

State Capacity and World Bank Project Success

Jonathan K. Hanson
Gerald R. Ford School of Public Policy
University of Michigan

Rachel Sigman
Naval Postgraduate School

Version: April 2016

Abstract

In what types of institutional environments are international development projects most likely to succeed? Previous research suggests alternatively that liberal economic policies, democratic political institutions, and institutions characterized by “good governance” are all of primary importance. A serious drawback of this work is that measures of institutional quality tend to have poor coverage and conceptual fuzziness. This paper uses a new measure of state capacity with continuous coverage from 1960-2010 to evaluate the importance of different types of institutions on the success of over 9000 World Bank projects. The results suggest that development projects are most likely to succeed where state capacity is relatively high, regardless of regime type or Freedom House scores. Successful World Bank projects can, in turn, have a positive impact on State Capacity suggesting the possibility of a virtuous circle of development projects and state capacity building.

For some time now, scholars and practitioners of development have operated under the assumption that donor-funded development interventions are most likely to succeed in institutional contexts characterized by sound macroeconomic policies, democracy and “good governance.” It is in these environments where leaders have the political incentives to promote growth and provide goods and services to their citizens, and where citizens or groups can effectively demand and monitor the governments’ use of donor funds. Such findings have shaped the deployment of international development funds in at least two important ways. First, development projects are coupled with efforts to reform policy, promote democracy and improve governance. Second, as in the U.S.’s Millennium Challenge Account, donors are increasingly making development funding conditional on a country’s demonstrated commitment to democracy and good governance.¹

While this research has provided a general sense of the institutional environments in which development projects may succeed or fail, competing accounts have produced some confusion about how, when and why these various types of institutions matter. In particular, it has been difficult for researchers to isolate the effects of these different types of institutions, all of which are likely to share some underlying latent characteristics. The use of aggregate indices that measure an array of facets related to institutional quality, often with limited temporal or geographic coverage, further complicates efforts to produce finer-grained knowledge about the ways that institutions affect donor investment in development projects. Moreover, while host-country capacity is often cited as an important issue for project success, the ability to measure its relationship to project outcomes has been limited by a dearth of reliable and conceptually valid measures.

In light of these issues, this paper re-examines the relationship between institutions and development project success. Using a new measure of state capacity with continuous coverage from 1960-2010, we analyze the outcome ratings of over 9000 World Bank projects. We find

¹The World Bank’s IDA program uses the Country Policy Institutional Assessment (CPIA) for similar purposes and conditions tied to IMF loans have been in place for some time.

that employing this new and improved measure of state capacity provides sufficient reason to question the empirical basis of the theorized relationship between democracy and project success. In short, we find that development projects are most likely to succeed where state capacity is higher, regardless of the presence of other types of institutions. The results of this analysis suggest in particular that, for many types of projects, the importance of democracy and civil liberties has been overstated.

Additionally, we examine variation in the impacts of these different institutions across policy sectors. Given that program success is likely to vary depending on the nature of the intervention (Hirschman, 2011), and that host-country capacities inevitably vary across policy sectors, we seek to add further nuance to existing knowledge by analyzing the types of projects for which state capacity is most critical. In this analysis we find that state capacity is particularly important for the success of social sector projects such as health and education, but that projects outside of this sector would be more likely to gain satisfactory ratings in low-capacity environments. These results have implications for donor decisions about what types of investments to make in high- and low-capacity states.

Finally, we examine the extent to which World Bank projects, many of which contain capacity-building components, have an effect on state capacity levels. The preliminary results suggest that, when executed successfully, World Bank projects can indeed have a positive impact on state capacity. The presence of World Bank projects alone, however, is not sufficient to build capacity.

1 Institutional Determinants of Project Success

Although there is widespread agreement that institutional environments are likely to shape the outcomes of international development interventions, debate persists about the types of institutions that matter most and why. At various times and in various contexts, stud-

ies have emphasized the importance of the macroeconomic policy environment, democracy and institutions promoting “good governance” as integral to development project success. Understanding the institutional environments in which development projects are likely to succeed is critical for donors seeking higher returns on their investments and for minimizing risk of lending to countries that are unlikely to support donor-led projects. Indeed, as Burnside and Dollar (2004) find, the distribution of aid to countries conditional upon the quality of institutions and policies is a sensible response to the empirical reality that aid has a more positive impact on growth in these contexts.

One strand of research has emphasized the importance of macroeconomic policy environments. In particular, Isham and Kaufmann (1999) found that market-regarding policies such as undistorted prices, unmanipulated foreign exchange rates, free trade, and controlled fiscal deficits would significantly improve the payoffs from investing in new projects. Investments in policy environments that did not possess these attributes, on the other hand, would see considerably lower economic rates of return (1999: 177). In their widely cited study of the effects of foreign aid on economic growth (Burnside and Dollar, 1997, 2004) similarly find that in the presence of sound fiscal, monetary and trade policies, development aid tends to have a positive effect on economic growth, lending further support to the the notion that the macroeconomic policy environment is key to development project success. Subsequent challenges to this finding, advanced most notably by Boone (1996) and Easterly et al. (2003), have not only raised questions about the importance of the economic policy environment but have also questioned the potential effects of aid on economic growth more generally.

Other research focuses on the quality of institutions that underlie a strong macroeconomic policy environment such as the rule of law, property rights and contract enforcement. While Burnside and Dollar (1998) maintain the importance of macroeconomic policies, they expand their focus to economic management more broadly, combining insights about macroeconomic policy incentives with measures of institutional quality such as property rights, the absence

of corruption and the quality of the bureaucracy. They find that the interaction of economic management and foreign aid has a meaningful effect on poverty reduction measures, namely infant mortality. Concluding that countries that effectively put development policies into place are more likely to make productive use of aid monies (Burnside and Dollar, 1998: 14), the study implies the broader importance of the institutional environment, though without any attention to the specific roles or functions of these institutions.

The concept of economic management advanced by Burnside and Dollar (1998) has thus evolved to a broader focus on “governance” and project success. Factors such as corruption, rule of law, transparency, accountability and participatory decision-making are used to explain why projects tend to succeed in some countries but encounter many difficulties in others. The “governance” perspective has gained considerable popularity amongst the development community in shaping both how programs are designed and decisions about where and how to invest. Research has emphasized the importance of “good governance” for the success of World Bank development projects in particular (Ika et al., 2012; Burnside and Dollar, 2004; Dollar and Levin, 2005), as well as in the effectiveness of foreign aid more generally (Brautigam and Knack, 2004). Focusing more specifically on project outcomes, Dollar and Levin (2006) also finds an important role for these types of institutions in predicting project success.

A third strand of research focuses on the importance of democracy. In general, this research has come to the conclusion that interventions may be more successful in environments characterized by democratic political regimes, such as where citizens enjoy basic civil and political liberties including freedom of speech, assembly, and press freedom. In such environments, leaders have the incentives to pursue development projects that are desired by their populations and citizens have the ability to pressure and monitor their governments to implement projects effectively. For example, research by Isham et al. (1997) and Dollar and Levin (2006) have suggested a connection between higher rates of economic rates of return

on development projects where citizen voice produces more effective government action. Although there is also evidence that no significant difference exists in aid effectiveness between democratic and autocratic regimes Boone (1996), democracy has become an important precondition for some lending programs, such as the Millennium Challenge Account (MCA). The MCA's recent cancellation of their aid program in Tanzania due to alleged electoral malfeasance, for instance, is testament to the strength of this commitment.

Whether the focus is on the macroeconomic policy environment, governance or democracy, the underlying logic is that these institutions constrain actors in recipient countries, namely government officials, in their ability to act in ways that undermine the goals of development projects. In this sense, these three types of institutions imply conditions that either incentivize leaders to pursue development, broadly defined, or constrain leaders' abilities to interfere with donor efforts to promote development. As one recent World Bank study states, "in many instances the underlying political drivers are too strong for technical constraints on politics to have their intended effects" (Fritz and Levy, 2014: 2). But to operate effectively in the development enterprise, these institutions must also possess *the capacity* to support and sustain development interventions by, for example, identifying areas of greatest need, developing the economic plans necessary to capitalize on the investments of foreign funds or support project goals over a sustained period of time. In particular, we would expect that countries possessing strong levels of control over their populations, effective planning processes and relatively capable bureaucracies to be able to participate in internationally-funded projects in a way that is likely to produce more successful project outcomes. These expectations arise from the widespread recognition that capable state institutions facilitate economic development (Johnson, 1982; Evans, 1995; Rauch and Evans, 2000; Kohli, 2004; World Bank Group, 1997). As such, the capacity of state institutions is likely to exert important influence over the extent to which governments become active and effective partners in international development interventions. Where state capacity is higher, we would expect to see better project outcomes, perhaps irrespective of other institutional variables.

Our contention is that the existing research has not adequately disaggregated the effects of these different types of institutions on project success or failure. Though recent research has made great strides in producing knowledge about the ways that donor- or project-level variables affect outcomes, i.e. (Moll et al., 2015), attention to institutional environments has been somewhat less precise. In particular, studies of project success tend to use aggregate measures of the institutions such as the average of the World Bank’s Country Policy Institutional Assessment (CPIA) scores (Moll et al., 2015; Geli et al., 2014; Denizer et al., 2013; Bulman et al., 2015) or an index of the International Country Risk Guide’s institutional measures (Dollar and Levin, 2006), thereby clouding the ability to understand the specific types of institutions that matter most.² Additionally, these studies tend to be hampered by poor geographical or temporal coverage of available measures of institutional quality. The CPIA ratings become available only in 2005, and the International Country Risk Guide’s (ICRG) data, though available since 1982, cover only a limited set of countries.³ Thus, our ability to gain analytic leverage to understand the relative importance of different types of institutions is severely hampered by limiting our inquiries to an abbreviated set of countries or years.

Additionally, both definitions and measures of governance or institutional quality often comprise a mix of concepts. It is not uncommon for the term “governance” to have multiple meanings such as corruption, rule of law, “good” policies, transparency, accountability, efficiency, and participation. As Grindle (2010) suggests, the “inflation” of the concept of good governance tends to cloud our understanding of the precise factors and processes that generate more productive development interventions. Most troubling, she notes, is that the concept of good governance tends to be conflated with the state’s *capacity* to grow the economy or the existence of democracy, resulting in the oversimplification of very complex relationships. One aim of our research is to effectively distinguish state capacity, democracy,

²This problem is one that we do not address here.

³The ICRG have longer temporal coverage, beginning in 1982, but do not cover all countries.

and “good governance.” Thus, unlike past scholarship related to good governance, we avoid definitions or measures of state capacity that relate to the political organization of decision making processes or the content of the decisions themselves.

Finally, efforts to understand the interaction of country-level and project-level variables have suggested that up to 80% of variation in project outcomes is a result of project-level factors such as the design, management or funding level of the project (Denizer et al., 2013; Bulman et al., 2015). But these studies have not fully taken into account the well-established idea that different projects have different levels of difficulty and will thus require different recipient-country *capacities*. Thus, one further element of our study is to examine how different types of institutions affect different types of projects. In particular, we draw on theories advanced by Hirschman (2011) about the importance of task specificity and the visibility of project results to achieve a finer-grained understanding of how the institutional environment, and specifically the capacity of state institutions, matters for predicting project success or failure.

In order to provide a stronger empirical basis for understanding the relationship between basic state capabilities and the success of development projects, we employ a new measure of state capacity with continuous coverage from 1960-2010 (Hanson and Sigman, March 21, 2013). To the extent possible, the indicators used to produce this Capacity measure are based on the definition of state capacity as the ability to achieve official goals. Though this conceptualization of state capacity may relate to governance concepts such as corruption, transparency and accountability, we see this notion of capacity as distinct from common conceptions of governance or institutional quality.

2 A New Measure of State Capacity

In Hanson and Sigman (2013), we adopt a latent variable analysis of the kind that has been previously employed to assess measures of democracy (Treier and Jackman, 2008) and governance (Arel-Bundock and Mebane, 2011; Bersch and Botero, 2011). The technique allows us to use multiple measurements of the same underlying concepts, even if noisy, to gain information about the distribution of the latent parameters that generate the observed indicators. The latent variable analysis has the added advantage of allowing us to model missing observations and generate predictions based on those models. As a result, we are able to develop a measure of state capacity with continuous coverage from 1960 through 2010, thereby enabling us to analyze the effects of state capacity on project outcomes over a much longer period than previously possible.

In selecting the indicators to use in the latent variable analysis, our goal was to capture the essence of state capacity while preserving analytical distinction from common variables of interest such as economic development, regime type, civil liberties, and good governance. We identified three basic capacity types that render the state's executive institutions more effective: coercive capacity, extractive capacity, and administrative capacity.⁴ Additionally, we sought out indicators with broad coverage across countries and over time. Altogether, we employ 25 different indicators related to the three dimensions of state capacity. The data span 51 years (1960-2010) and up to 163 countries in a given year.⁵ The indicators employed in this analysis are listed in Table 1.

The combination of these indicators allows us to make estimates over a broader span of countries and years than any one of these indicators individually. Wherever possible, we tried to avoid indicators prone to conflation with other variables of interest such as development,

⁴For a detailed explanation of why we chose these capacity types, see Hanson and Sigman (March 21, 2013).

⁵The number of countries is different in each year based on the sample definition using Polity IV data on the existence of countries. In some cases data for additional countries or years are available but not included because of the way we have defined the sample.

Table 1: Indicators of State Capacity

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

institutional quality, or regime type. Finally, we included a number of measures that we expect to relate principally to each of the three theorized dimensions of state capacity listed above to ensure that we capture multiple dimensions of the concept.

To produce the measure, we employ a latent variables estimation approach developed by Arel-Bundock and Mebane (2011) that uses Bayesian Markov-Chain Monte Carlo (MCMC) techniques to identify underlying factors. The various observed indicators are a linear function of the latent values of state capacity in each dimension measured with some error. Since there are k observed indicators measured in many countries over several years, we have multiple data points with which to obtain the posterior distributions of the latent parameters. For the purposes of the present analysis, we conduct the latent variable analysis to produce a 1-dimensional estimate of state capacity. In Hanson and Sigman (March 21, 2013) we use the same model to examine multiple dimensions.

One particularly useful aspect of this approach is the ability to treat missing data as a feature of the world that can be exploited to help estimate the level of state capacity in a country since the absence of some data may be related to state capacity itself. Specifically, following the technique used by ABM, we model the probability that an observation is missing as a function of the latent dimension of state capacity and the log level of GDP per capita. The use of this technique helps us to, the extent possible, reliably model the latent measure of state capacity in years where some of the indicators may be missing.⁶

The resulting measure, labeled Capacity, appears to be a general-purpose measure of state capacity that draws from indicators representing all three theorized dimensions. Several of the indicators most strongly associated with Capacity are those pertaining to administrative and extractive capacity: the IMD ratings on tax evasion and implementation of government decisions; ICRG's Bureaucratic Quality ratings; the World Bank's measure of Statistical Capacity; and the CPIA indicators for Quality of Public Administration and Quality of

⁶Again, for more information on this technique, see Hanson and Sigman (March 21, 2013).

Budgetary and Financial Management. In terms of coercive capacity, military expenditures per capita ($r = .87$) and Monopoly of Force ($r = .67$) are highly correlated as well.

To better understand the nature of our resulting measure of state capacity and its relationship to similar concepts, we display additional correlation coefficients between Capacity and a range of other commonly used measures in Table 2. With measures of overall Government Effectiveness, the Capacity measures with both the overall CPIA Index (.82) and the World Governance Indicator's (WGI) Government Effectiveness measure (.89). Regarding measures of administrative effectiveness, the Capacity also correlates quite strongly (at least .79) in the expected direction with a range of measures including the CPIA Public Sector Management index, Rothstein and Toerell's (2008) measure of impartial public administration, the WGI's regulatory quality, and Hendrix's (2010) measure of rational-legal state institutions.

The next group of measures reflect levels levels of state integration and authority. We can see that these measures are less strongly correlated with the Capacity measure, but still show some relationships of medium strength. Measures of corruption and rule of law vary in their relationship the Capacity measure. While some show quite strong correlations, others correlate more weakly suggesting some question as to the extent to which our measure can help to distinguish capacity from corruption. It also raises potential questions about the consistency in operationalizing and measuring corruption. The next group looks at several measures of the investment environment. Here we see that while some relationship exists, there is a consistent distinction between these indicators and the concept that the Capacity variable is measuring. Finally, we see that amongst the WGI and CPIA measures, the accountability measures have the weakest correlations with Capacity. This suggests that, as intended, the resulting measure can be distinguished from concepts related more closely to democratic governance, such as transparency and accountability.

With 7,348 observations in total, the State Capacity measure is much broader in scope

Table 2: Correlations of Estimates with Other Indicators

	Capacity	N
Effective Government		
CPIA Index (World Bank Group, 2010)	0.82	383
Functioning of Government (FH)	0.65	647
Functioning of Government (EIU)	0.73	480
Good Government (Knack and Keefer)	0.78	155
Government Effectiveness (WGI)	0.89	1926
Public Administration		
Basic Administration (BTI)	0.81	614
Impartial Public Admin. (Rothstein & Teorell)	0.85	50
Public Sector Mgmt. (CPIA)	0.79	383
Rational-Legal (Hendrix)	0.85	1408
Regulatory Quality (WGI)	0.85	1926
State Authority		
Autonomous Regions (DPI)	0.16	5200
Internal Conflict (PRS)	0.53	3375
State Identity (BTI)	0.47	614
Stateness (BTI)	0.65	954
Corruption and Rule of Law		
Anti-Corruption and Rule of Law (GIR)	0.40	235
Corruption (PRS)	0.64	3590
Control of Corruption (WGI)	0.83	1926
Corruption Perceptions Index (TI)	0.85	1799
Rule of Law (PRS)	0.68	3590
Rule of Law (WGI)	0.86	1927
Investment Environment		
Prop. Rights and Rule-based Gov. (CPIA)	0.63	383
Expropriation Risk (PRS)	0.61	1834
Repudiation of Contracts (PRS)	0.69	1834
Transparency and Accountability		
Transparency & Accountability (CPIA)	0.51	383
Voice and Accountability (WGI)	0.67	1927

than other commonly used measures. For example, our data exceed the International Country Risk Guide’s measure of Bureaucratic Quality in coverage by over 1,700 observations and with 19 additional years, and they expand upon the estimates from Hendrix (2010) by over 5,000 observations and 25 years. As demonstrated in the next section, the broader coverage of countries and years permits us to assess the impact of institutional factors on project success dating back to 1960 which, to our knowledge, was not previously possible.

3 Institutions and Project Success

This section tests the influence of various institutions on the outcomes of World Bank development projects. We use the IEG World Bank Project Performance Ratings dataset (World Bank Group, 2016), which includes ratings for over 11,000 projects completed between 1960 and 2014. The IEG is an independent unit within the World Bank that assesses its activities. Each lending project in a participating country is rated on a six-point scale that ranges from “highly unsatisfactory” to “highly satisfactory.” We define project success as a rating of “moderately satisfactory,” “satisfactory” or “highly satisfactory.” Overall, about 70% of projects received one of these three ratings. The frequency distribution of these project ratings is provided in Figure 1.

We employ the new Capacity measures as a predictor for the success of World Bank projects during the 1962-2010 time period as assessed by the Bank’s Independent Evaluation Group (IEG). We find that higher levels of state capacity, as represented by Capacity, are associated with a significantly higher probability that a project will receive a rating of satisfactory.

In the next set of tests, we control for the log value of GDP per capita ($\ln GDPcap$) from Heston et al. (2011), the average number of years of education in the population aged 15 and up ($YearsEduc$) from Barro and Lee (2010), various measures related to democracy,

Figure 1: Frequency Distribution of IEG Ratings

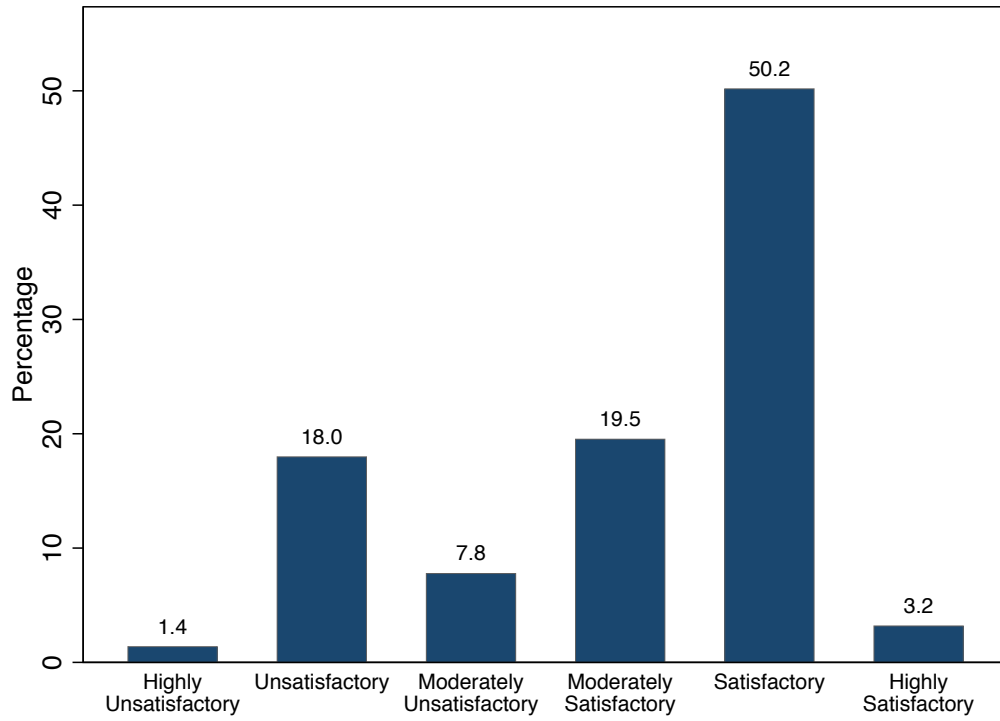
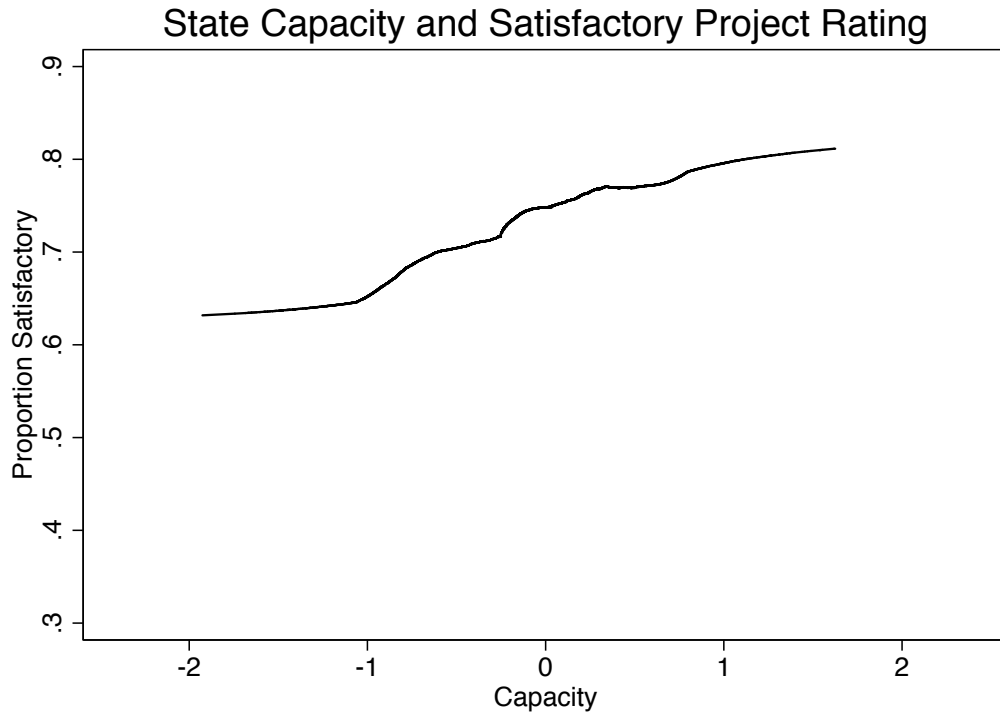


Figure 2: IEG Project Success Rating Across Values of Capacity



civil liberties and political contestation, and set of macroeconomic indicators. Specifically, in different sets of tests, we employ the *Polity2* index (Marshall and Jaggers, 2009), the measures of political rights (*PolRights*) and civil liberties (*CivLib*) from Freedom House (Freedom House, 2009), and measures of inflation, growth in GDP per capita. and exchange rate shocks.⁷ These variables are measured at their mean levels during the time between the project’s approval and completion dates.

We run two sets of four tests, each with a different measure of democracy. Capacity is consistently associated with higher project satisfaction ratings at a high level of statistical confidence. Substantively, in all four models, each one unit increase in Capacity, which is one standard deviation of the measure, is associated with an increase of approximately .1 in the probability that a project will get a satisfactory rating when holding the other variables at their medians. The results of Model 4 suggest that a welcoming investment environment combined with high levels of education may substitute for the positive impact of state capacity on project outcomes.

Figure 3 depicts the predicted probability that a project is rated as satisfactory (measured dichotomously) using the results from Model 1 in Table 3. All the other independent variables are held constant at their median values. As the figure illustrates, the predicted probability of a satisfactory rating rises dramatically when levels of Capacity are higher. The total effect of this variable, when Capacity goes from -2 to 2, is for the probability of a satisfactory rating to rise from .51 to .90. The bars around each point reflect the 95% confidence interval of the estimate.

To check for robustness of these findings, we conduct the tests both as an ordered logistic regression with the six-point scale of potential outcomes, as seen in Table 4, The results are generally consistent with those of the logit model in Table 3. The effect of Capacity is

⁷We have rescaled the Freedom House variables such that they run from 0 to 1 with higher values meaning greater political rights or civil liberties. In all other variables higher values represent higher quality institutions.

Table 3: Prediction of Satisfactory IEG Project Rating

	(1)	(2)	(3)	(4)
Capacity	0.52** (0.10)	0.54** (0.10)	0.54** (0.10)	0.52** (0.11)
ProjectLength	-0.00** (0.00)	-0.00** (0.00)	-0.00** (0.00)	-0.00** (0.00)
lnGDPcap	-0.01 (0.02)	-0.01 (0.02)	-0.01 (0.02)	-0.00 (0.02)
YearsEduc	-0.02 (0.03)	-0.02 (0.03)	-0.02 (0.03)	-0.02 (0.02)
Growth	0.05** (0.01)	0.05** (0.01)	0.05** (0.01)	0.05** (0.01)
Inflation	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
ExRateShock	-0.61** (0.22)	-0.60** (0.22)	-0.60** (0.22)	-0.60** (0.22)
Polity2	0.01 (0.01)			
PolRights		-0.01 (0.04)		
CivLibs			-0.02 (0.05)	
AuthRegime				-0.03 (0.12)
Constant	1.51** (0.28)	1.48** (0.27)	1.49** (0.28)	1.46** (0.29)
N	8404	8394	8394	8227
Log-likelihood	-4812.90	-4810.20	-4810.21	-4722.94

Logistic Regression with standard errors clustered at the country level.

$\wedge p < 0.10$, * $p < 0.05$, ** $p < 0.01$

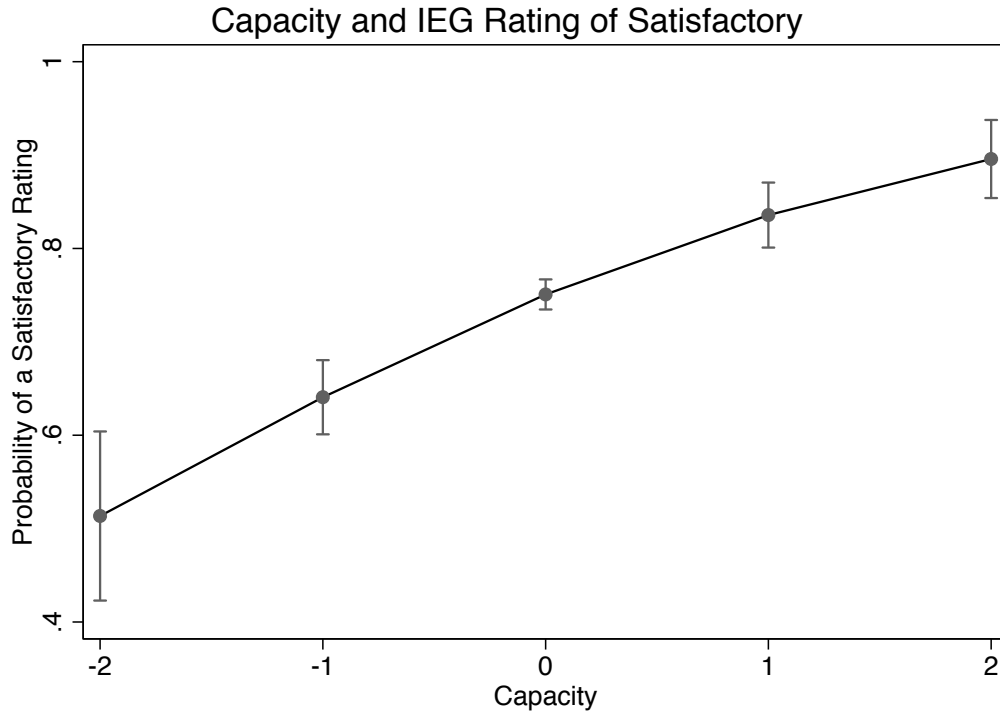
Table 4: Prediction of Ordinal IEG Project Rating

	(1)	(2)	(3)	(4)
Capacity	0.70** (0.10)	0.70** (0.10)	0.70** (0.10)	0.69** (0.10)
ProjectLength	-0.00** (0.00)	-0.00** (0.00)	-0.00** (0.00)	-0.00** (0.00)
lnGDPcap	-0.02 (0.02)	-0.02 (0.02)	-0.02 (0.02)	-0.02 (0.02)
YearsEduc	-0.06** (0.02)	-0.07** (0.02)	-0.07** (0.02)	-0.07** (0.02)
Growth	0.04** (0.01)	0.04** (0.01)	0.04** (0.01)	0.05** (0.01)
Inflation	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)
ExRateShock	-0.38^ (0.21)	-0.38^ (0.20)	-0.37^ (0.21)	-0.40^ (0.21)
Polity2	-0.01 (0.01)			
PolRights		-0.01 (0.04)		
CivLibs			-0.02 (0.05)	
AuthRegime				0.15 (0.12)
N	8404	8394	8394	8227
Log-likelihood	-1.1e+04	-1.1e+04	-1.1e+04	-1.1e+04

Ordered Logistic Regression with standard errors clustered at the country level.

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

Figure 3: Probability of Satisfactory Rating at Levels of Capacity



positive, meaning that it is associated with higher probabilities on the upper end of the ordinal scale, and statistically significant at the .01 level. Although the variables measuring macroeconomic conditions generally perform as expected, none of the four different measures of democracy has a discernible impact.

Finally, we examine whether the importance of State Capacity varies by project sector, as recent research by Denizer et al. (2011) suggests.⁸ The IEG classifies projects into 19 different sectors. We further combine these sectors to produce six broad categories of projects: agriculture, human capital (includes education, health, poverty reduction and social development projects), energy and mining, private sector development (includes financial sector), public sector development (includes public financial management), and infrastructure (includes IT/communications, transportation, and water). We exclude projects related to the environment, gender development, and social rights, because the number of projects

⁸In particular, Denizer et al. (2011) find significant variation in project success *within* countries. We thus look for systematic differences across project sectors.

conducted in these sectors were considerably smaller than other categories.

Divided by sector, the analysis shows that infrastructure, public sector projects, and human capital projects are the most responsive to state capacity. In other sectors, such as agriculture, capacity has a more modest positive effect, suggesting that state capacity is less critical to project success in these areas. This result is not surprising since large scale social interventions such as improvement in education and health systems often require complex coordination across territories and agencies, and significant involvement of actors from the apex of government all the way to street-level bureaucrats.

4 Effects of World Bank Projects on State Capacity

Seeing that state capacity has consistently positive effects on the success of World Bank development projects, we test to see whether or not successful projects can, in turn, lead to greater levels of state capacity, thereby creating a virtuous circle in which projects promote capacity and vice versa. The integration of capacity-building elements into World Bank project design has been ongoing for quite some time. For example, a 2005 OED report estimated that the World Bank had spent approximately \$10 billion on capacity building throughout the public sector in sub-Saharan Africa alone.

To conduct this analysis, we transformed the project-level data into country-level data at the year representing the mid-point of each project. For each resulting country-year observation, we recorded the number of projects that were ongoing in that particular year, the number of projects happening in that year that were ultimately rated as satisfactory, as well as the mean of the IEG outcome ratings of those projects. The number of projects happening in a given country-year is represented by the variable *Project*, the number of satisfactory projects is represented by the variable *Satisfactory*, and the mean IEG outcome rating is represented by the variable *Outcome*. The data are then collapsed into five-year

Table 5: Prediction of Satisfactory IEG Project Rating by Sector

	(1) Agriculture	(2) Human Capital	(3) Energy/Mining	(4) Private Sect.	(5) Public Sect.	(6) Infrastructure
Capacity	0.40** (0.15)	0.95** (0.21)	0.67** (0.25)	0.60** (0.22)	1.10** (0.25)	1.13** (0.26)
ProjectLength	-0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)	-0.00** (0.00)	-0.00 (0.00)	-0.00 (0.00)
lnGDPcap	0.08** (0.03)	-0.04 (0.04)	-0.03 (0.04)	0.04 (0.06)	-0.08 (0.06)	-0.10 [^] (0.06)
YearsEduc	-0.02 (0.04)	-0.06 (0.05)	-0.05 (0.05)	-0.07 (0.06)	-0.06 (0.05)	-0.06 (0.06)
Growth	0.04* (0.02)	0.02 (0.02)	0.05* (0.03)	0.05 [^] (0.03)	0.06* (0.03)	0.06 [^] (0.03)
Inflation	0.00 (0.00)	-0.00 (0.00)	0.00 (0.00)	0.00 [^] (0.00)	-0.00* (0.00)	-0.00 (0.00)
ExRateShock	-0.65* (0.30)	-0.39 (0.46)	-1.74** (0.44)	-2.34** (0.79)	1.12 (0.73)	1.08 (0.89)
Polity2	0.00 (0.01)	-0.04 [^] (0.02)	-0.03 [^] (0.02)	0.00 (0.02)	-0.01 (0.02)	-0.00 (0.02)
N	1944	1258	1098	722	695	695
Log-likelihood	-2402.40	-1682.14	-1325.20	-945.59	-991.37	-417.63

Logistic Regression with standard errors clustered at the country level.

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

groups from 1960-2009 with mean values across the five year time period used for each independent variable.

In the first set of tests, displayed in Table 6, the dependent variable is the Capacity score in time period t and independent variables are lagged by one five-year period ($t-1$). We use a random effects generalized least squares regression with robust standard errors to test the effects of Capacity alongside other institutional variables. For each model, we check for robustness of the findings by testing not only the average of the Outcome rating over that period, but also the number of Satisfactory projects that were happening in a given country in the five year period. The results indicate that the execution of projects with higher ratings in the previous five-year period have a consistent positive and statistically significant effect on the Capacity level of that country. Likewise, Civil Rights and Political Liberties seem to have a consistently negative and statistically significant effect. The number of projects alone, however, does not consistently impact Capacity scores. In other words, to impact capacity, projects must be executed successfully.

Next, we calculate the change in Capacity over each five year period. This change in Capacity variable serves as the dependent variable for the next set of tests. Again, we use a random effects GLS regression with robust standard errors. Because the dependent variable is a difference, we do not lag the independent variables. Instead we test the effects on change in Capacity in the current five-year period as well as the total change over the course of the current period t and the period following, $t+1$ thus producing a measure of the change in state capacity over a 5-year period and over 10-year period. In each of the following tables, Models 1 and 3 represent the 5-year change, and models 2 and 4 represent the 10-year change. Table 7 tests the influence of Capacity relative to Polity2, Table 8 tests the influence of Capacity relative to Civil Liberties, and Table 9 tests the influence of Capacity relative to Political Rights.

The results are remarkably consistent. The existence of World Bank projects alone

Table 6: Effect of IBRD Project on State Capacity

	(1)	(2)	(3)	(4)	(5)	(6)
Project _{t-1}	0.00* (0.00)	-0.01 (0.00)	0.00* (0.00)	-0.01 (0.00)	0.00* (0.00)	-0.01 (0.00)
Outcome _{t-1}	0.17** (0.04)		0.17** (0.04)		0.16** (0.04)	
Satisfactory _{t-1}		0.01* (0.01)		0.02** (0.01)		0.02** (0.01)
Polity2 _{t-1}	0.01^ (0.00)	0.01* (0.01)				
CivLib _{t-1}			-0.04^ (0.02)	-0.05* (0.02)		
PolRights _{t-1}					-0.05** (0.02)	-0.06** (0.02)
GDPcap _{t-1}	0.14** (0.05)	0.14** (0.06)	0.13* (0.05)	0.13* (0.06)	0.13* (0.05)	0.13* (0.06)
YearsEduc _{t-1}	0.04** (0.01)	0.05** (0.02)	0.04** (0.01)	0.05** (0.01)	0.04** (0.01)	0.05** (0.02)
Corruption _{t-1}	0.05* (0.03)	0.07* (0.03)	0.05^ (0.03)	0.07* (0.03)	0.05^ (0.03)	0.06* (0.03)
Capacity _{t-1}	0.67** (0.05)	0.67** (0.05)	0.67** (0.05)	0.67** (0.05)	0.66** (0.05)	0.66** (0.05)
Constant	-0.43 (0.27)	0.16 (0.25)	-0.16 (0.33)	0.50 (0.31)	-0.07 (0.30)	0.58* (0.29)
N	349	349	350	350	350	350
Countries	91	91	91	91	91	91
R ²	0.80	0.79	0.80	0.79	0.80	0.79

Random-effects Generalized Least Squares regression with robust standard errors.

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

Table 7: Number of IBRD Projects and State Capacity (Polity)

	(1)	(2)	(3)	(4)
Project	0.01** (0.00)	0.01** (0.00)	-0.01 (0.01)	-0.01 (0.01)
Outcome	0.10** (0.03)	0.21** (0.05)		
Satisfactory			0.02** (0.01)	0.02** (0.01)
Polity2	0.00 (0.00)	0.00 (0.01)	0.00 (0.00)	0.00 (0.01)
Corruption	0.07** (0.02)	0.09* (0.04)	0.08** (0.02)	0.10* (0.04)
GDPcap	0.18** (0.04)	0.41** (0.08)	0.18** (0.04)	0.42** (0.08)
YearsEduc	0.02 (0.02)	0.05^ (0.02)	0.02 (0.02)	0.05* (0.03)
CapStart	-0.30** (0.04)	-0.69** (0.07)	-0.29** (0.04)	-0.69** (0.07)
Constant	-0.60* (0.24)	-0.92* (0.45)	-0.23 (0.22)	-0.21 (0.44)
N	449	349	451	349
Countries	93	91	93	91
R^2	0.19	0.34	0.19	0.32

Random-effects Generalized Least Squares regression with robust standard errors.

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

Table 8: Number of IBRD Projects and State Capacity (CivLib)

	(1)	(2)	(3)	(4)
Project	0.00** (0.00)	0.01** (0.00)	-0.01^ (0.01)	-0.01 (0.01)
Outcome	0.15** (0.04)	0.20** (0.05)		
Satisfactory			0.02** (0.01)	0.02** (0.01)
CivLib	-0.01 (0.03)	-0.04 (0.03)	-0.02 (0.03)	-0.05 (0.03)
Corruption	0.06* (0.03)	0.08^ (0.04)	0.07** (0.03)	0.09* (0.04)
GDPcap	0.22** (0.04)	0.39** (0.08)	0.21** (0.04)	0.40** (0.08)
YearsEduc	0.02 (0.02)	0.05^ (0.02)	0.03 (0.02)	0.05* (0.02)
CapStart	-0.38** (0.05)	-0.69** (0.07)	-0.37** (0.05)	-0.69** (0.07)
Constant	-0.51^ (0.31)	-0.60 (0.50)	0.05 (0.31)	0.16 (0.49)
N	373	350	375	350
Countries	92	91	92	91
R^2	0.25	0.34	0.24	0.32

Random-effects Generalized Least Squares regression with robust standard errors.

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

Table 9: Number of IBRD Projects and State Capacity (PolRights)

	(1)	(2)	(3)	(4)
Project	0.00** (0.00)	0.01** (0.00)	-0.01 [^] (0.01)	-0.01 [^] (0.01)
Outcome	0.14** (0.04)	0.20** (0.05)		
Satisfactory			0.02** (0.01)	0.02** (0.01)
PolRights	-0.01 (0.02)	-0.05 [^] (0.03)	-0.02 (0.02)	-0.06 [^] (0.03)
Corruption	0.06* (0.03)	0.08 [^] (0.04)	0.07** (0.03)	0.09* (0.04)
GDPcap	0.21** (0.04)	0.39** (0.08)	0.20** (0.04)	0.39** (0.08)
YearsEduc	0.02 (0.02)	0.04 [^] (0.02)	0.03 (0.02)	0.05 [^] (0.03)
CapStart	-0.38** (0.05)	-0.69** (0.07)	-0.37** (0.05)	-0.70** (0.07)
Constant	-0.49 [^] (0.29)	-0.45 (0.47)	0.07 (0.28)	0.29 (0.48)
N	373	350	375	350
Countries	92	91	92	91
R^2	0.25	0.35	0.24	0.32

Random-effects Generalized Least Squares regression with robust standard errors.

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

has a very small and sometimes negative effect on change in Capacity. A greater number of satisfactory ratings and higher average IEG ratings, however, have a positive and statistically significant relationship to the change in State Capacity for both 5-year and 10-year variables. The effects are particularly strong when the 6-point ordinal IEG Outcome scale is used in the analysis.

The results are also consistent in that the various types of democratic institutions appear to have very little, no, or even negative effects on change in Capacity. In Table 7 we see that the effects of regime type (Polity2) are non-existent. In Table 8 Civil Liberties have a consistently negative, yet statistically insignificant effect. The effects of Political Rights in Table 9 are consistently negative, but only have statistical significance when testing effects on the 10-year change in Capacity. Although the possibility of omitted variables affecting both project success and Project outcomes exists, we can conclude with some confidence from these tests that, when executed successfully, World Bank projects appear to have a positive effect on State Capacity irregardless of the political environments in which they operate.

5 Discussion and Conclusion

In examining the relationship between state capacity, political institutions and the success of World Bank development projects, this paper provides evidence that the importance of democratic political contexts has been overstated in research on international development interventions. Democratic political institutions such as electoral competition, civil liberties, and political rights do not necessarily have the theorized effects on development project success, warranting the need for further inquiry into the hypothesized mechanisms and incentives at work in these relationships. The results also indicate that there may be some systematic variation across project sectors, whereby pre-existing levels of state capacity are

particularly important to the success or failure of investments in human capital such as health and education.

Given the strength of the evidence suggesting the importance of state capacity in producing favorable project outcomes, we also inquired into the effects of World Bank projects on state capacity. With some surprise, the findings were very consistent. When executed successfully, World Bank projects appear to facilitate positive changes in state capacity, as well as overall higher levels of state capacity. These findings hold up with numerous controls, including pre-existing levels of state capacity, economic wealth, and a variety of political institutional arrangements. Taken together, the two sets of analyses suggest that virtuous circles of development interventions and capacity building exist, but that project selection and successful execution are necessary. Future work should further explore these dynamics.

Finally, the findings also suggest that additional work can be done to sort out the relationships between capacity and governance, and to develop better measures that can consistently and reliably measure these concepts. To this end, the Bayesian latent variable methods used to develop a new measure of state capacity in this paper could be further applied to similar endeavors with other concepts to produce more measures that with better coverage.

References

- Adelman, Irma and Cynthia Taft Morris. 1967. *Society, Politics, & Economic Development: A Quantitative Approach*. Baltimore: The Johns Hopkins Press.
- Alesina, Alberto, William Easterly, and Janina Matuszeski. 2011. "Artificial States." *Journal of the European Economic Association* 9(2): 246–277.
- Arbetman-Rabinowitz, Marina, Jacek Kugler, Mark Abdollahian, Kristin Johnson, and Kyungkook Kang. 2011. "Replication data for: Relative Political Capacity Dataset." URL <http://hdl.handle.net/1902.1/16845>. Transresearch Consortium [Distributor] V3 [Version].
- Arel-Bundock, Vincent and Walter Mebane. 2011. "Measurement Error, Missing Values and Latent Structure in Governance Indicators." Presented at the 2011 Annual Meeting of the American Political Science Association.
- Barro, Robert and Jong-Wha Lee. 2010. "A New Data Set of Educational Attainment in the World, 1950-2010." NBER Working Paper No. 15902.
- Berkman, Heather, Carlos G. Scartascini, Ernesto Stein, and Mariano Tommasi. 2008. "Political Institutions, State Capabilities, and Public Policy: An International Dataset." Washington, D.C., United States: IDB Research Department.
- Bersch, Katherine and Sandra Botero. 2011. "Measuring Governance: A Defense of Disaggregation." Prepared for the American Political Science Association Conference, September 1-4, 2011.
- Bockstette, Valerie, Areendam Chanda, and Louis Putterman. 2002. "States and markets: The advantage of an early start." *Journal of Economic Growth* 7(4): 347–369.
- Boone, Paul. 1996. "Politics and the Effectiveness of Foreign Aid." *European Economic Review* 40(2): 289–329.
- Brautigam, Deborah and Stephen Knack. 2004. "Foreign Aid, Institutions, and Governance in Sub-Saharan Africa." *Economic Development and Cultural Change* 52(2): 255–285.

- Bulman, David, Woalter Kolkma, and Aart Kraay. 2015. “Good Countries or Good Projects? Comparing Macro and Micro Correlates of World Bank and Asian Development Bank Project Performance.” *World Bank Policy Research Working Paper No. 7245* .
- Burnside, Craig and David Dollar. 1997. “Aid, Policies and Growth.” *The World Bank Policy Research Working Papers* 1777.
- . 1998. *Aid, the Incentive Regime, and Poverty Reduction*. Washington: The World Bank.
- . 2004. “Aid, Policies and Growth: Revisiting the Evidence.” *World Bank Policy Research Paper* O-2834.
- Denizer, Cevdet, Daniel Kaufmann, and Aart Kraay. 2013. “Good countries or good projects? Macro and micro correlates of World Bank project performance.” *Journal of Development Economics* 105: 288–302.
- Denizer, Cevdet, Daniel Kaufmann, and Art Kraay. 2011. “Good Countries or Good Projects? Macro and Micro Correlates of World Bank Project Performance.” *World Bank Development Research Group Macroeconomics and Growth Team, Policy Research Working Paper 5646* .
- Dollar, David and Victoria Levin. 2005. “Sowing and Reaping: Institutional Quality and Project Outcomes in Developing Countries.” World Bank Policy Research Working Paper 3524.
- . 2006. “The Increasing Selectivity of Foreign Aid, 1984-2003.” *World Development* 34(12): 2034–2046.
- Easterly, William, Ross Levine, and David Roodman. 2003. “New Data, New Doubts: A Comment on Burnside and Dollar’s “Aid Policies and Growth” (2000).” *National Bureau of Economic Research* 9846.
- Evans, Peter. 1995. *Embedded Autonomy: States and industrial transformation*. Princeton: Princeton University Press.
- Freedom House. 2009. *Freedom in the World Country Ratings: 1972 to 2008*. Washington, D.C.: Freedom House, Inc.

- Fritz, Verena and Bryan Levy. 2014. *Problem-Driven Political Economy Analysis: The World Bank's Experience*. Washington DC: The World Bank.
- Geli, Patricia, Art Kraay, and Hoveida Nobakht. 2014. "Predicting World Bank Project Outcome Ratings." *World Bank Policy Research Working Paper No. 7001* .
- Gibney, Mark, Linda Cornett, and Reed Wood. 2011. "Political Terror Scale, 1976-2008." URL <http://www.politicalterrorscale.org/>. Retrieved on April 23, 2013 from the Political Terror Scale Web site.
- Global Integrity. 2012. *Global Integrity Report*.
- Grindle, Merilee S. 2010. "Good Governance: The Inflation of an Idea." *HKS Faculty Research Working Paper Series, John F. Kennedy School of Government, Harvard University*. RWP10-023.
- Hanson, Jonathan K. and Rachel Sigman. March 21, 2013. "Leviathan's Latent Dimensions: Measuring State Capacity for Comparative Political Research." *World Bank Political Economy Brown Bag Lunch Series* .
- 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.
- Heston, Alan, Robert Summers, and Bettina Aten. 2011. *Penn World Table Version 7.0*. Center for International Comparisons of Production, Income and Prices at the University of Pennsylvania.
- Hirschman, Albert O. 2011. *Development Projects Observed*. Washington DC: The Brookings Institution.
- Ika, Lavagnon A., Amadou Diallo, and Dennis Thuillier. 2012. "Critical Success Factors for World Bank Projects: An Empirical Investigation." *International Journal of Project Management* 30: 105–116.
- IMD. 2011. *World Competitiveness Online*.

- Isham, Jonathan and Daniel Kaufmann. 1999. "The Forgotten Rationale for Policy Reform: The Productivity of Investment Projects." *The Quarterly Journal of Economics* 114(1): 149–184.
- Isham, Jonathan, Daniel Kaufmann, and Lant H. Pritchett. 1997. "Civil Liberties, Democracy, and the Performance of Government Projects." *The World Bank Economic Review* 11(2): 219–240.
- Johnson, Chalmers. 1982. *MITI and the Japanese Miracle*. Stanford: Stanford University Press.
- Kohli, Atul. 2004. *State-Directed Development: Political power and industrialization in the global periphery*. Cambridge: Cambridge University Press.
- Marshall, Monty G. and Keith Jagers. 2009. *Polity IV Project: Dataset Users' Manual*. Center for Systemic Peace, George Mason University.
- Moll, Peter, Patricia Geli, and Pablo Saavedra. 2015. "Correlates of Success in World Bank Development Policy Lending." *World Bank Policy Research Working Paper No. 7181* .
- Rauch, James and Peter Evans. 2000. "Bureaucratic Structure and Bureaucratic Performance in Less Developed Countries." *Journal of Public Economics* 75(1): 49–71.
- Rothstein, Bo and Jan Teorell. 2008. "What is Quality of Government? A Theory of Impartial Government Institutions." *Governance* 21(2): 165–190.
- Transparency International. 2009. "Corruption Perceptions Index." URL <http://www.transparency.org/>.
- Treier, Shawn and Simon Jackman. 2008. "Democracy as a Latent Variable." *American Journal of Political Science* 52(1): 201–217.
- World Bank Group. 1997. *World Development Report: The State in a Changing World*. Washington, DC: The World Bank.
- . 2010. "Country Policy and Institutional Assessment." URL <http://data.worldbank.org/data-catalog/CPIA>.
- . 2016. "IEG World Bank Project Performance Ratings, 1964-2014." URL <http://data.worldbank.org/data-catalog/IEG>. Last updated on 23-Mar-2016.