Forging then Taming Leviathan: State Capacity, Constraints on Rulers, and Development

Jonathan K. Hanson

Abstract

Empirical research in the New Institutional Economics tradition has concentrated on the degree to which institutional constraints on rulers protect property rights and foster growth through private investment. This view of institutions is overly narrow, neglecting the role of state capacity in particular. Both state authority and constraints on rulers matter for economic performance, but the relative strength of these effects depend upon a country's "distance" from the frontier of the world economy. Tests using a panel dataset that covers up to 84 countries from the period 1960-2005 reveal that, in countries that have low GDP per capita, constraints on rulers in the form of checks and balances affect neither the rate of productivity growth nor the growth of capital stock per worker. Basic state authority, however, has a strong, positive effect on both of these outcomes. The story is different for advanced industrial economies, where the effects of checks are positive, especially with respect to productivity growth. Institutional checks on rulers are thus not an agent of investment-based growth but support continued growth based upon innovation at the leading edge.

Published version available at http://onlinelibrary.wiley.com/doi/10.1111/isqu.12122/abstract. Cite as: Hanson, Jonathan K. 2014. "Forging then Taming Leviathan: State Capacity, Constraints on Rulers, and Development." *International Studies Quarterly* 58(2): 380–392.

As observed by Weingast, a fundamental political dilemma of economic systems is that a "government strong enough to protect property rights and enforce contracts is also strong enough to confiscate the wealth of its citizens" (1995: 1). In this light, achieving the conditions for growth requires finding the right position on a trade-off between building state power and constraining rulers. Yet, the literature in this tradition inordinately emphasizes the latter. The principal threat to economic growth is the avaricious or capricious ruler, and the dominant institutional concern is thus to create credible constraints on rulers, systems of checks and balances in particular, to protect property rights and create policy stability.

This article shares the perspective that constraints on rulers have an important effect on economic performance, but it argues that the conventional wisdom has gone astray in two fundamental ways. First, by overlooking the fact that the principal impediments to growth can vary considerably across country contexts, it assumes that constraints will have similar effects everywhere. Second, it focuses on investment as the key mechanism through which constraints affect the economy, with little attention to other mechanisms such as productivity growth. Challenging these assumptions opens new avenues for a significant departure from existing scholarship.

Drawing upon recent work in economic growth theory (Acemoglu et al. 2006; Aghion and Howitt 2006), this article develops a fuller picture of the roles of constraints on rulers and state capacity in economic performance. These models provide a basis for predicting that the institutional features most appropriate for supporting growth depend upon a country's "distance" from the technological frontier of the world economy. Tests using a panel dataset that covers up to 84 countries during the period 1960-2005 are consistent with these predictions. In countries that have very low GDP per capita or are highly agricultural, constraints on rulers in the form of veto points affect neither the rate of productivity growth nor the growth of capital stock per worker. Basic state authority, however, has a strong, positive effect on both of these outcomes. The story differs for advanced industrial economies, where the effects of checks are positive, especially with respect to productivity growth. Thus, in sharp contrast to the conventional wisdom, institutional checks on rulers are not an agent of investment-based growth but instead support continued growth based

upon innovation and private investment at the leading edge.

The next section assesses the literature on the subject of constraints on rulers and state capacity on economic performance. Section 2 then introduces a context-dependent growth model and describes the factors that are expected to support growth in different stages of development. Hypotheses generated from this paradigm are presented in Section 3, and these hypotheses are tested in Section 4. Section 5 concludes.

1 Perspectives on Constraints and State Capacity

The New Institutional Economics (NIE) has been unambiguously successful in creating consensus that institutions are an important determinant of economic performance. The centrality of property rights in NIE theory, however, has made constraints on rulers a focal point in the empirical literature. The result has been a "preoccupation of the institutional economics literature with institutions of protecting property rights" (Bardhan 2005: 17) that treats the "formal institutions of property rights protection as the end-all of development policy" (Rodrik 2007: 184). States also have roles as a guarantor of order, a provider of public goods, an agent for mobilizing capital, and a regulator of markets. These roles have clearer links to state capacity than to constraints on rulers, and it is at least plausible that checking the power of rulers could undermine the state's ability to carry out these functions.

A central contention of this article is that context determines the optimal trade-off between state power and constraints on rulers. If all countries faced the same set of circumstances, the optimal institutional design might well involve a number of veto actors to check the power of rulers. The nature of the economic challenges faced by countries, however, can differ significantly. In particular, it would be surprising if the institutions that initiate and sustain catch-up growth among late-developers are the same as those that promote continued growth in advanced economies.

1.1 Constraints on Rulers

Constraints on rulers are defined as institutional checks that restrict the ability of rulers to change policy unilaterally by separating power across a number of actors. Constraints are thus measured by the number of veto players, described in Tsebelis (1995) as individual or collective actors whose agreement is necessary to change policy. The literature identifies at least three related mechanisms through which constraints may establish a commitment to investors that their property will not be subject to predation or other opportunistic behavior: preventing direct expropriation, increasing policy stability, and inhibiting rent-seeking activities.

The early literature concentrated on the first mechanism. North and Weingast (1989) argue that the conditions for growth arise when rulers create institutional structures that grant power to other actors who can prevent rulers from reneging on promises. As they write in their study of seventeenth-century England, "Increasing the number of veto players implied that a larger set of constituencies could protect themselves against political assault, thus markedly reducing the circumstances under which opportunistic behavior could take place" (1989: 829). Since constraints on rulers facilitated England's growth at the leading edge of world economy centuries ago, the claim goes, they may be the crucial ingredient for growth among the late-developers of today.

More generally, checks on rulers create a more stable policy environment that is expected to facilitate investment and economic growth. With stability of tax, regulatory, and other economic policies comes greater investor certainty, easing fears that unexpected changes in policy will render their investments unprofitable (Henisz 2000; Nooruddin 2011). Increasing the number of veto actors thus should facilitate higher rates of investment. As Nooruddin argues, even if the policy environment is bad for investment, investors prefer it to be "predictably bad" rather than both bad and volatile (2011: 54).

The third mechanism, the claim that increasing the number of veto actors inhibits rent-seeking activities, is less well-developed. As Henisz describes, when political systems make it easy to secure returns though political channels, individuals will shift resources from economic into political activities (2000: 2). Greater numbers of veto actors, in this line of thinking, raise the costs of

rent-seeking. Each actor must be convinced, perhaps with some form of compensation, to support the particularistic policy. Similar logic is found in Andrews and Montinola (2004).

Yet, constraining rulers cannot always be economically advantageous. Policy stability is most beneficial when the policies of the status quo are optimal. More realistically, as Cox and McCubbins (2001) describe, there is a trade-off between "state indecisiveness" and "irresoluteness." Just as frequent policy change – irresoluteness – can be harmful, so to is gridlock when policy changes are needed. Constraints on rulers may block fundamental reforms needed to restructure property rights, such as a more efficient distribution of agricultural land, and support economic transformation. Veto actors, moreover, can create access points for special interests to win concessions that shift policies toward parochial interests (Cox and McCubbins 2001). For reasons such as these, Tsebelis (2002) states that veto actor theory does not lead to unambiguous predictions about economic performance. Whether constraints are economically advantageous on balance, therefore, depends on the context.

Early empirical findings appear to support the focus on institutions of property rights protection (Barro 1991; Knack and Keefer 1995; Hall and Jones 1999). Yet, under closer inspection, the proxy measures of property rights protection employed in these studies – levels of political instability and ratings of investment risk – jump too far along the causal chain. They do not test whether the number of veto actors leads to better economic performance but whether growth is faster in countries that are observed to provide for secure property rights. More recent studies (Henisz 2000; Stasavage 2002; Keefer and Stasavage 2003; Weymouth 2010), use measures of constraints based upon counts of the number of veto actors in the policy. Of these, however, only Stasavage (2002) performs an explicit test of whether the rate of investment increases in the number of veto actors. In Henisz (2000), which is most commonly-cited in the literature, the dependent variable is the rate of growth of GDP per capita, and the rate of investment is included as a control variable. Accordingly, the estimated effects of political constraints on growth comes through channels *other than the theorized channel of investment*.[1] None of these studies, considers whether the effects of

[1]The results in Henisz (2000) are thus are consistent with those presented in this article.

constraints vary across countries at different stages of development.

Finally, in a study focused on non-OECD countries, Nooruddin (2011) measures constraints using dichotomous indicators of institutional forms such as parliamentary minority/coalition government, divided presidential government, and an independent judiciary, rather than a count of veto actors. The dependent variable of chief interest is the volatility of country growth rates, and the findings show that different forms of constraints can have contrasting effects. Overall, the conclusion that regular patterns of party competition in parliamentary settings reduce economic volatility does not preclude the claims made in this article regarding the relative effects on economic growth of constraints on rulers and state authority at different levels of development.

In summary, constraints on rulers involve trade-offs that render universal claims about their economic effects suspect. More likely, constraints are beneficial in some contexts and harmful in others. As argued below, a country's stage in the development process appears to be one such situation. A system of checks and balances most likely has very different effects in countries at the earliest stages of development compared with advanced industrial economies.

1.2 State Capacity

Another strand of literature, sharing the NIE's contention that institutions matter for economic performance, stresses the importance of building state power rather than constraining rulers. The most concise statement comes from Bates (2006), who argues "no state, no development," but many others also highlight the importance of building state capacity for development (Amsden 1990; Chibber 2003; Fukuyama 2004; Kohli 2004). On the other hand, state-led economic development policies oftentimes fail or produce significant economic distortions (Lal 1985; Krueger 1990; Bates 2005). As is the case with constraints on rulers, accordingly, universal claims about the economic effects of state-led policies are questionable. This section develops the rationale for context-conditional claims.

Defining state capacity, a multidimensional concept, is a challenge (Skocpol 1985). A useful starting point is Mann's definition of state infrastructural capacity, "the capacity of the state

to penetrate civil society, and to implement logistically political decisions throughout the realm" (1984: 113). It captures two key elements central to this article: the *authority* of the state within its territory – the capacity to maintain order and enforce the laws – and the *administrative capacity* to develop, fund, and carry out its policies. These capabilities arise as the state becomes institutionalized and inculcated with professional norms.

At a baseline, state authority is a necessary condition for economic activity to produce long-term economic growth. Weak states cannot provide the basic requirements of a modern economy: policy stability, enforcement of contracts, infrastructure, and public services (Evans 1992; Aghion and Howitt 2006). After decades of scholarly oscillation between overly optimistic and overly pessimistic views of the role of the state in the economy, this perspective is no longer under serious dispute.

Additionally, state capacity affects rulers' incentives. Where states are weak and authority structures are barely legitimate, incentives for neopatrimonial or "personal" rule are strong, especially in very heterogeneous societies. Since the state capacities required to bring economic transformation are not available, rulers resort to clientelistic activity to maintain their grip on power (Sandbrook 1986; Englebert 2000). A capable state, by contrast, provides the tools to implement developmental policies and thus can induce rulers to pursue them. As Olson's (1993) theory of the stationary bandit predicts, even revenue-maximizing rulers can have incentives to undertake developmental policies in order to enhance their wealth. These incentives increase when rulers have long time horizons and, logically, when the state has the capacity to facilitate growth. Institutionalized and authoritative states, moreover, are more likely to set the policy agenda in a matter that serves encompassing interests. Such states tend to be staffed with technocratic or policy professionals who, due to a sense of collective mission created by the bureaucracy or incentives or promotion, are trained and socialized to address particular problems (Moon and Dixon 1985; Ziblatt 2008).

Thus, the argument that constraints on rulers are the key to creating a stable environment for investment overlooks both the primary role of state authority in making stability possible and the role of administrative capacity in affecting rulers' incentives. For pre-industrial countries, or those

in early stages of industrialization, building state capacity is likely to be the more pressing need. Moreover, when the state is weakly institutionalized to begin with, creating institutional checks on rulers seems unlikely to be effective. Such checks would lack binding force.

Yet, even if state authority is a necessary condition for growth, it is not a sufficient one. State effectiveness as an agent of economic development is subject to two main constraints (Aoki et al. 1997). First, states are limited in their ability to gather and process information. Second, states are not neutral agents of the greater public interest; they instead are embedded in a social and political context and thus may reflect particularistic concerns. Greater administrative capacity can mitigate these constraints, but it cannot eliminate them altogether. Crucially, the extent to which these constraints bind depends upon the nature of the economic challenges a country faces.

In general, state-led development policies are most likely to be effective in circumstances where markets tend to fail, when the complexity of economic decision-making is low relative to the administrative capacity of the state, and when the efficiency consequences of "playing favorites" between competing interests are comparatively mild. Where these conditions hold, the trade-off between state authority and constraints on rulers tilts in the direction of the former. Where economic decisions involve a great deal of complexity or uncertainty about the choice of appropriate technologies, however, markets are better instruments of determining outcomes. Constraints on rulers provide a defense against political interference in such matters.

The literature on the developmental state provides substantial evidence that concentrated political power, used well, is consistent with rapid and steady economic growth. Kohli (2004) finds that the most successful among the late-developers are those countries where the state is capable of well-designed, selective, and thoroughly implemented intervention in the economy. Amsden (1990) and Chibber (2003) emphasize states that have the capacity to act cohesively and, in particular, to extract performance from private firms. Failures tend to arise, as Evans (1992) notes, when states lack the coherence and independence to be selective in interventions or have insufficient linkages to groups in society that share the objective of economic transformation. Yet, even states with high levels of administrative capacity face difficulties when it comes to encouraging the

invention of new technologies and production methods. Such policies require bureaucrats to make highly technical decisions in the face of considerable uncertainty and with large consequences for efficiency. Markets are better mechanisms for picking winners and losers in these circumstances.

In conclusion, this analysis creates the expectation that the effect of state capacity on economic development depends on context. First, state authority is a necessary condition for long-term growth. Second, state authority and administrative capacity have a strong effect on the extent to which rulers pursue developmental policies and can do so effectively. Both of these points support the empirical expectation that growth should be faster where state capabilities are high. On the other hand, states face inherent constraints in their ability to process information and refrain from protecting particularistic interests. As economic complexity increases, these constraints begin to bind more tightly, and the effectiveness of states relative to markets declines.

2 A Context-Dependent Economic Growth Model

Recent work in economic growth theory provides an anchor for the above logic. Since economic growth is a function of more than one factor, the effects of institutions depend upon how they work through these various factors. Like Przeworski et al. (2000), this article treats these pathways independently. Additionally, it incorporates the idea that country context matters. Building upon a basic growth accounting technique,[2] growth in output per worker is presented as a function of three factors:

$$\dot{y}_t = \dot{A}\big(\mathbf{z}_t(\mathbf{x}_t), \mathbf{x}_t\big) + \alpha\dot{k}\big(\mathbf{z}_t(\mathbf{x}_t), \mathbf{x}_t\big) + (1-\alpha)\dot{h}\big(\mathbf{z}_t(\mathbf{x}_t), \mathbf{x}_t\big) \tag{1}$$

In Equation 1, $\dot{A}$ is growth in Total Factor Productivity (TFP), $\dot{k}$ is growth in capital stock per worker, and $\dot{h}$ is growth in human capital per worker. Each factor is a function of vectors of institutions $\mathbf{z}$ and country characteristics $\mathbf{x}$. The parameter α is capital's share of output, which is

[2]The growth accounting procedure follows steps similar to Bosworth and Collins (2003) but instead makes each component of $\dot{y}$ a function of institutions and country characteristics.

assumed by convention to be .35 for purposes of estimating TFP growth.[3] This article focuses on the first two factors, $\dot{A}$ and $\dot{k}$, and it seeks to determine how political institutions affect each over the course of the development process. An important assumption is that the effects of institutions on each factor are mediated by country characteristics. That is, the relationship between $\mathbf{z}$ and $\dot{k}$ depends upon $\mathbf{x}$.

Distance from the technological frontier is a key country characteristic. As Gerschenkron (1962) argued, the institutional arrangements that lead to development among "backward" countries differ substantially from those in countries that developed earlier. Industrialization in England, due to its gradual pace and early onset, was readily financed by earnings from trade and agriculture. Checks on rulers that prevented the state from expropriating these earnings, as North and Weingast (1989) contend, might well have played an important role in supporting industrialization. With England positioned at the technological frontier of the world economy, the state would have been challenged had it tried to direct industrial development rather than allow entrepreneurial activity to take its course. Late industrializers, by contrast, faced a very different environment. Not only did competition exist, but technological evolution had also changed the scale of industry. The absence of financial markets or large banks meant that direct state financing was necessary to initiate industrialization. The more backward the country, the more that authoritative state actions will be necessary to clear obstacles and lay the groundwork for industrialization and growth.

Upon this foundation, Acemoglu et al. (2006) and Aghion and Howitt (2006) build models that describe two kinds of economic growth: investment-based growth and innovation-based growth.[4] An investment-based growth strategy allows countries to catch up to the technological frontier by sustaining investment in known technologies derived from elsewhere. A strategy of emulation can only go so far, however. At the technological frontier, growth is driven by innovation and efficient mechanisms for selecting the best technologies and firms. Countries must shift growth strategies in order for growth to proceed.

[3] As Bosworth and Collins (2003) note, this value is consistent with the consensus that capital's share falls between .3 and .4.

[4] Note that these terms are not meant to imply the exclusion of the other factor. Investment-based growth still requires innovation and vice-versa, but the key engine of growth shifts.

A key feature of these models is that the institutions most appropriate for supporting investment-based growth – which can include considerable state involvement in the economy – are not the same as those that support innovation-based growth. These models thus provide the theoretical foundation in economic theory for context-dependent effects of political institutions. In particular, the relative importance of state capacity and constraints on rulers depends on whether investment-based growth or innovation-based growth is the more applicable style of growth for a particular country. The farther a country lies behind the world technological frontier, the more relevant is an investment-based growth strategy.

2.1 Investment-Based Growth

Investment-based growth involves sustaining high levels of investment and driving local adoption of existing technologies. Crucially, industrialization involves neither the invention of new technologies nor the foresight to choose among competing, prospective standards. Compared with innovation-based growth, sophisticated mechanisms of selection are less necessary (Acemoglu et al. 2006). This fact reduces the complexity of economic planning such that constraints on the effectiveness of state economic interventions bind less tightly, particularly for states with greater administrative capacity. By mobilizing capital, protecting infant industries, and creating incentives for learning new methods and adopting new technologies, states can thus play an important role in facilitating both growth in capital stock and TFP.

Given underdeveloped financial markets and the presence of coordination problems, a vigorous state role in supplying and directing capital may be necessary for building an industrial base. A high level of checks on rulers is not likely to resolve these market failures. Indeed, where state authority is weak, dividing power across multiple actors may be counterproductive when it comes to clearing away barriers to industrialization and creating a stable environment for investment. Higher levels of administrative capacity, however, increase the likelihood that state-led growth can succeed.

Productivity growth in an investment-based growth strategy is driven by learning. As Khan (2000) argues, policies to create rents for learning, such as conditional subsidies, can induce firms to make the transition to newer technologies when they otherwise would stick with established processes. Notably, these policies can be effective at generating productivity growth despite high levels of cronyism and clientelism, provided that states have the ability to choose wisely when deciding which technologies to subsidize and the political power to withdraw subsidies over time. These tasks are easier when "the next steps up the technology ladder are relatively obvious and performance criteria can be set by looking at the next tier of countries" (Khan 2000: 51). The level of administrative capacity obviously matters as well.

2.2 Innovation-Based Growth

At the technological frontier, where innovation to create new technologies and methods is essential to sustain growth, states are less able to serve as a catalyst of growth. States are less necessary as well, since capital scarcity is usually not a problem and economies typically possess market institutions to facilitate coordination. Since the technologies that will drive future growth are unpredictable, processes of state-led planning and picking winners and losers become ineffective. As Olson notes, due to "pervasive and unfathomable" uncertainties, a wide span of entrepreneurs can do better than any government agency at covering all the possible options (2000: 188-9). Rather than nurturing infant industries and protecting national champions, states are better off by easing entry and exit of firms, thus creating an atmosphere in which private-sector innovation and investment is the leading engine of growth.

Sustaining growth at the technological frontier thus requires that firms adjust to the rise of disruptive technologies and unanticipated competition rather than seek protection from it. In countries close to the technological frontier, accordingly, political systems that permit the easy erection of legal barriers to competition may produce stagnation. Acemoglu et al. (2006) suggest that political constraints on rulers are important for preventing this eventuality: "unless political institutions are

sufficiently developed, or become developed in the process of growth, to impose effective constraints on politicians and elites, such government intervention may lead to the capture of politicians by groups that benefit from government intervention, paving the way for political economy traps" (2006: 42).

In contrast to investment-based growth, therefore, innovation-based growth generally is facilitated by increasing the number of veto actors. The inability to predict the nature of upcoming competitive challenges places the burden on vested interests to win policy changes, and the presence of more veto actors increases the likelihood that these policy changes will be blocked.

3 Hypotheses

This theoretical framework generates testable propositions. In the poorest set of countries, economic growth should be strongly affected by the authority and cohesiveness of the state. Where states have the capacity to handle basic housekeeping tasks, conditions will be more fertile for both capital investment and productivity growth. Following Huntington's dictum that "authority must exist before it can be limited" (1968: 8), we would expect that constraints on rulers will not affect either growth in TFP or growth in capital stock per worker at this stage of development.

Even when institutions are sufficiently authoritative to give veto actors real power, constraints do not facilitate investment-based growth. As argued above, an investment-based growth strategy is often aided by significant state involvement in the economy. Given market failures, states may be an essential supplier of investment capital during this phase. Sustaining high levels of investment is one thing that unconstrained autocratic rulers can do relatively well if they wish. Accordingly, on average, institutional constraints on rulers are not expected to be a significant factor in the growth rate of capital stock among late developers.

Hypothesis 1 *The farther a country lies from the technological frontier, the less that growth rates of productivity and capital stock depend upon constraints on rulers.*

By the same logic, the farther a country lies from the technological frontier, the more that state authority matters for economic performance. Maintaining order and providing public goods are necessary conditions for economic growth. Thus, even though some rulers will use their power for predatory purposes, and even though state authority does not guarantee effective economic policies, higher levels of state authority should nevertheless be associated with faster growth in both capital stock and productivity. When state authority is absent, economies remain stagnant. When state authority is present, at least some economies will grow.

Yet, state authority should not explain variation in economic performance at the leading edge of the world economy. The process of development necessitates the emergence of a state sufficiently powerful and competent to manage economies of ever greater complexity. By virtue of the fact of their developmental success, in other words, countries at the frontier have high levels of state authority. As such, the marginal effect of state authority at the technological frontier should be zero or close to zero. Market mechanisms, furthermore, are sufficiently developed to handle most economic functions.

Hypothesis 2 *The farther a country lies from the technological frontier, the more that growth rates of productivity and capital stock depend on state authority.*

Checks on rulers are more important at the technological frontier. As Acemoglu et al. (2006) argue, institutional constraints help prevent capture of the state by industrial interests, thus supporting the transition to innovation-based growth. To the extent that constraints inhibit rent-seeking, their effect on economic growth will work through productivity growth, in contrast to NIE logic. Constraints prevent vested interests from winning policy changes to protect themselves from unanticipated competition and disruptive technologies.

Hypothesis 3 *Among more technologically advanced countries, constraints on rulers facilitate faster productivity growth.*

These hypotheses represent a significant shift from the traditional NIE argument about political constraints. They describe a more narrow range of contexts in which constraints are expected to have a positive impact on the elements of economic growth. First, state authority, rather than constraints on rulers, is expected to be more helpful in the least developed countries. Second, constraints have their greatest effect on economic outcomes by supporting productivity growth rather than investment.

4 Empirical Analysis

To test these hypotheses, data were compiled from a variety of sources to construct a panel dataset covering the period 1960-2005, with the number of countries in individual tests typically ranging from 74 to 84, depending on data availability. For multivariate analyses, the data were grouped into five-year periods for three reasons. First, data on variables such as human capital are not available any more frequently. Second, annual growth statistics often contain a great deal of random noise, and the interest here is broader growth trends. Third, a purely cross-sectional approach is unable to capture the alterations in political institutions that occur over the course of the period covered.[5]

Equation 1, where growth in output per worker is expressed as a function of three factors, produces both of the dependent variables used in this article: $\dot{k}$ and $\dot{A}$. These variables represent the growth rates of capital stock per worker and TFP respectively, and they are expressed in terms of the average annual percentage rates during each five-year period. The growth accounting data come from Bosworth and Collins (2003), extended by the author up to the year 2005.[6]

Measuring the level of state capacity across a large sample of countries is a difficult challenge. The alternatives are very few. Two approaches are employed here. First, the measure of state

[5]Robustness checks using ten-year periods and annual data (with interpolated data for human capital) produced very similar results, lending confidence that findings are not driven by design choices.

[6]The level of human capital (h_t) is based on the estimated earning power per worker resulting from the average number of years of education across all workers. Data on the average number of years of education from from Barro and Lee (2010). Applying the piecewise linear Mincerian formula that appears in Hall and Jones (1999) to these data yields h_t. Where s is average years of schooling, $h = e^{\phi(s)}$. In this case, $\phi(s)$ is piecewise linear with slope 0.13 for $s \leq 4$, .10 for $4 < s \leq 8$, and .07 for $s > 8$.

antiquity (*StateHist*) developed by Bockstette et al. (2002), extended in Chanda and Putterman (2005) and by the author, serves as the proxy for the concept of state authority.[7] Second, a modified version of the rational legality dimension of state capacity from Hendrix (2010), *RationalLegal*, serves as an alternative measure constructed from a broader set of indicators that captures basic bureaucratic/administrative capacity.

StateHist is a 0-1 index that increases in the following factors: the amount of time a government existed above the tribal level during the years 1 to 1950 CE; the amount of time this government was locally-based rather than foreign-based; and, the percentage of territory of the modern country that was ruled by this government. The mean StateHist score is .47, and the standard deviation is .26. The assumption is that state-level institutions become more established, and thus more authoritative, the longer they are in existence.

The utility of this measure of state authority is threefold. First, it provides an indicator of state capacity at the beginning of the relevant time period for a wide sample of countries. Second, there is strong reason to believe that the age of a state within a particular territory is correlated with its authority, especially when that state has been sovereign. It takes time for new states to develop roots in a territory. Third, it is free of the potential bias that comes from analyst ratings of state quality, where observed economic performance appears to affect contemporary perceptions of state quality (Henisz 2000). On the other hand, it is conceivable that this index may capture legacy effects of state history on culture or social capabilities for collective action.

Bockstette et al., however, find that this variable is correlated with indicators of political stability and bureaucratic quality. In additional construct validity tests,[8] higher levels of StateHist are robustly associated with greater provision of public goods and better public health outcomes in the 1960-2005 time period, even after controlling for a range of alternative factors that should explain these outcomes: initial country wealth, the mean level of democracy over nearly five decades as measured using the *Polity2* index (Marshall and Jaggers 2009), the mean level of tax revenues as

[7] Specifically, this article uses their favored statehistn05v3 index.

[8] Presented in a proposed online appendix.

percentage of GDP to account for fiscal capacity, and measures of social capabilities. Thus, while StateHist admittedly is a fairly crude measure of basic state authority and administrative capacity, it performs just as this concept is expected to perform when it comes to explaining development outcomes.

RationalLegal is derived by replicating the factor analysis in Hendrix (2010), which identifies three different dimensions of state capacity from a set of 15 indicators used in other literature.[9] Although each of these indicators is quite problematic in one way or another, it is reasonable to believe that together they can be used to identify the underlying authority and administrative capacity of the state. One of the indicators, however, is the logged value of GDP per capita, which is related by construction to other key variables in the present analysis. That indicator is replaced with the StateHist index when replicating the procedures in Hendrix. The resulting factor is rescaled to run from 0 to 1. The mean value is 0.41 and the standard deviation is 0.33.

Given their different construction, it would not be surprising if these two variables produced differing results. The bivariate correlation between StateHist and RationalLegal is 0.17. To the extent the results are similar, we should have more confidence that the findings presented here do not depend upon one specific measure.

The principal measure of institutional constraints (*Checks*) is derived by taking the natural log of the variable of the same name in the *Database of Political Institutions* (Beck et al. 2001). Annual coverage begins in 1975, and the mean value is calculated for each five-year period. The original variable equals one when there is a low level of political competition in a polity, and it increases by one for each additional political actor or institution that serves as a check. For example, Checks increases when the executive is competitively elected, when the opposition controls the legislature, when the legislature is multicameral (unless controlled by the president's party), and for each member of a party coalition required to retain a parliamentary majority. I use the log of the resulting sum since the expected effect is not linear in each additional check. Checks runs from 0 to 2.31

[9]The indicators include measures of military personnel, military spending, ICRG ratings, sources of revenue (commodity exports), tax revenue capacity, and the institutional consistency of polities. The other two dimensions of state capacity Hendrix identifies are rentier-autocraticness and neopatrimoniality.

with mean .82 and standard deviation .63.

An alternative measure of constraints (*PolCon*) comes from Henisz (2000). Although PolCon is available for a longer time frame, permitting coverage from 1960-2005, I use Checks as the main measure of constraints and employ PolCon for robustness tests. As noted in Weymouth (2010), Checks counts each member of a multiparty government as a veto actor and also accounts for differences in electoral rules. It thus appears to be a more accurate measure of veto actors than PolCon, though the two variables are quite highly correlated ($r = 0.78$).

4.1 Bivariate Analysis

Simple scatterplots help demonstrate some basic findings. Figure 1 plots the growth rates of capital stock per worker ($\dot{k}$) on the measures of constraints and state capacity. Each pair of plots compares the growth experience of countries that were coded as either "low-income" or "leading-edge" countries at the start of the analysis. Low-income countries are defined as those with less than $2,500 in GDP per capita in year 2005 constant dollars.[10] This threshold was chosen based upon the World Bank's present designation of low-income countries, and it was applied retrospectively for each year back to 1975.[11] Countries were coded as leading-edge countries in 1960 if they had per capita GDP of at least $8,500.

[Figure 1 about here.]

Figure 1(a) plots the mean annual growth rate of capital stock per worker on the mean level of Checks over the 1975-2005 time period for countries that were in the low-income category starting in 1975. The line represents the best linear fit to the data, and it indicates that growth in capital stock was not related to the level of Checks. Figure 1(b) shows the corresponding plot for leading-edge countries.[12] On the whole, these countries have higher levels on Checks than the low-income

[10] The variable *rgdpl2* from Heston et al. (2009).
[11] The substance of the results presented does not change significantly when using alternative thresholds.
[12] Includes countries that were in this category for at least 15 years. Germany is excluded due to reunification.

countries, but variation in the growth rate of capital stock is again unrelated to the variation in Checks.

For comparison, Figures 1(c) and 1(d) plot capital stock growth data from the 1960-2005 period on StateHist. For both low-income and leading-edge countries, the best-fit lines show a strong positive relationship between StateHist and the growth rate of capital stock. At least in terms of the simple bivariate relationships, it appears that growth in capital stock is more strongly related to state authority than to constraints on rulers as they are measured in this analysis. The strength of the positive relationship among leading-edge countries may be influenced by strong growth rates of capital stock in heavily war-damaged countries.

Very similar findings emerge when using Total Factor Productivity growth as the dependent variable. The only different is that the bivariate relationship between StateHist and TFP growth is downward-sloping among the leading-edge countries. These scatterplots are not presented for reasons of space, but they are available in the online appendix.

4.2 Multivariate Analysis

A multivariate approach permits the addition of variables that measure a country's position with respect to the world technological frontier in a continuous manner over time. Many countries grow rapidly during the time covered in this study, and the hypotheses predict that the effects of state capacity and political constraints will evolve. Additionally, it can control for geographical and social factors that may also affect economic outcomes.

Several covariates are thus added to the analysis. *Gap* is a measure of a country's distance from the technological frontier. The level of GDP per worker in the United States during each time period serves as a proxy for the technological frontier. Gap is the natural log of the ratio of the GDP per worker of this frontier country to that of the United States. Given Gerschenkron's notion that the prospects for growth are more promising the greater the backlog of technological innovations, rates of TFP growth and capital accumulation should be faster on average the larger is Gap. Data

come from version 6.3 of the Penn World Table (Heston et al. 2009). For robustness checks, I use *AgEmp*, the percentage of workers employed in agriculture from the World Development Indicators (World Bank 2011) as a proxy for the level of technological advancement.

The level of ethnic fractionalization (*EthnicFrac*) is taken from Alesina et al. (2003). EthnicFrac measures a combination of ethnic and linguistic differences, but it emphasizes racial diversity to a greater extent than the traditionally-used Soviet data. Other control variables include *TropicArea*, which is the percentage of a country's land area that lies in the tropics, and *Landlocked*, a 0-1 indicator that reads 1 if a country has no seaports (Gallup et al. 2001). These variables provide indications of geographical conditions that might affect the attractiveness of a country for investment.

There is significant debate how about to grapple with the problems posed by time-invariant variables in cross-sectional-time-series data.[13] A common prescription to account for unmeasured, fixed differences across county units is to employ fixed-effects estimation techniques. Yet, this technique is not available when key independent variables are time-invariant. In this case, StateHist, EthnicFrac, and the geography measures do not vary. Using fixed effects would replace these important explanatory factors with atheoretical country dummy variables. As a result, two estimation approaches are presented here.

First, I employ cross-sectional-time-series OLS regression with correlated panels corrected standard errors.[14] Each model includes a lagged value of the dependent variable, and time-period indicators are included to account for contemporaneous economic trends. Second, I re-estimate the key models using the fixed-effects vector decomposition (FEVD) technique introduced by Plümper and Troeger (2007), and updated in 2010, which implements a three-stage procedure to estimate fixed effects but decompose them into portions explained and not-explained by the time-invariant country characteristics.[15]

[13] See the Spring 2011 edition of *Political Analysis*, volume 19:2, for example.

[14] These are random effects models.

[15] Specifically, I use version 4.0 of the xtfevd estimation routine, which corrects earlier problems in the calculation of standard errors.

The first set of tests is presented in Table 1, where the dependent variable is the annual growth rate in capital stock per worker. Hypothesis 1 predicts that the effects of political constraints on capital stock growth decrease in a country's distance to the technological frontier. A critical test of this hypothesis, accordingly, involves estimating the interaction between Checks and Gap. A negative sign on the interaction term would be consistent with Hypothesis 1. Conversely, Hypothesis 2 predicts that the effects of state authority on capital stock growth increase in a country's distance to the technological frontier. In this case, a positive sign is expected on the interaction of the measures of state capacity and Gap.

[Table 1 about here.]

The results in Model 1 present the average effects of StateHist and Checks on the growth rate of capital stock per worker across all countries in the sample. Although StateHist has a strong, positive effect, the effect of Checks is weak and cannot be distinguished from zero with high confidence. Based on these estimates, a one standard deviation increase in StateHist (.26) is associated with an increase in the annual rate of capital stock growth of about .31 percentage points on average across countries.

Model 2 introduces the interaction of Checks with Gap, revealing that the effect of constraints on the growth rate of capital stock is positive at the technological frontier (i.e. Gap is zero). Where Checks is one standard deviation (0.63) higher, the annual growth rate of capital stock per worker is predicted to be about 0.48 percentage points faster. This effect is different from zero with 90% confidence. As Gap increases, however, the size of this predicted effect gets smaller such that it hits zero when Gap is about 3.0, the level of Bangladesh in 1996-2010. With results similar to those in Model 1, the effect of StateHist on average across all countries is once again positive, substantively strong, and statistically significant.

Notably, Model 3 indicates that this average effect was misleading. The effect of StateHist is indistinguishable from zero for countries that are at the technological frontier, and it has a very powerful effect for countries more distant from the leading edge. For example, Burkina Faso

(1981-1985) and Vietnam (1976-1980) had essentially equal values of Gap (roughly 4.05). Since Vietnam's score on StateHist was .36 units higher than Burkina Faso's, however, the predicted difference in their annual capital stock growth rates is 1.45 percentage points. The finding from Model 2 that the effect of Checks is positive and strong at the technological frontier but moves toward zero as Gap increases remains robust in Model 3.

[Figure 2 about here.]

To help with interpretation of these interaction terms, the marginal effects of Checks and StateHist as a function of Gap, and their associated confidence intervals, are depicted in Figure 2. The effect of StateHist can be distinguished from zero with 95% confidence once Gap reaches 1.75 (e.g. Ecuador in 1996-2000). By contrast, when Gap is roughly 1.25 (e.g. Argentina in 2001-2005), the effect of Checks can no longer be distinguished from zero with high confidence.

Model 4 repeats the test in Model 3 using the FEVD procedure to incorporate fixed effects. Substantively, the results are the same, though the size of the standard errors increases slightly on the two institutional measures and their interactions. For countries at the technological frontier, Checks has a positive effect on capital stock growth, while StateHist does not. As Gap increases, the effect of StateHist becomes positive and the effect of Checks shifts toward zero.

Models 5 and 6 repeat the same tests as Models 3 and 4 using RationalLegal as the proxy measure for state capacity. Due to smaller coverage of both countries and time periods, the sample size drops by 193 cases. Nevertheless, the relevant coefficients all have the same sign and yield the same substantive conclusions. For Checks, the coefficients are both stronger in magnitude and estimated with greater precision. The effect of RationalLegal is positive when Gap is higher, which is consistent with theoretical expectations. In Model 5, the marginal effect of RationalLegal on capital stock growth is positive and differs from zero with 95% confidence by the time Gap reaches 2, the position of El Salvador in 2001-2005.[16] When introducing fixed effects in Model 6,

[16]Figure provided in the online appendix.

the basic prediction holds at a level of statistical confidence reaching about 82% that the marginal effect differs from zero when Gap is above 4.

Overall, the results with the growth rate of capital stock per worker as the dependent variable are strongly consistent with Hypotheses 1 and 2. The effects of political constraints and basic state authority move in opposite directions as distance to the technological frontier changes. For countries at the leading edge, greater checks on rulers facilitate capital stock growth, but this is not true for countries that lag behind. Instead, for these countries, catch-up growth occurs where states are more capable.

Using TFP growth as the dependent variable, a similar set of tests is presented in Table 2. Two key differences stand out overall. First, the effect of Checks is positive and significant on average across all countries, as can be seen in Model 1. Where Checks is one standard deviation (.63) higher, which corresponds to moving from Cote d'Ivoire to Denmark in 2001-2005, annual TFP growth is predicted to be .45 percentage points higher all else being equal. Second, on average across countries, StateHist does not have a statistically discernible effect on TFP growth.

[Table 2 about here.]

As was the case before, however, these average effects are misleading. The effects of StateHist and Checks strongly depend upon distance from the technological frontier. The smaller is Gap, the more positive is the estimated effect of Checks on TFP growth. When Gap is close to its maximum of 4.9, the predicted effect of Checks is essentially zero, as can be seen in Model 2. At the technological frontier, however, the effect of Checks is substantively strong and different from zero with 99% confidence. Using the coefficients from Model 3, and incorporating the effects of the interaction with Gap, the predicted annual difference in productivity growth between Cote d'Ivoire and Denmark in 2001-2005 due to differences in Checks grows to 1.35 percentage points. Figure 3(a) depicts the marginal effect of Checks as a function of Gap with the 95% confidence range. This outcome is consistent with Hypothesis 3.

[Figure 3 about here.]

The effect of StateHist is the opposite of Checks. In this case, as can be seen in Model 3, the effect of StateHist on productivity growth increases in distance from the technological frontier. When Gap is close to zero, the predicted effect of StateHist is negative. Higher levels of state authority, as measured, are associated with slower productivity growth at the technological frontier. This is consistent with the description of innovation-based growth as a style in which state planning is less effective than entrepreneurial experimentation. For countries very distant from the technological frontier, however, StateHist still has a strong and positive relationship with productivity growth. The marginal effect of this relationship, using the estimates from Model 3, is presented in Figure 3(b). Performing the FEVD procedure (Model 4) does not change the substance of the results.

As before, the crucial Models 3 and 4 were re-estimated using Rational Legal as the proxy measure for state capacity, producing consistent findings that strongly support Hypotheses 1 and 2. When Gap is zero, the effect of state capacity as measured by RationalLegal is indistinguishable from zero. For countries farthest from the technological frontier, however, the effect of RationalLegal is strong and positive. For example, for two countries about one standard deviation apart on RationalLegal, such as India (.66) and Algeria (.27), the predicted difference in annual productivity growth rates would be .73 percentage points when Gap is at 2.5. At this level of Gap, the marginal effect of RationalLegal is different from zero with greater than 95% confidence in Model 5 and greater than 90% confidence in Model 6. The coefficients pertaining to Checks are again stronger in magnitude and support Hypothesis 3.

Overall, these results are strongly consistent with the notion that Checks help support innovation-based growth for countries at or near the technological frontier, but they have little effect in countries that are much less economically developed. These latter countries are more likely to be associated with investment-based growth, and increasing Checks does not appear to facilitate this strategy. A capable state, however, does.

4.3 Robustness Checks

To check the robustness of these results, these tests were repeated using alternative measurements of key variables and time periods of different length. These tests are not presented for reasons of space, but they are available in an online appendix.[17] For example, the results hold up very well when using annual data or ten-year time periods instead of five-year periods. The substance of the findings is identical in both cases.

The percentage of workers in agriculture (AgEmp) was used as an alternative to Gap to measure the distance from the technological frontier. The coefficients are substantively similar to the results presented above. The effect of Checks on the growth rate of capital stock cannot be differentiated from zero, but it appears to be positive for countries with very low levels of workers in agriculture. The effect of StateHist, by contrast, grows with AgEmp, and it is substantively very strong. When it comes to supporting productivity growth, Checks again are most effective for countries that are the least agricultural, while StateHist is effective when countries are highly agricultural. Overall, the findings are highly consistent with the results described above.

Additionally, tests were conducted using PolCon in place of Checks, both with Gap and AgEmp as the measure of level of technological development. PolCon is a 0-1 index constructed from a spatial model of political interaction based on two elements: the number of veto points and the distribution of preferences of the actors that occupy these veto points, such as presidents, legislative houses, and sub-federal units. Once again, the results were consistent with those presented above.

5 Conclusion

This article finds evidence that the role of institutional constraints in economic performance is much more nuanced than described in much of the literature. First, at early stages of the development process, state authority is far more important than constraints on rulers for supporting growth

[17] This proposed appendix is attached for purposes of review.

in capital stock and TFP. The farther a country sits from the technological frontier, the more that economic performance is a function of state authority.

Second, for countries in later stages of development, constraints can provide a significant boost in TFP growth. This finding is consistent with the conjecture of Acemoglu et al. (2006) that constraints can help prevent parochial economic interests from using the political system to protect themselves from competition. Countries with higher levels of constraints may be better prepared to make the transition to innovation-based growth.

Finally, this article demonstrates the utility of economic models that permit context-dependent predictions. The context-dependent growth paradigm used in this article provides a solid theoretical foundation for expecting that the effects of a given institutional form will not be the same across all counties at all times. Country context, such as distance to the technological frontier, makes an important difference.

These findings suggest that the original focus of the NIE literature on institutions of property rights protection wrongly focused on veto actors as the key to fostering economic growth. In 17th-century England, industrialization by climbing the ladder of known technologies was not available, making constraints that supported innovation an efficient institutional arrangement. The broader lesson that emerged from this literature, that a country's economic performance is a function of the quality of its institutions, still resonates clearly, but the mechanisms require fuller specification. By breaking economic growth into separate factors of capital stock and productivity, and by using distance from the technological frontier as a measure of context, this study has shed some light on the nature of these mechanisms.

References

ACEMOGLU, DARON, PHILIPPE AGHION, AND FABRIZIO ZILIBOTTI. (2006) Distance to Frontier, Selection, and Economic Growth. *Journal of the European Economic Association* 4 (1): 37–74.

AGHION, PHILIPPE AND PETER HOWITT. (2006) Appropriate Growth Policy: A Unifying Framework. *Journal of the European Economic Association* 4 (2-3): 269–314.

ALESINA, ALBERTO, ARNAUD DEVLEESCHAUWER, WILLIAM EASTERLY, SERGIO KURLAT, AND ROMAIN WACZIARG. (2003) Fractionalization. *Journal of Economic Growth* 8 (2): 155–194.

AMSDEN, ALICE H. (1990) Third World Industrialization: 'Global Fordism' or a New Model? *New Left Review* I (182): 5–31.

ANDREWS, JOSEPHINE T. AND GABRIELLA R. MONTINOLA. (2004) Veto Players and the Rule of Law in Emerging Democracies. *Comparative Political Studies* 37 (1): 55–87.

AOKI, MASAHIKO, KEVIN MURDOCK, AND MASAHIRO OKUNO-FUJIWARA. (1997) Beyond the East Asian Miracle: Introducing the Market-Enhancing View. In *The Role of Government in East Asian Economic Development: Comparative Institutional Analysis*, chapter 1. Oxford, England: Clarendon Press.

BARDHAN, PRANAB. (2005) *Scarcity, Conflicts and Cooperation: Essays in Political and Institutional Economics of Development*. Cambridge: The MIT Press.

BARRO, ROBERT AND JONG-WHA LEE. (2010) A New Data Set of Educational Attainment in the Word, 1950-2010. NBER Working Paper No. 15902.

BARRO, ROBERT J. (1991) Economic Growth in a Cross Section of Countries. *The Quarterly Journal of Economics* 106 (2): 407–443.

BATES, ROBERT. (2005) *Markets and States in Tropical Africa*. Berkeley: University of California Press.

BATES, ROBERT. (2006) The Role of the State in Development. In *The Oxford Handbook of Political Economy*, edited by Barry R. Weingast and Donald A. Wittman. Oxford: Oxford University Press.

BECK, THORSTEN, GEORGE CLARKE, ALBERTO GROFF, PHILIP KEEFER, AND PATRICK WALSH. (2001) New Tools in Comparative Political Economy: The Database of Political Institutions. *World Bank Economic Review* 15 (1): 165–176.

BOCKSTETTE, VALERIE, AREENDAM CHANDA, AND LOUIS PUTTERMAN. (2002) States and Markets: The Advantage of an Early Start. *Journal of Economic Growth* 7: 347–369.

BOSWORTH, BARRY P. AND SUSAN M. COLLINS. (2003) The Empirics of Growth: An Update. *Brookings Papers on Economic Activity* 2003 (2): 113–179.

CHANDA, AREENDAM AND LOUIS PUTTERMAN. (2005) State Effectiveness, Economic Growth, and the Age of States. In *States and Development: Historical Antecedents of Stagnation and Advance*, edited by Matthew Lange and Dietrich Rueschemeyer. New York: Palgrave Macmillan.

CHIBBER, VIVEK. (2003) *Locked in Place: State-Building and Late Industrialization in India*. Princeton: Princeton University Press.

COX, GARY W. AND MATTHEW D. MCCUBBINS. (2001) The Institutional Determinants of Economic Policy Outcomes. In *Presidents, Parliaments and Policy*, edited by Stephan Haggard and Mathew D. McCubbins, chapter 2. Cambridge: Cambridge University Press.

ENGLEBERT, PIERRE. (2000) Pre-Colonial Institutions, Post-Colonial States, and Economic Development in Tropical Africa. *Political Research Quarterly* 53 (1): 7–36.

EVANS, PETER. (1992) The State as Problem and Solution: Predation, Embedded Autonomy, and Structural Change. In *The Politics of Economic Adjustment: International Constraints, Distributive Conflicts, and the State*, edited by Stephan Haggard and Robert R. Kaufman, chapter 3, pp. 139–181. Princeton: Princeton University Press.

FUKUYAMA, FRANCIS. (2004) The Imperative of State-Building. *Journal of Democracy* 15 (2): 17–31.

GALLUP, JOHN L., ANDREW D. MELLINGER, AND JEFFREY D. SACHS. (2001) *Geography Datasets*. Cambridge: Center for International Development, Harvard University.

GERSCHENKRON, ALEXANDER. (1962) *Economic Backwardness in Historical Perspective*. Cambridge: Harvard University Press.

HALL, ROBERT E. AND CHARLES I. JONES. (1999) Why do some countries produce so much more output per worker than others? *The Quarterly Journal of Economics* 114 (1): 83–116.

HENDRIX, CULLEN S. (2010) Measuring State Capacity: Theoretical and Empirical Implications for the Study of Civil Conflict. *Journal of Peace Research* 47 (3): 273–285.

HENISZ, WITOLD J. (2000) The Institutional Environment for Economic Growth. *Economics & Politics* 12 (1): 1–31.

HESTON, ALAN, ROBERT SUMMERS, AND BETTINA ATEN. (2009) *Penn World Table Version 6.3*. Center for International Comparisons of Production, Income and Prices at the University of Pennsylvania.

HUNTINGTON, SAMUEL P. (1968) *Political Order in Changing Societies*. New Haven: Yale University Press.

KEEFER, PHILIP AND DAVID STASAVAGE. (2003) The Limits of Delegation: Veto Players, Central Bank Independence, and the Credibility of Monetary Policy. *American Political Science Review* 97 (3): 407–423.

KHAN, MUSHTAQ H. (2000) Rents, Efficiency and Growth. In *Rents, Rent-Seeking and Economic Development: Theory and Evidence in Asia*, edited by Mushtaq H. Khan and Jomo Kwame Sundaram. New York: Cambridge University Press.

KNACK, STEPHEN AND PHILIP KEEFER. (1995) Institutions and Economic Performance: Cross-Country Tests Using Alternative Institutional Measures. *Economics & Politics* 7 (3): 207–227.

KOHLI, ATUL. (2004) *State-Directed Development: Political Power and Industrialization in the Global Periphery*. New York: Cambridge University Press.

KRUEGER, ANNE O. (1990) Government Failures in Development. *Journal of Economic Perspectives* 4 (3): 9–23.

LAL, DEEPAK. (1985) *The Povery of "Development Economics"*. Cambridge: Harvard University Press.

MANN, MICHAEL. (1984) The Autonomous Power of the State: Its Origins, Mechanisms, and Results. *European Journal of Sociology* 25 (2): 185–213.

MARSHALL, MONTY G. AND KEITH JAGGERS. (2009) *Polity IV Project: Dataset Users' Manual*. Center for Systemic Peace, George Mason University.

MOON, BRUCE E. AND WILLIAM J. DIXON. (1985) Politics, the State, and Basic Human Needs: A Cross-National Study. *American Journal of Political Science* 29 (4): 661–694.

NOORUDDIN, IRFAN. (2011) *Coalition Politics and Economic Development: Credibility and the Strength of Weak Governments*. New York: Cambridge University Press.

NORTH, DOUGLASS C. AND BARRY R. WEINGAST. (1989) Constitutions and Commitment: The Evolution of Institutions Governing Public Choice in Seventeenth-Century England. *The Journal of Economic History* 49 (4): 803–832.

OLSON, MANCUR. (1993) Dictatorship, Democracy, and Development. *American Political Science Review* 87 (3): 567–576.

OLSON, MANCUR. (2000) *Power and Prosperity: Outgrowing Communist and Capitalist Dictatorships*. New York: Basic Books.

PLÜMPER, THOMAS AND VERA E. TROEGER. (2007) Efficient Estimation of Time-Invariant and Rarely Changing Variables in Finite Sample Panel Analyses with Unit Fixed Effects. *Political Analysis* 15 (2): 124–139.

PRZEWORSKI, ADAM, MICHAEL E. ALVAREZ, JOSÉ ANTONIO CHEIBUB, AND FERNANDO LIMONGI. (2000) *Democracy and Development: Political Institutions and Well-Being in the Third-World, 1950-1990*. New York: Cambridge University Press.

RODRIK, DANI. (2007) *One Economics, Many Recipes: Globalization, Institutions, and Economic Growth*. Princeton: Princeton University Press.

SANDBROOK, RICHARD. (1986) The State and Economic Stagnation in Tropical Africa. *World Development* 14 (3): 319–332.

SKOCPOL, THEDA. (1985) Bringing the State Back In: Strategies of Analysis in Current Research. In *Bringing the State Back In*, edited by Peter B. Evans, Dietrich Rueschemeyer, and Theda Skocpol, chapter 1, pp. 3–37. Cambridge: Cambridge University Press.

STASAVAGE, DAVID. (2002) Private Investment and Political Institutions. *Economics & Politics* 14 (1): 41–63.

TSEBELIS, GEORGE. (1995) Decision Making in Political Decisions: Veto Players in Presidentialism, Parliamentarism, Multicameralism, and Multipartism. *British Journal of Political Science* 25 (3): 289–325.

TSEBELIS, GEORGE. (2002) *Veto Players: How Political Institutions Work*. Princeton: Princeton University Press.

WEINGAST, BARRY R. (1995) The Economic Role of Political Institutions: Market-Preserving Federalism and Economic Development. *The Journal of Law, Economics & Organization* 11 (1): 1–31.

WEYMOUTH, STEPHEN. (2010) Political Institutions and Property Rights: Veto Players and Foreign Exchange Commitments in 127 Countries. *Comparative Political Studies* .

WORLD BANK. (2011) *World Development Indicators 2011 (WDI Online)*. Washington, D.C.: The World Bank.

ZIBLATT, DANIEL. (2008) Why Some Cities Provide More Public Goods than Others: A Subnational Comparison of the Provision of Public Goods in German Cities in 1912. *Studies in Comparative International Development* 43 (3-4): 273–289.

Table 1: Effect of StateCapacity and Constraints on Growth in Capital Stock

	(1)	(2)	(3)	(4)	(5)	(6)
$\dot{k}_{t-1}$	0.56**	0.55**	0.55**	0.39**	0.53**	0.33**
	(0.04)	(0.04)	(0.04)	(0.04)	(0.05)	(0.05)
EthnicFrac	−1.33*	−1.30*	−1.29*	−1.58*	−1.68**	−2.10**
	(0.52)	(0.51)	(0.51)	(0.64)	(0.52)	(0.79)
Landlock	−0.82*	−0.90**	−0.86**	−0.98*	−0.59^	−0.70
	(0.32)	(0.32)	(0.32)	(0.40)	(0.34)	(0.52)
TropicArea	0.00	0.06	0.04	0.15	−0.55	−0.69
	(0.31)	(0.32)	(0.32)	(0.44)	(0.34)	(0.48)
Gap	0.45**	0.65**	0.23	0.20	0.72**	0.77*
	(0.15)	(0.21)	(0.24)	(0.33)	(0.26)	(0.34)
Checks	0.23	0.76^	0.94*	0.94^	1.46**	1.74*
	(0.21)	(0.40)	(0.40)	(0.50)	(0.53)	(0.73)
Checks·Gap		−0.26	−0.35*	−0.39^	−0.45^	−0.56^
		(0.17)	(0.17)	(0.20)	(0.25)	(0.29)
StateCapacity	1.19**	1.22**	−0.86	−0.42	−0.94	−1.54
	(0.46)	(0.46)	(0.72)	(1.18)	(0.87)	(1.33)
StateCapacity·Gap			1.02**	1.12*	1.07*	1.09
			(0.32)	(0.48)	(0.54)	(0.73)
Constant	−1.29*	−1.85**	−0.98	−0.77	−1.54*	−0.86
	(0.53)	(0.66)	(0.68)	(0.92)	(0.63)	(0.93)
N	558	558	558	558	365	365
Countries	84	84	84	84	74	74
R^2	0.49	0.49	0.50	0.58	0.47	0.64
Effects	Random	Random	Random	FEVD	Random	FEVD
StateCapacity	StateHist	StateHist	StateHist	StateHist	RationalLegal	RationalLegal

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

Table 1. The dependent variable is the growth rate of capital stock per worker ($\dot{k}$). All models include time-period dummy variables to capture worldwide trends (coefficients not reported). Standard errors in parentheses.

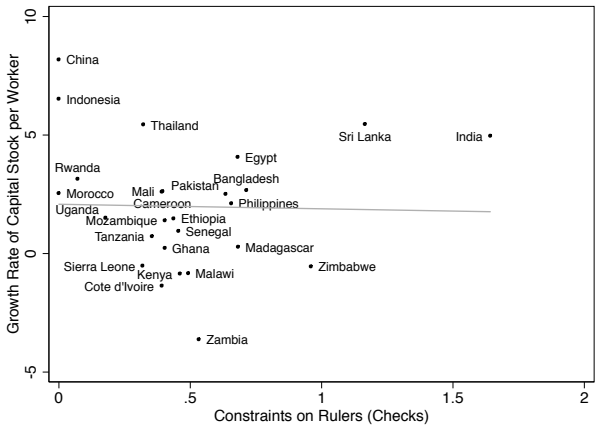
Table 2: Effect of StateCapacity and Constraints on Productivity Growth

	(1)	(2)	(3)	(4)	(5)	(6)
$\dot{A}_{t-1}$	0.06	0.06	0.05	−0.11**	0.02	−0.23**
	(0.05)	(0.05)	(0.05)	(0.04)	(0.06)	(0.05)
EthnicFrac	−0.58	−0.55	−0.53	−0.60	−0.74	−0.94
	(0.47)	(0.47)	(0.46)	(0.64)	(0.52)	(0.76)
Landlock	−0.01	−0.09	−0.05	−0.09	−0.11	−0.13
	(0.26)	(0.26)	(0.27)	(0.42)	(0.28)	(0.49)
TropicArea	−0.99**	−0.94**	−0.96**	−1.06*	−1.58**	−1.91**
	(0.30)	(0.30)	(0.30)	(0.44)	(0.35)	(0.47)
Gap	0.52**	0.71**	0.41^	0.46	1.02**	1.31**
	(0.14)	(0.21)	(0.23)	(0.34)	(0.28)	(0.34)
Checks	0.71**	1.24**	1.37**	1.60**	1.96**	2.53**
	(0.19)	(0.38)	(0.39)	(0.50)	(0.55)	(0.71)
Checks·Gap		−0.25	−0.32*	−0.39*	−0.47^	−0.69*
		(0.15)	(0.16)	(0.19)	(0.24)	(0.28)
StateCapacity	0.24	0.28	−1.25^	−1.34	−0.65	−0.80
	(0.42)	(0.41)	(0.71)	(1.16)	(0.88)	(1.30)
StateCapacity·Gap			0.74*	0.82^	1.01*	1.13
			(0.33)	(0.47)	(0.52)	(0.72)
Constant	−0.67	−1.25^	−0.63	−1.02	−2.02**	−2.96**
	(0.50)	(0.64)	(0.66)	(0.91)	(0.69)	(0.90)
N	550	550	550	550	362	362
Countries	83	83	83	83	74	74
R^2	0.14	0.14	0.15	0.36	0.25	0.56
Effects	Random	Random	Random	FEVD	Random	FEVD
StateCapacity	StateHist	StateHist	StateHist	StateHist	RationalLegal	RationalLegal

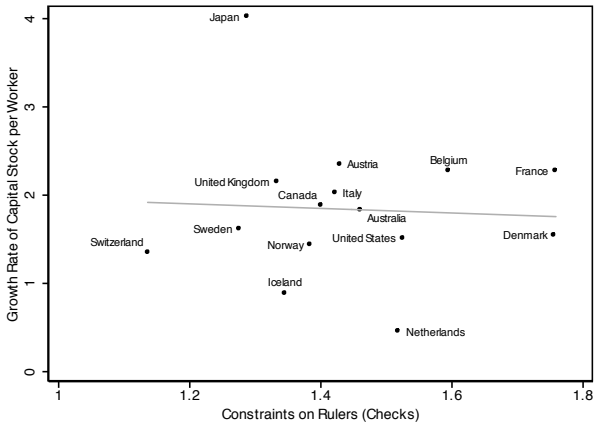
^ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$

Table 2. The dependent variable is the growth rate of productivity ($\dot{A}$). All models include time-period dummy variables to capture worldwide trends (coefficients not reported). Standard errors in parentheses.

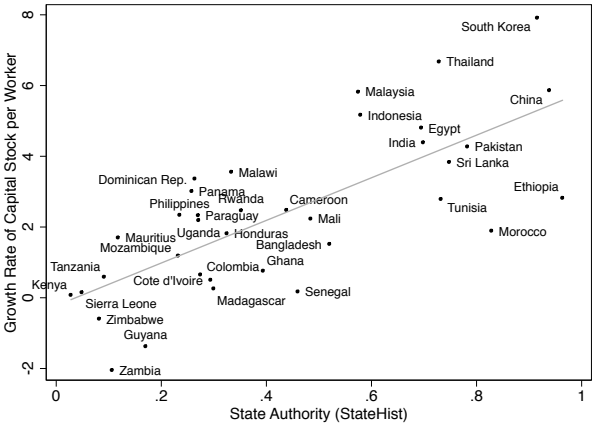
Figure 1: Growth of Capital Stock



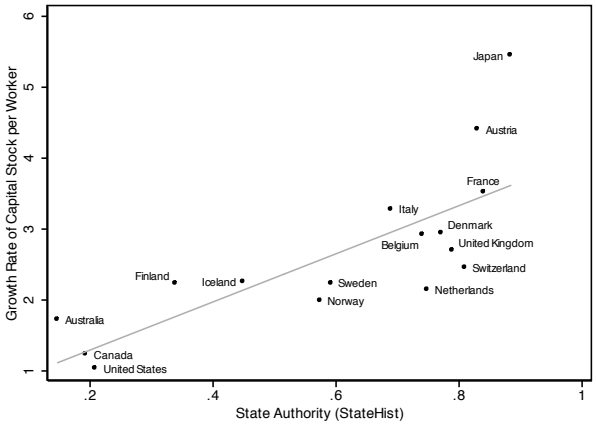
(a) Low-Income Countries



(b) Leading-Edge Countries

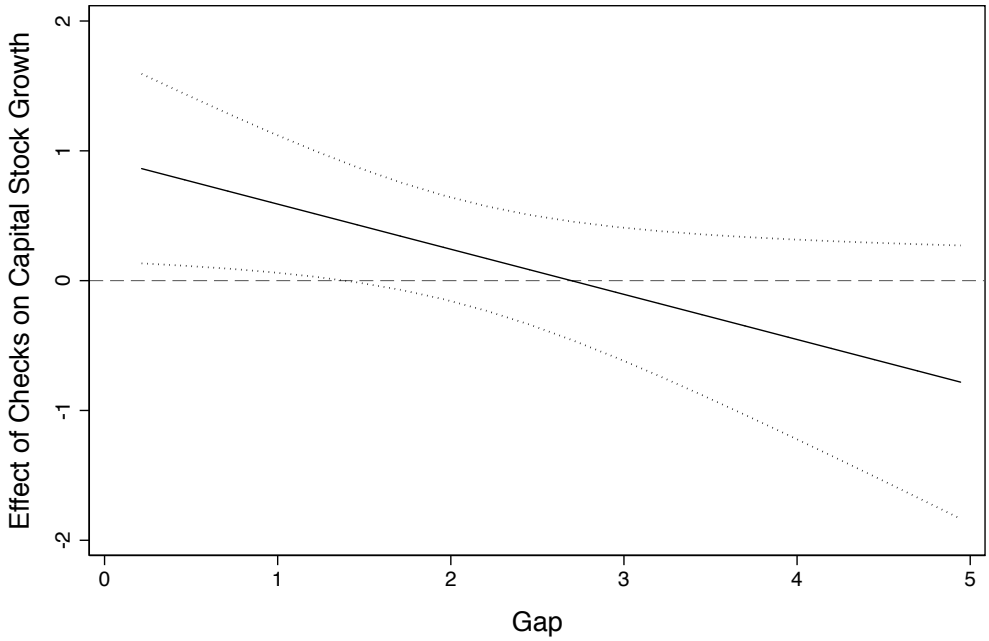


(c) Low-Income Countries

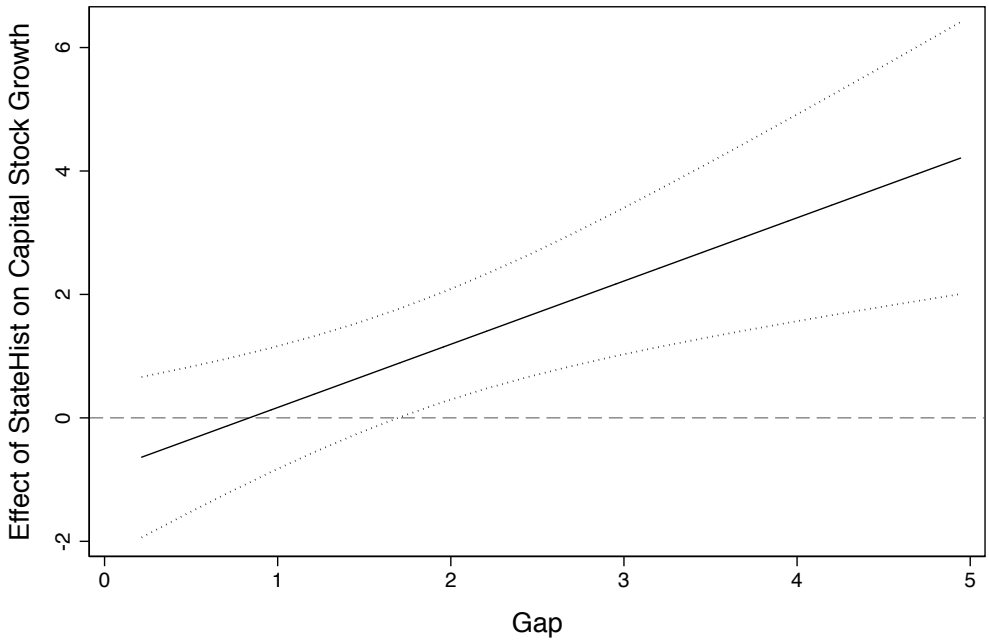


(d) Leading-Edge Countries

Figure 2: Marginal Effect Plots of Checks and StateHist on Capital Stock Growth

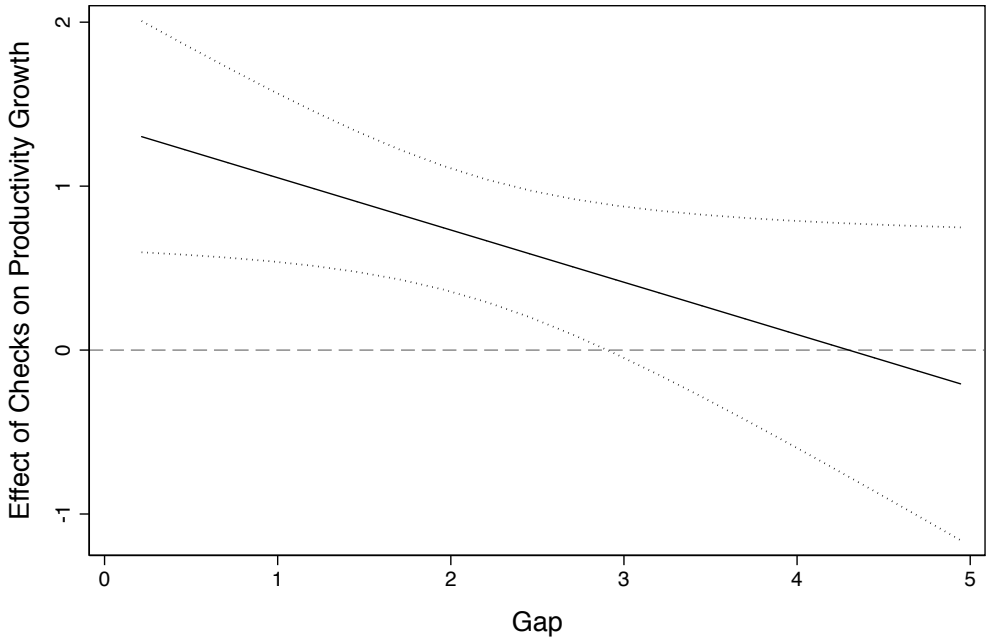


(a) This figure shows the effect on the capital stock growth rate from a one-unit change in Checks at different levels of Gap according to the estimates in Table 1, Model 3. The dotted lines represent the 95% confidence interval.

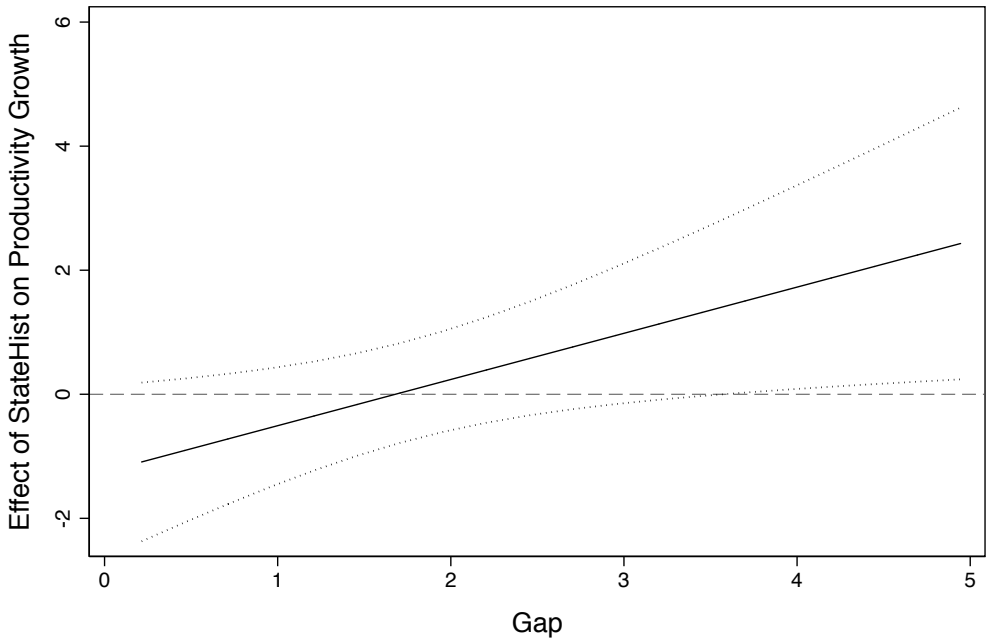


(b) This figure shows the effect on the capital stock growth rate from a one-unit change in StateHist at different levels of Gap according to the estimates in Table 1, Model 3. The dotted lines represent the 95% confidence interval.

Figure 3: Marginal Effect Plots of Checks and StateHist on Productivity Growth



(a) This figure shows the effect on the productivity growth rate from a one-unit change in Checks at different levels of Gap according to the estimates in Table 2, Model 3. The dotted lines represent the 95% confidence interval.



(b) This figure shows the effect on the productivity growth rate from a one-unit change in StateHist at different levels of Gap according to the estimates in Table 2, Model 3. The dotted lines represent the 95% confidence interval.