

Dynamics of Armed Conflict Essay

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Abstract

Keywords—

1 Introduction

Growing literature on pre-colonial states and civil conflict.

2 Theory

2.1 Conflict reducing

2.1.1 Internal monopoly of violence

The Tilly (1990) argument, States as stationary bandits gradually remove internal competitors. Over time this reduces the number of actors within the borders of a state that are able to wield organized forms of violence, and the remaining ones' ability to do so. In the case of pre-colonial states, they are now either once again 'the' state (for example Morocco or Ashanti/Ghana), have been incorporated into a larger state as part of its apparatus, or had its institutions destroyed by some larger state (colonial or indigenous) consolidating its role as the sole stationary bandit within its borders. In other words within the former borders of a pre-colonial state there should be a reduced number of potential wielders of organized violence (*ceteris paribus*) depending on the pre-colonial states centralization/consolidation, itself a product of time, reforms/political organization/idiosyncrasies and the proximity to its capital. If the pre-colonial state was incorporated only partially into the modern state, it could still pose a threat to the central state through desertion (more on this later). If the pre-colonial state was destroyed, for example by colonizers, without new state (colonial or post-colonial) entering the resulting power vacuum other actors would do so, and become new stationary bandits rivalling the state. How does this compare to other areas not formally part of a pre-colonial state? These areas could inhabit roving bandits (Scott 2009) or other actors already having filled an equivalent vacuum of power. In other words, in this scenario pre-colonial state areas should be no worse than other areas in terms of violence. Any resulting conflict running through this mechanism should occur shortly after decolonization.

2.1.2 Better Angles

Pinker (2012) builds an argument from cognitive science affective and cognitive neuroscience, social and evolutionary psychology, that humans are capable of producing a lot of violence, but also show a lot of restraint and compassion. It all depends on the structures surrounding us, and how we are socialised. He seeks to explain the extraordinary levels of violence¹ evident in the historical and archaeological record, and its decline to modern levels. Of relevance here, Pinker (2012) identifies five ‘trends’ and five ‘historical forces’ (as well as nine aspects of our psychology, five promoting violence and four inhibiting it), that he uses explain the observed decline in violence. The two first trends are the invention of agriculture, the first cities and *governments*. Early states ‘pacified’ their population following the logic of Hobbes Leviathan. Leading to an estimated fivefold reduction in likelihood of dying a violent death. Second, the consolidation of large *kingdoms with centralized authority* and an infrastructure of commerce engaged their citizens in a ‘civilizing process’, whereby people were able to think and plan more long term. This promoted acting more rational (as *homo economicus*) and inhibit impulsiveness to engage in ever more positive sum games, leading to further reductions in violence at individual, regional and country level. Again, the state (and increasing commerce in this case) are the exogenous factor that sets the virtuous cycle in motion. In addition, as polities become fewer and larger there is a reduction in the number of actors that can engage in large scale/organized violence, leading to fewer albeit bloodier conflicts. Nevertheless, the over all negative trend of violent death continues. Partly as a result in the reduction in conflicts outweigh their increased lethality, but partly also because of the reduction of violence within polities. Citing Richardson (1960) Pinker (2012) states that when area is held constant, there are far fewer civil wars within borders than there are interstate wars crossing them. Pinker (2012) also reiterates Tilly and Hobbes logic that “As small baronies and duchies coalesced into larger kingdoms, the centralized authorities prevented them from warring with each other for the same reason that they prevented individual citizens from warring with each other (and

¹Pinker (2012) examines a number of forms of violence, both organized, unorganized, interpersonal, state based, international and intra-national.

that farmers prevent their livestock from killing each other): as far as an overlord is concerned, private quarrels within his domain are a dead loss.”

Of the ‘historical forces’, the first is the ‘*Leviathan*’; “a state and judiciary with a monopoly on the legitimate use of force, can defuse the temptation of exploitative attack, inhibit the impulse for revenge and circumvent the self-serving biases that make all parties believe they are on the side of the angels.” (Pinker 2012, xxvi). Pinker (2012) goes as far as concluding that the Leviathan “may be the most consistent violence-reducer that we have encountered in this book.” (Pinker 2012, 680). The contribution of Pinker (2012) is the synthesis of political and social science theories with psychology. Critically, he shows that the self-control and aggression reducing effects of the Leviathan can become habits so that citizens refrain from violence “Even when Leviathan’s back is turned.” (Pinker 2012, 681). In Pinker (2012)’s eyes then, states, and the evolution of states have played a big role in the historic decline of violence through shaping the environment of its citizens to be more inductive to peace. If Pinker is right in thinking that the formation and growth/expansion of states puts societies on a track toward more peaceful societies, then areas with *longer* and *deeper* histories of statehood should exhibit the effects of this, even after 150-200 years. Working through the mechanisms of the interplay between Leviathan and ‘gentle commerce’, internalising or habitualising and perhaps institutional inheritance (governance evolves so that areas that had some governance in the past have better governance today).

2.1.3 Mechanisms

Leviathan x gentile commerce. *proxied* by higher levels of development in areas of higher state presence. Predicts lower levels of violence in areas of higher state presence, working *through* development.

If past state presence is positively correlated with post-independence state presence, then both the leviathan/pacifying and civilising mechanisms predict less violence in high state presence areas.

Habitation/internalisation predicts lower levels of violence in higher state presence areas *contingent* on *continuation* of state presence, as this is quickly ‘unlearned’.

2.1.4 Credible commitments

Wig (2016) argues that ethnic groups with ties to pre-colonial statehood are more likely to have inherited institutions that allow the ethnic group to punish defections and hold their leaders accountable. In this way, ethnic groups with ties to pre-colonial statehood are better able to make credible commitments, than 'non-state' ethnic groups. Credible commitments help such groups both prevent conflict from occurring in the first place, but also make them better able to end conflicts when then they have broken out. Empirically Wig (2016) finds that groups with histories of statehood do indeed experience less dyadic conflict with their government. Depetris-Chauvin (2016) makes a similar argument and finds that regions with exposure to pre-colonial statehood are more peaceful, *ceteris paribus*.

2.1.5 Alternatives to Violence

Inherited pre-colonial institutions could also provide conflict resolution mechanisms (or institutions) that allow local conflicts to deescalate or be resolved before escalating to violence. ** Examples **

2.2 Conflict inducing

2.3 Symbols of past sovereignty

Symbols to rally around as well as a foundation for ethnic claims making following the international adoption of the policy of self determination of peoples.

2.4 Networks useful for insurgency

Pre-colonial states can leave behind formal and informal social networks that lower the cost of insurgent collective action (Wig 2016, Wood 2000). The most visible examples of this are cases in which kingdoms were ruled indirectly and remained intact into the modern era. Buganda, Lunda-Yeke, Aussa examples.

2.4.1 Central State Weakness/Collapse

When modern states ‘collapse’ or in another sense achieve ‘failed state’ status, it creates a (series of) power vacuums and room/need for other actors to fill the various roles usually filled by the state. At the regional level one can imagine a handful of actors capable of filling this vacuum (of power and service provision), one of which is pre-colonial state. Other candidates could be active rebel groups, religious organizations and ethnic groups (not tied to pre-colonial states). I would argue that pre-colonial states and active rebel groups have distinct advantages above the others. Prime mover advantage and capacity to monopolise violence on part of rebel groups, and legitimacy and organizational benefits on the part of pre-colonial states.

The dynamics of this lie in how state collapse unfolds and ‘evolves’. Although I am not sure if I will be able to test or properly examine this process I will nevertheless sketch out how I imagine it (typically) unfolds.

Democratic collapse, succession/reform crises, state predation and/or civil war are usually on the path toward state failure (Goldstone 2008). Once a state has failed, lost its legitimacy and effectiveness (Goldstone 2008), other actors will attempt to fill the void. This happens at all levels of government I imagine, but most visibly at the country (repeated coups, attempts to overthrow the government) and regional level (various forms of regional self governance). I will focus on pre-colonial states reemerging as a basis of regional self governance (RSG) and the dynamics of it. If or when a pre-colonial state, through either ethnic group, formal institutions or less formal networks, begins to engage in RSG it sets out on a path that will at some point clash with the interests of the central government. Because of its position as a pre-colonial *state* it is inevitably a challenge to the integrity of the state as a whole. This creates a potential for further conflict, along new lines, in often war torn countries.

A different aspect of pre-colonial states engaging in RSG is that they can create pockets of relatively functioning government within otherwise failed states. I believe this can at least be tentatively explored on few case-by-case basis using the data I have available. Do areas of high state presence (see data section) outside the capital, experience a drop in combat events after engaging in RSG.

The example I primarily had in mind is Puntland in Somalia, which corresponds to the pre-colonial state of the Majarteen sultanate, has engaged in RSG as an autonomous state within Somalia's federal system. In terms of both peace and prosperity the region has fared better than the rest of Somalia. Unlike Somaliland the state is not seeking full independence. However, tensions could rise if the central government were to attempt further integration.

Other potential cases in Africa (see data) include Chad, Nigeria, DRC, Sudan/Darfur and Lebanon.

Consider the illustrative case of the Russian federal state of Tatarstan. The Tatar Khanate of Kazan was conquered by Ivan the Terrible in 1552 and incorporated into the Russian empire as Kazan province by Peter the Great in 1708 (Sharifzhanov 2007). Despite Russification policies until the reign of Catherine II the Great (1762-96), when the Russian Empire collapsed following the February revolution of 1917 Tatar nationalists seized the moment and declared the creation of Idel-Ural state (Devlet 1993). The nascent state laid claim to boundaries closely resembling those of the old Khanate (Hartley 2020), but the Bolsheviks and the Red Army were able to thwart the secession after a month (Hartley 2020). While the Tatars of Kazan no doubt were able to retain their dreams of independence in large part to the ethnic and religious differences between themselves and their rulers, it is striking that the proposed borders follow those of the old Khanate and not of settlement patterns of the Tatar ethnic group who were spread over a larger territory as part of the Russification policy of the Tsars. Part of the movement's goals was also to allow Tatar émigré populations to return to their homeland (Devlet 1993). When in turn the Soviet Union began to open up and collapse in 1990-1991, the space once again opened up for the Tatars to reassert their sovereignty. Following the example of Moscow and Russia the Tatar Autonomous Soviet Socialist Republic declared itself a sovereign republic within the USSR, which it attained in a declaration adopted by the Supreme Soviet. Thus on 12 June 1991 Russia acquired two presidents, Boris Yeltsin and Mintimir Sheymiev (Sharifzhanov 2007). A referendum was set for 21 March 1992 on the question of Tatarstan's independence. Authorities in Moscow tried to prevent the referendum

through the Constitutional Court of Russia and televised appeal by Yeltsin to boycott the referendum, warning that an affirmative response “would possibly lead to bloodshed.” (Sharifzhanov 2007). Nevertheless, the referendum went ahead in the presence of international observers and boasted a turnout 82 percent of which 61.4 percent voted for independence (Devlet 1993). Following the referendum a new constitution was drafted confirming Tatarstan’s sovereignty. “The Republic of Tatarstan shall be a sovereign state, a subject of international law, associated to the Russian Federation - Russia - on the basis of the Treaty on Mutual Delegation of Powers and Subjects under Jurisdiction.” Sharifzhanov (2007). Unlike Chechen leaders the Tatar leaders did not threaten use violent resistance to secede from Russia, and through negotiations with the Yeltsin government they were able to carve out a unique position of autonomy within the Russian Federation in 1994. The different positions on the use of violence between the Chechens and Tatars I believe is due to the feasibility of armed resistance to even a greatly weakened Russian state based on geographic conditions. Chechnya is on the very edge of the Russian periphery and is a mountainous country. Tatarstan on the other hand lies relatively close to Moscow, and its steppe terrain lends an advantage to modern national armies. In the words of the Chairman of the Tatarstan parliament: “We take a completely *realistic* view of the state of affairs: full independence is too abstract and unnecessary a concept whereas Tatarstan and Russia are linked by inseparable bonds.” (Sharifzhanov 2007)(emphasis added). At the same time parallels were still drawn all the way back to the Kazan Khanate. During a speech at the first World Congress of Tatars the Tatarstan president Mintimir Sheymiev declared that:

The history of the Tatars nation is very difficult and tragic. The Tatars lost their Bulgar state, but found a respectable place for themselves within the Golden Horde. After its collapse they created the khanates of Kazan [...] the restoration of statehood was an idea ever present in Tatar history. (cited in Mustafin & Khasanov (1995), 113).

Hx: Areas of high SP, far from capital will experience more conflict following situations of state collapse.

2.4.2 Political Inequality

In countries where an ethnic group has a history of statecraft, said group is likely to be have an over sized share of power in government. This can come about through indirect colonial rule, which preferred to leave existing power structures intact, or by seizure from less politically experienced groups following independence (Paine 2019). Paine (2019) argues that such state groups are likely to either exclude other groups from power, leaving them with few options outside violence to achieve political representation. Or, in the cases where state groups are are excluded themselves, they have the means to organize and solve the necessary collective action problems and will reclaim their dominating position by force (Paine 2019). In case of fighting then, it would happen in the area of the state group only in the cases where that group was excluded from power. However, using our more fine grained data it is apparent that this is far more common than Paine (2019) supposes. *** High SP far from the capital, could proxy (at least) this mechanism. *** The other case predicts fighting in areas of excluded groups. *** I could tease this out using the geo-epr data for areas of excluded groups with low levels of SP, or simply predict high levels of conflict in areas of high population, but low SP in countries with high SP in the capital.*** In Paine (2019)'s data there are no instances of multiple state groups in one country, and so he does not account for this in his theory. However, in our more exhaustive data this occurs in several countries *** find exact number ***. Following Paine (2019)'s logic however, it would be expected that only one of the groups were handed (or grabbed) the keys to the kingdom following independence, and that other state group(s) would be relatively more likely to challenge any attempts at exclusion. As this is a continuation of Paine (2019)'s original mechanism, this would also be best proxied by high levels of state presence far from the capital.

2.4.3 Resistance to western influence

That one article that argues that where European colonizers met organized/powerful states (often Muslim), they more often either took longer to colonise them or not at all, if/when they did they were integrated more indirectly. This left these areas more isolated from western influences, particularly that of protestant missionaries.

If so, areas of higher states presence should have been exposed to less western influences such as humanism, ‘the escalator of reason’ (Pinker 2012) and democracy.

Hx1: High levels of SP, far from the capital predicts higher levels of violence.

Hx2: High levels of SP, far from the capital in countries with high levels of SP in the capital predicts higher levels of violence.

Hxm: Areas of higher levels of SP are less likely to be protestant, and/or express support for humanist ideas (afrobarometer?). ²

2.4.4 Multiple pre-colonial states

Bargaining problems and multiplies any other effect.

Hx: High levels of SP, far from the capital interacted with the number of pre-colonial states in the country predicts higher levels of violence.

2.5 Conflict regulating

2.5.1 Artificial states

Keys to the kingdom

3 The Geo-ISD

The main independent variable is a measure of what I call ‘state presence’ per PRIO grid cell. It is a measure of the aggregate presence of independent pre-colonial states in the period 1800-1914. The data comes from the Geo-ISD project where Charles Butcher (NTNU), myself and our excellent research assistant Eirin Haugseth geocoded African states from the International Systems Data (hereafter ISD) (Griffiths & Butcher 2013)

To get the locations of different pre-colonial states we used a combination of maps from the time period and maps found in historical atlases compiled by modern historians that were covered by the ISD. The historically contemporary

²‘Humanist ideas’ as opposed to support for democracy because everyone supports democracy if you ask them point blank, but everyone’s definition of democracy does not conform to a VDEM-sanctioned definition.

maps were collected from the David Rumsey project at davidrumsey.com. We then georeferenced the maps and traced polygons for the states included in both the map and the ISD. Similarly the historical atlases were scanned, georeferenced and relevant state entities were traced.

In the end we were left with over 3400 polygons covering the period 1800 to 1914 for continental Africa and Madagascar. For some pre-colonial states in the ISD there were no maps for any years, some are covered only for some of the years they are in the ISD, but a substantial number of them are covered by multiple maps for many years. When maps disagreed on where the various borders were in a given year, we take it as an indication of the ambiguity of where a given state had *de facto* or *de jure* control in that year. In the areas where all the maps agree we could be quite sure that the given state entity had real presence. While in areas where only one map indicated that the state was presence, this could either be wrong, an indication of *de jure* as opposed to *de facto* presence or some other form of limited presence. The coding process of looking at hundred of maps strengthened this initial intuition, and the resulting figures of state presence drawn from the complete data lends it further credence. On aggregate most maps should agree on the core areas of a state while the further away from the core fewer maps would consider the area part of the state. We believe this approximates the real ambiguities surrounding where states governed and where they did not, resulting in a measure of state presence in a given area. Figure 1 is an overlay of all the maps of Libya, Tunisia and Egypt. It demonstrates how the authority of these states faded into the desert, partially overlap at the borders, and in the Libyan case, its tenuous hold on the Fezzan region.

The data from this project can be aggregated and used in many ways and to produce many variables. All of these indicators are aggregated over all years for individual PRIO-GRID cells in Africa. The primary indicator used in this essay is a measure of the presence of one state over time. It is measured by the number of maps that indicate that a state was present there, counting only those of the state most often present in that cell. Figure 3 shows the log transformation (to lessen the visual impact of large variations in the number of maps for different states) of this measure for all African PRIO grid cells.

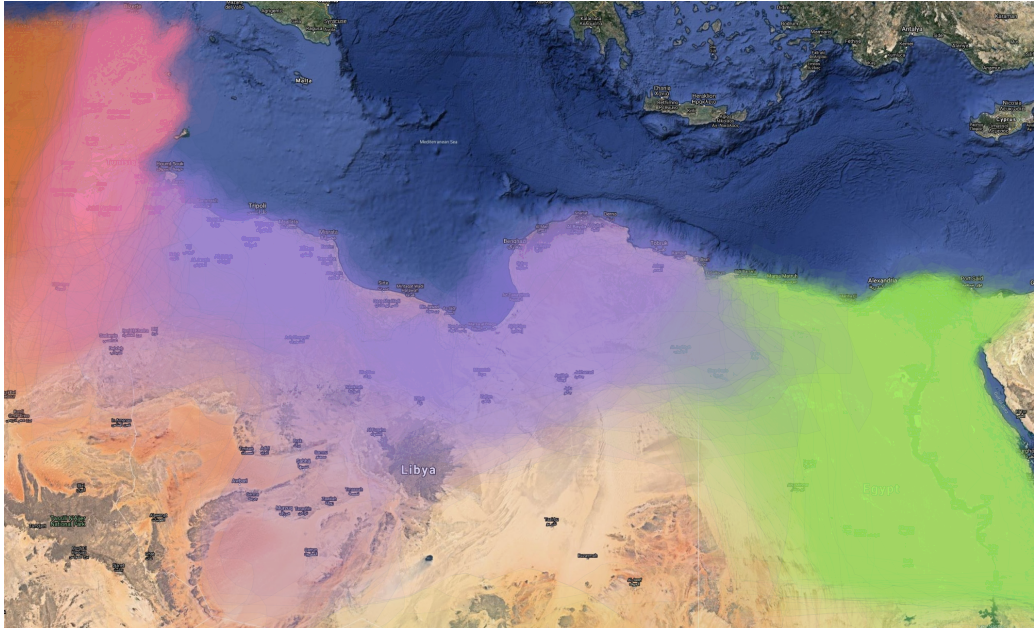


Figure 1: Overlay of all maps of Tunisia, Libya and Egypt

4 Research design

4.1 Dependent variable

Unit of analysis is PRIO grid cell

Fatalities - square root transformed and logged

State based conflict events - square root transformed and logged

4.2 Independent variable

Sum of state presence - square root transformed and logged

Interaction between state presence and distance to capital

4.3 Controls

Distance to capital only in interaction models.

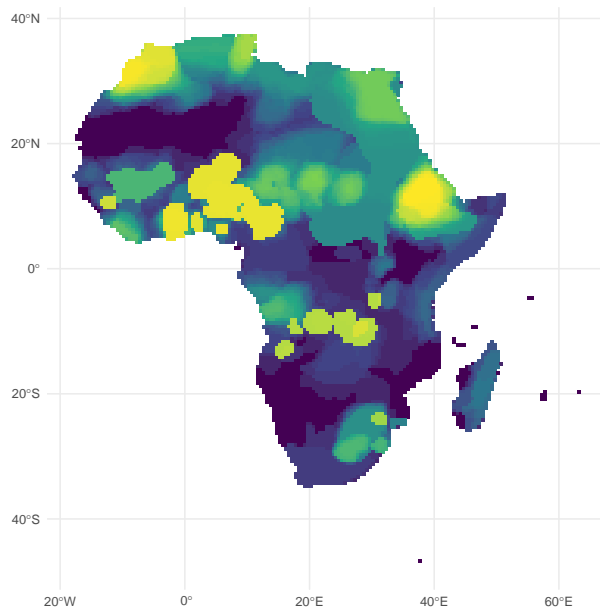


Figure 2: State presence, sqrt transformed

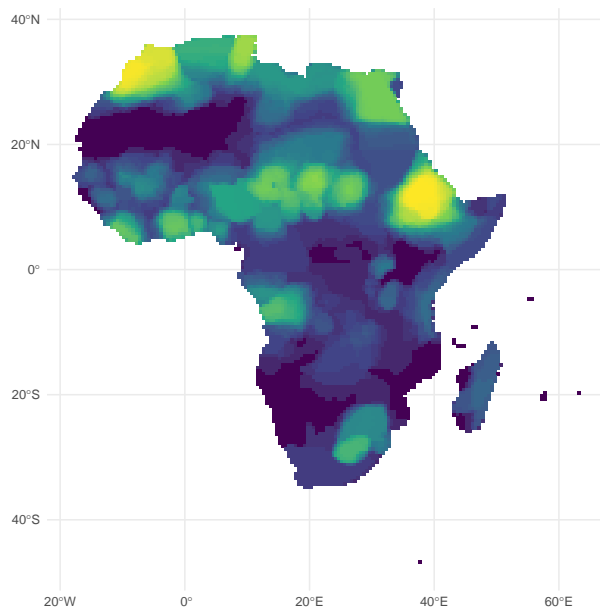


Figure 3: State presence, sqrt transformed

Mountains and water. Mountains help in early state formation by providing protection and limiting the exit options of sedentary farmers. Water is essential for state formation. States typically formed either as coastal cities, close to navigable rivers or by the shores of great lakes. People still tend to live next to a source of water, thus this acts as a proxy for population density, and fighting usually happens where there are people. Water could also be related to the conflict measures more directly by being a non divisible resource to fight for control over.

Distance to coast

Population density and barren

Temperature, precipitation and forest (remove).

4.4 Alternative measures

4.5 Modelling

Negative binomial models

Zero inflated negative binomial is probably a good idea. Zeros could be true zeros - there were no fatalities or state based conflict events in the grid cell during the period, or zeros could be measurement error, most likely resulting from lack of reporting.

5 Results

6 Conclusion

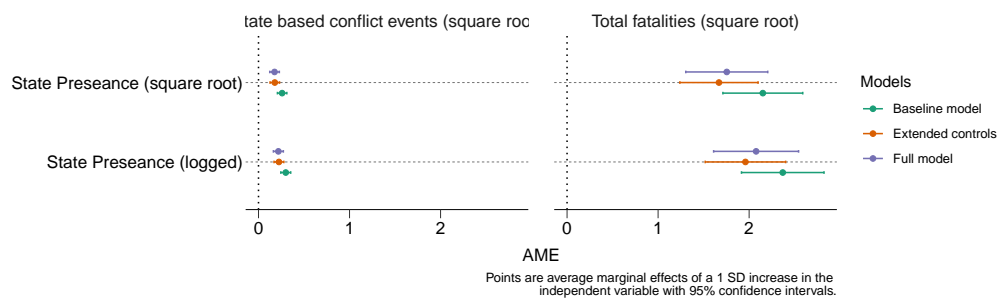


Figure 4

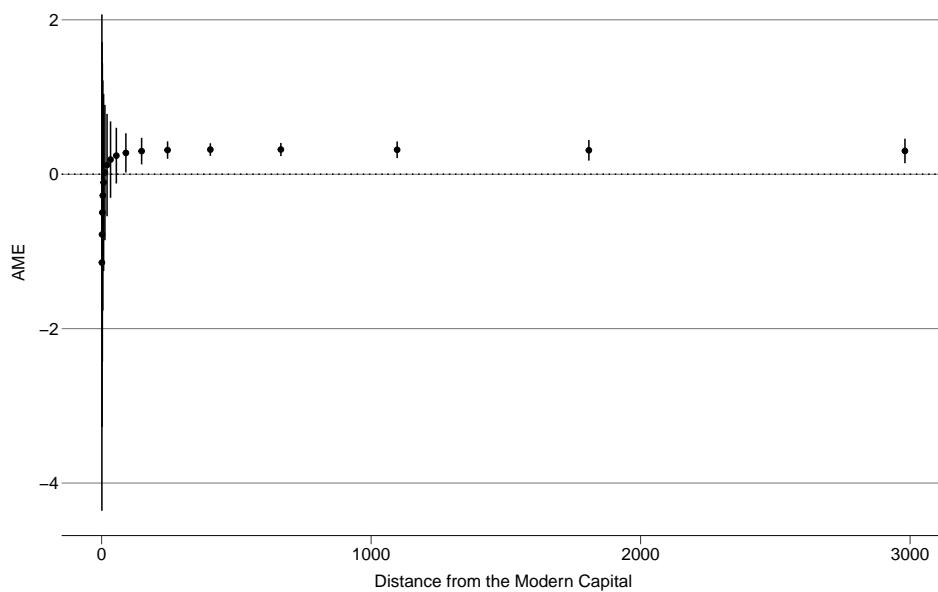


Figure 5

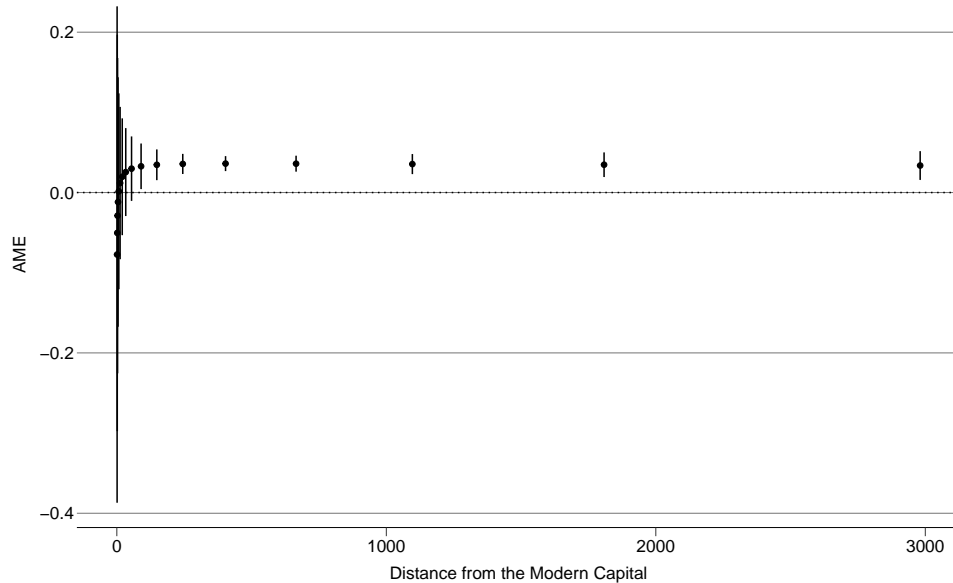


Figure 6

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Appendix

| | Baseline | Extended Controls | Full Model | Baseline | Extended Controls | Full Model |
|----------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| (Intercept) | 0.51*** (0.08) | -0.20* (0.09) | -2.93*** (0.26) | 0.33*** (0.09) | -0.37*** (0.09) | -3.19*** (0.26) |
| sqrtSpAny | 0.11*** (0.01) | 0.08*** (0.01) | 0.08*** (0.01) | | | |
| mountains_mean | 1.08*** (0.13) | 0.61*** (0.12) | 1.01*** (0.13) | 1.13*** (0.13) | 0.65*** (0.12) | 1.08*** (0.13) |
| water_gc | 0.01*** (0.00) | 0.01*** (0.00) | 0.01*** (0.00) | 0.01*** (0.00) | 0.01*** (0.00) | 0.01*** (0.00) |
| barren_gc | -0.02*** (0.00) | -0.01*** (0.00) | -0.01*** (0.00) | -0.02*** (0.00) | -0.01*** (0.00) | -0.01*** (0.00) |
| distcoast | 0.00*** (0.00) | 0.00*** (0.00) | 0.00*** (0.00) | 0.00*** (0.00) | 0.00*** (0.00) | 0.00*** (0.00) |
| logPopd | | 0.77*** (0.05) | 0.82*** (0.05) | | 0.77*** (0.05) | 0.83*** (0.05) |
| temp_sd | | | 0.85*** (0.10) | | | 0.81*** (0.10) |
| temp | | | 0.06*** (0.01) | | | 0.06*** (0.01) |
| prec_sd | | | 0.01 (0.00) | | | 0.01* (0.00) |
| prec_gpcc | | | 0.00 (0.00) | | | 0.00 (0.00) |
| forest_gc | | | 0.00 (0.00) | | | 0.00 (0.00) |
| logSpAny | | | | 0.25*** (0.02) | 0.20*** (0.02) | 0.20*** (0.02) |
| AIC | 29558.38 | 29281.91 | 29053.92 | 29535.56 | 29257.22 | 29028.18 |
| BIC | 29609.19 | 29339.96 | 29148.23 | 29586.37 | 29315.28 | 29122.49 |
| Log Likelihood | -14772.19 | -14632.95 | -14513.96 | -14760.78 | -14620.61 | -14501.09 |
| Deviance | 5707.55 | 5755.27 | 5776.84 | 5711.22 | 5757.57 | 5777.44 |
| Num. obs. | 10492 | 10482 | 10453 | 10492 | 10482 | 10453 |

*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$; $p < 0.1$

Table 1: Deaths (square root)

| | Baseline | Extetended Controls | Full Model | Baseline | Extetended Controls | Full Model |
|----------------|--------------------|---------------------|--------------------|--------------------|---------------------|--------------------|
| (Intercept) | -1.07*** (0.07) | -1.65*** (0.08) | -4.43*** (0.24) | -1.25*** (0.08) | -1.79*** (0.09) | -4.58*** (0.24) |
| sqrtSpAny | 0.10*** (0.01) | 0.06*** (0.01) | 0.06*** (0.01) | | | |
| mountains_mean | 0.57*** (0.11) | 0.12 (0.11) | 0.63*** (0.12) | 0.59*** (0.11) | 0.14 (0.11) | 0.65*** (0.12) |
| water_gc | 0.01*** (0.00) | 0.00 (0.00) | 0.01** (0.00) | 0.01*** (0.00) | 0.00 (0.00) | 0.01** (0.00) |
| barren_gc | -0.02*** (0.00) | -0.01*** (0.00) | -0.01*** (0.00) | -0.02*** (0.00) | -0.01*** (0.00) | -0.01*** (0.00) |
| distcoast | 0.00 (0.00) | 0.00 (0.00) | 0.00* (0.00) | 0.00 (0.00) | 0.00 (0.00) | 0.00* (0.00) |
| logPopd | | 0.68*** (0.04) | 0.79*** (0.04) | | 0.67*** (0.04) | 0.78*** (0.04) |
| temp_sd | | | 0.93*** (0.08) | | | 0.92*** (0.08) |
| temp | | | 0.06*** (0.01) | | | 0.06*** (0.01) |
| prec_sd | | | 0.01** (0.00) | | | 0.01** (0.00) |
| prec_gpcc | | | -0.00 (0.00) | | | -0.00 (0.00) |
| forest_gc | | | -0.00 (0.00) | | | 0.00 (0.00) |
| logSpAny | | | | 0.23*** (0.02) | 0.16*** (0.02) | 0.16*** (0.02) |
| AIC | 15439.95 | 15148.15 | 14813.04 | 15407.83 | 15123.10 | 14790.74 |
| BIC | 15490.76 | 15206.21 | 14907.35 | 15458.64 | 15181.16 | 14885.05 |
| Log Likelihood | -7712.98 | -7566.08 | -7393.52 | -7696.92 | -7553.55 | -7382.37 |
| Deviance | 4776.78 | 4835.93 | 4907.27 | 4793.06 | 4843.87 | 4911.59 |
| Num. obs. | 10492 | 10482 | 10453 | 10492 | 10482 | 10453 |

*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$; $p < 0.1$

Table 2: State based conflict events (square root)

| | Baseline | Extetended Controls | Full Model |
|----------------------|--------------------|---------------------|--------------------|
| (Intercept) | 2.84*** (0.45) | 1.93*** (0.45) | -0.82 (0.52) |
| sqrtSpAny | -0.06 (0.09) | -0.36*** (0.09) | -0.30*** (0.08) |
| logCapdist | -0.39*** (0.07) | -0.35*** (0.07) | -0.33*** (0.07) |
| mountains_mean | 1.04*** (0.13) | 0.65*** (0.12) | 1.03*** (0.13) |
| water_gc | 0.01*** (0.00) | 0.01*** (0.00) | 0.01*** (0.00) |
| barren_gc | -0.02*** (0.00) | -0.01*** (0.00) | -0.01*** (0.00) |
| distcoast | 0.00*** (0.00) | 0.00*** (0.00) | 0.00*** (0.00) |
| sqrtSpAny:logCapdist | 0.03 (0.01) | 0.07*** (0.01) | 0.06*** (0.01) |
| logPopd | | 0.79*** (0.05) | 0.82*** (0.05) |
| temp_sd | | | 0.86*** (0.10) |
| temp | | | 0.05*** (0.01) |
| prec_sd | | | 0.00 (0.00) |
| prec_gpcc | | | 0.00* (0.00) |
| forest_gc | | | 0.00 (0.00) |
| AIC | 29512.34 | 29259.38 | 29035.25 |
| BIC | 29577.67 | 29331.95 | 29144.07 |
| Log Likelihood | -14747.17 | -14619.69 | -14502.63 |
| Deviance | 5713.62 | 5758.34 | 5778.58 |
| Num. obs. | 10492 | 10482 | 10453 |

*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$; $p < 0.1$

Table 3: Deaths * Distance to capital

| | Baseline | Extetended Controls | Full Model |
|----------------------|--------------------|---------------------|--------------------|
| (Intercept) | 0.91* (0.40) | -0.50 (0.39) | -3.62*** (0.47) |
| sqrtSpAny | -0.04 (0.07) | -0.24** (0.07) | -0.09 (0.07) |
| logCapdist | -0.33*** (0.06) | -0.18** (0.06) | -0.12* (0.06) |
| mountains_mean | 0.58*** (0.11) | 0.19 (0.11) | 0.65*** (0.12) |
| water_gc | 0.01** (0.00) | 0.00 (0.00) | 0.01** (0.00) |
| barren_gc | -0.01*** (0.00) | -0.01*** (0.00) | -0.01*** (0.00) |
| distcoast | 0.00** (0.00) | 0.00 (0.00) | 0.00* (0.00) |
| sqrtSpAny:logCapdist | 0.02 (0.01) | 0.05*** (0.01) | 0.02* (0.01) |
| logPopd | | 0.70*** (0.04) | 0.79*** (0.04) |
| temp_sd | | | 0.93*** (0.08) |
| temp | | | 0.06*** (0.01) |
| prec_sd | | | 0.01** (0.00) |
| prec_gpcc | | | -0.00 (0.00) |
| forest_gc | | | 0.00 (0.00) |
| AIC | 15400.86 | 15138.19 | 14812.98 |
| BIC | 15466.18 | 15210.77 | 14921.80 |
| Log Likelihood | -7691.43 | -7559.10 | -7391.49 |
| Deviance | 4787.30 | 4853.39 | 4917.84 |
| Num. obs. | 10492 | 10482 | 10453 |

*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$; $p < 0.1$

Table 4: State based conflict events * distance to capital