598 |
| NODA, (Constant US$, 2013) | 692 | 19.70 | 1.351 | 13.25 | 23.26 |
| Polity2 (Political Instability) | 705 | 1.905 | 5.187 | −9 | 10 |

not otherwise have if it relied solely on domestic revenue sources. Fjelde and de Soysa (2009), argue that the ability of the state to 'outspend' potential challengers on public goods significantly reduces the probability of conflict by alleviating some of the economic woes that might otherwise motivate aggrieved groups to take up arms in revolt. Against this background, this study will also attempt to test the effect of external support on state-capacity (especially the state's repressive capacity), using US Greenbook data. For this, we utilize the *natural* log *of total economic aid and total military aid from the United States* (in Constant (2013) US$). It is worth noting that while the credit made available to governments can increase the stock of resources they can utilize, at the same time this can bind governments to the demands of creditors and also increase their exposure to the volatility of international business cycles Wibbels (2006) and the exchange rate shocks.

Fourth, to control for the impact of regime type on state-capacity, we include a measure of political (in)stability i.e., *the polity2 index*, which is used to assess the impact of different regimes on the state's capacity. Typically, clear-cut democracies and dictatorships are less immune to civil conflicts than anocracies. The polity variable, in combining the scores on the democracy and autocracy indices into a single-regime indicator, captures the regime authority spectrum on a 21-point scale ranging from −10 (strongly autocratic) to +10 (strongly democratic). In line with Besley and Persson, 2009; Cárdenas and Tuzemen, 2010, who show that inclusive political institutions are fundamental to building state-capacity, we include country effects and lagged dependent variables in our specifications. It is expected that higher levels of democracy increase investment in state-capacity because of the stability of the government.

### 3.3. Descriptive statistics

Table 1 presents the descriptive statistics for the variables. Across the 49 SSA countries, average tax revenue to GDP is 15.9%, indicating relatively low revenue levels from tax relative to GDP in comparison to other regions, albeit with some variance across the countries e.g., post-2000 data World Bank Data (2020) indicates circa 20% for the EU and 25% for the UK. SSA's average, however, is higher than that for the US which has averaged circa 11%.[8] On average, military expenditure as a percentage of GDP is about 2%, comparable to the global average of between 2 and 4%. The mean values for each of our three governance indicators i.e., *Rule of Law, Regulatory quality* and *Government effectiveness*, our proxies for the legal capacity dimension of state-capacity are all negative, indicating that the quality of legal capacity in SSA is substantially below the world average.[9] The mean of the conflict variable is 3.25, corroborating the higher-than-average reported number of conflicts occurring in SSA. Such an observation is consistent with data from the center for Systemic Peace, which analyses the global conflict trend from 1946 onwards, and suggests that from the mid-2000s there has been an increasing level of conflict and majority of the increase is in the Middle East and North Africa (MENA) and SSA regions.

## 4. Estimation results and discussion

### 4.1. State-capacity and conflicts

We estimated different specifications of the empirical model using different measures of state capacity as well as splitting the *conflicts* into internal and external. The GMM estimation results, reported in Tables 2 and 3, are qualitatively similar to those obtained by OLS estimation.[10] Results for the restricted and unrestricted models are reported in Table 2, and *conflict* remains negatively associated with tax revenue though only significant in Model 2. *Conflict* is positively associated with military expenditure in both versions, albeit significant in Model 1. GDP-per-capita is positive and statistically significant in all versions, except for Model 1 when tax revenue is used as the proxy for state-capacity. We infer that in both situations, the results are robust to the different estimation model specifications and state-capacity proxies. Higher levels of conflict hinder the capacity of a state to collect taxes and invariably reduces the state's capacity. When military capacity is the proxy for state-capacity, higher numbers of conflict spur expenditure on or by the military, strengthening military capacity. The results support the view that the level of economic growth is essential for building a strong state, as the GDP per capita variable is positive and statistically significant. Interestingly, the impact of NODA is negative for fiscal state-capacity, while it has a positive relationship with legal state-capacity. A plausible reason is that a country that receives more aid would be able to improve on both forms of state-capacity with the additional revenue, whereas aid may have a counter-effect by reducing incentives to enforce tax collection, most especially in countries with weak tax systems. On

[8] Given the US's high GDP, the 11% tax-to-GDP ratio amount dwarfs several of the other economies tax revenues.

[9] The world average of all indices for the base year is 0.

[10] Results for the basic OLS models are not reported in the paper, but available on request.

**Table 2**
State (Fiscal) Capacity and Conflict - GMM Estimation.

| *State-capacity Variable (Dependent variable)* | *Tax Revenue (Model 1)* | *Tax Revenue (Model 2)* | *Military Exp. (Model 1)* | *Military Exp. (Model 2)* | *Income Tax -% Revenue (Model 1)* | *Income Tax -% Revenue* (Model 2) |
|---|---|---|---|---|---|---|
| Lagged Dependent variable, (t-1) | 0.590*** | 0.669*** | 0.237*** | 0.377*** | 0.698*** | 0.886*** |
| | (0.107) | (0.100) | (0.075) | (0.069) | (0.161) | (0.178) |
| ln(number of conflicts) | −0.204 | −0.616** | 0.122*** | 0.0188 | 0.966* | 0.304 |
| | (0.266) | (0.253) | (0.041) | (0.0273) | (0.546) | (0.420) |
| ln(GDP per capita) | 0.353 | 0.566** | 0.079*** | 0.139*** | 1.142 | −0.0753 |
| | (0.221) | (0.227) | (0.028) | (0.028) | (1.084) | (1.204) |
| Population, growth rate | 1.998** | 2.185** | 0.179*** | 0.106*** | −0.480 | −2.741 |
| | (0.840) | (0.898) | (0.038) | (0.035) | (1.698) | (2.284) |
| NODA (constant US$, 2013) | −1.454*** | | −0.237*** | | −0.380 | |
| | (0.363) | | (0.046) | | (0.753) | |
| Polity2 | −0.333** | | 0.00037 | | 0.106 | |
| | (0.164) | | (0.005) | | (0.270) | |
| Constant | 29.93*** | −2.461 | 4.794*** | −0.116 | 4.796 | 9.579 |
| | (7.639) | (3.561) | (0.912) | (0.267) | (12.35) | (10.51) |
| Observations | 319 | 324 | 546 | 581 | 230 | 232 |
| Number of id | 30 | 30 | 43 | 43 | 24 | 24 |
| AR1 Test | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| AR2 Test | 0.112 | 0.188 | 0.025 | 0.003 | 0.844 | 0.839 |
| Sargan Test | 0.055 | 0.092 | 0.495 | 0.548 | 0.087 | 0.577 |

Notes: ***, ** and * indicate statistical significance at 1%, 5% and 10% respectively. Standard errors in parenthesis.

**Table 2.1**
State (Fiscal) Capacity and Conflict (2-year lagged conflict).

| *State-capacity Variable (Dependent variable)* | *Tax Revenue* | *Tax Revenue* | *Military Exp.* | *Military Exp.* | *Income Tax -% Revenue* | *Income Tax -% Revenue* |
|---|---|---|---|---|---|---|
| | *(Model 1)* | *(Model 2)* | *(Model 1)* | *(Model 2)* | *(Model 1)* | (Model 2) |
| Lagged Dependent variable, (t-1) | 0.605*** | 0.692*** | 0.186*** | 0.326*** | 0.667*** | 0.740*** |
| | (0.083) | (0.079) | (0.071) | (0.065) | (0.092) | (0.099) |
| L2.(number of conflicts) | −0.248 | −0.570** | 0.121*** | 0.00886 | 1.026** | 0.591 |
| | (0.232) | (0.232) | (0.0373) | (0.0265) | (0.468) | (0.377) |
| ln(GDP per capita) | 0.232 | 0.353* | 0.0845*** | 0.137*** | 1.338** | 0.779 |
| | (0.198) | (0.203) | (0.025) | (0.027) | (0.652) | (0.702) |
| Population, growth rate | 1.492* | 1.205 | 0.156*** | 0.0860*** | −0.712 | −2.172 |
| | (0.786) | (0.826) | (0.034) | (0.032) | (1.488) | (1.913) |
| NODA (constant US$, 2013) | −1.325*** | | −0.244*** | | −0.168 | |
| | (0.337) | | (0.039) | | (0.649) | |
| Polity2 | −0.271* | | −0.0026 | | (0.0004) | |
| | (0.144) | | (0.005) | | (0.239) | |
| Constant | 29.18*** | 1.005 | 4.794*** | −0.116 | 0.709 | 4.655 |
| | (7.168) | (3.532) | (0.912) | (0.267) | (11.15) | (7.803) |
| Observations | 320 | 325 | 510 | 545 | 230 | 232 |
| Number of id | 30 | 30 | 43 | 43 | 24 | 24 |
| AR1 Test | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| AR2 Test | 0.026 | 0.038 | 0.290 | 0.079 | 0.689 | 0.754 |
| Sargan Test | 0.215 | 0.077 | 0.085 | 0.164 | 0.286 | 0.723 |

Notes: ***, ** and * indicate statistical significance at 1%, 5% and 10% respectively. Standard errors in parenthesis.

this subject, Savun and Hays (2011) find that foreign aid is unlikely to reduce terrorism and state-building. A strand of the literature uses ratio of income tax revenue to GDP as the measure of state-capacity (see Besley and Persson (2009, 2011). We have also used that measure and the results are reported in Tables 2 and 2.1. The results on ratio of income tax to GDP are qualitatively similar to the others but are statistically insignificant.

In addition, Table 2.1 reports results obtained by including lags of conflict as explanatory variables. The rationale is that impact of conflicts on state capacity may not be instant. Our results indicate that coefficients of the lagged conflict are consistent with earlier results i.e., conflicts undermine state capacity, and the coefficients are statistically significant in most of the specifications.

Table 3 reports results from the estimations that use different measures of state capacity from the legal perspective. The results show that economic growth and NODA strengthen state capacity while conflicts and population growth weaken state capacity. Both being consistent with the earlier results.

Table 3.1 reports results of a less-restricted version of the model estimates reported in Table 3, by including lagged conflict as an explanatory variable. Again, the results are qualitatively similar to those reported in Table 3, with the coefficients of lagged conflict being significant and confirming the negative impact on state capacity.

### 4.2. State-capacity, internal and external conflicts

In this specification, we consider state-capacity as a pre-determined regressor and internal conflict as an endogenous variable. whereas Although in theory, external conflict could be considered as either endogenous or exogenous, in this study, it is considered as an exogenous variable given that most external conflicts are spill-overs from neighbouring countries and are conflicts over border lands.[11] The unrestricted model

[11] Although causality can run from state-capacity to conflict, and given the aims of this study, we have limited the scope of the study not to consider that direction.

**Table 3**
State (Legal) Capacity and Conflict (2000–2015) - GMM Estimation (Updated).

| *VARIABLE* | *Rule of Law* | *Regulatory Quality* | *Govt. Effectiveness* |
|---|---|---|---|
| Lagged Dependent variable, (t-1) | 0.665*** | 0.730*** | 0.845*** |
| | (0.0780) | (0.0632) | (0.0720) |
| ln(Number of conflicts) | −0.0121** | −0.0195*** | −0.0113* |
| | (0.00611) | (0.00661) | (0.00647) |
| ln(GDP per capita) | 0.0677*** | 0.150*** | 0.0322** |
| | (0.0153) | (0.0311) | (0.0158) |
| Population, growth rate | −0.0635*** | −0.00712 | −0.0397* |
| | (0.0157) | (0.0116) | (0.0223) |
| NODA (Constant US$, 2013) | 0.0377*** | 0.0663*** | 0.0319** |
| | (0.00789) | (0.0126) | (0.0147) |
| Polity2 | 0.00834*** | 0.00825*** | 0.00335* |
| | (0.00229) | (0.00229) | (0.00202) |
| Constant | −1.277*** | −2.474*** | −0.853** |
| | (0.248) | (0.471) | (0.377) |
| Observations | 499 | 499 | 495 |
| Number of id | 43 | 43 | 43 |
| AR1 test | 0.000 | 0.000 | 0.000 |
| AR2 test | 0.486 | 0.182 | 0.030 |
| Sargan test | 0.052 | 0.110 | 0.916 |

Notes: ***, ** and * indicate statistical significance at 1%, 5% and 10% respectively. Standard errors in parenthesis.

**Table 3.1**
State (Legal) Capacity and Conflict (2000–2015) - GMM Estimation (Lagged Conflict).

| *VARIABLE* | *Rule of Law (1-year lagged)* | *Rule of law (2 year lagged)* | *Regulatory Quality (1-year lagged)* | *Regulatory Quality (2-year lagged)* | *Govt. Effectiveness (1-year lagged)* | *Govt. Effectiveness (2-year lagged)* |
|---|---|---|---|---|---|---|
| Lagged Dependent variable, (t-1) | 0.687*** | 0.890*** | 0.759*** | 0.797*** | 0.832*** | 0.913*** |
| | (0.0922) | (0.104) | (0.0721) | (0.0907) | (0.0719) | (0.0583) |
| Lagged (Number of conflicts) | 0.00484 | 0.0279*** | 0.000870 | −0.0186* | −0.0129** | −0.00607 |
| | (0.00713) | (0.00697) | (0.00716) | (0.0111) | (0.00632) | (0.00575) |
| ln(GDP per capita) | 0.0628*** | 0.0265 | 0.144*** | 0.143*** | 0.0343** | 0.0173 |
| | (0.0177) | (0.0204) | (0.0333) | (0.0454) | (0.0153) | (0.0132) |
| Population, growth rate | −0.0527*** | −0.0131 | 0.00467 | 0.00506 | −0.0439* | −0.0249 |
| | (0.0193) | (0.0220) | (0.0130) | (0.0136) | (0.0224) | (0.0192) |
| NODA (Constant US$, 2013) | 0.0246** | −0.00335 | 0.0484*** | 0.0623*** | 0.0351** | 0.0190 |
| | (0.0106) | (0.0106) | (0.0144) | (0.0179) | (0.0144) | (0.0125) |
| Polity2 | 0.00826*** | 0.00341 | 0.00792*** | 0.00602** | 0.00352* | 0.00175 |
| | (0.00253) | (0.00277) | (0.00248) | (0.00302) | (0.00198) | (0.00177) |
| Constant | −1.045*** | −0.247 | −2.147*** | −2.337*** | −0.928** | −0.497 |
| | (0.323) | (0.346) | (0.523) | (0.690) | (0.369) | (0.315) |
| Observations | 498 | 458 | 498 | 458 | 495 | 455 |
| Number of id | 43 | 43 | 43 | 43 | 43 | 43 |
| AR1 test | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| AR2 test | 0.553 | 0.268 | 0.186 | 0.360 | 0.029 | 0.087 |
| Sargan test | 0.070 | 0.107 | 0.120 | 0.357 | 0.054 | 0.154 |

Notes: ***, ** and * indicate statistical significance at 1%, 5% and 10% respectively. Standard errors in parenthesis.

(Model 1) includes both internal and external conflict, whereas Models 2 and 3 exclude external and internal conflict respectively. Models 4, 5, and 6 follow a similar pattern as Models 1, 2, and 3 respectively. The estimated results (Table 4, Specifications 1 and 4) suggest that a 1% increase in the number of internal conflicts in a given year will reduce its tax revenue by 0.997% and increase military expenditure by 0.0496%, though the relationship with military expenditure is not statistically significant. This relationship holds, albeit not significantly when external conflicts are excluded from the model and tax revenue is the measure of state-capacity (Specification 2). However, under similar specification, with military expenditure as the state-capacity measure, the impact of internal conflict is positive and statistically significant. Across all specifications, external conflict, excluding internal conflicts, appears to be positively associated with state-capacity, whereas internal conflicts tend to be associated with decreases in all measures of legal state-capacity and the tax revenue measures, but then is found to improve military expenditure. Intuitively, both internal and external conflicts can increase government spending to build military capacity to combat or repress conflict. In the long-run, however, this could also positively affect economic growth by shortening the duration of conflict and boosting business confidence in the conflict countries, thereby encouraging investment and economic growth (Barro and Sala-i-Martin 2004; Dunn, Smith and Willenbockel 2005).

Table 4.1 reports the extended results of the estimations conducted for Table 4. The estimates include coefficients of both lagged internal and external conflicts. Although, the overall results do not change much, the impact of conflicts on state capacity varies with different specifications. However, with the exception of Model 7 i.e., the unrestricted model with Income Tax as the proxy, external conflicts play positive role to state capacity, consistent with the estimates reported in Table 4.

From the estimates reported in Table 5 (for legal capacity), we infer that an increase in external conflicts increase legal state-capacity when internal conflict is controlled for (Column 1). However, the estimates are not statistically significant. Next, when internal conflicts are excluded (Column 3), the sign of the coefficients for external conflict becomes negative and statistically significant. This suggest that both external and internal conflicts, when considered separately, reduce the legal capacity of nations. This suggests that conflicts can reduce the ability of the governments to operate efficiently. GDP-per-capita, Polity, and Foreign

**Table 4**
State-capacity (Fiscal) and Disaggregated Conflict (GMM Estimation).

| Tax Revenue | | | | Military Expenditure | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Variables | (Model 1) | (Model 2) | (Model 3) | (Model 4) | (Model 5) | (Model 6) | (Model 7) | (Model 8) | (Model 9) |
| Lag of Dependent Variable, (t-1) | 0.594*** | 0.589*** | 0.700*** | 0.865*** | 0.479*** | 0.860*** | 0.560*** | 0.711*** | 0.820** |
| | (0.091) | (0.109) | (0.073) | (0.104) | (0.070) | (0.102) | (0.135) | (0.120) | (0.349) |
| L2.(Internal Conflicts) | −0.997*** | −0.102 | | 0.0496 | 0.124*** | | −0.447 | 0.108 | |
| | (0.319) | (0.197) | | −0.149 | −0.0368 | | (0.737) | (0.404) | |
| L2.(External Conflicts) | 0.221* | | 0.0567 | 0.231*** | | 0.209*** | −0.0312 | | −0.343 |
| | (0.116) | | (0.101) | (0.089) | | (0.059) | (0.365) | | (0.544) |
| ln(GDP per capita) | −0.555 | −0.0541 | −1.245 | 0.766* | −0.826*** | 0.689* | 5.264 | 0.883 | 3.685 |
| | (0.766) | (0.765) | (0.771) | (0.441) | (0.211) | (0.373) | (3.641) | (0.967) | (5.272) |
| Population, growth | −2.062*** | −2.321*** | −2.368*** | 0.497** | −0.231** | 0.488** | 2.270 | −0.733 | 1.879 |
| | (0.762) | (0.714) | (0.771) | (0.224) | (0.099) | (0.221) | (3.974) | (0.693) | (5.408) |
| NODA (Constant US$, 2013) | 0.346 | −0.916*** | −0.297 | −0.14 | −0.399*** | −0.179** | 1.631** | 0.305 | 0.817 |
| | (0.278) | (0.286) | (0.205) | (0.137) | (0.067) | (0.071) | (0.766) | (0.470) | (1.158) |
| Polity2 | 0.08 | 0.163*** | 0.188** | −0.016 | −0.001 | −0.014 | 0.177 | 0.103 | −0.0782 |
| | (0.077) | (0.048) | (0.076) | (0.020) | (0.006) | (0.018) | (0.328) | (0.110) | (0.612) |
| Constant | 11.23 | 30.47** | 24.59** | −3.355 | 14.85*** | −2.197 | −63.67* | −4.129 | −41.75 |
| | (10.78) | (11.96) | (10.69) | (4.708) | (2.865) | (3.156) | (37.71) | (11.76) | (53.05) |
| Observations | 132 | 338 | 132 | 188 | 551 | 188 | 102 | 244 | 102 |
| Number of id | 25 | 30 | 25 | 39 | 43 | 39 | 18 | 24 | 18 |
| AR1 test | 0.007 | 0.000 | 0.006 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| AR2 test | 0.875 | 0.099 | 0.786 | 0.124 | 0.002 | 0.113 | 0.019 | 0.991 | 0.006 |
| Sargan test | 0.265 | 0.101 | 0.173 | 0.097 | 0.050 | 0.174 | 0.446 | 0.804 | 0.781 |

Notes: ***, ** and * indicate statistical significance at 1%, 5% and 10% respectively. Standard errors in parenthesis.

**Table 4.1**
State-capacity (Fiscal) and Disaggregated Conflict (GMM Estimation).

| | Tax Revenue | | | Military Expenditure | | | Income Tax | | |
|---|---|---|---|---|---|---|---|---|---|
| *Variables* | *(Model 1)* | *(Model 2)* | *(Model 3)* | *(Model 4)* | *(Model 5)* | *(Model 6)* | *(Model 7)* | *(Model 8)* | *(Model 9)* |
| Lag of Dependent Variable, (t-1) | 0.657*** | 0.673*** | 0.562*** | 0.709*** | 0.343*** | 0.769*** | 0.516*** | 0.706*** | 0.242 |
| | (0.130) | (0.0904) | (0.140) | (0.156) | (0.0700) | (0.150) | (0.137) | (0.115) | (0.329) |
| L2.(Internal Conflicts) | 0.167 | −0.118 | | −0.0859 | 0.0813** | | 0.434 | 0.268 | |
| | (0.236) | (0.198) | | (0.200) | (0.0355) | | (0.824) | (0.419) | |
| L2.(External Conflicts) | 0.528** | | 0.623** | 0.338 | | 0.214* | −0.578 | | 0.668 |
| | (0.257) | | (0.265) | (0.243) | | (0.120) | (0.670) | | (0.918) |
| ln(GDP per capita) | 1.202 | 0.425 | 0.986 | 0.214 | −0.229 | −0.522 | 7.987 | 0.233 | 9.243* |
| | (0.769) | (0.732) | (0.744) | (1.202) | (0.162) | (0.995) | (4.889) | (0.980) | (4.733) |
| Population, growth | −0.577 | −1.752*** | −1.064 | 0.0951 | −0.00898 | −0.353 | 2.568 | −0.875 | 4.770 |
| | (0.688) | (0.634) | (0.729) | (0.836) | (0.0872) | (0.697) | (5.647) | (0.687) | (5.246) |
| NODA (Constant US$, 2013) | 0.781*** | −0.559* | 0.949*** | −0.111 | −0.249*** | −0.0885 | 3.511*** | 0.252 | 3.422*** |
| | (0.303) | (0.295) | (0.307) | (0.171) | (0.0431) | (0.104) | (1.053) | (0.513) | (1.110) |
| Polity2 | 0.0642 | 0.118** | 0.112 | −0.00532 | −0.00361 | 0.0155 | 0.0428 | 0.123 | 0.471 |
| | (0.0867) | (0.0485) | (0.0915) | (0.0474) | (0.00523) | (0.0354) | (0.378) | (0.115) | (0.648) |
| Constant | −20.90** | 17.92 | −20.01* | 1.106 | 7.565*** | 6.385 | −124.4** | 1.498 | −132.0** |
| | (10.54) | (11.48) | (10.35) | (7.836) | (1.927) | (6.952) | (53.52) | (13.64) | (52.19) |
| Observations | 88 | 321 | 88 | 156 | 551 | 157 | 73 | 231 | 73 |
| AR1 test | 0.006 | 0.000 | 0.005 | 0.013 | 0.000 | 0.009 | 0.003 | 0.000 | 0.021 |
| AR2 test | 0.989 | 0.035 | 0.961 | 0.858 | 0.188 | 0.859 | 0.051 | 0.812 | 0.072 |
| Sargan test | 0.226 | 0.172 | 0.274 | 0.071 | 0.000 | 0.013 | 0.379 | 0.605 | 0.446 |

Notes: ***, ** and * indicate statistical significance at 1%, 5% and 10% respectively. Standard errors in parenthesis.

aid are found to have a positive effect, as one would expect. while an increase in population reduces legal capacity in SSA.

The system-GMM approach, in addition to capturing the long-run effects identified in previous work (e.g. Besley and Persson 2008, 2009) offers the possibility of short-run effects of internal conflict on state-capacity, irrespective of the fiscal and legal measure used. We also note that, given the view that internal armed conflicts and armed confrontations between governments and organised opposition groups are more frequent in developing countries, particularly in SSA Collier (2007), the overall economic loss due to conflicts is likely to be significant.

Specifications 3 and 6, which exclude internal conflicts, indicate a positive relation between external conflicts and both fiscal capacity variables. However, this is only statistically significant when military expenditure is the dependent variable. In both unrestricted models (Models 1 and 4), external conflicts are also found to be statistically significant. This result is corroborated by Besley and Persson (2008), who find that total tax revenue as a percentage of GDP is higher in countries with a greater average incidence of external war. These results also suggest that external conflicts increase the amount that government spends on defense, while there might not be any bearing to tax revenue. Also, an increase in external conflicts leading to more military spending is plausible and intuitive. Aziz and Asadullah (2017) point out in their study that even though the number of armed conflicts had decreased, countries continued to spend on defense due to various latent external threats, including the countering of armoury (even if only perceived) held by potential rivals. Further, many countries also face continuous threats of internal conflicts,[12] and some studies even posit that military

[12] Various political groups frequently engage in acts of terrorism and/or militancy, thereby threatening the domestic economy. In Africa, examples include *Democratic Forces for the Liberation of Rwanda* (FDLR), *Mai-Mai groups, National Congress for the Defence of the People* (CNDP) and *Patriotic Forces for the Liberation of Congo* (FPLC).

**Table 5**
State (Legal) Capacity and Lagged Disaggregated Conflict (GMM Estimation).

| *VARIABLES* | *Model 1* | *Model 2* | *Model 3* | *Model 4* | *Model 5* | *Model 6* | *Model 7* | *Model 8* | *Model 9* |
|---|---|---|---|---|---|---|---|---|---|
| Lag of Dependent Variable, (t-1) | 0.728*** | 0.900*** | 0.752*** | 1.022*** | 0.803*** | 0.919*** | 0.910*** | 1.141*** | 0.872*** |
| | (0.063) | (0.048) | (0.122) | (0.100) | (0.146) | (0.0725 | (0.065) | (0.070) | (0.053) |
| ln(Internal Conflicts) | −0.0596** | 0.0163** | | 0.0769** | 0.00118 | | −0.091*** | 0.015 | |
| | (0.025) | (0.008) | | (0.034) | (0.009) | | (0.028) | (0.018) | |
| ln(External Conflicts) | −0.009 | | −0.023 | −0.0504* | | −0.0207 | 0.0209 | | −0.030** |
| | (0.024) | | (0.015) | (0.029) | | (0.013) | (0.021) | | (0.013) |
| ln(GDP per capita) | 0.0400 | 0.0891*** | 0.0504 | 0.0687 | 0.118 | −0.0547 | 0.0193 | −0.0980 | 0.105* |
| | (0.032) | (0.029) | (0.105) | (0.149) | (0.073) | (0.097) | (0.031) | (0.072) | (0.054) |
| Population, growth rate | −0.092*** | 0.026** | −0.008 | 0.105 | −0.001 | −0.063 | −0.084** | −0.0023 | 0.029 |
| | (0.035) | (0.011) | (0.047) | (0.073) | (0.015) | (0.055) | (0.042) | (0.044) | (0.026) |
| NODA (Constant US$, 2013) | 0.105*** | 0.013 | 0.039*** | −0.046 | 0.037* | 0.029 | 0.096*** | −0.028 | 0.037*** |
| | (0.0277) | (0.0107) | (0.0150) | (0.0348) | (0.0221) | (0.0188) | (0.0359) | (0.0284) | (0.0123) |
| Polity2 | 0.010*** | 0.0044** | 0.009** | 0.0013 | 0.0058 | 0.022** | 0.0043 | 0.0047 | −0.0086 |
| | (0.0039) | (0.0021) | (0.0042) | (0.017) | (0.0045) | (0.010) | (0.0053) | (0.0091) | (0.0086) |
| Constant | −2.073*** | −1.071*** | −1.291 | −0.0276 | −1.704* | −0.145 | −1.531** | 1.292* | −1.608*** |
| | (0.521) | (0.416) | (1.012) | (1.263) | (1.005) | (0.929) | (0.659) | (0.749) | (0.570) |
| Observations | 109 | 506 | 158 | 109 | 506 | 158 | 109 | 169 | 158 |
| AR1 test | 0.004 | 0.000 | 0.001 | 0.116 | 0.000 | 0.015 | 0.022 | 0.024 | 0.081 |
| AR2 test | 0.731 | 0.128 | 0.499 | 0.086 | 0.248 | 0.055 | 0.428 | 0.997 | 0.529 |
| Sargan test | 0.098 | 0.071 | 0.624 | 0.054 | 0.090 | 0.051 | 0.132 | 0.064 | 0.190 |

Notes: ***, ** and * indicate statistical significance at 1%, 5% and 10% respectively. Standard errors in parenthesis.

**Table 5.1**
State (Legal) Capacity and 2-Year Lagged Disaggregated Conflict (GMM Estimation).

| *Dependent Variables* | *Regulatory Quality* | | | *Rule of law* | | *Government Effectiveness* | | | |
|---|---|---|---|---|---|---|---|---|---|
| *VARIABLES* | *Model 1* | *Model 2* | *Model 3* | *Model 4* | *Model 5* | *Model 6* | *Model 7* | *Model 8* | *Model 9* |
| Lag of Dependent Variable, (t-1) | 1.057*** | 1.006*** | 0.691*** | 1.027*** | 0.888*** | 0.550*** | 0.983*** | 1.120*** | 1.012*** |
| | (0.121) | (0.051) | (0.099) | (0.120) | (0.130) | (0.010) | (0.068) | (0.064) | (0.078) |
| ln(Internal Conflicts) | −0.027 | −0.002 | | 0.105*** | 0.028*** | | −0.014 | −0.013 | |
| | (0.028) | (0.008) | | (0.0287) | (0.00779) | | (0.021) | (0.018) | |
| ln(External Conflicts) | 0.082* | | −0.018 | −0.046 | | −0.044** | −0.021 | | −0.003 |
| | (0.0441) | | (0.0191) | (0.0410) | | (0.0208) | (0.0268) | | (0.0206) |
| ln(GDP per capita) | 0.182** | 0.015 | 0.286*** | 0.157 | 0.105* | 0.218*** | −0.111** | −0.011 | −0.090 |
| | −0.0837 | (0.0244) | (0.0690) | (0.131) | (0.056) | (0.077) | (0.047) | (0.055) | (0.063) |
| Population, growth rate | 0.039 | 0.009 | 0.108*** | 0.206*** | 0.022 | 0.073* | −0.103** | 0.005 | −0.064* |
| | (0.057) | (0.013) | (0.042) | (0.076) | (0.017) | (0.042) | (0.040) | (0.037) | (0.034) |
| NODA (Constant US$, 2013) | 0.028 | 0.008 | 0.0333** | −0.117*** | 0.014 | 0.014 | 0.070** | 0.003 | 0.025 |
| | (0.034) | (0.009) | (0.014) | (0.035) | (0.015) | (0.022) | (0.027) | (0.025) | (0.018) |
| Polity2 | −0.0056 | 0.005 | 0.00136 | 0.0128 | 0.00402 | 0.0363*** | 0.006 | 0.003 | −0.001 |
| | (0.010) | (0.002) | (0.004) | (0.016) | (0.004) | (0.014) | (0.007) | (0.009) | (0.009) |
| Constant | −1.661*** | −0.237 | −3.080*** | 0.452 | −1.178 | −2.346*** | −0.342 | 0.109 | 0.235 |
| | −0.636 | (0.339) | (0.665) | (1.016) | (0.736) | (0.841) | (0.513) | (0.613) | (0.733) |
| Observations | 94 | 465 | 136 | 94 | 465 | 136 | 94 | 156 | 136 |
| AR1 test | 0.012 | 0.000 | 0.000 | 0.040 | 0.000 | 0.097 | 0.070 | 0.004 | 0.021 |
| AR2 test | 0.761 | 0.430 | 0.292 | 0.049 | 0.204 | 0.053 | 0.652 | 0.928 | 0.441 |
| Sargan test | 0.135 | 0.106 | 0.507 | 0.679 | 0.105 | 0.091 | 0.097 | 0.079 | 0.092 |

Notes: ***, ** and * indicate statistical significance at 1%, 5% and 10% respectively. Standard errors in parenthesis.

strength can boost business confidence in conflict countries, which may encourage investment and economic growth (Barro and Sala-i-Martin 2004; Dunn, Smith and Willenbockel 2005). When we exclude external conflicts (Model 2, Table A3 in Supplementary Appendix), we find that tax revenue as a percentage of GDP reduces with internal conflicts, and similarly with increasing GDP per capita. It is plausible that peoples' willingness to pay taxes and/or to support and build the state's capacity reduces because of the negative personal consequences of internal conflicts which may undermine their trust in the state.[13]

Similar to previous results, Table 5.1 reports results of specifications that use different measures of state capacity from the legal perspective that included lagged of conflicts. Impact of lagged conflicts on state capacity differs somewhat from those reported in Table 5. This is however not inconceivable, as such an observation may be due to the fact that a prolonged conflict, whether internal or external could become divisive which may then lead to a negative consequence on state capacity (see Besley and Persson (2008).

### 4.3. Robustness checks

In addition to the largely consistent results obtained across the model specifications above, we also note from Tables 2-5, that in few cases, different signs are obtained depending on the measure used, hence it is instructive that we go further to analyze indices for both fiscal and legal measures of state-capacity. For this, we first generate an index for fiscal state-capacity by averaging the two fiscal measures of state-capacity. Using this composite index, we first estimate fixed and random effect models. The results obtained, using these approaches, do not show a statistically significant relationship between conflict and state-capacity,

[13] Due to not having any efficient data on local statutory tax rates, we cannot establish whether this change associated with conflict is driven by changes in tax rates or changes in the degree of compliance with tax regulations. We are, therefore, unable to rule out that the reduction of tax revenue in times of conflict-related violence reflects a reaction of local authorities, rather than the population.

**Table 6**
State-capacity and Conflict (2000–2015): Dependent Variable as the Fiscal Capacity Composite Index.

| *Variable* | *OLS* | *Random effect* | *GMM* |
|---|---|---|---|
| ln(Number of conflicts) | −0.089 | 0.018 | −0.480* |
| | (0.123) | (0.105) | (0.281) |
| Lagged Fiscal capacity index | | | 0.504*** |
| | | | (0.146) |
| ln(GDP per capita) | 1.242*** | 1.135** | 0.275 |
| | (0.219) | (0.526) | (0.606) |
| Population, growth rate | −1.192*** | 0.161 | −0.743 |
| | (0.281) | (0.31) | (0.507) |
| NODA | 0.112 | 0.577*** | 0.13 |
| | (0.184) | (0.201) | (0.147) |
| Polity2 | 0.185*** | −0.04 | 0.101*** |
| | (0.041) | (0.062) | (0.028) |
| Constant | −0.736 | −13.111** | 1.835 |
| | (4.075) | (5.133) | (7.145) |
| *No. of Observations* | 603 | 603 | 560 |
| *AR1 test* | | | 0.000 |
| *AR2 test* | | | 0.403 |
| *Sargan test* | | | 0.110 |

Notes: ***, ** and * indicate statistical significance at 1%, 5% and 10% respectively. Standard errors in parenthesis.

**Table 7**
State-capacity and Conflict (2000–2015): *Dependent Variable as the Legal Capacity Index*.

| *Variables* | *OLS* | *Fixed Effects* | *GMM* |
|---|---|---|---|
| ln(Number of conflicts) | −0.089*** | −0.024*** | −0.018*** |
| | (0.012) | (0.006) | (0.006) |
| Lagged Legal capacity index, (t-1) | | | 0.909*** |
| | | | (0.09) |
| ln(GDP per capita) | 0.186*** | 0.217*** | 0.051 |
| | (0.02) | (0.04) | (0.042) |
| Population, growth rate | −0.159*** | −0.004 | 0.007 |
| | (0.025) | (0.017) | (0.010) |
| NODA (constant US$, 2013) | 0.120*** | 0.021* | 0.024** |
| | (0.017) | (0.012) | (0.010) |
| Polity2 | 0.044*** | 0.011*** | 0.006 |
| | (0.004) | (0.004) | (0.004) |
| Constant | −3.754*** | −2.571*** | −0.866 |
| | (0.382) | (0.329) | (0.540) |
| *No. of Observations* | 594 | 594 | 508 |
| *AR1 test* | | | 0.000 |
| *AR2 test* | | | 0.079 |
| Sargan test | | | 0.206 |

Notes: ***, ** and * indicate statistical significance at 1%, 5% and 10% respectively. Standard errors in parenthesis.

**Table 8**
State-capacity and Disaggregated Conflict (Dependent Variable as the Fiscal Capacity Index) OLS Estimation GMM Estimation.

| *Variables* | *Model 1* | *Model 2* | *Model 3* | *Model 4* | *Model 5* | *Model 6* |
|---|---|---|---|---|---|---|
| Lagged Fiscal capacity index | | | | 0.724*** | 0.373** | 1.011*** |
| | | | | (0.217) | (0.166) | (0.119) |
| ln(Internal conflicts) | −0.458** | −0.142 | | −1.339** | −0.499* | |
| | (0.221) | (0.123) | | (0.563) | (0.271) | |
| ln(External Conflicts) | 0.706** | | 0.421* | 0.984*** | | 0.320** |
| | (0.273) | | (0.237) | (0.361) | | (0.128) |
| ln(GDP per capita) | 2.558*** | 1.230*** | 2.531*** | 3.517** | 0.380 | 3.270** |
| | (0.384) | (0.219) | (0.387) | (1.384) | (0.569) | (1.318) |
| Population, growth | −0.125 | −1.208*** | 0.0571 | 1.145 | −0.946* | 1.987** |
| | (0.472) | (0.281) | (0.468) | (0.840) | (0.495) | (0.777) |
| NODA (Constant US$, 2013) | 0.827** | 0.140 | 0.579* | 0.401 | 0.137 | −0.373* |
| | (0.327) | (0.184) | (0.306) | (0.278) | (0.144) | (0.214) |
| Polity2 | 0.00784 | 0.185*** | −0.0149 | −0.0339 | 0.125*** | −0.109*** |
| | (0.066) | (0.041) | (0.066) | (0.043) | (0.032) | (0.041) |
| Constant | −23.10*** | −0.971 | −19.97*** | −28.65*** | 2.339 | −20.09** |
| | (6.357) | (4.048) | (6.227) | (10.36) | (6.736) | (7.847) |
| Observations | 209 | 603 | 209 | 192 | 560 | 192 |
| R-squared | 0.322 | 0.184 | 0.306 | | | |
| Number of ID | | | | 40 | 44 | 40 |
| AR1 test | | | | 0.007 | 0.004 | 0.000 |
| AR2 test | | | | 0.731 | 0.300 | 0.944 |
| Sargan test | | | | 0.269 | 0.014 | 0.397 |

Notes: ***, ** and * indicate statistical significance at 1%, 5% and 10% respectively. Standard errors in parenthesis.

**Table 9**
State-capacity and Disaggregated Conflict (Dependent Variable as the Legal Capacity Index).

| | *OLS Estimation* | | | *GMM Estimation* | | |
|---|---|---|---|---|---|---|
| *Variables* | *Model 1* | *Model 2* | *Model 3* | *Model 4* | *Model 5* | *Model 6* |
| Lagged Legal index, (t-1) | | | | 0.860*** | 0.871*** | 0.694*** |
| | | | | (0.147) | (0.085) | (0.111) |
| ln(internal conflicts) | −0.061*** | −0.088*** | | −0.089*** | −0.015** | |
| | (0.023) | (0.012) | | (0.0214) | (0.006) | |
| ln(External conflicts) | −0.082** | | −0.120*** | 0.058** | | −0.031*** |
| | (0.027) | | (0.023) | (0.025) | | (0.011) |
| ln(GDP per capita) | 0.231*** | 0.187*** | 0.226*** | 0.372*** | 0.083** | 0.353*** |
| | (0.039) | (0.020) | (0.039) | (0.110) | (0.0400) | (0.100) |
| Population, growth rate | −0.096** | −0.159*** | −0.078* | −0.062 | 0.020 | 0.064 |
| | (0.044) | (0.025) | (0.044) | (0.073) | (0.023) | (0.080) |
| NODA (Constant US$, 2013) | 0.162*** | 0.119*** | 0.128*** | 0.046*** | 0.027** | 0.002 |
| | (0.032) | (0.017) | (0.030) | (0.017) | (0.011) | (0.011) |
| Polity2 | 0.028*** | 0.044*** | 0.023*** | 0.0049 | 0.0082** | 0.0035 |
| | (0.007) | (0.004) | (0.007) | (0.004) | (0.004) | (0.0024) |
| Constant | −5.210*** | −3.771*** | −4.758*** | −3.074*** | −1.222** | −2.791*** |
| | (0.622) | (0.383) | (0.608) | (0.843) | (0.515) | (0.787) |
| Observations | 209 | 594 | 209 | 180 | 508 | 180 |
| R-squared | 0.507 | 0.446 | 0.489 | | | |
| Number of id | | | | 40 | 44 | 40 |
| AR1 test | | | | 0.001 | 0.000 | 0.000 |
| AR2 test | | | | 0.826 | 0.082 | 0.576 |
| Sargan test | | | | 0.213 | 0.080 | 0.079 |

Notes: ***, ** and * indicate statistical significance at 1%, 5% and 10% respectively. Standard errors in parenthesis.

even though the signs are as expected. Next, conducting the same exercise this time employing the GMM estimation approach, we find a negative and significant relationship between conflicts and state-capacity. Given the empirical advantages of the GMM methods over the former, the results in the latter exercise are considered more credible and corroborate the earlier findings when either index i.e., the tax revenue as a percentage of GDP or military expenditure as a percentage of GDP, is used. Specifically, we find that a 1% increase in the number of conflicts decreases fiscal capacity by 0.48% (see Table 6).

Similarly, we generate a composite legal capacity index as the geometric mean of the three measures of legal state-capacity. The results, presented in Table 7, are similar both in the sign and significance when the individual legal indices are used supporting the earlier finding that conflicts reduce legal state-capacity in SSA.

The results using the composite indices, when conflict is disaggregated as internal and external, are reported in Tables 8 and 9. First, internal conflicts (excluding external conflicts), have a negative and statistically significant effect on the composite fiscal capacity index measure, whereas the external conflicts (excluding internal conflicts), tend to increase the state's composite fiscal capacity. Second, from Table 9, internal conflicts (excluding external conflicts) and external conflicts (excluding internal conflicts) both indicate a worsening of the composite legal capacity of the state. Though there is no established theoretical basis for the composite index analysed in this section, the results are qualitatively similar to that obtained when the state-capacity indices are treated individually.

To further check the robustness of results reported in Tables 6 – 9, we re-estimate the models in these tables and included lagged conflicts in all the specifications. These results are reported in Tables A6.1-A9.1 in the Appendix. Again, the results are qualitatively similar to those reported in Tables 6 –9, which underscore the robustness of our earlier estimates.

## 5. Conclusions

The main contribution of this study is that, for Sub-Saharan African countries, internal conflicts reduce fiscal state-capacity, whereas external conflicts increase the capacity of the state. This is consistent with the existing literature on the relationship between external wars and state-capacity and highlight the role that major international wars play in the construction of the modern state (Besley & Persson, 2009; Gibler & Miller, 2014). Nationalism seems to be important here. However, it can be argued that the concept of nation state is relatively recent in SSA with ethnic groups divided by national boundaries, but studies find that national identity is strong in the region (see for example, Milles and Rochefort (1991)). Therefore, a country facing external conflicts would find it easier to mobilise its citizens and thereby straightening the state capacity. This notwithstanding, it will be a false economy if African governments permit conflicts with the aim of increasing state-capacity. However, using fiscal capacity as the proxy of state capacity, we find that the effects depend on whether the conflicts are internal or external. Specifically, on the one hand, internal conflicts disrupt state-capacity. Intuitively, internal conflicts lead to limited ability to collect taxes and polarizes societies, thereby making it difficult for governments to build and improve state-capacity (Cárdenas et al., 2016). On the other hand, we find that external conflicts have a positive impact on military state-capacity. The mechanism is through an increase in defense expenditure, including investment in military personnel and the resources that support these increases are likely to come willingly from a public that seeks security. That notwithstanding, a country that experiences external conflicts periodically will suffer overall economic instability and possible displacement of its citizens (Ganegodage and Rambaldi, 2014). Given that the impacts of internal and external conflicts differ in relation to the different state-capacity measures we explore, we can conclude that in sub-Saharan Africa, governments' efforts to prevent internal and/or external conflicts depends on the importance the countries associate with the state-capacity proxy.

## Declaration of Competing Interest

This is to declare that the authors do not have conflict of interest.

## Appendix

Table A6.1, A7.1, A7.1A, A8.1, A9.1, A9.2

**Table A6.1**
State-capacity and Conflict (2000–2015): Dependent Variable as the Fiscal Capacity Composite Index (Lagged Conflict).

| *Variable* | *OLS* | *Random effect* | *GMM* | *GMM 2 year lagged conflict* |
|---|---|---|---|---|
| Lagged Fiscal cap. index | | | −0.0447 | 0.637*** |
| | | | (0.345) | (0.145) |
| Lagged(conflicts) | −0.107 | −0.084 | −1.145*** | −0.133 |
| | (0.125) | (0.114) | (0.427) | (0.150) |
| ln(GDP per capita) | 1.179*** | 1.133** | −0.606 | 0.619 |
| | (0.222) | (0.541) | (0.716) | (0.696) |
| Population, growth rate | −1.332*** | 0.203 | −2.412*** | −0.366 |
| | (0.287) | (0.350) | (0.932) | (0.524) |
| NODA | −0.0392 | 0.552*** | 0.342* | 0.0622 |
| | (0.184) | (0.214) | (0.184) | (0.114) |
| Polity2 | 0.227*** | −0.041 | 0.187*** | 0.0779** |
| | (0.041) | (0.069) | (0.0561) | (0.0342) |
| Constant | 2.250 | −13.841** | 13.32 | −2.073 |
| | (4.094) | (5.520) | (8.289) | (7.652) |
| *No. of Observations* | 524 | 524 | 559 | 520 |
| Number of ID | | | 44 | 44 |
| AR1 test | | | 0.604 | 0.002 |
| AR2 test | | | 0.061 | 0.013 |
| *Sargan test* | | | 0.432 | 0.050 |

Notes: ***, ** and * indicate statistical significance at 1%, 5% and 10% respectively. Standard errors in parenthesis.

**Table A7.1**
State-capacity and Lagged Conflict (2000–2015): *Dependent Variable as the Legal Capacity Index*.

| *Variables* | *OLS* | *Fixed Effects* | *GMM* |
|---|---|---|---|
| Lagged(Number of conflicts) | −0.087*** | −0.028*** | 0.003 |
| | (0.012) | (0.006) | (0.007) |
| Lagged Legal capacity index, | | | 0.989*** |
| | | | (0.104) |
| ln(GDP per capita) | 0.181*** | 0.274*** | 0.0194 |
| | (0.020) | (0.042) | (0.044) |
| Population, growth rate | −0.153*** | 0.050*** | 0.012 |
| | (0.026) | (0.019) | (0.011) |
| NODA (constant US$, 2013) | 0.120*** | 0.022* | 0.0075 |
| | (0.018) | (0.012) | (0.012) |
| Polity2 | 0.044*** | 0.010** | 0.002 |
| | (0.004) | (0.004) | (0.005) |
| Constant | −3.765*** | −3.118*** | −0.336 |
| | (0.390) | (0.338) | (0.590) |
| *No. of Observations* | 549 | 549 | 507 |
| *Number of ID* | | 44 | 44 |
| *AR1 test* | | | 0.000 |
| *AR2 test* | | | 0.072 |
| *Sargan test* | | | 0.114 |

Notes: ***, ** and * indicate statistical significance at 1%, 5% and 10% respectively. Standard errors in parenthesis.

**Table A7.1A**
State-capacity and 2-Year Lagged Conflict (2000–2015): *Dependent Variable as the Legal Capacity Index*.

| *Variables* | *OLS* | *Fixed Effects* | *GMM* |
|---|---|---|---|
| Lagged(Number of conflicts) | −0.0841*** | −0.0159*** | 0.0124* |
| | (0.012) | (0.006) | (0.0067) |
| Lagged Legal capacity index, | | | 1.005*** |
| | | | (0.111) |
| ln(GDP per capita) | 0.183*** | 0.244*** | 0.037 |
| | (0.020) | (0.042) | (0.039) |
| Population, growth rate | −0.144*** | 0.052*** | 0.024* |
| | (0.026) | (0.019) | (0.013) |
| NODA (constant US$, 2013) | 0.117*** | 0.019 | 0.005 |
| | (0.017) | (0.012) | (0.011) |
| Polity2 | 0.044*** | 0.011*** | 0.002 |
| | (0.0039) | (0.004) | (0.005) |
| Constant | −3.770*** | −2.884*** | −0.444 |
| | (0.391) | (0.337) | (0.535) |
| *No. of Observations* | 549 | 549 | 506 |
| *Number of ID* | | 44 | 44 |
| *AR1 test* | | | 0.000 |
| *AR2 test* | | | 0.085 |
| *Sargan test* | | | 0.171 |

Notes: ***, ** and * indicate statistical significance at 1%, 5% and 10% respectively. Standard errors in parenthesis.

**Table A8.1**
State-capacity and Disaggregated 2-year Lagged Conflict (Dependent Variable as the Fiscal Capacity Index).

| | OLS ESTIMATION | | | GMM ESTIMATION | | |
|---|---|---|---|---|---|---|
| *Variables* | *Model 1* | *Model 2* | *Model 3* | *Model 4* | *Model 5* | *Model 6* |
| Lagged Fiscal capacity index | | | | 0.518*** | 0.757*** | 0.283 |
| | | | | (0.149) | (0.212) | (0.178) |
| Lagged(Internal conflicts) | −0.284 | −0.169 | | −0.605 | −0.0617 | |
| | (0.222) | (0.125) | | (0.591) | (0.0782) | |
| Lagged(External Conflicts) | 0.523* | | 0.389 | 0.958 | | 0.961*** |
| | (0.284) | | (0.250) | (0.590) | | (0.331) |
| ln(GDP per capita) | 2.754*** | 1.200*** | 2.464*** | 4.544** | 0.195 | 3.297** |
| | (0.415) | (0.222) | (0.408) | (1.867) | (0.610) | (1.387) |
| Population, growth | 0.0573 | −1.327*** | −0.0088 | 1.331 | −0.353 | 0.340 |
| | (0.523) | (0.287) | (0.514) | (1.466) | (0.623) | (0.859) |
| NODA (Constant US$, 2013) | 0.227 | −0.0187 | 0.263 | −0.381 | −0.0633 | −0.0152 |
| | (0.319) | (0.184) | (0.297) | (0.610) | (0.0874) | (0.348) |
| Polity2 | 0.0140 | 0.225*** | 0.0210 | −0.0987 | 0.0654* | −0.0580 |
| | (0.067) | (0.041) | (0.067) | (0.111) | (0.038) | (0.066) |
| Constant | −15.19** | 1.885 | −14.78** | −21.70*** | 2.406 | −19.63*** |
| | (6.033) | (4.081) | (6.040) | (7.609) | (7.276) | (6.639) |
| Observations | 162 | 523 | 163 | 126 | 558 | 126 |
| R-squared | 0.341 | 0.225 | 0.305 | | | |
| Number of ID | | | | 26 | 44 | 26 |
| AR1 test | | | | 0.000 | 0.001 | 0.000 |
| AR2 test | | | | 0.500 | 0.245 | 0.294 |
| Sargan test | | | | 0.034 | 0.100 | 0.810 |

Notes: ***, ** and * indicate statistical significance at 1%, 5% and 10% respectively. Standard errors in parenthesis.

**Table A9.1**
State-capacity and Lagged Disaggregated Conflict (Dependent Variable as the Legal Capacity Index).

| | OLS ESTIMATION | | | GMM ESTIMATION | | |
|---|---|---|---|---|---|---|
| *Variables* | *Model 1* | *Model 2* | *Model 3* | *Model 4* | *Model 5* | *Model 6* |
| Lagged Legal index, (t-1) | | | | 0.771*** | 0.974*** | 0.875*** |
| | | | | (0.133) | (0.104) | (0.089) |
| ln(internal conflicts) | −0.058*** | −0.084*** | | −0.012 | 0.005 | |
| | (0.015) | (0.013) | | (0.025) | (0.007) | |
| ln(External conflicts) | −0.043*** | | −0.161*** | −0.0487* | | −0.0254** |
| | (0.013) | | (0.025) | (0.0251) | | (0.0111) |
| ln(GDP per capita) | 0.178*** | 0.186*** | 0.233*** | 0.012 | 0.037 | 0.024 |
| | (0.021) | (0.021) | (0.044) | (0.181) | (0.044) | (0.079) |
| Population, growth rate | −0.151*** | −0.160*** | −0.0355 | −0.125* | 0.034 | −0.031 |
| | (0.028) | (0.028) | (0.052) | (0.0683) | (0.0234) | (0.0523) |
| NODA (Constant US$, 2013) | 0.118*** | 0.122*** | 0.0945*** | 0.055* | 0.006 | 0.024** |
| | (0.018) | (0.019) | (0.029) | (0.0303) | (0.0116) | (0.0107) |
| Polity2 | 0.043*** | 0.045*** | 0.021*** | 0.008 | 0.003 | 0.005** |
| | (0.004) | (0.004) | (0.007) | (0.005) | (0.005) | (0.002) |
| Constant | −3.865*** | −3.833*** | −4.136*** | −0.948 | −0.497 | −0.658 |
| | (0.400) | (0.404) | (0.616) | (1.107) | (0.582) | (0.606) |
| Observations | 506 | 506 | 167 | 118 | 506 | 167 |
| R-squared | 0.459 | 0.446 | 0.526 | | | |
| Number of id | | | | 24 | 44 | 39 |
| AR1 test | | | | 0.017 | 0 | 0.001 |
| AR2 test | | | | 0.808 | 0.08 | 0.843 |
| Sargan test | | | | 0.111 | 0.106 | 0.102 |

Notes: ***, ** and * indicate statistical significance at 1%, 5% and 10% respectively. Standard errors in parenthesis.

**Table A9.2**
State-capacity and 2-Year Lagged Disaggregated Conflict (Dependent Variable as the Legal Capacity Index).

| | *OLS Estimation* | | *GMM Estimation* | | | |
|---|---|---|---|---|---|---|
| *Variables* | *Model 1* | *Model 2* | *Model 3* | *Model 4* | *Model 5* | *Model 6* |
| Lagged Legal index, (t-1) | | | | 0.831*** | 0.943*** | 0.357*** |
| | | | | (0.187) | (0.128) | (0.121) |
| ln(internal conflicts) | −0.055*** | −0.083*** | | 0.107*** | 0.017*** | |
| | (0.014) | (0.013) | | (0.038) | (0.006) | |
| ln(External conflicts) | −0.047*** | | −0.142*** | −0.112* | | −0.024* |
| | (0.012) | | (0.026) | (0.062) | | (0.014) |
| ln(GDP per capita) | 0.178*** | 0.185*** | 0.257*** | −0.273 | 0.0807** | 0.460*** |
| | (0.021) | (0.021) | (0.046) | (0.176) | (0.035) | (0.069) |
| Population, growth rate | −0.143*** | −0.153*** | −0.0275 | 0.0179 | 0.0103 | 0.0286 |
| | (0.028) | (0.028) | (0.058) | (0.067) | (0.019) | (0.032) |
| NODA (Constant US$, 2013) | 0.113*** | 0.118*** | 0.090*** | 0.0659 | 0.0140 | 0.0320*** |
| | (0.018) | (0.018) | (0.031) | (0.0469) | (0.00879) | (0.0109) |
| Polity2 | 0.042*** | 0.043*** | 0.022*** | 0.00838 | 0.00422 | 0.0105*** |
| | (0.004) | (0.004) | (0.007) | (0.008) | (0.006) | (0.003) |
| Constant | −3.788*** | −3.777*** | −4.283*** | −0.086 | −0.965** | −4.345*** |
| | (0.404) | (0.409) | (0.638) | (0.971) | (0.482) | (0.656) |
| Observations | 508 | 508 | 161 | 102 | 465 | 144 |
| R-squared | 0.454 | 0.438 | 0.521 | | | |
| Number of id | | | | 21 | 44 | 37 |
| AR1 test | | | | 0.003 | 0 | 0.001 |
| AR2 test | | | | 0.826 | 0.124 | 0.992 |
| Sargan test | | | | 0.599 | 0.073 | 0.112 |

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