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Motivated and Able to Make a Difference?

The Reinforcing Effects of Democracy and State Capacity on Human Development

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Abstract

This paper investigates to what extent and under what conditions democracy and state capacity affect human development. We argue that democratic institutions provide leaders with incentives for improving human development, whereas capable state apparatuses enable them to do so. Accordingly, we argue that the two factors reinforce the effects of each other and that the highest levels of human development are achieved when high levels of both factors are present. Our argument contradicts earlier studies, which have claimed that the effects of the two factors crowd out one another. We investigate the proposition through time-series cross-sectional analyses, employing new and improved measures of both democracy and state capacity. These new measures not only give our analysis an advantage in terms of measurement validity; they also substantially increase its temporal scope compared to previous studies. Consequently, we analyze a global sample of countries spanning the period 1902–2008. The results provide strong support for our theoretical expectations, and they are robust to both alternative measures and different model specifications. Our results highlight the importance of building capable state structures and democracy in conjunction and have significant implications for scholars and practitioners of development policy.

Keywords: democracy; autocracy; political institutions; state capacity; human development

Introduction

Despite much global progress (Norberg, 2016) and strong efforts from the international development community, many people around the world are still living under miserable conditions; many are poor and undernourished and do not have access to basic health care and schooling (United Nations, 2015; World Bank Group and International Monetary Fund, 2015).

One suggested path to enhancing human well-being is to increase the state's capacity to deliver public goods and services (Huntington, 1968; Mann, 1984; Ward et al., 2014).

Another is to promote democracy (Bueno de Mesquita et al., 2003; Gerring et al., 2012; Lake and Baum, 2001; Przeworski et al., 2000).¹ However, these potentially beneficial effects are unlikely to function in isolation from one another. Instead, we propose that state capacity and democracy reinforce the effects of each other.

Several scholars have considered how institutions of the state and the political regime, respectively, interact with each other in creating various desirable—as well as undesirable—outcomes. The “state-centered” literature has argued that strong state institutions are necessary for democracy to produce outcomes such as human well-being and economic development. Strong state institutions make it possible to handle the pressure that follows from introducing democracy—and especially broad popular participation in politics—by providing political leaders with sufficient institutional capacity to be able to accommodate the demands of the public. In the absence of strong state institutions, democracy is likely to have the opposite effect as the limitations on political responsiveness may generate conflict and political instability (Huntington, 1968; Mann, 1984; Mansfield and Snyder, 2007a; Mansfield and Snyder, 2007b). Although this view is not necessarily endorsed in the “regime-centered” literature, Bueno de Mesquita et al. (2003) actually do note that their modelling of effects of

¹ See Ross (2006) for contrasting findings.

different political regimes assumes no implementation problems, which again points to the necessity of well-functioning state institutions.

However, more recent contributions have studied the state-democracy interaction more systematically, and they pull in the opposite direction. Both Hanson and Knutsen argue and find that state capacity and democracy crowd out the effects of one another on human development and economic growth, respectively (Hanson, 2015; Knutsen, 2013). The argument for this is that once one is achieved, the other will have substantially less to add. Hence, the effect of democracy is larger at low levels of state capacity and vice versa. Nevertheless, as will be elaborated further below, we have reasons to doubt these findings. Instead, we argue that democracy and state capacity reinforce the effects of each other because both motivation and ability are needed in order to promote human development; that is, neither factor is sufficient by itself. Most scholars agree that state capacity in a broad sense should be understood as *the state's ability to effectively implement policies throughout the state's territory* (Andersen et al., 2014a; Fortin, 2010; Hanson, 2015; Mann, 2008). From this definition, we should expect state capacity to have a positive effect on many phenomena, but only as long as these phenomena are prioritized politically. Priority to human development is brought about by democratic institutions since here, the political leaders depend on a larger and poorer part of the population, who will demand improved human development (compared to leaders in more autocratic countries).

Contrary to the state-centered literature, we do not only argue that state capacity is necessary for democracy to have positive effects, but also that the reverse is true, namely, that a certain level of democracy is necessary for state capacity to have positive effects. While our argument is agnostic about the correct “sequencing” of state capacity and democracy, we do argue that countries need to develop both before either one can have a positive effect on phenomena such as human development.

In order to investigate our theoretical propositions, we employ new and improved measures of both democracy and state capacity. These measures excel in terms of both measurement validity and temporal coverage compared to the measures used in previous studies. Our results corroborate our propositions as they suggest that democracy and state capacity reinforce the effects of each other on human development. The effect of democracy on human development is outright *negative* at low levels of state capacity, whereas it is large and positive at high levels of state capacity. Contrastingly, the effect of state capacity is large and positive in relatively democratic countries, whereas it is absent or negative (depending on the model) in relatively autocratic countries. In addition to contradicting previous studies of the effects of the democracy-state capacity interaction, these results may also partly explain Ross's (2006) puzzling and controversial finding that there is no overall effect of democracy on human development, as he does not account for state capacity in his analyses.

Theory

Democracy and State Capacity as Mutually Reinforcing: Incentives and Ability

Our conceptual starting point is Mazzuca's (2010) distinction between "access to power" and "exercise of power", that is, between the political regime in a country and its state apparatus. Accordingly, while democracy and state capacity may be correlated empirically, they are most appropriately viewed as distinct phenomena and should be treated as such empirically.

Many studies have suggested either that democracy enhances human development or that state capacity does. Beginning with the latter, state capacity should have a positive effect on anything that needs to be implemented, such as policies that affect human development, as it is, per definition, the ability of the state to implement policies (Mann, 2008). Human development captures many different phenomena of development, including standard of

living and human well-being more generally, but is conceptually distinct from both state and regime structures. Scholars have argued that state capacity should have a positive effect on human development because well-functioning administrative organizations and dedicated public officials are needed to deliver public goods effectively (Englehart, 2009; Huntington, 1968; Miller, 2015). For instance, a more effective administration would allow the government to build more well-functioning health facilities, construct them in a quicker and less expensive manner, and, especially, manage them better and with less waste of funds. Sometimes, state capacity is even proxied by (human) development indicators because the two phenomena are viewed as closely connected (Fjelde and De Soysa, 2009; Fortin, 2010). While we agree that this is true in some cases, we will argue that a positive effect of state capacity should only be present when human development is actually prioritized politically.

State capacity is often divided into at least two main components: administrative capacity and monopoly on violence (Andersen et al., 2014b; Carbone and Memoli, 2015; Seeberg, 2014). In the present context, we focus on administrative capacity because it directly captures the effectiveness of the administration in implementing policies, including social and educational policies that are important for human development. Accordingly, when discussing state capacity in the following, we will be referring to the state's administrative capacity.

Importantly—following Mann's definition of state capacity—administrative capacity relates only to the *implementation* of policies and not to their *content*. Hence, the concept implies no normative assumption about “good” policies. Thus, a well-functioning state should mainly be seen as a means for implementing policies, not as a political agent in itself. Instead, it is the political leaders—democratic or autocratic—who provide the content of the policies, which are then implemented through the state apparatus. Additionally, high administrative capacity does not per se imply any specific working procedures or

organizational structures.² Thus, uncorrupt administrative practices are not theoretically embedded in the concept, although low corruption may be empirically associated with high administrative capacity.

Most of the arguments stating that democracy should have a positive effect on human development concern political priorities. Compared to autocratic institutions, democratic institutions create stronger incentives for political leaders to increase the standard of living for the population more broadly. The predominant strand of theory is institutional and concerns the differences in constituencies across democracies and autocracies. In democracies, the leaders' power depends on the support of both more and poorer people than is the case in autocracies. This is so because access to political power is determined through competitive elections with broad suffrage. Democratic institutions limit the actions of the political leaders and strongly constrain their ability to exploit the population because the political leaders are held accountable by the people instead of by a small group of elite supporters, as in autocracies. Accordingly, they have to distribute more resources to the population—and especially to the poorer part—compared to autocrats. In contrast, autocratic leaders' power depends on a comparably smaller and richer fraction of the population. This means that the leaders can extract more resources for their own use, and they only need to share the resources with their relatively small and wealthy coalition of supporters. Because democratic leaders are more constrained by the general population compared to autocratic leaders, democratic societies should be more equal and have higher levels of human development than autocratic societies (Acemoglu and Robinson, 2006; Boix, 2003; Bueno de Mesquita et al., 2003; Meltzer and Richard, 1981; Niskanen, 2003; Olson, 1993). Hence, these differences in incentives are created purely by institutional differences and not by differences in democratic and autocratic leaders' intrinsic motivation.

² See also Slater & Fenner (2011).

Despite the prevalence of this theory, Ross (2006) disagrees by arguing that the median voter, and not the poor, is the target of democratic leaders' policies. According to Ross, democracies only benefit the middleclass, to which the median voter belongs, and not the very poor minority, whose welfare is central for increasing the level of human development in a society. Accordingly, he argues that democracy should not affect human development.

Even if Ross is correct in his assertion that democracy is especially beneficial for the middleclass, we do not agree that this should lead one to conclude that democratic institutions do not enhance human development. While the middleclass is certainly more affluent than the poorest layers of society, autocratic governments are mainly concerned with the interest of wealthy elites. Accordingly, prioritizing the middleclass—rather than elites—should still lead to significantly higher levels of social redistribution. Moreover, while a government may in theory be able to target public goods specifically at a single constituency (such as the middleclass), in practice, most public goods—such as access to health care, sanitation, roads, and a well-functioning school system—will often spill over to other segments in society, including poorer citizens. Therefore, despite Ross' objection, we still believe that democratic institutions provide leaders with stronger incentives to enhance human development than autocratic institutions do, all else equal.

For simplicity, we have thus far been discussing democracy in dichotomous terms. However, with regard to its effect on human development, it is more fruitful to view democracy in a continuous manner, as also differences in degree are expected to matter. We conceptualize democracy in a relatively minimalist, electoral sense, specifically, as the presence of meaningful electoral contestation for power with broad popular participation (Møller and Skaaning, 2013). Our conceptualization of democracy relates to the electoral “core” of democracy and does not include a variety of rights and freedoms (Schumpeter, 1974). In our view, this aspect of democracy is the most central for the political incentives to

promote human development as it relates most directly to the institutional constraints on political leaders (Gerring et al., 2016).

At the two ends of the regime spectrum, we find regimes characterized by, respectively, full presence and total absence of the defining attributes of democracy. In between the two extremes, we find the majority of the political regimes in the world. While all of these regimes lack perfect electoral contestation and/or full popular participation, we argue that the degree to which the political institutions of the country resemble the democratic ideal matters for the degree to which human development is prioritized politically. The more democratic a country is, the stronger are the incentives of political leaders to prioritize human development. This is so because broadening popular participation and improving electoral contestation increase the extent to which political leaders depend on more and poorer parts of the population, who tend to have strong preferences for improvements in human development. Even autocracies that hold elections with at least some degree of genuine contestation, in which sizeable parts of the population participate, should have stronger incentives to promote human development than more closed autocracies (Miller, 2015).

Summing up, existing arguments for a positive effect of democracy on human development mainly relate to democratic leaders' incentives to provide human development. However, the ability to do so is implicitly assumed, which we argue is an untenable assumption. Combining the arguments for a positive impact of democracy and state capacity suggests that the two should enhance the effects of each other on human development by adding incentives and ability, respectively. Following the arguments presented above on the one hand, we expect the institutional incentives and, thereby, the political motivation to enhance human development to be larger in countries that are more democratic. On the other hand, we argue that the actual ability to implement desired policies increases with a country's level of state capacity. When this capacity is lacking, democratic institutions will not be able

to accommodate the demands of the electorate, especially when suffrage is extended to the public at large (Huntington, 1968).

A couple of studies have investigated the relative importance of regime type and state structures for human development. Some find democracy to be the most important (Wang et al., 2015), while others find state capacity to have the strongest effect (Ziblatt, 2008). A few recent studies have considered the combined effect of state capacity and democracy. One approach is a mediation analysis arguing that democracy affects state capacity, which then affects human development (Kim and Kroeger, 2018). Another is simply to control for state capacity when investigating the effect of democracy. Dietrich and Bernhard (2016) find that after introducing controls for state capacity, democracy no longer seems to reduce infant mortality. This in itself highlights the importance of accounting for state capacity empirically. Furthermore, using split samples, they also investigate how democracy moderates the effect of state capacity (but not vice versa). They find a slightly larger negative effect of administrative state capacity on infant mortality in democracies compared to autocracies. In addition, with regard to education, they find that the effect in democracies is positive, while the effect in autocracies is negative. While these findings suggest a positive interaction between democracy and state capacity, this remains an open question empirically for two reasons. First, because of the authors' use of split samples instead of a formal interaction term, we do not know whether the effects of state capacity in democracies and autocracies are statistically different from each other (especially with regard to infant mortality). Second, they do not investigate whether state capacity also moderates the effect of democracy, as a symmetric interaction effect would imply (Berry et al., 2012).

Hanson (2015) more formally investigates the interaction effect between democracy and state capacity on human development. His results indicate a negative interaction effect, namely, that democracy and state capacity reduce the effects of one another on human

development.³ The effect of democracy appears to be largest in countries that lack state capacity, and the effect of state capacity mainly seems to be present in rather authoritarian regimes. While we agree that democracy and state capacity should moderate the effects of each other, we doubt that this interaction effect is negative. On the contrary, we expect it to be positive for the reasons described below.⁴

First, Hanson provides no explanation of how the incentives for improving human development provided by democracy can have an effect in the absence of the ability to actually implement policies, which state capacity provides. This is problematic as Hanson himself at various points stresses the importance of having the necessary capacity in order to be able to implement political objectives (Hanson, 2015). Second, his argument for why state capacity has the largest effect in autocratic settings is not persuasive. He argues that having high state capacity in itself should increase human development. Hence, in high-capacity contexts, there is little left for democracy to add. The bureaucracy provides knowledge of problems with human development, thereby substituting for the “bottom-up” channel provided by the free flow of information in democracies (Hanson, 2015). The argument therefore concerns the ability to *discover* problems. However, the ability to discover low human development and that people are suffering is probably not the (only) reason why human development is lacking in many places in the world. Rather, it is more likely due to a lack of *incentives* to prioritize human development and/or a lack of *ability* to implement human development policies.

Hanson also discusses the political incentives for promoting human development. He argues that owing to a concern for performance legitimacy, autocrats may also prioritize

³ Knutsen (2013) also finds a negative interaction effect for democracy and state capacity, but for economic growth instead of human development.

⁴ Actually, both Hanson and Knutsen briefly acknowledge that a positive interaction effect between democracy and state capacity could be theoretically plausible. However, both go on to argue against it and in favor of the negative interaction effect instead.

human development, just as democratically elected leaders do—especially when it is easier to implement, that is, when state capacity is high (Hanson, 2015). However, this incentive is not unique to autocrats as it is even more relevant for democratic leaders, who have to worry about reelection (Bueno de Mesquita et al., 2003). To secure (re)election, democratic leaders depend on the support of a larger and poorer part of the population, who are the primary beneficiaries of human development-enhancing policies. Thus, while state capacity may have a positive effect in both autocratic and democratic settings, we expect the effect to be substantially larger in democracies.

To sum up, the above discussion leads us to the following two hypotheses, which we will test in the analysis below:

H1: Democracy has a positive effect on human development, which is small or absent at low levels of state capacity and large at high levels of state capacity.

H2: State capacity has a positive effect on human development, which is small or absent at low levels of democracy and large at high levels of democracy.

Methods and Data

We investigate the impact of democracy and state capacity on human development using global time series cross-sectional data. The sample includes sovereign countries spanning the period 1902–2015.⁵ We have two main criteria for our choice of measurement: high measurement validity and broad empirical coverage.

⁵ The number of countries and the period investigated vary between models depending on the lags applied.

The Dependent Variable: Human Development

We measure human development in two ways. Our first measure is the infant mortality rate, which is defined as the number of infants who die before the age of one, per thousand born. Our second measure is secondary school enrollment, which is the share of the school-aged population enrolled in secondary school. These two measures capture two important aspects of human development, namely, health and education. Moreover, they are both affected by living standards, especially for the worst off in society, which is also at the core of human development. In addition, both measures have a broad coverage. We use the infant mortality rate and secondary school enrollment measures provided by the Varieties of Democracy Project (V-Dem). Both measures are composed of several measures from different sources. The infant mortality measure is based on Gapminder and Clio Infra (Clio Infra, 2017; Coppedge et al., 2017; Gapminder, 2017), and our measure of secondary school enrollment is based on the UNESCO Institute for Statistics and Barro and Lee's Long-Run Enrollment Ratios (Barro and Lee, 2015; Coppedge et al., 2017; World Bank, 2018). Since we expect a floor effect on the infant mortality rate, this measure is log transformed.

The Independent Variables: Administrative Capacity and Electoral Democracy

Regime type is frequently measured using Freedom House or Polity IV. Hanson also uses the latter. However, both measures are often problematic because the aggregation procedures are not transparent, which makes the interpretation of the measures difficult (Munck and Verkuilen, 2002). In addition, Freedom House is problematic to use when administrative capacity is investigated since Freedom House includes functioning of government, rule of law, and other state attributes (Freedom House, 2017). Moreover, using Freedom House in this paper is inappropriate as this measure builds on a maximalist conception of democracy whereas our theoretical argument rests on a rather minimalist conception that emphasizes

meaningful contestation and participation. Although Polity builds on a minimalist conception, it still lacks transparency, and some of the sub-indicators are not closely connected to the electoral core of democracy as they include absence of political repression and a strong focus is put on checks and balances (Marshall et al., 2016). Instead, we use V-Dem's "Electoral democracy index", which is based on expert evaluations (Coppedge et al., 2017). However, we exclude its two maximalist components, namely, freedom of expression and freedom of association. Thus, we end up using an index consisting of the three following continuous measures: clean elections, elected officials, and suffrage. The index is coded 0–1, where higher values indicate higher levels of democracy.

We also show that the results are robust to using several alternative measures of democracy. We run robustness checks with the full (more maximalist) "Electoral democracy index" and with a dichotomous measure based on "The Lexical Index of Electoral Democracy (LIED)" (Skaaning et al., 2015). Furthermore, scholars have recently argued that democratic experience may matter more than the democracy level in a given year (Gerring et al., 2016; Gerring et al., 2012). Therefore, we also run models with a stock measure of democracy, which is a weighted measure of cumulative democratic experience since 1900.

Administrative capacity is measured in many different ways in the literature. There are several possible measures to choose from, even when corruption measures are disregarded. Nevertheless, as administrative capacity is such a disputed concept and difficult to measure, many of the measures are problematic (Hendrix, 2010; Saylor, 2013). A common reason is that they capture political decisions and not the *capacity* to implement them.

Hanson uses the State Antiquity Index (Statehist) that measures if and for how long a supra-tribal polity has existed in a country from years 1 to 1950 (Putterman, 2003). However, in addition to having to assume a very strong path dependency when using the measure as a proxy for administrative capacity today, Statehist actually does not measure administrative

capacity as such; instead, it measures the mere existence of a polity. These considerations indicate that Statehist is an ill-suited measure of administrative capacity.

Tax revenue to GDP and Jacek Kugler's Relative Political Capacity are other widely used proxies for the ability to extract taxes and, thus, for administrative capacity (Andersen et al., 2014a; Cheibub, 1998; Englehart, 2009; Ward et al., 2014). Despite the wide use of the measures, they are problematic since the amount of revenue collected also depends on the tax rate, which is decided politically. Therefore, it does not necessarily reflect differences in the capacity to collect taxes. In fact, this seems to be a problem since countries such as Spain, the United States, Canada, and Japan have similar or even lower levels than most countries in Africa. Moreover, Norway and South Africa have the same tax revenue to GDP. This does not align with their administrative capacity, which indicates that the measure is not a good proxy for administrative capacity (World Bank Group, 2017a).

Hanson also uses census frequency as a proxy for state capacity. It should capture *capacity* when it is assumed that most politicians are highly interested in information about their population (either to control or to improve policies and implementation). However, this is better viewed as a measure of state failure because the variance in the measure is very small as it has an early ceiling effect. These problems are less prevalent for the World Bank's measure of statistical capacity, which is an index consisting of objective measures of the quality of public statistics across a variety of fields (World Bank Group, 2017b).

Yet another frequently used measure of administrative capacity is Bureaucratic Quality (BQ) from Political Risk Services (Bäck and Hadenius, 2008; Knutsen, 2013). It measures the institutional strength and quality as well as the independence of the state apparatus. More specifically, it measures the extent to which day-to-day tasks are managed by the state independently of political pressure. In addition, the measure attaches importance to

established procedures⁶ of recruitment and training (PRS Group, 2017). Hence, it captures the consistency and strength of the administrative apparatus, but absence of corruption is not part of the measure per se. Thus, both BQ and statistical capacity are good measures of administrative capacity.⁷ However, no data is available before 1984 and 2004, respectively, for the two measures. It would be ideal to have a longer time series as other studies have suggested that the effects may depend on the length of the investigated time period (Wang et al., 2015). The V-Dem project has provided a measure of administrative capacity, “Rigorous and impartial public administration”, which is based on expert evaluations of the question “Are public officials rigorous and impartial in the performance of their duties?” Hence, much like BQ, this measure captures the strength of state institutions, the quality and thoroughness of public officials’ performance of administrative tasks, as well as the independence of the state apparatus. This measure is available from 1900 and onwards, and the spatial coverage is large as well (Coppedge et al., 2017). This measure thereby combines a high degree of validity in terms of capturing our concept of administrative capacity with far superior empirical coverage, and we therefore choose this over the competing measures for the analysis. We run robustness checks with Hanson and Sigman’s (2013) latent state capacity measure, which is highly correlated with BQ and statistical capacity but has longer temporal coverage (from 1960).

Controls

Our models include both country- and year-fixed effects. Accordingly, they control for time-invariant factors as well as time trends and yearly shocks in the variables.⁸ In addition, we control for several potential time-variant confounders.

⁶ It is not clear whether this implies meritocratic recruitment.

⁷ See Hendrix (2010) for a similar conclusion regarding BQ.

⁸ See Table A1 and Figures A1 and A2 in the appendix for time-series properties of our core variables.

We control for economic development (Lipset, 1959) and natural resources (Krasner, 2005; Robinson et al., 2006; Ross, 2006; Tilly, 1985) as these factors might affect state capacity, regime type, and human development. *Economic development* is proxied by the logarithmic form of GDP (fixed prices) per capita and by urbanization. Data on GDP per capita is obtained from Haber and Menaldo (2011), while data on urbanization is from the V-Dem dataset and is constructed based on data from Clio Infra (Clio Infra, 2017; Coppedge et al., 2017). As a proxy for *natural resources*, we use the real value of petroleum production per capita (Haber and Menaldo, 2011). Moreover, we control for *population size* as it is likely to be associated with all three variables. We employ the logarithmic form of population size using data from V-Dem, which is also based on data from Clio Infra. Furthermore, we control for war (*intra-* and *interstate war*) because war may reduce both state capacity and human development as well as hinder or cause the breakdown of democracy (Andersen et al., 2014a). However, post-treatment bias is also likely as state capacity may heavily affect the risk of war (Fjelde and De Soysa, 2009), and the regime type of countries has been associated with systematic differences in war engagement (Oneal and Russett, 1997). Therefore, we only include the war variables as controls in robustness checks. For both war types, we use data from PRIO (Peace Research Institute Oslo, 2017). Table 1 below shows descriptive statistics for the variables.

[Table 1 about here]

Estimation Technique and Model Specification

In our main models, we use linear regression with country- and year-fixed effects and with country-clustered standard errors. All the independent variables are lagged by two years because we expect it to take at least a year for policies to be made and implemented and, in

turn, affect the infant mortality rate and secondary school enrollment. In addition, from the appearance of the first effects, a year has to pass before the full impact is reached because the infant mortality rate includes infants less than *one* year old. Because of yearly cycles in enrollment (it is possible to enroll pupils only once or twice a year), we also use two-year lags in the models, with secondary school enrollment as the dependent variable. We run robustness checks with three-year lags, five-year lags, and ten-year lags.

Lagging our independent variables also helps ensuring the correct temporal sequence. Although there is still some risk of reverse causality, this risk is likely to be low since we include indicators of modernization in the models, which is the most likely mechanism through which human development should affect democracy (Lipset, 1959) and state capacity (economic development has been used as a proxy for state capacity).

Hanson uses an error correction model with a lagged dependent variable and random effects in order to approximate a fixed effects model. He does this because he cannot use a fixed effects model as Statehist is time invariant (Hanson, 2015). However, since we do not have this problem, we find a fixed effects model more appropriate. Nonetheless, we include a lagged dependent variable in some of our robustness checks.

We might be concerned that the constituting terms of the interaction term, that is, democracy and state capacity, are highly correlated, which would make the models inefficient. However, we investigate this possibility by comparing levels of administrative capacity across four different levels of democracy. This shows collinearity to be of less concern. Although state capacity on average does tend to be lower in less democratic countries than in more democratic ones, the variation in state capacity is large across all four levels of democracy (see Figure A3 in the appendix).

The primary explanation for why the collinearity between democracy and state capacity appears to be smaller than many studies suggest is conceptual. Since we have a relatively

minimalist conception of democracy and a somewhat minimalist conception of state capacity (by not including absence of corruption *per se*), we avoid the conceptual overlap between the two variables (rule of law and control of corruption are very close to overlapping). Moreover, administrative capacity (when control of corruption is not included in the concept) becomes an actual capacity for an authoritarian regime rather than a constraint, as some scholars have argued (Melville and Mironyuk, 2016). Thus, there is no reason why authoritarian regimes would want to avoid this type of state capacity. Indeed, there are many examples of authoritarian regimes with high levels of state capacity, such as the Asian Tigers. Although it may be more difficult to imagine democracies with relatively low levels of state capacity, a case in point is India. India's level of state capacity is relatively low compared to other established democracies, and accordingly, India performs markedly worse in terms of human development than we would expect based on the country's level of electoral democracy alone. Another example is Ghana, which—despite the country's comparatively high level of electoral democracy—exhibits comparatively low levels of both state capacity and human development.

Results

Tables 2 and 3 show the results for our two dependent variables, infant mortality rate and secondary school enrollment, respectively.

Main Results

Model 1 in Table 2 indicates that administrative capacity has a statistically significant negative effect on the infant mortality rate and that democracy has no effect. The former is in line with our theoretical expectations, as we expect state capacity to have a positive effect or no effect on human development across all regime types. However, when controls are

included in Model 2, the effect of administrative capacity disappears. The lack of an independent effect of democracy is also consistent with our expectations, as we argue that democracy should only have an effect if state capacity is present to some degree. Therefore, the effect here depends on the global level of state capacity. However, it is worth noting that the lacking effect of democracy is also in line with Ross's (2006) findings.

The results from the interaction models in Models 3 and 4 explain the lacking effects of democracy (and administrative capacity). The interaction term is negative, which indicates that democracy and administrative capacity condition the effect of each other on infant mortality. The higher the value of administrative capacity, the more democracy reduces the infant mortality rates. In turn, the higher the degree of democracy, the more administrative capacity reduces infant mortality.

[Table 2 about here]

Figure 1 shows the effect of democracy at different levels of administrative capacity. The figure indicates that there is a negative effect of democracy at low levels of administrative capacity, whereas at high levels of administrative capacity, democracy seems to increasingly enhance human development. While the positive effect on human development at high levels of administrative capacity is very much in line with our theoretical arguments, the negative effect at low levels of administrative capacity is somewhat unexpected, as we expected the effect here to be low or insignificant.

However, the latter finding can be interpreted in light of Huntington's argument that when the political institutions (including the state) of a country are weak, introducing democracy—and, especially, broad suffrage—may have a destabilizing effect on the country, which in turn may harm rather than help human development (Huntington, 1968). On the

other hand, when the political institutions are strong, the government will be much better able to accommodate popular demands for better social policies, education, and so forth. In sum, the findings support our main argument that if you *cannot* properly implement policies, it does not matter if you *want to* implement certain policies.

[Figure 1 about here]

The marginal effects of administrative capacity at different levels of democracy are shown in Figure 2. In line with our theoretical arguments, administrative capacity reduces infant mortality at high levels of democracy, whereas in the middle of the democratic spectrum, there is no effect. Surprisingly, in the most closed autocracies, state capacity seems to have a negative effect on human development, whereas we expected the effect for these regimes to be either low or insignificant. The reason for this peculiar finding may be that high administrative capacity increases the ability of the autocratic regime to monitor and extract resources from the population (Slater and Fenner, 2011). This may have harmful side effects in terms of the country's level of human development, as these resources are more likely to be distributed as private goods among members of the autocratic regime and their essential supporters than they are to be spent on public goods benefitting the population at large (Bueno de Mesquita et al., 2003).

[Figure 2 about here]

We chose to use a two-year lag of the independent variable to give time for implementation of policies and for them to have an effect on human development. However, introducing and implementing human development-enhancing policies may take longer. Model 5 in Table 2

shows that using three-year lags leads to similar results. A recent tendency in the democracy literature is to look at the cumulative effect of democracy instead of current levels in order to account for both path dependencies and for the fact that democracy's effect may accumulate over time (Gerring et al., 2016). Following this reasoning, we should expect ten years of democracy to have a larger impact on the infant mortality rate than newly established democratic institutions. In Model 6, we investigate this by employing a stock measure where earlier democratic experience depreciates with 5 percent per year. Our results do not change substantially when this measure is used instead. However, the surprising finding that administrative capacity increases the infant mortality rate in closed autocracies only remains for the most extreme values of (lack of) democracy (Figure A5 in the appendix).

Table 3 reports our findings when our second measure of human development is employed, secondary school enrollment. The results are largely similar to the results with the infant mortality rate measure. There is no independent effect of democracy, and administrative capacity increases enrollment (Model 7). Contrary to the findings for the infant mortality rate measure, the independent effect of administrative capacity does not disappear when controls are included (Model 8). The interaction effect is statistically significant and positive, which indicates that democracy and administrative capacity have reinforcing effects on secondary school enrollment (Models 9 and 10). The marginal effect of democracy is similar to the effect in the models with infant mortality rate as the independent variable. Accordingly, the effect of democracy on secondary school enrollment is negative at low levels of administrative capacity and positive at high levels of administrative capacity (Figure A6 in the appendix). In turn, the positive marginal effect of administrative capacity increases with higher levels of democracy. In contrast to our main finding for the infant mortality rate, there is no negative effect of administrative capacity at any level of democracy—not even in closed autocracies (Figure A7 in the appendix). The results do not

change substantially when three-year lags are introduced, nor when the democracy level is measured as democratic stock (Models 5 and 6 in Table 3 and Figures A4 and A5 in the appendix).

[Table 3 about here]

Based on this, our main findings suggest that there is no independent effect of democracy on human development but that there may be a positive (but not fully robust) independent effect of state capacity. Although the lacking effect of democracy is in line with Ross's (2006) findings, it is not in line with his theoretical arguments because democracy actually *has* an effect on human development, although this effect is conditioned by the level of state capacity. At low levels, the effect is negative, whereas at high levels, the effect is positive. Thus, the state simply needs to be capable of effectively implementing development-enhancing policies for political incentives to have (positive) effects. Somewhat overlooked by the state-centered literature—but not necessarily in contradiction of it—is our finding that state capacity has no effect (or a slightly negative effect) in closed autocracies and a positive effect in more democratic countries. Hence, we find that democracy and state capacity have reinforcing positive effects on human development. Moreover, these results are robust to alternative measures and model specifications.

Robustness Checks

We run several robustness checks of the effects on both the infant mortality rate and secondary school enrollment. Regarding longer time lags, in addition to two-year and three-year lags, the results are robust to using both five-year and ten-year lags. Moreover, the results are robust to using stock measures with depreciation rates of both 1 and 10 percent

instead of 5 percent (see Tables A2 and A3 in the appendix). These findings seem to indicate that the reinforcing effects of democracy and state capacity operate both in the longer and in the shorter term.

Our results are also robust to alternative specifications of our independent variables. Regarding democracy, these include both level and stock of V-Dem's continuous (full) measure of polyarchy as well as a dichotomous measure of electoral democracy from the Lexical Index of Electoral Democracy (see Tables A2-A5 in the appendix). Thus, our results are robust to employing both dichotomous and more maximalist conceptions of democracy. Concerning state capacity, we only run robustness checks with Hanson and Sigman's (2013) latent state capacity measure. As previously discussed, there are potential problems (at least for our present purpose) with many of the existing state capacity measures, and the two best alternatives to our measure, BQ and statistical capacity, both have a temporal coverage that is too short (beginning in 1984 and 2004, respectively). However, Hanson and Sigman's state capacity measure is highly correlated with BQ (0.80) and statistical capacity (0.75) but covers a longer time span (beginning in 1960). Moreover, arguably, it is a latent measure of the administrative dimension of state capacity (Hanson and Sigman, 2013). Our results are largely robust to this alternative measure, although the interaction term in the model with infant mortality falls slightly short of statistical significance (see Tables A4 and A5).

We did not control for civil war and international war in our main models because of the risk of post-treatment bias. However, including the two conflict variables does not change our results substantially. Our results are also robust to including regional averages of the dependent variable(s) in an attempt to account for both global health trends and regional development programs that may affect a given country's level of human development (see Tables A4 and A5 in the appendix).

Because two-way fixed effect models are inefficient and somewhat difficult to interpret,⁹ we run analyses with alternative estimation models. In some models, we substitute the year dummies with decade dummies, and in others, we include a linear time trend instead of the year dummies. We also run analyses with a shorter time series, that is, 1965–2008, which is similar to the one Hanson employs in his models (Hanson, 2015). Moreover, we modelled the serial correlation using Prais-Winsten estimation with autoregressive error terms¹⁰ and panel-corrected standard errors. The results are robust to all four model specifications although the interaction term is only statistically significant at the 90 percent level in the models with the truncated time series (see Tables A4-A6 in the appendix).

In addition to introducing dynamics in the error terms with the Prais-Winsten specification, we include a lagged dependent variable in some of the models although this takes out a great deal of the variation because of the sluggish nature of the variables. In these specifications, all variables, except for the lagged dependent variable, turn insignificant although the coefficients on the interaction terms maintain the expected sign (see Tables A4 and A5 in the appendix). However, we have reason to believe that this model specification is improper. In general, substantial arguments can be made against introducing LDVs in models such as these (Angrist and Pischke, 2009; Nickell, 1981). Even more importantly, variables such as GDP per capita and petroleum production—which have been consistently linked to human development in prior studies—turn insignificant in these models,¹¹ which provides *prima facie* evidence of problems with the model specification. Accordingly, the insignificant findings in these models are viewed as only very weak evidence against our hypotheses. Last, we also modelled the dynamics in the effects using the “system” (Arellano-Bover/Blundell-

⁹ Two-way fixed effects models use the within information on two dimensions at once.

¹⁰ These are specified as AR(1).

¹¹ In fact, almost all variables in the models (except the LDV in both models and democracy in one of the models) turn insignificant in this specification.

Bond) GMM estimator (which also includes a lagged dependent variable in the models). Our results are robust to this alternative specification as well (see Table A7 in the appendix).

Discussion and Conclusions

The central goal of this paper has been to investigate to what extent and under what conditions democracy and state capacity affect human development. We investigated these propositions on a global sample of countries with a time span of 107 years, using recently developed measures of our central concepts with both vastly improved empirical coverage and higher measurement validity compared to those used in previous studies. Contrary to recent systematic studies of the relationship, we have argued and found that democracy and state capacity reinforce the positive effects of each other. Accordingly, all else being equal, the highest levels of human development are achieved when countries possess both democratic political institutions and strong, capable state institutions. Therefore, although democracy provides strong political incentives to promote phenomena such as human development, these incentives do not matter much if a country lacks state institutions with sufficient capability to effectively implement development-enhancing policies. However, in the presence of such institutions, democracy has a substantial positive effect, and this effect increases proportionally as the level of state capacity increases. Likewise, strong and capable state institutions do not affect human development and similar phenomena if they are not prioritized politically. The political incentives to prioritize such phenomena should decrease markedly as the political institutions of a country become less democratic. In sum, a certain level of state capacity appears to be necessary for democracy to have a positive effect and vice versa. Our findings are highly robust to alternative model specifications and measures.

The combined impact of democracy and state capacity on development has been considered in extant literature. However, not until recently have scholars begun to investigate

the relationship systematically on a global scale. With partial exceptions, these recent studies have indicated that the effects of democracy and state capacity crowd each other out rather than reinforce each other, which, in contrast, is what we argue and show. Our results diverge from Hanson's (2015) since we use different—and, we argue, improved—measures of state capacity and democracy. This also leads us to use slightly different estimation techniques as we do not face problems with time-invariant independent variables. Otherwise, our analysis is quite comparable to his. First, we use the same human development indicators that he does (i.e., infant mortality rate and secondary school enrollment). Second, when we use a truncated period of analysis roughly similar to Hanson's (1965–2008), our results remain substantially unchanged (although the precision of the estimates is slightly lower). Our results are even robust when we investigate the relationship using an alternative measure of state capacity that is highly correlated with statistical capacity (proxying the same features as Hanson's census frequency measure). Summing up, we believe that our findings have a stronger empirical (as well as theoretical) basis than the findings of previous studies as our findings rest on a much longer time series as well as more valid measures of the main variables (i.e., our measures are designed to capture the same theoretical concepts as previous studies but do so—we argue—in a more consistent manner).

Our findings are somewhat in line with the state-centered literature (Huntington, 1968; Mann, 1984; O'Donnell, 1988; O'Donnell, 1973) because state capacity is important for democracy to have positive effects on human well-being. Yet, enhancing human well-being does not just require a strong state but also political incentives to do so. The effect of state capacity is conditioned by the level of democracy, and in very undemocratic regimes, there is no indication that state capacity is beneficial for human development. The same goes for democracy at low levels of state capacity. Therefore, focusing on improving one at the expense of the other is counterproductive as the two should be developed in tandem in order

to obtain the highest positive effect on human development. However, the present study should not be viewed as a contribution to the so-called “sequencing” debate (Carothers, 2007; Mansfield and Snyder, 2007a) as our theory and results concern only the *effects* of democracy and state capacity on phenomena such as human development and neither their *causes* nor their effects on *each other*.

Instead, our results speak to the practice of development policy worldwide. Western countries and NGOs have been much concerned with promoting democracy in developing countries. Yet, from a human development perspective, promoting state building and effective administration in these countries is equally important, especially if (somewhat) meaningful electoral competition is already in place. Our results indicate that for development policies to be most effective, efforts at promoting democracy should increasingly be combined with efforts at developing at least moderately well-functioning administrative state structures. Only then will developing countries be able to reap the beneficial effects of democratic governance with regard to combating poverty and promoting human well-being.

References

- Acemoglu D, Robinson JA. *Economic Origins of Dictatorship and Democracy*. New York: Cambridge University Press; 2006.
- Andersen D, Møller J, Rørbæk LL, Skaaning S-E. State capacity and political regime stability. *Democratization*. 2014a;21(7):1305–25. doi: 10.1080/13510347.2014.960204
- Andersen D, Møller J, Skaaning S-E. The state-democracy nexus: conceptual distinctions, theoretical perspectives, and comparative approaches. *Democratization*. 2014b;21(7):1203–20. doi: 10.1080/13510347.2014.960206
- Angrist JD, Pischke J-S. *Mostly Harmless Econometrics: An Empiricist's Companion*. Princeton University Press; 2009.
- Bäck H, Hadenius A. Democracy and State Capacity: Exploring a J- Shaped Relationship. *Governance*. 2008;21(1):1–24.
- Barro RJ, Lee J-W. *Education Matters: Global Schooling Gains from the 19th to the 21st Century*. Oxford University Press; 2015.
- Berry WD, Golder M, Milton D. Improving Tests of Theories Positing Interaction. *J. Polit.* Cambridge University Press New York, USA; 2012;74(3). doi: 10.1017/S0022381612000199
- Boix C. *Democracy and Redistribution*. New York: Cambridge University Press; 2003.
- Bueno de Mesquita B, Smith A, Siverson RM, Morrow JD. *The Logic of Political Survival*. MIT Press; 2003.
- Carbone G, Memoli V. Does Democratization Foster State Consolidation? Democratic Rule, Political Order, and Administrative Capacity. *Governance*. 2015;28(1):5–24. doi: 10.1111/gove.12056
- Carothers T. The “Sequencing” Fallacy. *J. Democr.* 2007;18(1):11–27.
- Cheibub JA. *Political Regimes and the Extractive Capacity of Governments: Taxation in*

- Democracies and Dictatorships. *World Polit.* 1998;50(3):349–76. doi: 10.2307/25054045
- Clio Infra. Clio Infra. 2017.
- Coppedge M, Gerring J, Lindberg SI, Skaaning S-E, Teorell J, Altman D, et al. V-Dem Codebook v7.1. Var. Democr. Proj. 2017.
- Dietrich S, Bernhard M. State or Regime ? The Impact of Institutions on Welfare Outcomes. *Eur. J. Dev. Res.* 2016;28(2):252–69. doi: 10.1057/ejdr.2014.70
- Englehart NA. State Capacity, State Failure, and Human Rights. *J. Peace Res.* 2009;46(2):163–80. doi: 10.1177/0022343308100713
- Fjelde H, De Soysa I. Coercion, Co-optation, or Cooperation?: State Capacity and the Risk of Civil War, 1961--2004. *Confl. Manag. Peace Sci.* 2009;26(1):5–25. doi: 10.1177/0738894208097664
- Fortin J. A tool to evaluate state capacity in post-communist countries, 1989-2006. *Eur. J. Polit. Res.* 2010;49(5):654–86. doi: 10.1111/j.1475-6765.2009.01911.x
- Freedom House. Methodology. 2017.
- Gapminder. Gapminder. 2017.
- Gerring J, Knutsen CH, Skaaning S-E, Teorell J, Coppedge M, Lindberg SI, et al. Electoral Democracy and Human Development. *V-Dem Work. Pap. Ser.* 2016;2015(9):1–61. doi: 10.2139/ssrn.2652180
- Gerring J, Thacker SC, Alfaro R. Democracy and Human Development. *J. Polit.* 2012;74(1):1–17. doi: 10.1017/S0022381611001113
- Haber S, Menaldo V. Do Natural Resources Fuel Authoritarianism? A Reappraisal of the Resource Curse. *Am. Polit. Sci. Rev.* 2011;105(1):1–26. doi: 10.1017/S0003055410000584
- Hanson JK. Democracy and State Capacity: Complements or Substitutes? *Stud. Comp. Int.*

- Dev. 2015;50(3):304–30. doi: 10.1007/s12116-014-9173-z
- Hanson JK, Sigman R. Leviathan's Latent Dimensions: Measuring State Capacity for Comparative Political Research. Work. Pap. 2013;1–41.
- Hendrix CS. Measuring state capacity: Theoretical and empirical implications for the study of civil conflict. *J. Peace Res.* 2010;47(3):273–85. doi: 10.1177/0022343310361838
- Huntington SP. *Political Order in Changing Societies*. New Haven and London: Yale University Press; 1968.
- Kim NK, Kroeger AM. Do multiparty elections improve human development in autocracies? *Democratization*. Routledge; 2018;25(2):251–72. doi: 10.1080/13510347.2017.1349108
- Knutsen CH. Democracy, State Capacity, and Economic Growth. *World Dev.* 2013;43:1–18. doi: 10.1016/j.worlddev.2012.10.014
- Krasner SD. The Case for Shared Sovereignty. *J. Democr.* 2005;16(1):69–83. doi: 10.1353/jod.2005.0013
- Lake DA, Baum MA. The Invisible Hand: Political Control and the Provision of Public Services. *Comp. Polit. Stud.* 2001;34(6):587–621. doi: 10.1177/0010414001034006001
- Lipset SM. Some Social Requisites of Democracy: Economic Development and Political Legitimacy. *Am. Polit. Sci. Rev.* 1959;53(1):69–105. doi: 10.2307/1951731
- Mann M. The Autonomous Power of the State: Its Origins, Mechanisms and Results. *Eur. J. Sociol.* 1984;25(2):185–213. doi: 10.1002/9780470755686.ch3
- Mann M. Infrastructural power revisited. *Stud. Comp. Int. Dev.* 2008;43(3–4):355–65. doi: 10.1007/s12116-008-9027-7
- Mansfield ED, Snyder J. The Sequencing "Fallacy" J. Democr. 2007a;18(3):5–10. doi: 10.1353/jod.2007.0047
- Mansfield ED, Snyder JL. *Electing to Fight: Why Emerging Democracies Go to War*.

- Cambridge: MIT Press; 2007b.
- Marshall MG, Gurr TR, Jaggers K. POLITY™ IV PROJECT: Dataset Users' Manual. 2016;
- Mazzuca SL. Access to power versus exercise of power reconceptualizing the quality of democracy in latin America. *Stud. Comp. Int. Dev.* 2010;45(3):334–57. doi: 10.1007/s12116-010-9069-5
- Meltzer AH, Richard SF. A Rational Theory of the Size of Government. *J. Polit. Econ.* 1981;89(5):914–27. doi: 10.1086/261013
- Melville A, Mironyuk M. “Bad enough governance”: state capacity and quality of institutions in post-Soviet autocracies. *Post-Soviet Aff.* 2016;32(2):132–51. doi: 10.1080/1060586X.2015.1052215
- Miller MK. Electoral Authoritarianism and Human Development. *Comp. Polit. Stud.* 2015;48(12):1526–62. doi: 10.1177/0010414015582051
- Møller J, Skaaning S-E. Regime Types and Democratic Sequencing. *J. Democr.* 2013;24(1):142–55. doi: 10.1353/jod.2013.0010
- Munck GL, Verkuilen J. Evaluating Alternative Indices. *Comp. Polit. Stud.* 2002. doi: 10.1177/001041400203500101
- Nickell S. Biases in Dynamic Models with Fixed Effects. *Econometrica.* 1981;49(6):1417–26. doi: 10.2307/1911408
- Niskanen WA. Autocratic, Democratic, and Optimal Government: Fiscal Choices and Economic Outcomes. Cheltenham, United Kingdom: Edward Elger; 2003.
- Norberg J. Progress: Ten Reasons to Look Forward to the Future. Oneworld Publications; 2016.
- O'Donnell G. Modernization and Bureaucratic-authoritarianism: Studies in South American Politics. Berkeley: University of California Press; 1973.
- O'Donnell G. Bureaucratic Authoritarianism: Argentina 1966-1973 in Comparative

- Perspective. Berkeley: University of California Press; 1988.
- Olson M. Dictatorship, Democracy, and Development. *Am. Polit. Sci. Rev.* 1993;87(3):567–76. doi: <http://dx.doi.org/10.2307/2938736>
- Oneal JR, Russett BM. The Classical Liberals Were Right: Democracy, Interdependence, and Conflict, 1950–1985. *Int. Stud. Q.* 1997;41(2):267–94.
- Peace Research Institute Oslo. Peace Research Institute Oslo (PRIO). 2017.
- PRS Group. International Country Risk Guide Methodology. PRS Gr. 2017;
- Przeworski A, Alvarez ME, Cheibub JA, Limongi F. Democracy and Development: Political Institutions and Well-Being in the World, 1950–1990. Cambridge University Press; 2000.
- Putterman L. State Antiquity Index (Statehist). 2003.
- Robinson JA, Torvik R, Verdier T. Political foundations of the resource curse. *J. Dev. Econ.* 2006;79:447–68. doi: 10.1016/j.jdeveco.2006.01.008
- Ross ML. Is Democracy Good for the Poor? *Am. J. Pol. Sci.* 2006;50(4):860–74. doi: 10.1111/j.1540-5907.2006.00220.x
- Saylor R. Concepts, Measures, and Measuring Well: An Alternative Outlook. *Sociol. Methods Res.* 2013. doi: 10.1177/0049124113500476
- Schumpeter JA. Capitalism, Socialism and Democracy. London: Unwin University Books; 1974.
- Seeberg MB. State capacity and the paradox of authoritarian elections. *Democratization.* 2014;21(7):1265–85. doi: 10.1080/13510347.2014.960210
- Skaaning S-E, Gerring J, Bartusevicius H. A Lexical Index of Electoral Democracy. *Comp. Polit. Stud.* SAGE PublicationsSage CA: Los Angeles, CA; 2015;48(12):1491–525. doi: 10.1177/0010414015581050
- Slater D, Fenner S. State Power and Staying Power: Infrastructural Mechanisms and

- Authoritarian Durability. *J. Int. Aff.* 2011;65(1):15–29.
- Tilly C. War Making and State Making as Organized Crime. In: Evans PB, Rueschemeyer D, Skocpol T, editors. *Bringing State Back*. Cambridge: Cambridge University Press; 1985. p. 169–87.
- United Nations. *The Millennium Development Goals Report 2015*. 2015;
- Wang Y, Mechkova V, Andersson F. Does Democracy or Good Governance Enhance Health? New Empirical Evidence 1900-2012. *V-Dem Work. Pap.* 2015;11. doi: 10.2139/ssrn.2697122
- Ward H, Cao X, Mukherjee B. State Capacity and the Environmental Investment Gap in Authoritarian States. *Comp. Polit. Stud.* 2014;47(3):309–43. doi: 10.1177/0010414013509569
- World Bank. *World Bank Education Statistics*. 2018.
- World Bank Group. Tax revenue (% of GDP), Data Bank. 2017a.
- World Bank Group. *World Development Indicators*, Data Bank. 2017b.
- World Bank Group, International Monetary Fund. *Global Monitoring Report 2014/2015: Ending Poverty and Sharing Prosperity*. Washington: International Bank for Reconstruction and Development / The World Bank; 2015. doi: 10.1596/978-1-4648-0336-9
- Ziblatt D. Why Some Cities Provide More Public Goods than Others: A Subnational Comparison of the Provision of Public Goods in German Cities in 1912. *Stud. Comp. Int. Dev.* 2008;43(3–4):273–89. doi: 10.1007/s12116-008-9031-y

Tables and Figures

Table 1. Descriptive Statistics.

	Observations	Mean	Std. dev.	Min.	Max
Infant mortality rate	10,728	69.33	54.96	1	340
Secondary school enrollment	9,468	35.10	0.32	0	100
Administrative capacity (V-Dem)	12,225	0.28	1.52	-3.55	4.67
Latent adm. capacity (H&S) ^a	7,051	0.01	1.00	-3.51	2.86
Electoral democracy index	12,117	0.49	0.32	0	100
Electoral democratic stock (1%)	12,117	13.57	13.37	0	65.08
Electoral democratic stock (5%)	12,117	6.72	5.27	0	19.46
Electoral democratic stock (10%)	12,117	4.05	2.89	0	9.83
Polyarchy index	12,105	0.40	0.28	0	0.95
Electoral democracy dummy	13,293	0.38	0.49	0	1
Real GDP per capita	9,128	5970	7658	223	140641
Petroleum production per capita	10,145	343	2464	0	78589
Population	10,901	2.97e+07	1.02e+08	60636	1.33e+09
Urbanization (%)	10,901	0.43	0.23	0.02	1
Armed conflict, internal	9,184	0.12	0.33	0	1
Armed conflict, international	10,567	0.08	0.26	0	1

Note: Summary statistics are calculated for all countries for the period 1900–2015. Calculations for some variables are based on a slightly shorter period because of lack of available data.

^a This time period only spans from 1960 to 2009.

Table 2. Regime type, state capacity, and infant mortality, two-way fixed effects linear regression.

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
<i>Democracy measure</i>	Electoral	Electoral	Electoral	Electoral	Electoral	Stock ^a
<i>Time lag</i>	2 years	2 years	2 years	2 years	3 years	2 years
Democracy	-0.0961 (0.0992)	-0.0858 (0.0696)	-0.00412 (0.0813)	-0.0388 (0.0612)	-0.0508 (0.0611)	0.00140 (0.00808)
Adm. capacity	-0.0540* (0.0265)	-0.00115 (0.0179)	0.107*** (0.0311)	0.0750** (0.0256)	0.0765** (0.0257)	0.0503* (0.0241)
Adm. capacity x democracy			-0.332*** (0.0448)	-0.169*** (0.0415)	-0.168*** (0.0415)	- 0.00919*** (0.00257)
GDP per capita (ln)		-0.281*** (0.0558)		-0.268*** (0.0527)	-0.261*** (0.0517)	-0.254*** (0.0521)
Petroleum prod. per capita		2.08e- 05*** (2.49e-06)		1.98e- 05*** (2.37e-06)	1.91e- 05*** (2.26e-06)	2.02e- 05*** (2.60e-06)
Population (ln)		0.458*** (0.0941)		0.367*** (0.0905)	0.360*** (0.0894)	0.365*** (0.0952)
Urbanization (%)		-0.635 [†] (0.325)		-0.651* (0.308)	-0.639* (0.306)	-0.788* (0.319)
Constant	5.753*** (0.105)	1.093 (1.598)	5.611*** (0.0867)	2.258 (1.512)	2.342 (1.495)	2.129 (1.564)
N (n)	10410 (173)	8216 (160)	10410 (173)	8216 (160)	8233 (160)	8216 (160)

Note: [†], *, **, ***; P < 0.1; P < 0.05; P < 0.01; P < 0.001. Unstandardized regression coefficients with country-clustered standard errors in parentheses. The dependent variable is log-transformed. Autocracy is the reference category in all models with a dichotomous regime measure.

^a The stock measure is coded 0–20; higher values indicate more democratic experience. The measure is based on the continuous electoral democracy measure from our base models. The stock measure includes experience from a given year back to 1900, with a depreciation rate of 5% per year; later experience counts more than earlier experience.

Table 3. Regime type, state capacity, and secondary school enrollment, two-way fixed effects linear regression.

	Model 7	Model 8	Model 9	Model 10	Model 11	Model 12
<i>Democracy measure</i>	Electoral	Electoral	Electoral	Electoral	Electoral	Stock ^a
<i>Time lag</i>	2 years	2 years	2 years	2 years	3 years	2 years
Democracy	-0.824 (2.744)	-0.411 (2.396)	-4.428 [†] (2.348)	-2.286 (2.325)	-1.956 (2.288)	0.0910 (0.268)
Adm. capacity	2.370** (0.722)	1.289* (0.609)	-2.347** (0.795)	-0.982 (0.747)	-0.991 (0.774)	-0.993 (0.761)
Adm. capacity x democracy			10.09*** (1.412)	5.064** (1.527)	4.943** (1.576)	0.326*** (0.0943)
GDP per capita (ln)		3.356 [†] (1.786)		3.287 [†] (1.687)	3.290 [†] (1.720)	2.827 [†] (1.629)
Petroleum prod. per capita		-5.14e-04*** (1.26e-04)		-4.72e-04*** (1.17e-04)	-4.66e-04*** (1.13e-04)	-4.75e-04*** (1.17e-04)
Population (ln)		-21.38*** (2.652)		-17.75*** (2.523)	-16.92*** (2.541)	-16.64*** (2.519)
Urbanization (%)		28.11* (10.99)		29.12** (10.77)	29.08** (10.82)	33.63*** (9.842)
Constant	-4.614 [†] (2.430)	283.6*** (45.76)	-4.803** (1.787)	230.9*** (41.46)	218.4*** (42.27)	219.0*** (40.45)
N (n)	9186 (165)	7529 (154)	9186 (165)	7529 (154)	7542 (154)	7529 (154)

Note: [†], *, **, ***: P < 0.1; P < 0.05; P < 0.01; P < 0.001. Unstandardized regression coefficients with country-clustered standard errors in parentheses. The dependent variable is log-transformed. Autocracy is the reference category in all models with a dichotomous regime measure.

^a The stock measure is coded 0–20; higher values indicate more democratic experience. The measure is based on the continuous electoral democracy measure from our base models. The stock measure includes experience from a given year back to 1900, with a depreciation rate of 5% per year; later experience counts more than earlier experience.

Figure 1. Marginal effect of regime type on infant mortality rate at different levels of administrative capacity.

Note: Based on results from Model 4, Table 2. The solid line is the marginal effect of democracy, and the dotted lines indicate 95% confidence intervals. The gray columns represent the distribution of observations. The figure shows the observed range.

Figure 2. Marginal effect of administrative capacity on infant mortality rate at different levels of democracy.

Note: Based on results from Model 4, Table 2. The solid line is the marginal effect of administrative capacity, and the dotted lines indicate 95% confidence intervals. The gray columns represent the distribution of observations. The figure shows the observed range.

Appendix

Table A1. Phillips-Perron tests of stationarity in panel data.

<i>Variable</i>	Infant mortality rate (ln)		Secondary school enrollment		Administrative capacity		Democracy	
	No	Yes	No	Yes	No	Yes	No	Yes
Time trend included	No	Yes	No	Yes	No	Yes	No	Yes
Panel-fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Inverse χ^2 (P)	0.000	0.000	0.995	1.000	0.000	0.000	0.000	0.000
Inverse normal (Z)	0.972	0.933	1.000	1.000	0.000	0.000	0.000	0.000
Inverse logit (L*)	0.0128	0.330	1.000	1.000	0.000	0.000	0.000	0.000
Modified inverse χ^2 (P _m)	0.000	0.000	0.993	1.000	0.000	0.000	0.000	0.000

Note: Panels = countries, time = years. Values reported in the cells are *p*-values for the respective tests. Test results are interpreted as follows: H_0 = all panels contain unit roots, H_a = at least one panel is stationary. All tests are calculated using one Newey-West lag. Interpretation in footnote.¹²

Reference connected to Table A3: Choi, I. (2001). Unit root tests for panel data. *Journal of International Money and Finance*, 20(2), 249-272.

¹² In the Table A1, we test the time-series properties of our two dependent variables as well as our main independent variables using Phillips-Perron tests of stationarity in panel data. As all our empirical models include country-fixed effects, we also include country-fixed effects in all the tests. Furthermore, Figures A1 and A2 show clear time trends in three out of four variables (the exception being “administrative capacity”, which only exhibits a very slight positive time trend). Accordingly, we report versions of all Phillips-Perron tests that include a linear time trend (but we also report versions of the tests that do not include a time trend in order to investigate whether this modelling choice is driving the results). In total, this results in eight test results for each of the four variables. Beginning with the independent variables, for both variables, the null hypothesis of unit roots in all panels is unequivocally rejected in all eight tests. Accordingly, this strongly suggests that our measures administrative capacity and democracy, respectively, are stationary. Turning now to the dependent variables, the picture is slightly different. Looking at secondary school enrollment first, we fail to reject the null hypothesis of unit roots in all eight tests, which indicates that this measure is non-stationary. Regarding infant mortality rate, the results are mixed. On the one hand, both the inverse χ^2 test and the modified inverse χ^2 test strongly reject the null hypothesis both with and without the linear time trend. On the other hand, the inverse normal test fails to reject the null hypothesis in both specifications. Additionally, while the inverse logit test rejects the null hypothesis at the 0.05-significance level when the linear time trend is not included, the test fails to reject the null hypothesis once the time trend is included (which, we argue, is the most appropriate). The consistent failure of the inverse normal test to reject the null hypothesis for infant mortality is noteworthy as this test has been shown to perform very well in simulations (Choi, 2001). However, both the number of panels and the number of time periods in our data are sufficiently large for the modified inverse χ^2 test—which consistently rejects the null hypothesis for infant mortality—to also perform well. Accordingly, while we do see some indications that our measure of infant mortality is potentially non-stationary, on balance, the test results for this measure are inconclusive.

Table A2. Robustness tests I. Regime type, state capacity, and infant mortality, two-way fixed effects linear regression.

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
<i>Democracy measure</i>	Electoral	Electoral	Electoral	Electoral	Polyarchy	Polyarchy
<i>Level vs. stock</i>	Level	Level	Stock 1% ^a	Stock 10% ^a	Level	Stock 5% ^a
<i>Time lag</i>	5 years	10 years	2 years	2 years	2 years	2 years
Democracy	-0.0747 (0.0617)	-0.122 [†] (0.0655)	0.000976 (0.00522)	0.00233 (0.0113)	0.0180 (0.0996)	0.000216 (0.00984)
Adm. capacity	0.0791** (0.0260)	0.0765** (0.0272)	0.0220 (0.0222)	0.0642* (0.0247)	0.0656** (0.0245)	0.0388 [†] (0.0224)
Adm. capacity x democracy	-0.168*** (0.0418)	-0.153*** (0.0434)	-0.00244* (0.00102)	-0.0188*** (0.00479)	-0.199*** (0.0473)	-0.00942** (0.00302)
GDP per capita (ln)	-0.247*** (0.0496)	-0.202*** (0.0472)	-0.270*** (0.0544)	-0.252*** (0.0520)	-0.264*** (0.0533)	-0.256*** (0.0534)
Petroleum prod. per capita	1.75e-05*** (2.17e-06)	1.28e-05*** (2.58e-06)	2.10e-05*** (2.82e-06)	1.97e-05*** (2.49e-06)	1.97e-05*** (2.51e-06)	2.03e-05*** (2.73e-06)
Population (ln)	0.342*** (0.0871)	0.317*** (0.0825)	0.374*** (0.0974)	0.363*** (0.0933)	0.351*** (0.0918)	0.368*** (0.0973)
Urbanization (%)	-0.621* (0.299)	-0.567 [†] (0.297)	-0.773* (0.319)	-0.765* (0.317)	-0.668* (0.310)	-0.778* (0.320)
Constant	2.499 [†] (1.457)	2.483 [†] (1.398)	2.178 (1.596)	2.117 (1.542)	2.470 (1.519)	2.102 (1.598)
N (n)	8267 (160)	8210 (160)	8216 (160)	8216 (160)	8214 (160)	8214 (160)

Note: [†]; *, **, ***: $P < 0.1$; $P < 0.05$; $P < 0.01$; $P < 0.001$. Unstandardized regression coefficients with country-clustered standard errors in parentheses. The dependent variable is log-transformed.

^a The stock measure includes experience from a given year back to 1900, with a depreciation rate of 1%, 5%, or 10% per year; later experience counts more than earlier experience. The 1% stock measure is coded 0–100, the 5% stock measure is coded 0–20, and the 10% stock measure is coded 0–10. Higher values indicate more democratic experience.

Table A3. Robustness tests II. Regime type, state capacity, and secondary school enrollment, two-way fixed effects linear regression.

	Model 7	Model 8	Model 9	Model 10	Model 11	Model 12
<i>Democracy measure</i>	Electoral	Electoral	Electoral	Electoral	Polyarchy	Polyarchy
<i>Level vs. stock</i>	Level	Level	Stock 1% ^a	Stock 10% ^a	Level	Stock 5% ^a
<i>Time lag</i>	5 years	10 years	2 years	2 years	2 years	2 years
Democracy	-1.171 (2.218)	0.297 (2.234)	0.371* (0.163)	-0.293 (0.386)	-3.613 (3.582)	0.0436 (0.331)
Adm. capacity	-1.168 (0.796)	-1.533* (0.759)	0.353 (0.646)	-1.105 (0.830)	-0.854 (0.714)	-0.804 (0.724)
Adm. capacity x democracy	4.848** (1.629)	4.916** (1.585)	0.0670* (0.0314)	0.596** (0.191)	6.186*** (1.754)	0.372*** (0.109)
GDP per capita (ln)	3.117† (1.769)	2.490 (1.872)	2.640 (1.609)	3.065† (1.658)	2.986† (1.720)	2.715 (1.677)
Petroleum prod. per capita	-4.70e-04*** (1.21e-04)	-5.07e-04** (1.56e-04)	-5.20e-04*** (1.21e-04)	-4.66e-04*** (1.19e-04)	-4.58e-04*** (1.19e-04)	-4.79e-04*** (1.17e-04)
Population (ln)	-15.15*** (2.613)	-12.42*** (2.802)	-15.91*** (2.505)	-17.11*** (2.604)	-17.47*** (2.590)	-16.66*** (2.550)
Urbanization (%)	29.45** (11.00)	28.63* (11.51)	35.71*** (9.536)	32.40** (10.20)	29.99** (10.85)	34.50*** (9.950)
Constant	191.1*** (44.21)	154.6** (48.05)	211.2*** (40.69)	223.5*** (41.77)	228.8*** (42.51)	219.8*** (41.46)
N (n)	7564 (154)	7197 (154)	7529 (154)	7529 (154)	7528 (154)	7528 (154)

Note: †; *, **, ***: $P < 0.1$; $P < 0.05$; $P < 0.01$; $P < 0.001$. Unstandardized regression coefficients with country-clustered standard errors in parentheses.

^a The stock measure includes experience from a given year back to 1900, with a depreciation rate of 1%, 5%, or 10% per year; later experience counts more than earlier experience. The 1% stock measure is coded 0–100, the 5% stock measure is coded 0–20, and the 10% stock measure is coded 0–10. Higher values indicate more democratic experience.

Table A4. Robustness tests III. Regime type, state capacity, and infant mortality, two-way fixed effects linear regression. Alternative measures of independent variables, conflict controls, regional averages, alternative time specifications.

	Model 13	Model 14	Model 15	Model 16	Model 17	Model 18
<i>Democracy measure</i>	LIED ^a	Electoral	Electoral	Electoral	Electoral	Electoral
<i>Adm. capacity measure</i>	V-Dem	H&S	V-Dem	V-Dem	V-Dem	V-Dem
<i>Time lag</i>	2 years	2 years	2 years	2 years	2 years	2 years
<i>Model</i>	Main ^b	Main ^b	Main ^b	Main ^b	Decade FE ^c	Main ^c
Democracy	0.0182 (0.0318)	-0.125* (0.0605)	-0.0603 (0.0669)	-0.0172 (0.0686)	-0.0381 (0.0593)	-0.0187 (0.0611)
Adm. capacity	0.0186 (0.0187)	-0.0690* (0.0334)	0.0748** (0.0282)	0.0815** (0.0310)	0.0839*** (0.0249)	0.0493 [†] (0.0251)
Adm. capacity x democracy	-0.0959*** (0.0267)	-0.0708 (0.0502)	-0.150*** (0.0427)	-0.171*** (0.0493)	-0.200*** (0.0398)	-0.139** (0.0418)
GDP per capita (ln)	-0.289*** (0.0551)	-0.160** (0.0530)	-0.321*** (0.0575)	-0.259*** (0.0498)	-0.328*** (0.0515)	-0.278*** (0.0518)
Petroleum prod. per capita	1.93e- 05*** (2.37e-06)	1.63e- 05*** (2.00e-06)	1.77e-05** (6.24e-06)	1.44e- 05*** (3.21e-06)	2.12e- 05*** (2.31e-06)	1.95e- 05*** (2.40e-06)
Population (ln)	0.354*** (0.0935)	0.246* (0.121)	0.390*** (0.0940)	0.137 (0.0905)	0.234** (0.0812)	0.251** (0.0806)
Urbanization (%)	-0.748* (0.323)	-0.367 (0.364)	-0.677* (0.316)	-0.564 [†] (0.296)	-0.867** (0.297)	-0.608* (0.300)
Armed conflict, internal			0.0180 (0.0247)			
Armed conflict, international			0.0253 (0.0235)			
Regional average of DV				0.489*** (0.131)		
Year						-0.0256*** (0.00203)
Constant	2.630 [†] (1.573)	2.054 (1.960)	2.132 (1.652)	2.867* (1.310)	4.703*** (1.332)	53.17*** (3.173)
N (n)	8264 (160)	6065 (157)	6488 (111)	8216 (160)	8216 (160)	8216 (160)

Note: †, *, **, ***: $P < 0.1$; $P < 0.05$; $P < 0.01$; $P < 0.001$. Unstandardized regression coefficients with country-clustered standard errors in parentheses. The dependent variable is log-transformed.

^a Dichotomous electoral measure from LIED. Autocracy is the reference category.

^b Two-way FE, country and year.

^c Country FE.

Table A5. Robustness tests IV. Regime type, state capacity, and secondary school enrollment, two-way fixed effects linear regression. Alternative measures of independent variables, conflict controls, regional averages, alternative time specifications.

	Model 19	Model 20	Model 21	Model 22	Model 23	Model 24
<i>Democracy measure</i>	LIED ^a	Electoral	Electoral	Electoral	Electoral	Electoral
<i>Adm. capacity measure</i>	V-Dem	H&S	V-Dem	V-Dem	V-Dem	V-Dem
<i>Time lag</i>	2 years	2 years	2 years	2 years	2 years	2 years
<i>Model</i>	Main ^b	Main ^b	Main ^b	Main ^b	Decade FE ^c	Main ^c
Democracy	-2.555* (1.169)	8.181*** (1.892)	-1.043 (2.665)	-3.219 (2.303)	-2.496 (2.281)	-5.475* (2.589)
Adm. Capacity	0.222 (0.541)	-0.147 (1.102)	-1.233 (0.788)	-1.225 (0.779)	-1.712* (0.762)	-0.196 (1.018)
Adm. capacity x democracy	3.805*** (0.938)	4.822** (1.787)	5.612*** (1.587)	4.967** (1.603)	6.638*** (1.546)	4.631* (1.851)
GDP per capita (ln)	3.135 [†] (1.762)	4.553* (2.029)	3.614* (1.762)	4.002* (1.640)	5.546** (1.783)	6.565* (2.518)
Petroleum prod. per capita	-4.61e-04*** (1.21e-04)	-3.62e-04** (1.28e-04)	-8.38e-04** (3.07e-04)	-3.27e-04** (1.08e-04)	-4.81e-04*** (1.19e-04)	-4.73e-04*** (1.19e-04)
Population (ln)	-17.35*** (2.585)	-1.450 (3.975)	-17.65*** (2.556)	-8.043** (2.913)	-13.54*** (2.530)	-11.47*** (3.037)
Urbanization (%)	31.96** (10.99)	23.84 [†] (12.76)	28.06* (11.69)	23.79* (10.03)	38.21*** (10.93)	29.28* (12.17)
Armed conflict, internal			-1.553 [†] (0.926)			
Armed conflict, international			-1.314 (0.897)			
Regional average of DV				0.556*** (0.109)		
Year						0.817*** (0.0765)
Constant	225.1*** (43.71)	-4.937 (64.43)	235.0*** (43.08)	85.03 [†] (47.29)	150.0*** (42.18)	-1460.2*** (119.8)
N (n)	7563 (154)	5240 (151)	6111 (107)	7529 (154)	7529 (154)	7529 (154)

Note: †, *, **, ***: $P < 0.1$; $P < 0.05$; $P < 0.01$; $P < 0.001$. Unstandardized regression coefficients with country-clustered standard errors in parentheses.

^a Dichotomous electoral measure from LIED. Autocracy is the reference category.

^b Two-way FE, country and year.

^c Country FE.

Table A6. Robustness tests V. Regime type, state capacity, and infant mortality and secondary school enrollment, two-way fixed effects linear regression. Alternative time period, Prais-Winsten, and LDV.

	Model 25	Model 26	Model 27	Model 28	Model 29	Model 30
<i>Dependent variable</i>	IMR (ln)	IMR (ln)	IMR (ln)	SSE	SSE	SSE
<i>Democracy measure</i>	Electoral	Electoral	Electoral	Electoral	Electoral	Electoral
<i>Time lag</i>	2 years	2 years	2 years	2 years	2 years	2 years
<i>Model</i>	Main ^{bc}	Prais-W ^d	LDV ^b	Main ^{bc}	Prais-W ^d	LDV ^b
Democracy	-0.0792 (0.0555)	-0.0406*** (0.0121)	-0.0323** (0.0105)	4.575* (2.019)	0.801* (0.395)	0.321 (0.442)
Adm. capacity	0.0277 (0.0242)	0.0305*** (0.00502)	0.00576 (0.00365)	-0.414 (0.830)	-0.725*** (0.178)	-0.0930 (0.200)
Adm. capacity x democracy	-0.0761 [†] (0.0390)	-0.102*** (0.00899)	-0.00562 (0.00567)	2.886 [†] (1.510)	2.541*** (0.306)	0.263 (0.353)
Dependent variable (lagged)			0.930*** (0.00709)			0.921*** (0.00910)
GDP per capita (ln)	-0.197*** (0.0507)	-0.300*** (0.0175)	-0.00560 (0.00748)	5.673** (1.925)	7.174*** (0.566)	0.278 (0.395)
Petroleum prod. per capita	1.70e-05*** (2.17e-06)	2.82e-06 [†] (1.51e-06)	5.21e-07 (5.42e-07)	-3.94e-04** (1.18e-04)	3.37e-07 (6.39e-05)	1.01e-05 (4.47e-05)
Population (ln)	0.268* (0.122)	-0.148*** (0.0385)	0.0168 (0.0115)	-0.886 (4.139)	0.775 (1.376)	-0.0899 (0.522)
Urbanization (%)	-0.313 (0.364)	-2.416*** (0.128)	-0.0265 (0.0432)	22.03 (13.71)	102.8*** (4.630)	1.707 (1.864)
Constant	1.980 (1.971)	11.10*** (0.730)	0.0958 (0.194)	-20.13 (67.38)	-98.12*** (25.07)	-1.911 (9.081)
N (n)	5948 (160)	8216 (160)	8150 (160)	5153 (154)	7529 (154)	7295 (154)

Note: [†]; *, **, ***: P < 0.1; P < 0.05; P < 0.01; P < 0.001. Unstandardized regression coefficients with country-clustered standard errors in parentheses.

^a Dichotomous electoral measure from LIED. Autocracy is the reference category.

^b Two-way FE, country and year.

^c Time period for this model is 1965–2008.

^d Country-dummies and decade FE.

Table A7. Robustness tests VI. Regime type, state capacity, infant mortality and secondary school enrollment.

Generalized Method of Moments (GMM).

	Model 31	Model 32
<i>Dependent variable</i>	Infant mortality rate (ln)	Secondary school enrollment
<i>Democracy measure</i>	Electoral	Electoral
<i>Model</i>	GMM	GMM
Democracy	0.00837 (0.00752)	0.272 (0.312)
Adm. capacity	0.00216 (0.00208)	-0.0577 (0.0889)
Adm. capacity x democracy	-0.0128** (0.00424)	0.255 [†] (0.153)
Infant mortality rate (lagged)	0.974*** (0.00690)	
Secondary school enrollment (lagged)		0.985*** (0.00433)
GDP per capita (ln)	-0.0152*** (0.00393)	0.305* (0.144)
Petroleum prod. per capita	4.88e-07 (3.18e-07)	3.54e-05** (1.24e-05)
Population (ln)	-0.00187* (0.000843)	0.0831*** (0.0239)
Urbanization (%)	-0.0222* (0.00997)	-0.269 (0.418)
Year	-5.47e-04*** (1.11e-04)	0.0146*** (0.00272)
Constant	1.319*** (0.271)	-31.42*** (5.900)
N (n)	8164 (160)	7350 (154)

Note: [†], *, **, ***: P < 0.1; P < 0.05; P < 0.01; P < 0.001. Unstandardized regression coefficients with robust standard errors in parentheses. The models are estimated using Arellano-Bover/Blundell-Bond (system) GMM, with t-4, t-5, and t-6 lags used as instruments for the independent variables, which are themselves lagged t-1.

Figure A1. Development in infant mortality rate and secondary school enrollment over time.

Note: Scatterplots with Lowess curves.

Figure A2. Development in democracy and administrative capacity over time.

Note: Scatterplots with Lowess curves.

Figure A3. Percentage distribution of state capacity at different levels of democracy.

Note: #1 is upper left panel, #2 is upper right panel, #3 is lower left panel, and #4 is lower right panel.

Figure A4. Marginal effect of democratic stock (5% depreciation rate) on infant mortality rate at different levels of administrative capacity.

Note: Based on results from Model 6, Table 2. The solid line is the marginal effect of democratic stock, and the dotted lines indicate 95% confidence intervals. The gray columns represent the distribution of observations. The figure shows the observed range.

Figure A5. Marginal effect of administrative capacity on infant mortality rate at different levels of democratic stock (5% depreciation rate).

Note: Based on results from Model 6, Table 2. The solid line is the marginal effect of administrative capacity, and the dotted lines indicate 95% confidence intervals. The gray columns represent the distribution of observations. The figure shows the observed range.

Figure A6. Marginal effect of regime type on secondary school enrollment at different levels of administrative capacity.

Note: Based on results from Model 10, Table 3. The solid line is the marginal effect of democracy, and the dotted lines indicate 95% confidence intervals. The gray columns represent the distribution of observations. The figure shows the observed range.

Figure A7. Marginal effect of administrative capacity on secondary school enrollment at different levels of democracy.

Note: Based on results from Model 10, Table 3. The solid line is the marginal effect of administrative capacity, and the dotted lines indicate 95% confidence intervals. The gray columns represent the distribution of observations. The figure shows the observed range.