

Laying the Foundations of the State: Identifying the Constituent Factors of State Building

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Abstract

This paper seeks to synthesize theories from the comparative politics and international relations literature about what leads to state building and the growth of state capacity. It draws upon these theories to develop a range of empirical propositions and test them using the State Capacity Dataset (Hanson and Sigman 2013). The objective is for these findings to help determine the relative importance of different explanatory factors and facilitate the process of bringing them together into a holistic framework.

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When it comes to theorizing about state formation and the construction of state capacity, we have an embarrassment of riches. Ever since states were “brought back in,” scholars have produced a vibrant stream of research that explores the origins and development of states from a variety of perspectives. If there is a shortcoming in this body of work, it is that we need to do more to synthesize it and construct a more complete narrative.

This paper is the beginning of an attempt to produce such a synthesis. Rather than add to the collection of theories, it draws upon them and develops a set of empirical propositions with the goal of determining just how these various ideas best fit together. Leveraging a new data set that measures the level of state capacity annually from 1960 to 2010 for most countries in the world, this paper is able to bring new evidence to bear that can help determine the relative importance of different explanatory factors.

1 Theories of State Formation

Across the comparative politics and international relations literature, a range of theories seeks to explain why states form and become strong in some cases, while remaining weak and fragile in other cases. Typically, this scholarship is historical in nature and focuses for the most part on the development of states in the European context. More recent work, such as Herbst (2014), broadens the scope of these theories by adapting them to other parts of the world, changing critical assumptions to reflect historical conditions in these contexts more accurately. Due to the fertility of this scholarship, we have no shortage of theories. More likely, we can make greater progress in understanding what factors lead to the formation of strong states by putting these theories to the test empirically.

In this section, I assess major theories with an eye toward explaining changes in the levels of state capacity across countries in the 1960-2010 time period. By empirically testing predictions derived from these predications using the *State Capacity Dataset* from Hanson and Sigman (2013), I hope to produce findings that apply not only to

this comparatively data-rich period of time but also to earlier historical periods as well.

The early literature on state formation describes a process that transpires over centuries. Human communities develop impersonal, permanent political institutions that gain authority. Over time, these institutions acquire moral authority and gain the allegiance of individuals over localities, kinship-based units, and religious organizations (Strayer 1970). State formation involves the development of systems for the administration of justice, the collection of revenues, and the provision of security. Successful states not only become the unquestioned authority in a particular territory but also acquire legitimacy in the eyes of those who dwell within those boundaries. Furthermore, states must secure a steady stream of revenues extracted from the territory under their control.

This process can be path dependent. The legacy of a state's development serves to set the context for subsequent possibilities. For example, the success of previous efforts to build state capacity and enhance the legitimacy of the state may create conditions favorable for additional expansions in response to emerging needs, while the failures of the past may leave in place a stultifying political-institutional constellation in which states do not adapt to changing circumstances. In this scenario, states remain weak, fail, or are defeated by stronger neighbors.

In broad terms, there are three types of factors that affect the process of state formation and growth of state capacity. First, there can be incentives for capacity-building that arise from internal factors related to governance of the territory. Rulers may build greater state capacities in order to solidify their rule, increase their revenues, facilitate internal commerce, and settle disputes. Second, external factors affect the extent to which rulers must concern themselves with threats from outside the territory controlled by the state, or with the opportunity for gains by expanding this territory. Third, there are a range of geographical and demographic conditions that affect the ease with which the state can establish institutional roots in an area, project power throughout the territory, and regulate society.

Scholars in comparative politics tend to focus on the first of these three categories, with some attention to the third. States emerge as the legal-institutional expression of dominant actors or social forces, and they evolve in their capabilities over time as a function of the policies they are tasked to perform by state actors. Yet, as these institutions become entrenched and gain legitimacy within the populace, they also begin to take on a life of their own and serve to help define the incentives facing these actors and the options available to them. The endogenous nature of the relationship between institutions and political actors is described well in North (1990).

International relations scholars, naturally, are more focused on the state as an actor in the international system, particularly with respect to the role of conflict. State formation and the construction of state capacities are seen as responses to external threats and changes in military technology (Spruyt 2011). The bellicist theory of state formation sees state-building as an effort to build the coercive and extractive capabilities of the state to defend against external threats (Tilly 1990). War serves as a source of selective pressure to weed out weaker states.

Most likely, the reality is that all of these factors matter, and we should seek to integrate them in a coherent fashion. State capacities evolve as state actors respond to incentives to implement particular policies or defend against threats, and citizens accord legitimacy to the state to the degree that they accept this authority. Whether the motivation for these actions arises from internal or external conditions is not the fundamental issue. They are neither mutually exclusive nor competing explanations. Instead, we can treat all of these factors as creating a range of possible stimuli for state formation and capacity-building that exist to varying degrees in different times and places. Empirically, the question becomes one of whether particular factors have the expected effects when they are present.

1.1 The Provision of Security

With this argument in mind, I now examine several prominent explanations to identify the mechanisms through which they are expected to affect state formation and the

growth of state capacity. The first among these is the bellicist perspective. As Hintze (1975b) argues, in the beginning all state organization was military organization. Citizens banded together either in defense of territory or for purposes of seizing territory held by others. As the nature of threats grew and evolved due to changes in military technology and organization, the capacity of the state to wage war had to expand in response, leading to the emergence of territorial nation-states with large standing armies.

Wars can affect state development in several ways. They create pressure to develop the infrastructure to defend territory. When borders are contested, states must do more to extend their coercive reach out to these frontier areas, creating stronger linkages between the centers of power and outlying areas. Wars also force states to develop extractive capacities to mobilize manpower and money, requiring the development of bureaucratic organization (Tilly 1990). Additionally, wars serve to create nationalist sentiments that can build a sense of citizenship and cohesion (Hintze 1975a; Danreuther 2007).

Tilly (1990) argues that state development in response to war has coercion-intensive and capital-intensive dimensions. The former requires the development of an extractive structure to squeeze revenues and manpower out of the population; the latter involves access to revenues through bargains with capitalists that can provide the resources to fund military operations. The strongest states have capacity in both dimensions. An important component of his theory is that competition between states creates the need to develop these capacities or face defeat. Rivalries thus foster stronger states.

The dominant perspective from international relations literature, however, is that state development in the modern era is fundamentally different from earlier times due to changes in the nature of the international system. First, territorially-based sovereign states superseded other forms of organizing the international system and, in particular, the organization of extraterritorial violence (Spruyt 1994; Thomson 1994). Second, borders between states are for the most part established, recognized internationally,

and often defended by dominant powers in the international system when disputes arise. In earlier times, frontier areas stood between different centers of power, leaving the precise boundaries subject to contestation. States in the post-WW II era less frequently face the same security imperatives that led to the extension of state infrastructure out to the territorial boundaries.

1.2 The Creation of a Political Community

Other theories focus more on internal factors that relate to the construction of a political community that confers legitimacy to the state. Holsti, for example, emphasizes the importance of the “ideas and myths that sustain the legitimacy of political orders and the communities on which those orders are based” (1996, 45). In Holsti’s framework, legitimacy has both horizontal and vertical components. The former refers to agreement over the definition of the political community; the latter pertains to the principles on which the right-to-rule is based. This framework serves as a useful tool.

Baseline conditions for the construction of horizontal legitimacy differ. The greater the heterogeneity of the population, the less likely that there exists a shared sense of community. Loyalties to locality, kinship-based unit, or religion may dominate. Thus, where ethnic, linguistic, or religious diversity is greater, state builders face greater challenges in creating the idea that all people in the territory should be ruled by a common political order. As Weber’s (1976) study of France makes clear, these challenges are not insurmountable, but they do require significant effort and time. Not until the 20th century did the idea of France as a nation take full hold. Prior to that time, inhabitants “knew themselves to be French subjects, but to many this status was no more than an abstraction” (p. 486). What changed was the growth of transportation linkages, broader markets, greater uniformity of schooling, and military service that created a shared understanding of what it meant to be French.

Challenges of horizontal legitimacy may be particularly acute when groups with a shared identity are split by territorial borders. Colonialism left in place a system of

states that were created through processes that reflected the interests of the colonizing powers, producing borders that often bore little correspondence to population patterns. Generally, these borders were accepted by rulers in the post-colonial era (Herbst 2014), but this fact did not make the task of creating political community in the newly-independent states easier. As Holsti argues, a political community requires not just a notion of citizenship but a sentiment that binds people together.

Vertical legitimacy requires a widespread acceptance of the regime's right to rule. In earlier times, this authority may be based upon the divine rights of kings or the mandate of heaven. The Enlightenment era brought a fundamental shift in values that made the "consent of the governed" the primary source of legitimacy, led to the creation of liberal democracies, and influenced absolutist rulers to reframe themselves as servants of the people. Although history provides examples of autocrats that brought considerable improvements to the lives of common citizens, thus sustaining the legitimacy of their regimes, democratic regimes are logically much more conducive to the creation of vertical legitimacy.

Ertman (1997) argues for the importance of strong, representative assemblies in affecting the character of state development. These assemblies produced constitutional, rather than absolutist, states with greater internal cooperation and stronger connections between central and local governments. When participatory politics at the local level are combined with a strong political center, conditions are optimal for balanced political, social and economic development. This combination prevents the rise of patrimonialism in politics and fosters the rise of the modern bureaucratic state.

1.3 The Revenue Imperative

Since revenue collection is so fundamental to the operation of the state, the relationship between the nature of revenue collection and the state's development is naturally very strong. As Levi succinctly puts it, "[t]he history of state revenue production is the history of the evolution of the state" (1988, 1). The form and extent of taxation in

Levi's formulation is a function of the bargaining power of the ruler relative to subjects and the costs of revenue collection. Actions of rulers to maximize revenues subject to these constraints leads to the evolution of state structures. Capable, effective states have reliable sources of revenue.

Revenue collection varies in difficulty across contexts according to many factors: the nature of production, the degree of commercial activity, the extent of compliance on the part of constituents, the political power of those with taxable wealth, and the level of natural resources. Rulers can attempt to extract revenues solely through coercive means, but evidence suggests that institutionalized bargaining and representative institutions are more conducive to robust revenue collection in the long run. The latter approach builds greater cooperation and compliance with tax policies.

In Tilly's (1990) framework, the presence of readily taxable resources is a critical factor that permits a capital-intensive extractive strategy driven by agreements with holders of capital. Robust long-distance trade, both internally and with external trading partners, is an engine of wealth creation provided an important source of revenues for the state, but excessive demands by the state could drive these merchants to different locations. Rulers instead found it worthwhile to negotiate with capital-holding classes in order to raise revenues for war (p. 64). In capital-poor areas, by contrast, strategies of coercive extraction prevailed.

This logic is consistent with the fiscal sociology perspective, which argues that variations in the source of revenue are strongly connected to the forms that states take. A central claim is that there are "strong synergies between (a) the degree of dependence of rulers on tax revenue, (b) the emergence of representative government, and (c) the strength and resilience of the state in the context of interstate competition" (Moore 2004, 299). Not only can these states borrow more readily when needs arise, but there is a governance dividend that emerges from the ongoing negotiations between states and citizens. Taxation leads to more accountable government and thus more effective states.

The contrast is with rentier states that obtain revenues through other means. Revenues from oil, minerals, or international development assistance help satisfy the state's revenue imperative, but they do not require the kinds state-society interactions that improve administrative capacities of the state. Empirically, then, we should observe that states with high dependence on natural resource extraction and foreign aid will have slower growth of state capacity than states that depend on taxation.

1.4 Summary

This section examines the connections between the core functions of states and the development of state capacity over time. It makes the argument that a holistic approach is necessary. To be effective and gain legitimacy, states must be able to provide security, create a strong political community, and satisfy the revenue imperative. Since these goals are linked together in many ways, a focus on either internal or external factors is incomplete. Rulers face incentives and constraints that lead them to implement policies that affect the development of state capacity, positively or negatively. The next step is to compile a set of empirical propositions that arise from this analysis to help sort through which factors matter most.

2 Specifying Testable Propositions

Given the scarcity of quantitative measures of state capacity, especially going back in time, most empirical work on state formation and capacity-building is qualitative in nature. I draw upon this fertile scholarship to specify propositions that can be tested with large-sample methods for the 1960-2010 period using the *State Capacity Dataset* (Hanson and Sigman 2013). The central goal of this analysis is to identify the factors that best explain changes in the levels of state capacity over time across countries.

A number of basic geographic and demographic characteristics are expected to facilitate or hinder the development of greater state capacity. These factors affect the

ease with which states can penetrate their territories and collect revenues from populations. All else being equal, states should have more difficulty consolidating their hold over territories that are larger, that have fewer transportation linkages, and that have rougher terrain. Areas that are more distant from the center of political power are more likely to be disconnected from the political community and sit outside the easy reach of the state, particularly when transportation infrastructure is poor. Low population density, furthermore, raises the marginal costs of revenue collection.

Herbst (2014) explains the rationale for these propositions in his analysis of sub-Saharan Africa, where neither pre-colonial nor colonial states were constructed to control large territories. With low population density, land was relatively plentiful, so there was little incentive to build an infrastructure to defend particular borders. Although colonial powers created territorial states by drawing borders on maps, they often did very little to build an administrative network that extended beyond the capital cities, which were usually located on the coast. Transportation infrastructure, such as railways, were built for the purpose of resource extraction rather than to facilitate the creation of a coherent polity. Thus, newly-independent states were left with bureaucratic apparatuses that had little ability to penetrate throughout the territory. Where transportation linkages are more robust and population density is greater, however, states can more easily reach citizens.

Hypothesis 1 *Land area and rough terrain hinder the growth of state capacity.*

Hypothesis 2 *Greater population density, road density, and access to waterways support the growth of state capacity.*

The construction of a political community characterized by vertical and horizontal legitimacy is hindered by factors that impede the formation of loyalty toward the state relative to local, religious, or kinship ties. These factors are likely to include high levels of social diversity (such as ethnic or linguistic diversity), status as a former colony, and the level of democracy. In the empirical literature, high levels of ethnic fractionalization are statistically correlated with poorer performance on a range of economic,

political and human development indicators (Easterly and Levine 1997; Montalvo and Reynal-Querol 2005; Kimenyi 2006). Political competition along ethnic lines hinders the formation of attachments to the broader nation-state.

Hypothesis 3 *Greater social diversity hinders the growth of state capacity.*

The challenges of creating a political community associated with the state are greater in former colonies, especially those whose borders do not align with pre-colonial institutions or the distribution of ethnic populations. On average, accordingly, we should expect that the growth of state capacity is slower in former colonies.

Hypothesis 4 *Post-colonial status is associated with slower growth of state capacity.*

Democratic governance in which citizens enjoy high levels of political rights, on the other hand, should help build the legitimacy of the state. As Moore (2004) contends, one effect of democracy is a governance dividend. Democratic states should build state capacity more quickly than non-democratic ones. A study by Wang and Xu (2015) finds that democratic political contestation is robustly associated with the growth of state capacity over time.

Hypothesis 5 *In polities where levels of democracy and political rights are higher, state capacity should grow more quickly.*

Wars and rivalries threaten the security of the state. Rivalries, especially those that continue over a long period of time, should induce states to build coercive capacity and the administrative infrastructure to support national defense. The ongoing nature of the threats creates competitive pressure for continued accretion of capabilities, and these pressures should be stronger when states face multiple rivals.

Hypothesis 6 *Growth of state capacity is faster for states that have enduring or multiple rivalries.*

The effect of wars could work in either direction, since the effect on state capacity likely hinges upon the outcome of the conflict. Provided the country does not face

military defeat, wars with rivals likely have the same effects as rivalry in general. States also engage in isolated conflicts, however, where there is not an enduring rivalry. It is much less likely that these isolated conflicts would have the same positive effect on the growth of state capacity that rivalry has.

Hypothesis 7 *Isolated conflicts are not linked to subsequent changes in state capacity.*

Finally, as the analysis of the revenue imperative contends, states that depend upon natural resource rents or foreign assistance for revenue have fewer incentives to develop extensive taxation systems that typically lead to pressures for accountability and representative government. Although revenues gained from rents can support the construction of coercive capacities of the state, these states are less likely to benefit from the governance dividend predicted by the fiscal sociology literature. Administrative capacity is likely to grow more slowly.

Hypothesis 8 *Revenues from rents are associated with slower growth of administrative capacity.*

Each of these propositions has strong theoretical support from the literature on state formation and state capacity-building, though most of these accounts are focused on particular factors. With a more integrated empirical approach, we have the ability to determine whether some of these factors are more important than others.

3 Methodology and Data

One advance in the present study, compared with previous work on this subject, is the use of the *State Capacity Dataset* from Hanson and Sigman (2013), which includes annual estimates from 1960 to 2010 of the level of state capacity for all countries in the Polity dataset (Marshall and Jaggers 2009). These data were produced with a Bayesian latent variable analysis technique developed by Arel-Bundock and Mebane (2011) that uses Markov Chain Monte Carlo (MCMC) estimation methods. Specifically, a set of

observed indicators believed to be strongly related to state capacity are employed to recover an estimate of this latent and unobserved concept.

In all, Hanson and Sigman (2013) employ 25 different indicators to represent three key dimensions of state capacity: administrative, extractive and coercive capacity. A full list of these indicators is provided in Table 1. Administrative capacity is represented by a variety of measures: expert ratings of bureaucratic quality, census frequency, statistical capacity, and a mixture of revenues that involves taxes on income rather than trade. Extractive capacities of the state are represented the overall level of taxation, ratings from the World Bank and other organization, and a comparison of actual revenues to expected revenues (Arbetman-Rabinowitz et al. 2011). Finally, coercive capacities of the state are represented by military spending, regular military personnel, paramilitary and police personnel, and measures of political terror.

The power of the MCMC method compared to traditional principal components analysis is its robustness to missing data. Rather than drop a country-year because one data point is missing, the method uses all available indicators for that country-year to make the best estimate possible, along with the level of precision of this estimate. Thus, although data are more sparse in the early part of the 1960-2010 time period, we still can produce estimates of state capacity. The resulting dataset thus has far more extensive coverage than other efforts to measure bureaucratic quality or governance. *Capacity* is normalized to the standard normal scale, so a one-unit increase in the variables represents one standard deviation in the level of state capacity across countries.

There are a couple of limitations to keep in mind. First, the data are a bit noisy from one year to the next due to changing availability of the component indicators. Accordingly, it is better to examine longer-term trends in state capacity rather than annual changes. Second, the data are limited to the post-WW II era in which the world had been divided into territorial sovereign states with strong international norms against changing these borders. As such, the data are less well-suited to testing bellicist theories of state formation. We can, however, test whether rivalries and conflicts are associated with changes in the level of state capacity.

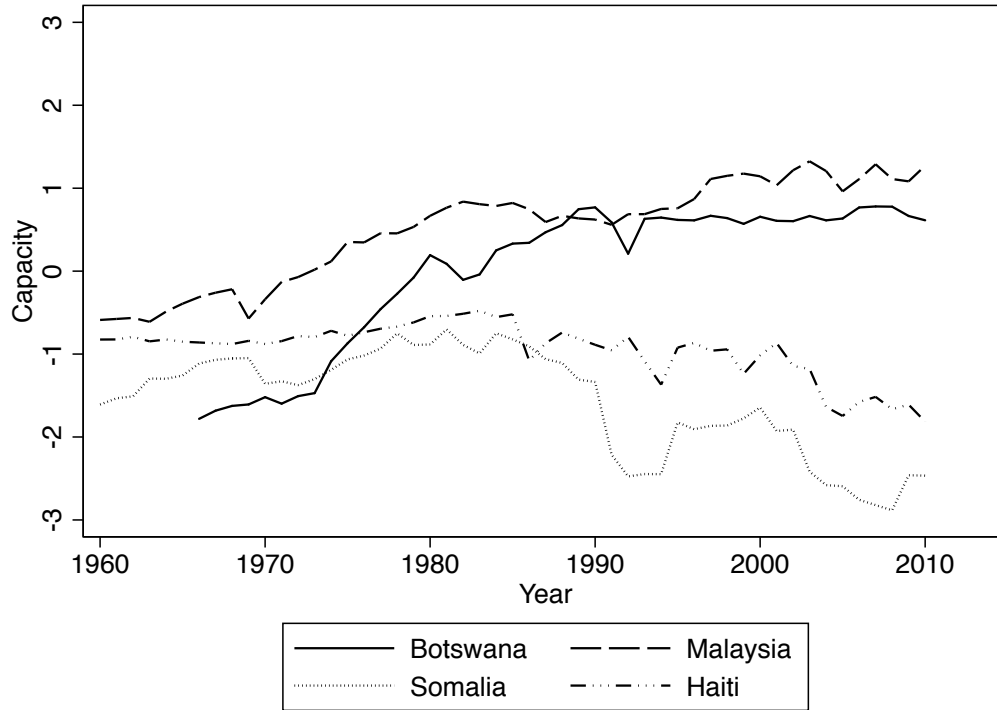
Table 1: Indicators of State Capacity

Variable	Countries	Years
Administration and Civil Service (Global Integrity 2012)	85	2004-2010
Administrative Efficiency (Adelman and Morris 1967)	69	1960-1962
Anocracy (calculated from Polity IV)	175	1960-2010
Bureaucratic Quality (Political Risk Services)	148	1982-2010
Census Frequency (calculated from UN 2011)	179	1960-2010
Contract-Intensive Money (WDI)	172	1960-2010
Effective Implementation of Government Decisions (IMD 2011)	57	1998-2010
Efficiency of Revenue Mobilization (World Bank CPIA)	74	2005-2010
Fractal Borders (Alesina et al. 2011)	138	1960-2010
Military Personnel per 1,000 in population (COW)	171	1960-2010
(Log) Military Spending Per Million in population (COW)	168	1960-2010
Monopoly on Use of Force (Bertlesmann Transformation Index)	127	2003-2010
(Log) Paramilitary Personnel per 1000 in population	164	1961-2010
Police Officers per 1000 in population (UN)	122	1973-2010
Political Terror Scale (Gibney et al. 2011)	176	1976-2010
Quality of Budgetary and Financial Management (World Bank CPIA)	74	2005-2010
Quality of Public Administration (World Bank CPIA)	74	2005-2010
Relative Political Efficiency (Arbetman-Rabinowitz et al. 2011)	166	1960-2010
State Antiquity Index, based on Bockstette et al. (2002)	162	1960-2010
Statistical Capacity (World Bank)	134	2004-2010
Tax Evasion not Damaging (IMD 2011)	57	1998-2010
Taxes on Income as % of Revenue (IMF, WDI)	152	1970-2010
Taxes on International Trade as % Revenue (IMF, WDI)	155	1970-2010
Total Tax Revenue as % GDP (IMF, WDI, OECD)	152	1960-2010
Weberianness (Rauch and Evans 2000)	34	1970-1990

Table 2: Descriptive Statistics for Country Characteristics

Variable	Obs	Mean	Std. Dev.	Min	Max
(log) Area	121	12.34	1.77	6.51	16.05
SoilSuit	117	0.56	0.20	0.00	0.95
Rough	121	0.18	0.13	0.01	0.56
Coastline	122	0.38	0.35	0.00	1.00
EthnicFrac	122	0.46	0.27	0.00	0.93
Colonized	122	0.82	0.39	0.00	1.00

Figure 1: Evolution of Capacity for Four Countries



Data on more enduring country characteristics, such as geographical factors, are drawn from a variety of sources. Descriptive statistics for these fixed variables are presented in Table 2.¹ Data on country land area (square km.), soil quality (*SoilSuit*), and roughness of terrain (*Rough*) come from Ashraf and Galor (2013). *SoilSuit* is the proportion of the country’s soil that is considered suitable for agriculture, and *Rough* measures terrain ruggedness (surface elevation changes) based upon geospatial data. The fraction of a country’s borders that are coastal (*Coastline*) is calculated from public domain data. This captures access to sea transportation routes.

The level of ethnic diversity (*EthnicFrac*) comes from Alesina et al. (2003). It is based on the usual Herfindahl index, although what constitutes an ethnic group is determined to some degree based upon country context. In some locales, language is a crucial differentiating factor, while race is more important in other contexts. In

¹Of course, there are some changes in variables like ethnic fractionalization over time, but these changes tend to be slow. All these variables are treated as fixed throughout the time frame.

some robustness checks, levels of linguistic and religious diversity are employed as alternative measures of social diversity, yielding similar results.

The variable *Colonized* is a dichotomous measure of whether a country was ever colonized drawn from the *ICOW Colonial History Dataset* (Hensel 2016). This data source was also used to identify the colonial power and construct a years of independence measure, neither of which are used in the present analysis.

Table 3: Descriptive Statistics for Dataset with 10-year Time Periods

Variable	Obs	Mean	Std. Dev.	Min	Max
Capacity _{t-1}	685	-0.05	1.00	-2.18	2.50
Δ Capacity	675	0.13	0.46	-1.80	2.39
(log) PopDensity	885	3.80	1.58	-0.32	9.91
RoadDensity	663	0.55	0.97	0.00	8.31
Polity	861	5.13	3.60	0.00	10.00
Conflicts	853	0.26	0.85	0.00	19.00
Rivalries	853	0.90	1.82	0.00	20.00
(log) FuelProduction	912	2.46	3.00	0.00	10.91
NATpct	787	4.69	7.56	-0.45	49.75
(log) GDPcap _{t-1}	707	9.96	2.14	4.31	16.25

The multivariate empirical analysis comes in two parts. First, I convert the annual data into a panel dataset with six time periods that are ten years in length. Second, I convert the data into a cross-sectional dataset that covers a single period of time: 1970 to 2010.² In each case, the key dependent variable is Δ Capacity, the change in the level of Capacity during the relevant period of time. Since changes in state capacity are likely to happen fairly slowly, use of longer periods is appropriate.

The log value of population density (*PopDensity*), measured as persons per square kilometer, comes from the World Development Indicators (World Bank 2016). I use the level of PopDensity at the beginning of the time period to avoid potentially endogenous relationships between the growth of state capacity and population density.

²I start at 1970, rather than 1960, because of the large number of new states created during the period of decolonization after 1960

A measure of the density of roadways (100 km of road per square km) comes from the International Road Federation (1989) and World Bank (2016).

There are many different measures available that relate to the concept of democracy. Most of them are problematic in one way or another. I use the *polity2* index from the Polity dataset (Marshall and Jaggers 2009) rescaled to run from 0 to 10. In robustness checks, I find that the measure of political rights from Freedom House (2009) produces very similar results.

For data on conflicts and rivalries, I turn to the New Rivalry Dataset (Klein et al. 2006). In these data, hostile interactions between two countries are coded as either isolated conflicts or rivalries. For the variable *Conflicts*, I calculate the mean number of isolated conflicts with which a country is involved on an annual basis during each period of time. As argued above, this kind of conflict is less likely to be associated with growth in state capacity than an enduring rivalry. The variable *Rivalries* is the mean number of such rivalries had by each country during each period of time.

Ross and Mahdavi (2015) provide the underlying data for calculating the variable *FuelProduction*, which is the mean of the log value of oil and gas production per capita over the years in each time period. Since the data are measured on a per capita basis, the variable provides a relative comparison of the impact of oil and gas in the country's overall economy.

Data on the level of international assistance comes from Roodman (2005). The variable *NATpct* is net aid transfers, including loan cancellation, measured as a percentage of GDP. Donor countries are coded as having a value of 0 on this variable. The larger the amount of assistance as a percentage of the economy, the more aid-dependent is the country.

Finally, data on GDP and GDP per capita come from the World Development Indicators (World Bank 2016) and the Penn World Tables version 7.0 (Heston et al. 2011). For robustness checks on the main multivariate models, I use the log value of real GDP per capita calculated on an expenditure basis at the beginning of each period of

time (see Tables 7 and 8). This variable may help serve to control for prior success at state building, allowing for better identification of the effect of the other independent variables on the subsequent change in the level of state capacity.

4 Empirical Analysis

The first set of multivariate results use the panel dataset with ten-year time periods. The dependent variable is Δ Capacity, the change in the level of state capacity during each period. I start with a base model in which the key independent variables are basic country characteristics. To this model, I then add sets of independent variables that are associated with the different theoretical perspectives discussed above. The final model is a comprehensive one that includes all of the independent variables. Each model controls for the level of Capacity at the end of the previous period.

Table 4, Model 1 shows the estimated coefficients for the base model. Four of the six variables were found to have a statistically significant effect on the change in state capacity. Of these, the measures of soil suitability, the proportion of the national border that is coastline, and road density all had the expected association with increases in Capacity, controlling for its level at the beginning of the period. For example, if the proportion of a country's soil suitable for agriculture were higher by one standard deviation (.2), the level of Capacity would be expected to grow more quickly by about .05 over ten years.

Ocean access is also associated with growth in Capacity, all else being equal. Suppose that one were to compare two countries that are identical in all respects except that one country is landlocked and the other has coastline for one-half of its national borders. Capacity in the latter country is expected to be about .13 points higher after ten years have passed. The presence of greater road density is also linked with faster growth in Capacity. Holding all else constant, increasing RoadDensity by one standard deviation leads to a predicted increase in the growth Capacity by about .07 over ten

Table 4: Panel Data Analysis with 10-year Time Periods

	(1)	(2)	(3)	(4)	(5)
LandArea	-0.00 (0.01)	-0.01 (0.02)	-0.02 (0.02)	-0.02 (0.01)	-0.05** (0.02)
PopDensity	-0.05* (0.02)	-0.07** (0.02)	-0.07** (0.02)	-0.05** (0.02)	-0.08** (0.02)
SoilSuit	0.27* (0.12)	-0.00 (0.12)	0.30* (0.12)	0.11 (0.14)	-0.09 (0.14)
Rough	0.04 (0.17)	-0.08 (0.15)	-0.02 (0.19)	0.04 (0.16)	-0.24 (0.19)
Coastline	0.30** (0.09)	0.25** (0.08)	0.29** (0.09)	0.26** (0.09)	0.21** (0.08)
RoadDensity	0.07* (0.03)	0.07* (0.03)	0.07* (0.03)	0.06* (0.03)	0.05* (0.02)
EthnicFrac		-0.51** (0.10)			-0.44** (0.09)
Polity		0.01 (0.01)			0.02* (0.01)
Colonized		-0.19** (0.05)			-0.17** (0.05)
Conflicts			-0.03 (0.05)		0.07 (0.04)
Rivalries			0.06** (0.01)		0.06** (0.01)
FuelProduction				-0.00 (0.01)	0.00 (0.01)
NATpct				-0.02** (0.00)	-0.02** (0.00)
Capacity _{t-1}	-0.19** (0.03)	-0.26** (0.03)	-0.20** (0.03)	-0.24** (0.03)	-0.33** (0.03)
Constant	0.03 (0.23)	0.71** (0.26)	0.32 (0.25)	0.43* (0.21)	1.32** (0.25)
N	550	545	546	507	498
Countries	149	147	148	138	135
R ²	0.08	0.16	0.11	0.15	0.27

Table 4. Random-effects OLS model with panel-clustered standard errors. The dependent variable is Δ Capacity_t; the change in Capacity from the previous period to the current period.^ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$

years. Both of these findings point to the value of transportation linkages, which can both facilitate commerce and the ability of the state to penetrate the territory.

Contrary to expectations, population density is associated with a downward change in Capacity. According to the estimates, each 1% increase in population density is associated with a very small (.0005), but statistically significant, decrease in the level of Capacity. It is possible that this coefficient represents some reversion to the mean.³ Alternatively, the claim that a state can more easily expand its reach into the population in more densely populated countries not correct.

Model 2 on Table 4 adds three variables that may affect the establishment of a stronger sense of political community associated with the state. Two variables expected to have a negative effect on the construction of state capacity – EthnicFrac and Colonized – indeed have negative and statistically significant coefficients. By contrast, Polity is not found to have a statistically or substantively significant effect on changes in Capacity.

Interpreting these coefficients properly is made easier if we first think about the estimated constant of .71, which is significant at the .01 level. Substantively, this represents a sort of baseline level of growth in Capacity, which is adjusted upward or downward depending on the level of the independent variables. Thus, negative coefficients can just mean slower growth in Capacity compared to the baseline rather than an actual decline.⁴

This fact considered, we see that where EthnicFrac is one standard deviation (.27) higher, the change in Capacity is expected to shift in the negative direction by about .14 over ten years, all else being equal. Countries that have been colonized during their history likewise see changes in the negative direction on Capacity to the tune of about .19. In other analysis (not reported here), similar effects are found for linguistic

³Overall, there is positive correlation between the *level* of Capacity and the degree of population density, but once we control for that level the marginal effect on Capacity is negative.

⁴Though an unfortunate combination of independent variables certainly can produce an expected decline in Capacity.

diversity. In short, it is more difficult for states to become more capable in polities that are more diverse and that have colonial legacies.

Model 3 represents a test of the bellicist perspective, adding the variables Conflicts and Rivalries. As argued above, rivalries are more enduring and are expected to drive faster growth of Capacity, whereas isolated conflicts are less likely to produce ongoing incentives to build state capacity and can be harmful. The results are consistent with these expectations. Each additional rivalry is associated with a ten-year change in Capacity that is .06 points greater, while having more isolated conflicts apparently has little systematic effect on Capacity. Thus, even though the the post-WW II era is one in which the international system has largely set country borders, we still see evidence that steady security concerns lead to construction of state capacity.

The effects of non-tax revenues on state capacity are tested in Model 4. This model finds that there is no statistical relationship between the change in Capacity and the per capita value of oil and gas production in a country during the time period. International assistance during the period, however, is associated with slower growth (or potentially a decline) of Capacity. Imagine two countries that are identical in all respects except that the first country receives no net foreign assistance, while level of foreign assistance to the second country equals ten percent of GDP. Capacity is expected to be about .2 points lower in the second country after ten years.

The direction of the causal arrows when it comes to foreign assistance is not entirely clear. Logically, foreign assistance levels would rise in response to a significant crisis that the recipient state cannot manage. Rather than cause a decline of state capacity, in other words, the aid is a response to state weakness or failure at some level. A scenario of this kind could produce a statistical association identical to what is observed in the data.

Finally, in Model 5 of Table 4, we see the comprehensive model. With a few exceptions, the findings do not change significantly. First, the coefficient LandArea is now more strongly negative and significant at the .01 level. Once we control for more factors, state capacity grows more slowly in larger territories, which is consistent with the

prediction in Herbst (2014). Second, the coefficient on SoilSuit is no longer significant, but this coefficient is quite sensitive to changes in the sample.⁵ Third, the coefficient on Polity is significant at the .05 level in the positive direction. A one-standard deviation increase in Polity is associated with a prediction of .07 points faster growth in Capacity.

To summarize the findings from the panel dataset, the evidence is consistent with the idea that there is a range of factors that affect the incentives for building state capacity and the ease with which capacity can be increased. Focusing on either internal or external factors would not produce findings that are incorrect, but they would be incomplete.

Cross-Sectional Analysis

As noted above, state-formation can take centuries. In the ideal, then, data would permit us to examine a much broader swath of time. It simply may be very difficult to observe the incremental changes in the level of state capacity that occur over a decade. With the *State Capacity Dataset*, we have the potential to examine changes in state capacity over a 50-year period for a moderately-sized sample of countries. Here, in order to obtain a larger sample that includes the post-colonial states that became independent during the 1960s, I instead look at the 40-year period from 1970 to 2010. The dependent variable is the change in Capacity over that period.

Table 5 shows the ten countries with the largest increases in Capacity over this period, as well as the ten countries with the largest declines. Assuming the measure is reliable and valid, we do see significant variation emerging over time. How well we can explain that variation is another matter.

I follow the same basic steps as before, starting with a base model, sequentially adding variables representing different theoretical perspectives, and then producing

⁵The change in statistical significance is not driven by the decline in sample size between Model 1 and Model 5. This was confirmed by running Model 1 on the sample from Model 5. By contrast, the non-significant coefficient on SoilSuit in Model 5 can be generated simply by using that same sample with the specification from Model 1.

Table 5: Largest Changes in Capacity 1970-2010

Largest Increases		Largest Declines	
Oman	+2.35	Liberia	-0.51
Botswana	+2.13	Zimbabwe	-0.53
Singapore	+1.76	Myanmar	-0.53
Chile	+1.76	Libya	-0.63
Mauritius	+1.69	DR Congo	-0.67
Malaysia	+1.61	Cote d'Ivoire	-0.76
Cyprus	+1.48	Haiti	-0.94
Indonesia	+1.31	North Korea	-0.95
Finland	+1.27	Iraq	-0.98
Burkina Faso	+1.21	Somalia	-1.11

a comprehensive model. I exclude RoadDensity since data availability for the initial level of that variable in 1970 was poor. The results appear in Table 6. In this case, none of the coefficients of the base model are statistically significant at conventional levels. They are smaller than their standard errors in several cases.

Model 2 adds the variables that test the difficulty of forming a political community: EthnicFrac, Polity, and Colonized. With the exception of the coefficient on Colonized, which is close to zero and not significant, we now begin to see some systematic effects. On average, countries with higher levels of ethnic fractionalization experienced slower growth, or even a decline, in Capacity. For example, take South Korea (EthnicFrac=.02) and Mali (EthnicFrac=.69). A difference in EthnicFrac of this size is predicted to produce a difference of about 0.5 in Capacity after 40 years, assuming all other variables were equal. Figure 2 shows the bivariate relationship between Δ Capacity and EthnicFrac.

The long-term effect of greater democracy, as measured by the Polity index in this case, is to support faster growth of state capacity. Recall that this variable has been rescaled to run from 0 to 10. Over the 40-year period, the mean level of Polity for the Democratic Republic of the Congo was about 3.0, and the mean level for Botswana was about 8.5. A difference of this size is also associated with about a 0.5 point difference in Capacity by the end of the period. Over a longer span of time, in other words, the

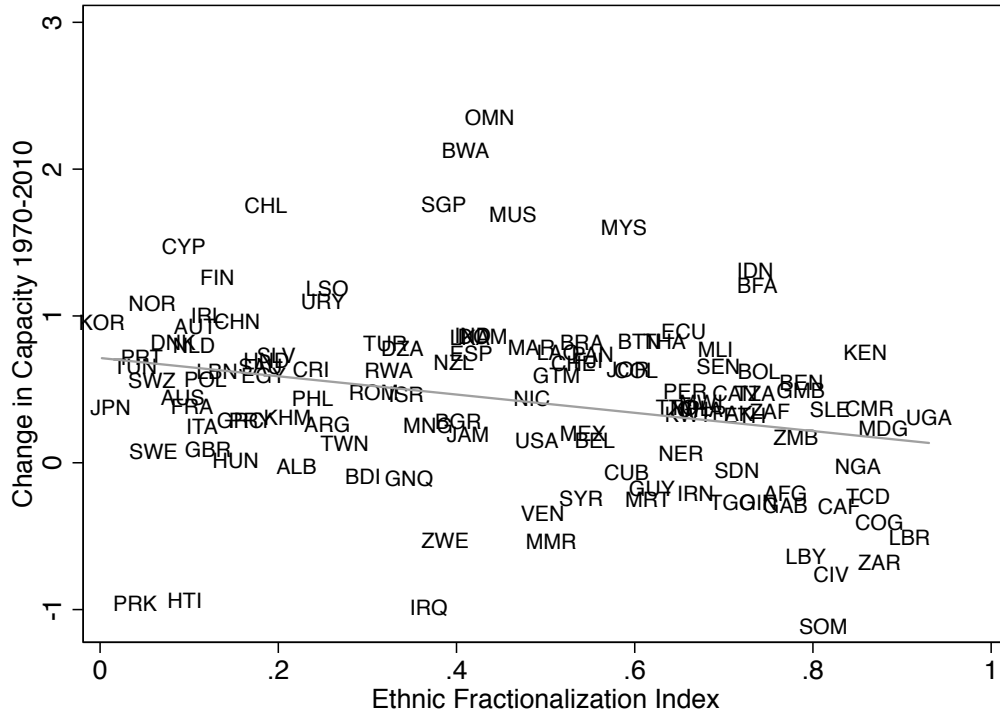
Table 6: Cross-Sectional Analysis for 40-year Change in Capacity

	(1)	(2)	(3)	(4)	(5)
LandArea	-0.02 (0.04)	-0.00 (0.04)	0.03 (0.05)	-0.04 (0.04)	0.01 (0.04)
PopDensity	0.03 (0.06)	0.04 (0.05)	0.08 (0.06)	-0.00 (0.05)	0.03 (0.05)
SoilSuit	-0.20 (0.34)	-0.69* (0.33)	-0.30 (0.33)	-0.47 (0.34)	-0.70* (0.33)
Rough	0.15 (0.50)	-0.01 (0.47)	0.12 (0.52)	0.22 (0.45)	-0.02 (0.45)
Coastline	0.32 (0.21)	0.16 (0.20)	0.24 (0.20)	0.32^ (0.19)	0.17 (0.18)
EthnicFrac		-0.75** (0.26)			-0.68** (0.23)
Polity		0.09** (0.02)			0.05* (0.02)
Colonized		0.04 (0.16)			0.02 (0.15)
Conflicts			-0.56* (0.27)		-0.47^ (0.24)
Rivalries			-0.06 (0.06)		-0.02 (0.05)
FuelProduction				-0.05* (0.02)	-0.02 (0.02)
NATpct				-0.04** (0.01)	-0.03** (0.01)
Capacity1970	-0.02 (0.08)	-0.30** (0.10)	0.04 (0.08)	-0.14 (0.09)	-0.31** (0.11)
Constant	0.49 (0.66)	0.35 (0.66)	-0.03 (0.70)	1.32* (0.65)	0.81 (0.72)
N	114	114	113	111	110
R ²	0.05	0.22	0.13	0.17	0.33

Table 6. Cross-sectional OLS model. The dependent variable is Δ Capacity: the change in Capacity from 1970 to 2010.

^ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$

Figure 2: Change in Capacity and Ethnic Fractionalization

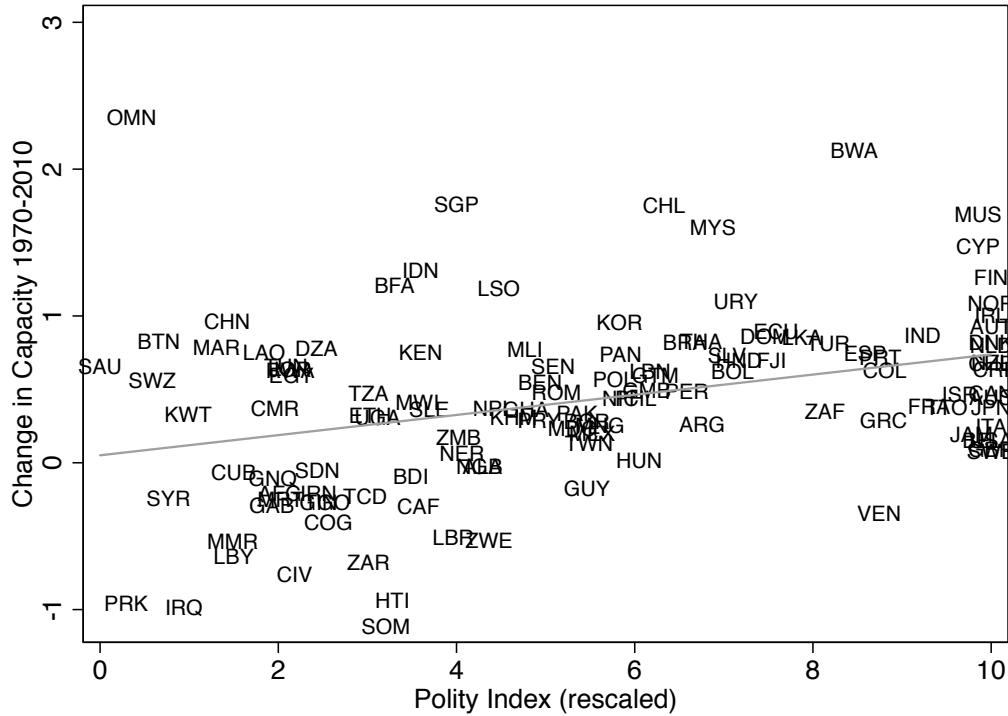


incremental changes add up to significant ones. Figure 3 shows the bivariate relationship between Δ Capacity and Polity.

Model 3 from Table 6 adds the variables Conflicts and Rivalries to the base model. In this case, we see quite different results than in the panel regressions. The coefficient on Rivalries is not statistically significant. Having more rivals over this longer time-period does not appear to be associated with changes in Capacity (if anything, the effect is negative). Participating in a greater number of isolated conflicts, on the other hand, clearly has a negative effect on building state capacity.

In Model 4, which examines the effects of FuelProduction and net aid transfers, the direction of the coefficients matches hypothesized expectations. The greater the role of oil and gas production in the economy, the slower Capacity is expected to grow, all else being equal. High levels of foreign assistance are associated with a similar fate. A one-standard deviation increase in the level of aid as a percentage of GDP (5.8) is

Figure 3: Change in Capacity and Polity Index



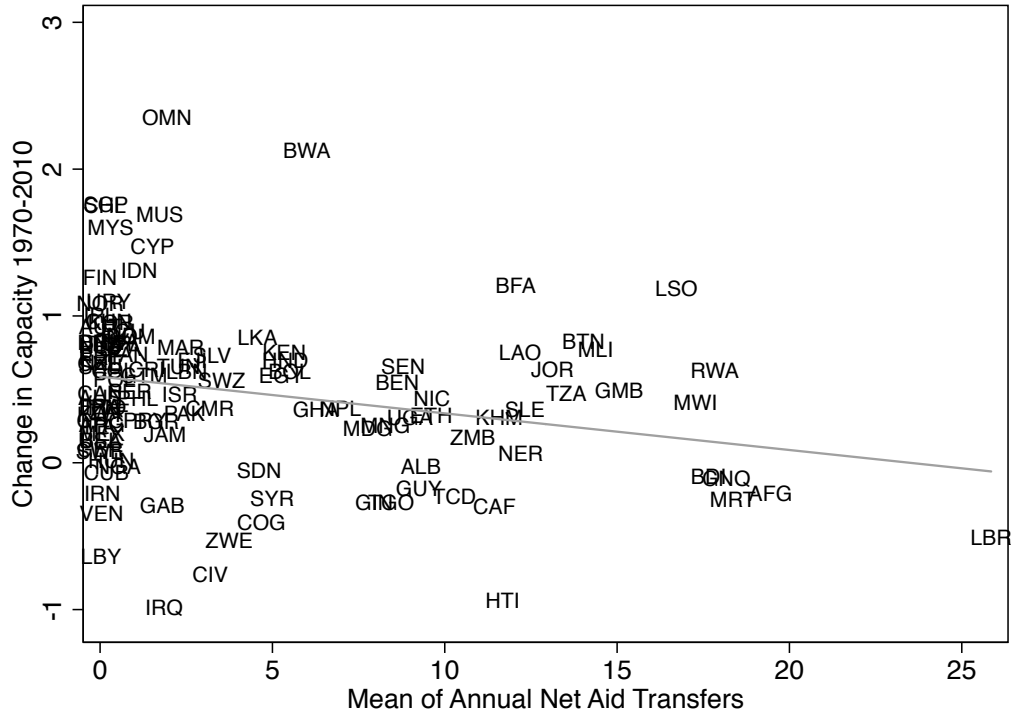
associated with being .23 points lower on Capacity after 40 years. See Figure 4 for a depiction of the bivariate relationship.

Combining all of these variables together in Model 5 changes the substance of these results very little. The only difference is that the coefficient on FuelProduction is no longer significant once we have controlled for the other factors.

The conclusions that we draw from the cross-sectional analysis are similar in some respects to those from the panel analysis. In both cases, EthnicFrac, Polity, and NAT-pct are consistent with hypothesized expectations and statistically significant. Key differences lie in the geographical variables, which are associated with changes in the panel models but not in the longer-term cross-sectional models.⁶ Additionally, the two sets of analyses produce different results with respect to colonial history, which is not linked with changes in Capacity in the cross-sectional data. Finally, the results that

⁶The exception is SoilSuit, which is significant in opposite direction of expectations.

Figure 4: Change in Capacity and Net Aid Transfers



pertain to Conflicts and Rivalries are fairly sensitive to specification.

5 Conclusion

This paper argues for a holistic approach toward understanding what factors affect the growth of state capacity over time. The vibrant literature on this topic tends to focus on particular pieces of the puzzle: the role of conflict in the international system, the need for revenue, domestic factors that affect the relationship between citizens and the state. Since they are not mutually exclusive, there is value in bringing them together into a single framework.

A comprehensive theory is not articulated in this paper, but minor modifications to existing theories will suffice to create a framework to move this research forward. As set forth in Levi (1988), we can think of rulers as rational actors that seek to maintain their power and maximize their revenues. They face threats of many kinds, some from

rivals, some from society, and some from external sources. They also face constraints that are created by institutions, geography, the nature of society, and so forth.

In response, rulers produce policies that lead to changes in state capacity over time. They may seek to build the state's military capabilities, extend the administrative infrastructure to deliver new kinds of public services, or build new revenue-collection mechanisms. Due to constraints, however, these policies may not be workable, or the need to cater to powerful constituents may lead to deleterious effects on state capacity over the long run.

Empirically, the approach taken in this paper treats the variety of factors that may affect state-building efforts equally, using large-sample methods to determine which factors appear to matter the most. At this point, the conclusions are only preliminary. They suggest that, in the post-WW II era, internal factors such as the the levels of social diversity and democracy are the factors most consistently associated with changes in state capacity. External threats do appear to play a role, but the results are too inconsistent to be definitive. Preliminarily, isolated military conflicts do not appear to be harmful in the short-term but an ongoing series of such conflicts does hinder the growth of state capacity. Conversely, rivalries appear to be more significant over the shorter term.

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Table 7: Panel Data Analysis with 10-year Time Periods

	(1)	(2)	(3)	(4)	(5)
LandArea	-0.23** (0.04)	-0.20** (0.04)	-0.25** (0.04)	-0.20** (0.05)	-0.19** (0.05)
PopDensity	-0.26** (0.04)	-0.25** (0.04)	-0.28** (0.04)	-0.23** (0.05)	-0.23** (0.04)
SoilSuit	0.21^ (0.12)	0.01 (0.12)	0.24^ (0.13)	0.07 (0.14)	-0.09 (0.14)
Rough	0.12 (0.13)	0.05 (0.14)	0.08 (0.15)	0.11 (0.14)	-0.06 (0.17)
Coastline	0.25** (0.08)	0.22** (0.08)	0.25** (0.08)	0.23** (0.09)	0.20* (0.08)
RoadDensity	0.05 (0.03)	0.05^ (0.03)	0.05^ (0.03)	0.04 (0.03)	0.05* (0.02)
EthnicFrac		-0.44** (0.09)			-0.44** (0.09)
Polity		0.00 (0.01)			0.01^ (0.01)
Colonized		-0.12* (0.05)			-0.11* (0.05)
Conflicts			-0.03 (0.05)		0.06 (0.05)
Rivalries			0.06** (0.01)		0.06** (0.01)
FuelProduction				-0.01 (0.01)	-0.00 (0.01)
NATpct				-0.01** (0.00)	-0.01** (0.00)
GDPcap _{t-1}	0.24** (0.05)	0.21** (0.05)	0.25** (0.04)	0.20** (0.06)	0.16** (0.05)
Capacity _{t-1}	-0.43** (0.05)	-0.46** (0.05)	-0.44** (0.05)	-0.40** (0.05)	-0.46** (0.05)
Constant	1.17** (0.29)	1.52** (0.29)	1.50** (0.29)	1.25** (0.30)	1.88** (0.30)
N	504	500	500	477	469
Countries	136	134	135	128	125
R ²	0.19	0.25	0.22	0.21	0.31

Table 7. Random-effects OLS model with panel-clustered standard errors. The dependent variable is Δ Capacity_t; the change in Capacity from the previous period to the current period. Controls for the log level of GDP per capita.

^ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$

Table 8: Cross-Sectional Analysis for 40-year Change in Capacity

	(1)	(2)	(3)	(4)	(5)
LandArea	-0.06 (0.12)	-0.07 (0.11)	-0.03 (0.12)	-0.01 (0.11)	-0.01 (0.11)
PopDensity	-0.03 (0.12)	-0.05 (0.11)	-0.00 (0.12)	0.01 (0.12)	0.01 (0.12)
SoilSuit	0.07 (0.32)	-0.41 (0.33)	-0.04 (0.32)	-0.23 (0.34)	-0.56 (0.34)
Rough	0.25 (0.46)	0.18 (0.44)	0.23 (0.49)	0.24 (0.45)	0.10 (0.46)
Coastline	0.56** (0.20)	0.38^ (0.20)	0.46* (0.20)	0.50* (0.19)	0.29 (0.20)
EthnicFrac		-0.78** (0.25)			-0.71** (0.25)
Polity		0.06* (0.02)			0.04 (0.03)
Colonized		0.05 (0.15)			0.02 (0.15)
Conflicts			-0.56* (0.26)		-0.45^ (0.25)
Rivalries			-0.03 (0.06)		-0.01 (0.05)
FuelProduction				-0.04^ (0.02)	-0.02 (0.02)
NATpct				-0.04** (0.01)	-0.03* (0.01)
GDPcap1970	0.04 (0.12)	0.07 (0.12)	0.04 (0.12)	-0.05 (0.12)	0.00 (0.12)
Capacity1970	-0.14 (0.15)	-0.38* (0.16)	-0.09 (0.15)	-0.11 (0.15)	-0.31^ (0.16)
Constant	0.67 (0.77)	0.76 (0.78)	0.37 (0.83)	1.25 (0.76)	1.01 (0.85)
N	104	104	103	104	103
R ²	0.12	0.23	0.18	0.20	0.32

Table 8. Cross-sectional OLS model. The dependent variable is Δ Capacity: the change in Capacity from 1970 to 2010.

^ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$