



## The Pillars of Governance

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A Macro-Quantitative Analysis of Governance Performance

Melissa Lee, Gregor Walter-Drop, John Wiesel



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## **The Pillars of Governance. A Macro-Quantitative Analysis of Governance Performance**

*Melissa Lee, Gregor Walter-Drop, John Wiesel*

### **Abstract:**

State building is seen as the central tenet of many present-day development efforts. This rests on a global normative script that emphasizes the modern state's role in providing governance services from security to education to health. However, the relationship between statehood and governance outcomes is not well understood. We use a macro-quantitative approach to analyze state performance in various governance dimensions including security, health, education, economic subsistence, infrastructure, and the environment. We test for the power of statehood in explaining the variation in governance outcomes while controlling for various other factors prominent in the respective debates in political science, economics, and development studies. The analysis yields three interesting results. First, statehood does not have a consistent significant relationship with governance outcomes. It matters more for some outcomes than for others. Second, we find that statehood sometimes performs better at predicting subjective (survey-based) evaluations than at predicting objective measures of governance outcomes (which confirms the ubiquity of the normative script). Finally, we find that the degree of domestic female empowerment performs consistently strong at explaining the variation in governance outcomes. This result is consistent with the policy community's emphasis on women's roles in development.

### **Zusammenfassung:**

„State-Building“ wird vielerorts als Prinzip moderner Entwicklungspolitik angesehen. Dies beruht auf der Annahme, dass dem modernen Staat eine zentrale Rolle im Bereich der Gewährleistung von Governance-Dienstleistungen zukommt. Das Verhältnis zwischen Staatlichkeit und so verstandener „Governance“ ist jedoch alles andere als klar. Auf Basis eines makro-quantitativen Ansatzes, analysieren wir die Performanz von Staaten in Bereichen wie Sicherheit, Gesundheit, Bildung, ökonomische Subsistenz, Infrastruktur und Umwelt und fragen, inwieweit Staatlichkeit die entsprechenden Unterschiede erklären kann, wenn für diverse andere Faktoren kontrolliert wird, die in den entsprechenden Debatten (v.a. in der Politikwissenschaft und (Entwicklungs-) Ökonomie) als zentral angesehen werden. Drei Ergebnisse der Untersuchung stechen hervor: Erstens – und entgegen der obigen Annahme – lässt sich keine signifikante, konsistente Beziehung zwischen Staatlichkeit und objektiver Governance-Performanz herstellen. Zweitens schneiden die entsprechenden Indikatoren besser ab, wenn es um den Zusammenhang zur subjektiven Wahrnehmung von Governance-Performanz geht, was die Ubiquität der o.g. Annahme bestätigt. Drittens schließlich stellt sich der Grad des „Empowerment“ von Frauen über ganz verschiedene Sachbereiche hinweg als stärkster Prädiktor der Governance-Performanz heraus. Dieses Ergebnis rechtfertigt den Schwerpunkt, den viele Akteure der Entwicklungspolitik derzeit auf die Förderung von Frauen legen.

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## 1. Introduction<sup>1</sup>

Policymakers, scholars, and citizens around the world care deeply about the quality of governance and the provision of collective goods and services. In developed countries, citizens take for granted that states supply these collective goods, whether through direct provision or through the promulgation of rules and regulations. In areas of limited statehood, however, the state lacks the capacity or incentive to provide these goods. Though many scholars have noted significant cross-variation in the provision of goods, we lack an understanding of the causes of that variation. The central question in this paper, therefore, is what explains the variation in the provision of governance and collective goods?

We approach this question from a macro-quantitative perspective. State-level macro-quantitative data on issues of governance and statehood are widely available and easily accessible. Various scientific and non-scientific institutions have established indicators, datasets, and rankings of the world's states on a variety of dimensions. Prominent datasets include the UN Development Program's Human Development Index (HDI), the World Bank's Worldwide Governance Indicators, the Bertelsmann Transformation Index (BTI), and Polity IV (Marshall et al. 2010), among others. The respective data and rankings are ubiquitous, not only in scientific footnotes, but also in political discourse where arguments based on such data can translate into tangible policy successes. Two key factors drive the popularity and proliferation of quantitative data. On the one hand, for many, "hard data" has the air of the "scientific evidence" – probably more so than other forms of research results because of the ease of comparison across different cases. On the other hand, state-level macro-quantitative data seem very useful in that they appear to give order to the otherwise highly complex reality of world politics. We take advantage of the proliferation of cross-national macro-quantitative data to explore the correlates of governance and the provision of collective goods in a comprehensive analysis based on a thorough screening and evaluation of the existing datasets. However, we approach this analysis in a way that (1) significantly differs from many popular approaches; and that (2) is well aware of its limitations.

The first way our approach differs from many others is that it is based on a clear conceptual differentiation between governance on the one hand and statehood on the other: in order to be able to analyze the relationship between the two. In many existing datasets (especially complex indices compiled from a high number of indicators), elements of statehood and elements of governance are merged into one index and sometimes even into one indicator. For instance, the World Bank's "government effectiveness" indicator combines several dozen indicators (Kaufmann et al. 2009: 177). Among those, we distinguish between at least two different types of indicators: First, indicators that aim to measure the attributes of the state, as in a state's ability to implement rules such as the Political Risk Services' (PRS) "Bureaucracy Quality", or the

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<sup>1</sup> This paper is the result of almost one year of data collection, data compilation and data analysis. The authors would like to thank all the student assistants involved in this endeavor, in particular Eric Stollenwerk, Franziska Strack, Stefanie Renatus, Heiko Bölk, Xaver Keller, and Santiago Gonzales. In addition, we would like to thank Cord Schmelzle, Zeljko Branovic, Ursula Schröder and Julian Schumacher for their helpful comments and input!

Economist Intelligence Unit's "Quality of Bureaucracy" indicator; and second, indicators that measure (perceived) governance outcomes (the World Competitiveness Yearbook's "bureaucracy hinders business activity" question, or Gallup World Poll's (GWP) "satisfaction with education system" survey).

We understand statehood as domestic sovereignty in Krasner's (1999) sense: as (monopoly) control over the use of legitimate force and effective administrative capacity, where administrative capacity is the ability to pass, implement, and enforce regulations. Governance, on the other hand, refers to all methods of social coordination "to produce and implement collectively binding rules or to provide collective goods" (Risse 2011). For the purposes of the following paper, we are particularly interested in the collective goods aspect of governance or the provision of services and the respective policy outcomes. Note that this conceptualization implies that such goods can be provided by the state but do not have to be.

Based on this concept, our central question is how the variance in governance outcomes across states can be explained using statehood as one potential independent variable. As noted above, our conceptualization allows us to see statehood as one of a number of predictors of governance outcomes. Following this line of thinking, we present a number of multivariate analyses of governance where statehood represents only one independent variable among others drawn mainly from the literature on governance and on development.

Our conceptual and empirical approach differs from other approaches in some additional respects. Most significant are the principles of (secondary) data collection. As we have noted, aggregate indices very often confound statehood and governance as conceptualized above. In addition, macro-indices often overlap with regard to their individual indicators, rendering the results of any causal analysis largely invalid. For instance, both Transparency International's Corruptions Perceptions Index (Transparency International 2010) and the World Bank's Control of Corruption indicator (Kaufmann 2009: 79) are aggregates of corruption measures and ratings from the Economist Intelligence Unit, the Global Insight Business Conditions and Risk Indicators, and the World Economic Forum Global Competitiveness Survey, among others. By contrast, we only use fully disaggregated individual indicators.

In addition, we only use datasets of (in principle) global geographic scope. For the purposes of specific analyses, a significant amount of data are available for a subset of the world's states, such as the member states of EU, OECD, or conversely, for what the Bertelsmann Foundation calls "transformation countries" (the non-OECD world). In order to maximize the reach of our analysis, we only use sources which – at least in principle – are based on global coverage and collected with comparable standards worldwide.

The second way our analysis differs from existing approaches is that despite our efforts in data screening and cleaning, we remain conscious of the limits of any macro-quantitative approach, especially one that relies on cross-sectional regressions. Most significantly, state-level data can never take into account sub-national variation such as regional differences. Consider,

for instance, Somalia, often depicted as one of the starkest cases for deficits in statehood. Yet even superficial research yields that there are tremendous differences in the monopoly of force between, say, Mogadishu and Somaliland, an internationally non-recognized entity exhibiting almost all characteristics of statehood in our sense. This is also true for the governance side, where it is clear that in many countries governance outcomes vary significantly between urban and rural areas. State-level data is thus by definition prone to methodological nationalism.

In addition, state-level data appears to treat all states equal with respect to the quality of data collection. Yet the quality and reliability of that data varies tremendously from country to country – not least because of variations in statehood and in the capacities of the statistics bureaus, a particularly thorny problem whenever state sources are used.

Finally, existing datasets often tend to incorporate data collected at various points in time in an effort to maximize the number of observations. This tendency makes the analysis of chronologically unidirectional causal relationships difficult.<sup>2</sup> The absence of long time-series for most governance indicators also makes it impossible to draw causal inferences. At best, we can only point to relationships and speculate on the causal pathways linking our explanatory variables to our dependent variables.

These caveats should caution us in our claims. However, we think that our analyses still yield some remarkable insights which – given the above considerations – deserve exploration in further research. First and most interestingly, statehood is a remarkably bad predictor of governance outcomes. This result is rather surprising given the prevalence that the state maintains in the dominant discourse on governance. This is particularly true for the policy-discourse which tends to see the establishment or improvement of statehood as the single most important measure to improve governance outcomes. Second, we can show that by and large in a significant number of issue areas the variation in governance outcomes can be explained quite well with macro-quantitative data – albeit not with statehood. Third, the most surprising independent variable in this regard is our (rather conservative) measure for the empowerment of women in society. Its relationship to governance outcomes is highly significant, strong, and positive across a variety of issue areas. This finding is reminiscent of the increasing attention that is given to the “gender gap” or “female empowerment,” especially in the development (policy) literature (Abu-Ghaida and Klasen 2004; Sen 1990), but the robustness of the finding across issue areas from education to economic subsistence remains rather remarkable. Fourth, economic equality also plays an unexpectedly strong role in four out of the six dimensions of governance we examined.

This paper proceeds as follows. We first introduce our model and its variables (section 2), and then present aggregate results (section 3). Subsequently, we disaggregate governance into

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<sup>2</sup> In order to tackle this problem, we aimed at compiling data for 2008 as our ‘standard’ year of measurement. For the governance dimensions and alternative explanations we calculated the average value of all indicators for the years 2007-2011 and included the mean value in our regressions.

six different dimensions and present multivariate regression results (section 4) before we summarize our approach and our results in the conclusion (section 5).

## 2. Statehood and Beyond: Explaining Governance Outcomes

### 2.1 The Dependent Variable: Governance Outcomes

As a topic of scholarly interest, governance has moved to the forefront of social science research. A simple JSTOR search yields more than 3,200 scholarly articles on governance in journals from political science, public policy, and sociology – all published in the last five years. Yet despite – or perhaps because of this surge in interest – the contours of the topic are still soft and poorly defined. Governance is often confounded with government, which is also sometimes conflated with statehood. We conceive of governance as conceptually independent of the state, allowing for an analysis of the relationship between the two. We define governance as institutionalized modes of social coordination that aim to produce and implement binding rules or provide collective goods (Risse 2011). Such collective goods include security, economic welfare, education, public health, sustainable infrastructure, and a clean and safe environment. For the purposes of this paper, we are focusing on the *outcomes of governance*, the tangible results of the above-mentioned institutions of social coordination. In other words, we want to explain the variation in outcomes in the issue areas of security, economic welfare, education, health, infrastructure, and environmental degradation. Wherever possible, we tried to analyze both objective and subjective measures of governance performance. For example, we contrasted data on objective public health outcomes with survey-based citizen perceptions of public health.

Note that the way in which we are studying governance outcomes significantly overlaps with prominent variables in development studies and development economics, which also look at issues such as health, education, and poverty. We are, however, not interested in issues such as economic growth; and some issues discussed in development studies (such as equality or income), we consider as independent variables rather than as dependent variables. Still, we are well aware that a significant part of the development literature is relevant for our undertaking and in fact we have taken most of the cues for our independent variables from this very literature.

In order to arrive at an overall picture of governance outcomes (see section 3), we aggregate across the individual dimensions introduced above. The bulk of the multivariate analysis below is carried out on the level of the individual governance dimension (see section 4). For the sake of brevity, we will introduce the conceptualization and the operationalization of the six individual dimensions of governance in detail below. At this point, it is sufficient to mention that for each of the above mentioned dimensions we have identified rather conservative primary indicators that we believe to be largely politically uncontroversial. Regardless of ideological or cultural background, e.g. most observers would agree that the minimization of child mortality is a meaningful goal of health governance. We chose indicators for the other dimensions in a similar fashion.



In sum, our model is intended to explain the differences in the achievement of such rather uncontroversial goals of governance in security, economic welfare, education, health, infrastructure, and environmental degradation on the state-level.

## 2.2 The Independent Variables

Following our conceptual distinction introduced above, we use statehood as our primary independent variable for explaining governance. In this section we also discuss our alternate independent variables drawn from the literature on governance and development. A fundamental methodological problem for any quantitative analysis lies in the fact that many common explanatory variables are closely interrelated. We have thus ordered and clustered the variables in a total of five different causal pathways that represent clearly distinguishable causal links between the respective variables and governance outcomes. In the remainder of this section, we introduce each of these pathways and variables, link them to the relevant literature, and discuss the prevalent associated hypotheses. Note that at this point we do not argue in favor or against any of them. We merely introduce the most common claims that are to be evaluated in the subsequent analysis.

### *Explanatory Pathway 1: Statehood*

Given the nature of the dominant discussion on governance, statehood is the natural candidate for the most important factor explaining the variation in the governance outcomes. In fact, the development of these governance goals can and has been written as the development of the modern Western state. Internal and external security was the very *raison d'être* at the time of the emergence of modern states in the 16th and 17th centuries (Tilly 1992). Building infrastructure is also a relatively early goal of state activity, first in the service of security and later for the purpose of fostering economic development. Providing education and public health arrive relatively late as goals of state activity and environmental issues have only recently entered the agenda. However, the different historical pathways notwithstanding, it seems fair to assume that today “Western” citizens expect their respective states to deliver in all these fields.

It is therefore not surprising that many contributions to (Northern) governance research take certain core elements of modern statehood for granted. These elements usually include the monopoly over the use of legitimate force and the fundamental ability to pass, implement, and enforce political decisions, both of which are at the core of what Krasner (1999) has called “domestic sovereignty”. Often overlooked is the fact that, outside the OECD, these assumptions do not hold (see the introductory chapter to this volume). In fact, seen in a broader context, Western-style consolidated statehood is both an historical and contemporary exception. Even today, in most developing or transition countries (encompassing more than three quarters of

the world's population), state or government control over the use of force is at best tenuous and incomplete, and so is the ability to implement and enforce policy or regulation.

To be sure, even within the West we might find pockets of limited statehood (such as police no-go areas in American inner cities) and implementation problems might even be considered a universal condition. But statehood is best conceived of as a continuous variable, ranging from the Nordic countries to Russia and Colombia all the way to Sudan, Somalia, and Afghanistan. The corresponding hypothesis is that *the greater degree of statehood, the higher the achievements in the fundamental goals of governance*. The above (somewhat stereotypical) examples seem to confirm this idea.

In order to test this line of reasoning we use a total of three variables that are closely linked to our definition of statehood. One variable covers the monopoly of force (MoF) whereas two others capture the capacity of the state to implement and enforce rules and regulation.

#### **IV1: Monopoly of Force :**

For the variable *Monopoly of Force*, we use a combination of two indicators from the Political Instability Task Force's (PITF) dataset. MAGFAIL captures situations "in which the institutions of the central state are so weakened that they can no longer maintain authority or political order in significant parts of the country" (Marshall et al. 2010). MAGAREA measures the proportion of a country "affected by fighting or revolutionary protest" (Marshall et al. 2010). Our variable combines these two indicators in order to capture the relative strength of state institutions (vis-à-vis its challengers) and territorial reach of both state institutions and the MoF.<sup>3</sup>

#### **IV2: Bureaucratic Capacity (BC):**

Various measures of state capacity or statehood focus on the functioning of a state's bureaucracy. Often, these measures implicitly or explicitly follow Max Weber's notion of the central role that an impersonal, rule-oriented, professional bureaucracy plays in modern states as compared to earlier forms of traditional or charismatic rule (Weber 1921/1980). Conceptually, Weber's idea comes very close to our notion of implementation capacity. Empirically, a factor analysis of a wide range of available measures of capacity has demonstrated that bureaucratic quality exhibits the highest loading of any of the included factors, which suggests that administrative capacity dominates researchers' understandings of state capacity (Hanson/Sigman 2011). A well-regarded and widely-used bureaucratic quality indicator is from the PRS' International Risk Country Guide (ICRG). However, a significant drawback of all ICRG measures is the fact that PRS does not release the codebook, so the details of the coding procedure remain obscure. However,

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<sup>3</sup> For a similar measure combining MAGFAIL and MAGAREA see Branovic, Zeljko (2011): *The Privatisation of Security in Failing States: A Quantitative Assessment*, DCAF Occasional Papers, 24, Geneva. and Goldstone, Jack A./ Bates, Robert H./ Epstein, David L./ Ted, Robert G./ Lustik, Michael B./ Marshall, Monty G./ Ulfelder, Jay and Woodward, Mark (2010): *A Global Model for Forecasting Political Instability*, in: *American Journal of Political Science*, 54, 190-208.

the ICRG's bureaucratic quality measure shows rankings very similar to the "administrative capacity" indicator from the BTI, which does provide public codebook information. The BTI measure seems valid given our conceptualization but covers only countries Bertelsmann considers to be "transformation countries" (the non-OECD world). Given the similar results and the greater geographic reach, we prefer the ICRG indicator.

### **IV3: Enforcement Capability (EC):**

Enforcement is the most difficult of the elements of our statehood definition to measure. Conceptually, enforcement refers to the state's ability to use hierarchical means to ensure that rules and regulations are being followed. This is much less about an "iron fist" of coercive force (only present in the more extreme cases), but more about an effective legal system (ultimately backed up by the threat of the use of force). Reliable measures for a functioning legal system, however, are rather scarce and the most ambitious of these, the World Justice Project's "Rule of Law Index", only covers some 66 countries – as of their 2011 data release (Agrast et al. 2011).

We thus use an indirect measure that captures access to the legal system (and its efficiency) by looking at the overall costs that a plaintiff has to advance when settling a standardized commercial legal claim relative to income per capita. We use the World Bank's cost of claim indicator from the "Doing Business – Enforcing Contracts" dataset that covers court costs, enforcement costs, and average attorney fees as a percentage of a financial claim, equivalent to 200% of annual income per capita in the respective country (World Bank 2011) – Bribes are excluded. As this indicator approaches (or even exceeds) 1 (or rather: 100%) it seems safe to assume that legal rule enforcement becomes more and more difficult.

#### *Explanatory Pathway 2: Economic Capacity and Equality*

When considering the determinants of governance outcomes, it seems an obvious conclusion that the overall economic capacity of any given country should play a decisive role (Huther/Shah 1998; Stiglitz et al. 2009). Most readers would probably agree with the corresponding hypothesis that *the higher the economic capacity of any given state, the better the governance outcomes*. The higher the economic development of a state, the better economic wellbeing, health, and education of its citizens, the better its infrastructure, and the better even its security situation may be. However, there is also a vibrant discussion about the effects of economic equality independent from economic capacity. This debate does not concern all of the governance dimensions considered in this study but is relevant for security and public health. In the security sector, inequality may drive up crime (in particular, property crime, violent crime, and murder) because of perceived injustice and a rising relative deprivation in significant parts of the population (Jacobs/Richardson, 2008; Kelly 2000). In the health sector, some authors have investigated the effects of inequality on life expectancy and infant mortality, arguing also on the basis of deprivation theory (Deaton 2003; Leigh/Jencks 2007; Lynch et al. 2004). Based on these considerations, we included two variables into our study to capture economic capacity and economic equality, respectively.

#### IV4: Mean Income

Gross domestic product per capita (GDPpc) is commonly used for measuring the overall economic capacity of any given country. For our purposes, however, the precise causal link between GDPpc and governance outcomes is not as clear as it might appear at first. While GDPpc might capture the economic capacity of a state relative to the size of its population, the implicit causal pathways to our governance outcomes depend on a number of assumptions that may or may not hold. Therefore, we prefer a measure closer to the causal pathways described above. Following our conceptualization which separates governance from statehood, we assume the existence of two central causal pathways, one via the state and one via its citizens. First, economic capacity might translate into state revenue and the state might use this revenue to ensure the provision of governance services. Second, economic capacity might also translate into private income that can be used to purchase governance services (such as education) in the private market, or to collectively organize and finance their provision (such as a neighborhood watch). We thus assume that government revenue and citizens' income are measures which much better capture these causal pathways. GDPpc as a variable can be considered prior to both, but requires additional assumptions about the respective links. Empirically, worldwide measures for state revenue are scarce because of the inherent difficulties in comparing the internationally widely diverging taxation schemes, and because of poor reporting rates to international organizations that collect such information. In addition, the available and comparable data show an extremely high correlation between data on state revenue and data on private income. For the purposes of our regression analysis, the resulting multicollinearity would have forced us to choose between both measures, so we selected the indicator with the broader global coverage, which was citizens' mean income. The indicator is based on OECD data on gender distribution and gender income (OECD Development Centre 2011).

#### IV5: Economic Equality

The most common indicator for (in)equality is the Gini coefficient. Gini is based on a Lorenz curve, which shows the proportion of total income that is cumulatively earned by the least well-off percentage of the population. The coefficient is a measure of the area under the Lorenz curve and ranges from 1 (perfect equality) to 0 (perfect inequality). High-quality worldwide Gini data is available from the UN University's (UNU) World Income Inequality Database (WIID) (UNU-WIDER 2008). We supplement this data with World Bank data when no UNU data were available (World Bank, 2010).<sup>4</sup>

#### *Explanatory Pathway 3: Regime Type*

The literature on regime type revolves around discussions of democracy, autocracy, elements of these respective regimes, and their consequences. The literature suggests three possible

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<sup>4</sup> We manually substituted data for two additional data points using data from the CIA World Factbook, Central Intelligence Agency (2011): The World Factbook, Central Intelligence Agency, Washington, DC..

hypotheses about the relationship between regime type and collective goods. Some authors argue that, on balance, regime type has no major effect on governance, development, or growth (Glaeser et al 2004; Glaeser et al. 2006; Kurzman et al. 2002). Other scholars claim that autocracies, especially those with lower levels of development, perform better (particularly in fostering growth) because of more efficient rule-making systems (see e.g., O'Donnell 1999). However, a significant group of scholars argue that democracy improves the economic and social performance of states (see e.g., Franco et al. 2004; Halperin et al 2005; Iqbal 2006; Zweifel/Navia 2000). This latter claim is based on two major causal pathways. The first pathway assumes that the accountability structures inherent in democratic systems of rule provide strong incentives for governments to address people's needs (Iqbal 2006). The second pathway maintains that democratic representation, another fundamental characteristic of democracy, ensures that politicians and elected officials consider a broad range of interests when making decisions. This in turn, translates into a more balanced policy output in terms of the spread and depth of government services (Halperin et al 2005; Zweifel/Navia 2000). We therefore focus on these two pathways of accountability and representation.

#### **IV6: Accountability**

Conceptually, accountability refers to institutional structures in which a set of principals can hold agents accountable for their actions and influence their behavior through the threat of removal. In a political context, elections are a necessary element of accountability in democratic regimes because elections incentivize incumbents to work for the public interest in order to secure votes at election time. We operationalize accountability by measuring the mode through which the members of the executive branch of government are chosen. We follow Cheibub et al. (2009) who differentiate between "direct elections" – or election of the effective executive by popular vote; or the election of committed delegates for the purpose of executive selection ("indirect election"); or the selection of the effective executive by an elected assembly; or by an elected but uncommitted electoral college – and the non-elective mode including any means of executive selection not involving a direct or indirect mandate from an electorate (Osborne/Gaebler 1992: 4). We recode the variable into a dummy variable, where one is coded whenever there are elections of the executive and zero in all other cases.

#### **IV7: Representation**

Similarly to accountability, the representation of different social interests is expected to improve governance performance because representation reorients policy goals toward a plurality of interests and potentially works against a counterproductive fragmentation of society. At the same time, the ability to express potentially all social interests is another core element of democracy. In order to capture this concept, we use data from the well-known Polity IV dataset (Marshall et al. 2010). In particular, we use the Polity's "competitiveness of participation" indicator (PARCOMP), which refers to the extent to which alternative preferences for policy and leadership can be pursued in the political arena (Ott 2010: 26).

#### *Explanatory Pathway 4: External Governance Support*

An alternative to the domestic provision of governance services (be it by the state or by private substitution) is external provision. In the extreme, external actors such as the UN, foreign powers, or international Non-Governmental-Organizations (NGOs) may directly provide governance services in the form of food aid, refugee shelters, public health clinics, or schools. While these forms of direct external governance provision are difficult to measure cross-nationally, a less intrusive form of external governance support is bilateral foreign aid, usually disbursed to and administered by recipient governments.

#### **IV8: Foreign Aid**

Data for foreign aid is available from the OECD's Development Assistance Community and Creditor Reporting System databases (OECD Development Co-operation Directorate 2011). Similar to the debate on regime type, the literature posits all three possible hypotheses. Some authors argue that foreign aid has a positive effect on governance services. In the direct mechanism, aid substitutes for the lack of state services. In the indirect mechanism, conditional aid provides incentives for the state to improve domestic service provision (or the health sector see e.g., Bendavid/Bhattacharya 2009; Croghan et al. 2006; Girod et al. 2009; Mishra; 2009). Critics maintain that foreign aid weakens domestic service provision by replacing government funding and capacity, which in turn destabilizes the respective local sector in the long term (see e.g., Farag et al. 2009; Rabkin et al. 2009). Other scholars argue that there is no clear-cut connection between foreign aid and the provision of governance services, either because overall the impact of foreign aid is too small to be detected or because positive and negative effects offset each other (Doucouliagos/Paldam 2009; Easterly 2009; Feyzioglu et al. 1998; Masud 2005; Rajan/Subramanian 2008; Wolf 2007).

Including foreign aid in the analysis can thus add to a lively debate. However, two significant problems with foreign aid data are the problems of reverse causality and non-random selection. In other words, foreign aid might go where it is most needed (where service provision is particularly low). If this is the case, then governance outcomes would explain foreign aid rather than the other way around, and in a cross-sectional approach the sign on the coefficient of foreign aid would be the opposite of that predicted by theory. We therefore tested for the correlation between foreign aid and governance outcomes, both in the aggregate and in particular in the health sector where we would expect such a connection to be particularly pronounced. We found, however, that even sector-specific health aid and a governance outcome indicator such as child mortality do not show a particularly high correlation, though it is worth pointing out that the question of who receives aid is different from the question of how much aid recipients receive.<sup>5</sup> Recipient selection and aid distribution are dependent on a large range of political factors beyond 'need' (in the sense of low service provision) such as colonial past, political alliances, or policy performance of the recipient (Alesina/ Dollar 2000; Ball/ Johnson

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<sup>5</sup> The correlation coefficient of the mean mortality rate and the mean health aid commitments is 0.2962.



1998; Lundborg 1998). Still, in order to ‘control’ for endogeneity, we lagged this ten years from our baseline year of analysis (2008). The lag solves the problem of reverse causality but does not mitigate the selection problem. Countries that performed poorly ten years ago relative to other countries are unlikely to improve to such an extent that their relative position changes substantially enough to break the problem of selection. However, in light of limitations in the data and our research, we are unable to resolve this issue to our satisfaction.

#### *Explanatory Pathway 5: Gender Equality / Female Empowerment*

Since the 1970s, there has been an ongoing discussion about the role of women, gender discrimination, and development. The UN has organized four world conferences on women, the latest in 1995 in Beijing which led to the Beijing Declaration and Platform for Action. The debate intensified in the context of the Beijing conference (Young 1993) and shifted from “women in development” to “gender and development”. Currently, the discussion revolves not only around issues such as the specific problems women face in developing countries (Kardam 1991) or about the gender bias of existing development policies (Elson 1995; Momsen, 2004), but increasingly around the role women can play in increasing the overall effectiveness of development programs (Kerner 1999; Momsen 2004; UNDP 2006; VENRO 2010). In addition, major international organizations active in development policy institutionally acknowledge the importance of addressing gender issues. The UN created the UN Entity for Gender Equality and the Empowerment of Women (UN WOMEN) in 2010 to centralize and coordinate all of the UN’s gender activities. Organizations such as UNDP and UNESCO have made women’s empowerment an explicit part of their agenda in the context of their strategy for achieving the Millennium Development Goals (MDG). In the OECD context, both the Paris Declaration from 2005 and the Accra Agenda for Action from 2008 stress the strategic role of women for aid effectiveness and development. Acknowledging this debate, we have included the empowerment of women in our model as an additional independent variable to explain governance outcomes. Given the mainstream policy debate, the corresponding hypothesis is that *the stronger the empowerment of women in any given the state, the better the respective governance performance.*

#### **IV<sub>9</sub>: Empowerment of Women**

To capture female empowerment, we use a rather conservative indicator: The ratio of girls to boys in primary education corrected for the gender distribution of all children under the age of 15 in the respective population. The data come from the OECD Gender, Institutions, and Development Database (OECD Development Centre 2011). Other potential indicators (such as the gender wage distribution) suffer from severe problems of validity and coverage. Education ratios have the additional advantage in that we can assume a large variety of gender-specific indicators strongly correlate with girls’ education due to the fact that educational choices are not made by the children themselves but by their parents, taking into account the specific opportunity structure of a given institutional and cultural environment. It therefore seems reasonable to assume that in a society with a relatively high ratio of girls in primary education, the overall situation of women is better than in a society where this ratio is low.

### *Explanatory Pathway 6: Environmental and Social Conditions*

Finally, we considered the role of environmental and social conditions in the respective countries. The particularity of these factors lies in the fact that they are independent of the respective issues and can be seen as framework conditions that may facilitate or complicate the achievement of governance goals and service provision. These factors may shape governance outcomes beyond institutions, capabilities, and intentions and are thus controlled for in our models. The implicit hypothesis here is that *the more adverse the environmental or social conditions, the worse the corresponding governance outcomes.*

We consider two types of such factors: environmental and social conditions. The environmental conditions may influence how severe the governance problems are that social actors are facing. For instance, whether malaria is endemic in any given country has direct consequences for the difficulty of achieving adequate health governance outcomes. Such factors thus influence what we call the “size of the challenge” that governance actors have to face. Regarding social conditions, we focus on societal fragmentation, following the existing discussion about its effects for the provision of collective goods.

#### **IV<sub>10</sub>: Size of the Challenge**

As outlined above, the variable “size of the challenge” captures factors usually beyond the control of governance actors that may influence the difficulty inherent in supplying collective goods. These factors are specific to the governance task at hand, so we consider different factors for the different governance dimensions introduced above. For *security governance*, we control for the absolute size of the population based on the simple assumption that all else equal, it is easier to pacify a smaller population than a larger one. For *economic subsistence*, we account for the proportion of the population living in arid or dry climates (based on the Köppen-Geiger climate classification and the data set by Gallup et al. (1999)). This variable reflects the fact adverse natural conditions can greatly limit basic agricultural subsistence. For *public health*, we control whether malaria is endemic (a dichotomous variable based on the World Malaria Report (WHO 2011)). For *education*, we again use the absolute size of the population, assuming that the challenges of managing a complex educational sector rise with the number of children to be educated. For *infrastructure governance*, we control for the absolute geographic size of the country based on the assumption that managing an adequate infrastructure becomes significantly more complex with larger territory. Finally, for *environmental governance*, we consider the size of each country’s industrial sector. Strictly speaking, the size of the industrial sector is not a factor beyond the control of governance actors but is rather a policy outcome in its own right. However, such decisions are taken prior to and are decoupled from environmental concerns. Since industrial production is prone to cause pollution (much more so than agriculture and service industries), we consider industry as a major influence on the size of the challenge governance actors face when addressing environmental concerns.



#### IV<sub>11</sub>: Social Fragmentation

Among the many structural social factors potentially influencing governance outcomes, ethnic, linguistic, or social fragmentation commands a particularly prominent role. Some authors assume fragmentation has strong negative effects on the provision of what we call governance services. They argue that in a polarized environment, it is more difficult to achieve consensus on public policies since different groups have competing opinions on the provision and quality of public goods (Easterly/Levine 1997); that there are generally higher transaction and transmission costs (Kimenyi 2006); or that in case of asymmetric fragmentation, the most powerful ethnic group might install policies in its own interest with negative consequences for the rest of society (Kimenyi 2006).

Other scholars argue that fragmentation might actually have a positive effect on the provision of public goods. If the state fails to provide such goods, people might turn to their ethnic communities for self-provision of public goods and services (Alesina/ Zhuravskayay 2009; Kimenyi 2006). Self-provision might be successful because long-term attachment to one's own ethnic group, in-group norms, social sanctions, same tastes, or shared values make cooperation within an ethnic group easier (Alesina/Zhuravskayay 2009; Kimenyi 2006). In addition, uncertainty about the contributions, preferences or prosperity of other groups increases the willingness to contribute privately to a public good (Schündeln 2013).

In order to capture fragmentation, we use data from the Minorities at Risk (MAR) project (MAR 2009). Since its 2007 revision, MAR focuses specifically on ethnopolitical groups, i.e., non-state communal groups that meet a set of criteria clustered around membership by descent, distinguishing cultural features (such as a common language), and a minimum absolute or relative size (MAR 2009: 1). More specifically, we use MAR's data on the aggregate number of politicized groups per year and country and the aggregate share of the population of those politicized groups per year and country. Our fragmentation measure is then calculated as  $1 (\% \text{ of pop} / \# \text{ of groups})$  per year and country.

#### *Potential Causal Pathways not Included*

Besides the six explanatory pathways introduced above, there are at least two significant alternative explanations for governance outcomes that merit attention. Below we sketch the respective perspectives and explain why we have not included them as separate independent variables in our study.

Originating in a 1989 World Bank study (The World Bank 1989: 60) about the "crisis of governance" and rephrased over the next years by Kaufmann et al. (2009; 2007; 2004; 2002; 1999) the term 'good governance' refers to a broad discussion that assumes a central role for certain qualities of public institutions and certain institutional preconditions for the economic development of a state. Note that in this literature, 'good governance' is logically located on the side of the state and its institutions - not on what we call 'governance' in terms of governance services

or governance outcomes. At the same time, it only partly overlaps with our (rather narrow) statehood definition that focuses on the MoF as well as implementation and enforcement capabilities. In the original World Bank publications, good governance did refer to government effectiveness (closely linked to our measure of bureaucratic quality, see above), but it went far beyond this notion by including institutional characteristics such as accountability, political stability, absence of corruption, and rule of law (including the guarantee of property rights).

Other institutions such as the OECD (1993) have taken the discussion further and included more genuinely political characteristics such as participation, respect for human rights, or democracy. Today, a large variety of these institutional characteristics can be found under the heading of good governance in many different combinations. The central assumption is always the same: “good” institutions can improve governance performance (see e.g., Hall/Jones 1999; Knack/Keefer 1995; Mauro 1995; Olson et al. 2000).

We did not include good governance as a separate explanatory pathway in our study because some elements significantly overlap with what we already include (such as bureaucratic quality, representation, or accountability). Others, such as corruption and bureaucratic quality, are difficult to separate conceptually and empirically, leading to high collinearity (and the problem of multicollinearity in regression analyses). For the rest of the more prominent elements of good governance, such as government responsiveness or rule of law, valid large-N worldwide data is unfortunately not available.

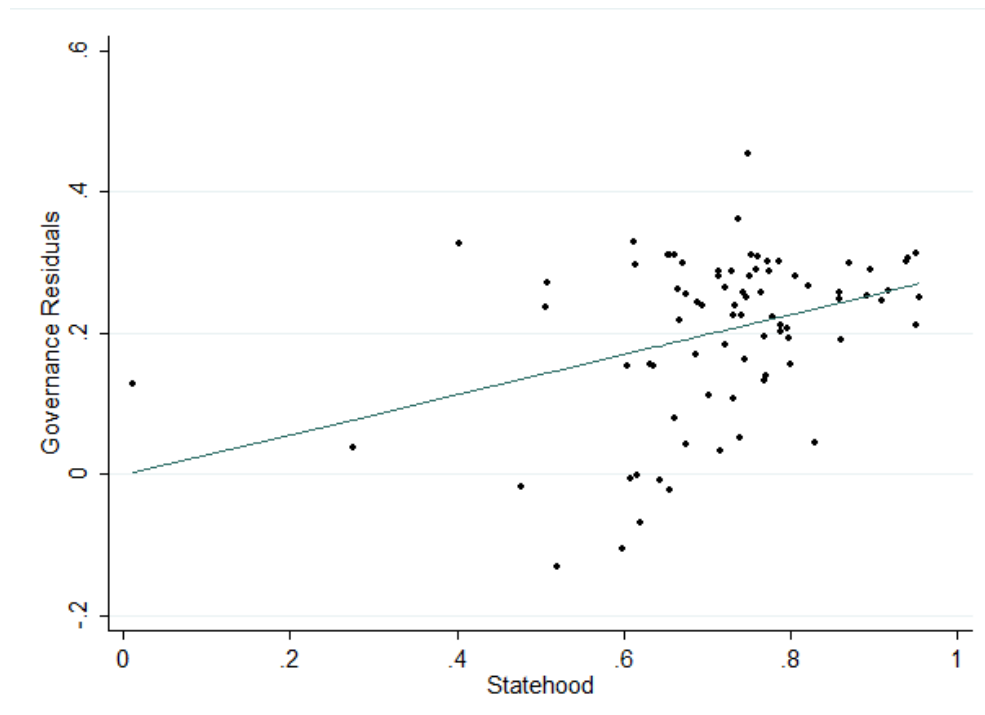
The second alternate explanatory pathway is *colonial legacy*, an explanation prominently associated with Acemoglu et al. (2000). For some scholars, colonial legacy is methodologically prior to some of the independent variables we include, such as regime type or economic capacity (Bertocchi/Canova 2002; Lange 2004; Lange/Dawson 2009), and could thus not be meaningfully included in the same analysis. More closely related to our framework is the hypothesized direct impact of colonial rule on current governance outcomes of former colonies (Iyer 2010; Lange, 2004). Lange states that the form of colonial rule can “hinder state governance when they create extremely powerful local intermediaries and limit state infrastructural power” (Lange 2004: 917). This mechanism assumes strong path dependence from former modes of accountability to present governance outcomes. While it would be interesting to test this theory, there is no consensus about an appropriate typology of colonial domination (Lange 2004: 917). In addition, the respective forms of rule shifted over time within colonies (Martin and West 1999: 190). To the authors’ knowledge, there is no dataset that satisfyingly captures these complex facets, which made it impossible to include it as a variable.

### **3. The big picture: A global model of governance outcomes**

In this section we present the results of the analysis for the aggregation of all six dimensions of governance which provides an overall picture of the governance performance of the respective states. However, an important caveat has to be kept in mind: the number of observations decreases

with aggregation. As more indicators are aggregated, the missing values of all of the indicators add up so that more and more cases drop out. Still, the ‘big picture’ already illustrates some of the insights that the disaggregated analysis will confirm later. The governance aggregate used for this purpose is computed as the mean value of six standardized and normalized indicators, one from each governance dimension.<sup>6</sup>

In this analysis we use a full multivariate model with all eleven independent variables introduced above. Accordingly, we present in Figure 1 a scatterplot depicting the residual variance in governance. In other words, the scatterplot shows the variance in governance not explained by the alternate independent variables. For the purposes of this illustration, we aggregated all three statehood variables (MoF, bureaucratic quality, and cost of claim) into one overall statehood variable.



**Figure 1: The result of the multivariate regression shows the limited explanatory power of the aggregate statehood indicator, whose beta coefficient is around 0.27.**

Even a cursory glance at the distribution of the residuals confirms the ‘governance puzzle’ (i.e. the limited explanatory power of the aggregate statehood indicator), and also shows that in the full multivariate model, the explanatory power of statehood is even smaller than in the bivariate approach. In this scatterplot, hardly any positive linear tendency is discernible. This impression can be confirmed in a more sophisticated manner when looking at the actual multivariate regression results presented in Table 1.

<sup>6</sup> The indicators used are a security measure based on lethal violence, number of children not underweight (for economic subsistence), average life expectancy (health), the pupil teacher ratio (education), electrification rates (infrastructure), and pm<sub>10</sub> concentration (environment). They are introduced in greater detail in their respective sections below.

**Table 1: Multivariate regression results for the aggregate governance indicator.**

	VARIABLES	(1)	(2)	(3)
		Governance	Governance	Governance
Statehood	Monopoly of Force	0.010 (0.122)	-0.018 (-0.234)	0.007 (0.095)
	Bureaucratic Capacity	0.027 (0.213)	0.148 (1.433)	
	Enforcement Capability	0.171 (1.470)	0.158 (1.274)	0.160 (1.509)
Economy	Mean Income	0.244 (1.385)		0.270+ (1.966)
	Economic Inequality	-0.097 (-0.871)	-0.151 (-1.537)	-0.199 (-1.663)
Regime Type	Accountability	0.076 (0.529)	0.037 (0.268)	0.091 (0.646)
	Representation	-0.065 (-0.425)	-0.063 (-0.404)	-0.003 (-0.022)
External Actors	Foreign Aid	-0.184 (-1.202)	-0.251+ (-1.855)	-0.193 (-1.437)
Gender	Empowerment of Women	0.389*** (4.685)	0.424*** (4.927)	0.438*** (6.105)
Size of the Challenge	Population	-0.017 (-0.227)	-0.006 (-0.088)	-0.005 (-0.077)
	Land Area	0.088+ (1.775)	0.109* (2.382)	0.080+ (1.826)
	% Population in Dry/Arid Climate	-0.167+ (-1.758)	-0.118 (-1.170)	-0.131 (-1.378)
	Malaria is Endemic	-0.100 (-1.036)	-0.156 (-1.653)	0.018 (0.144)
Fragmentation	Social Fragmentation	0.016 (0.197)	0.042 (0.516)	0.075 (0.829)
	Constant	. (-0.206)	. (0.124)	. (-0.490)
	Observations			
	R-squared	75	77	82
	Adj. R-squared	0.699	0.684	0.665
Robust t-statistics in parentheses				
*** p<0.001, ** p<0.01, * p<0.05, + p<0.1				

The full model is presented in the first column (1). However, an analysis of the correlation coefficients reveals a strong connection between bureaucratic quality and mean income. In other words, wealthier societies tend to have better functioning state institutions. While this may not be too surprising theoretically, the resulting multicollinearity influences the regression results. Since we did not want to drop either of these conceptually distinct but empirically related variables, we decided to present in all cases additional results with only one of the respective variables ((2) and (3)). We therefore pay special attention to the results that appear robust across all three of these models.

The first result to note is the  $R^2$ . On this level of abstraction (and given the low N), it is remarkable to see that our model can explain about 60% of the variation in overall governance outcomes.

However, the MoF, bureaucratic quality, and enforcement capability – which we measure as access to the legal system – do not contribute to the explanatory power of the model. Neither of these factors shows a significant association with aggregate governance outcomes. Given the breadth of the issue areas covered by this aggregate, this may appear less surprising for the MoF or enforcement capability, but it is rather surprising for bureaucratic quality.

The effect of mean income is only visible in a model that does not take bureaucratic quality into account (this is due to collinearity between these two factors). Still, the conclusion is that mean income improves governance outcomes. This result is not surprising. What is surprising is that the substantive effect is comparatively small in absolute terms, and is in turn reduced by the effect of income inequality which drives overall governance performance down.

Neither regime type indicators shows a significant effect on overall governance performance. This is also rather remarkable and might be attributed to the breadth of issues covered by the governance aggregate. However, it does mean that we find no evidence for accountability or representation structures significantly influencing overall governance performance.

The same applies to foreign aid. The lagged variables show a negative effect on governance outcomes, but overall aid is only marginally significantly related to our outcomes.

Quite remarkably, there is an extremely strong and robust effect of our measure of the empowerment of women. States where girls are being educated in proportion to their share in the population fare significantly better in overall governance performance than those states where this is not the case.

Besides land area, only the dry/arid climate of the indicators for environmental and social conditions is significant, albeit marginally. Again, this result may be due to the high level of aggregation, especially with regard to the environmental conditions which we conceptualized as issue area specific.

In sum, we can conclude that for aggregate governance performance our model explains a large amount of variation. The explanation, however, apparently does not lie in statehood. Overall governance performance appears to be influenced by (or at least associated with) the empowerment of women, the mean income level, and environmental conditions – in that order.

#### **4. A Closer View: The dimensions of Governance**

In this section, we disaggregate governance and present the results of the multivariate analysis for security governance, economic subsistence, public health, education, infrastructure, and environment respectively.

#### 4.1 Security Governance Outcomes

In order to analyze the impact of our explanatory variables on security we aim to measure security provision using security governance outcomes. In fact, we do not measure external security of the state but center our attention on *internal security* only. Internal security refers “to the ability of a state’s citizens to live free from immediate danger to their lives and livelihood” (Schröder 2010: 19). We conceptualize security provision as the absence of violence leading to death which we consider a rather uncontroversial goal of (security) governance. Most people would agree that whenever a non-natural death occurs, security governance has failed. We thus use homicide rates as one of our core indicators for security provision, as these “may well be the most reliable and valid source of crime data for country comparisons currently available” (Schröder 2010: 21).

On its own, this measure is incomplete. Due to the conceptual difference between state-centered and people-centered security, homicide rates do not account for deaths due to internal conflict. In fact, the 2011 data of the UN Survey of Crime Trends and Operations of Criminal Justice Systems conducted by the UN Office on Drugs and Crime (UNODC 2011), explicitly excludes “death in conflict” (UNODC 2011: 1). We developed a simple framework for our measure of security governance, separating forms of violence by distinguishing the degree of organization of the participating actors and victims of violence. For lethal violence among the population, we use homicides as outlined above. To capture one-sided violence by organized groups, which includes state violence against the civilian population, we supplement the homicide count with the UCDP One-Sided Violence data (Eck/Hultman 2007). Next, we capture violence among armed groups without state participation in the context of inner-state conflict by including UCDP data on non-state violence (Eck et al. 2010). Finally, to include lethal violence in inner-state conflicts with participation of the state, we also add the battle death count from UCDP’s Battle-Related Deaths dataset (UCDP 2011). The following matrix illustrates our indicator according to actors involved in fatal violence.

**Table 2: Composition of the security provision indicator**

Aggressor \ Victim	State	Groups	Population
State	Battle Related Deaths	Battle Related Deaths	One-Sided Violence
Groups	Battle Related Deaths	Non State Violence	One-Sided Violence
Population	One-Sided Violence	One-Sided Violence	Homicide Rates

Table 3 presents regression results for two different dependent variables. Columns 1 to 3 show the results for our objective indicator; the overall fatality count per 100,000 people is shown. The last three columns complement this view with a subjective measure of security, the results of a Gallup World Poll survey question that asked whether respondents “feel safe walking alone at nights [...] where you live”. Gallup data were collected from the 2010 Human Development Report (UNDP 2010: 180-83).

**Table 3: Multivariate regression results for security provision and perceived level of safety**

	VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
		security	security	security	perc_ safety	perc_ safety	perc_ safety
Statehood	Monopoly of Force	0.011 (0.119)	0.066 (0.756)	0.036 (0.427)	-0.082 (-1.044)	-0.014 (-0.185)	-0.060 (-0.711)
	Bureaucratic Capacity	-0.025 (-0.165)	0.025 (0.203)		0.198 (1.461)	0.315** (2.959)	
	Enforcement Capability	0.059 (0.534)	0.006 (0.060)	0.037 (0.376)	0.009 (0.089)	-0.024 (-0.268)	-0.075 (-0.768)
Economy	Mean Income	0.074 (0.447)		0.043 (0.359)	0.213 (1.468)		0.290* (2.438)
	Economic Inequality	-0.527*** (-5.137)	-0.521*** (-5.642)	-0.532*** (-5.782)	-0.399*** (-4.487)	-0.409*** (-5.080)	-0.379*** (-4.169)
Regime Type	Accountability	-0.067 (-0.663)	-0.105 (-1.110)	-0.054 (-0.594)	-0.323*** (-3.665)	-0.406*** (-4.893)	-0.259** (-2.839)
	Representation	0.023 (0.201)	0.010 (0.087)	-0.016 (-0.174)	-0.069 (-0.691)	-0.082 (-0.827)	-0.111 (-1.194)
External Actors	Foreign Aid	-0.049 (-0.393)	-0.101 (-0.930)	-0.055 (-0.500)	0.270* (2.435)	0.172+ (1.814)	0.192+ (1.736)
Gender	Empowerment of Women	0.006 (0.060)	0.041 (0.404)	0.071 (0.757)	-0.024 (-0.262)	0.028 (0.311)	0.049 (0.528)
Size of the Challenge	Population	0.146 (1.415)	0.157 (1.559)	0.125 (1.332)	0.038 (0.419)	0.050 (0.571)	0.051 (0.543)
Fragmentation	Social Fragmentation	0.027 (0.294)	0.002 (0.021)	0.019 (0.221)	-0.057 (-0.706)	-0.110 (-1.408)	-0.029 (-0.337)
	Constant	*** (6.065)	*** (6.304)	*** (6.629)	*** (5.522)	*** (5.247)	*** (5.493)
	Observations	104	108	118	103	107	115
	R-squared	0.364	0.357	0.377	0.520	0.514	0.395
	Adj. R-squared	0.287	0.291	0.318	0.462	0.463	0.337
t-statistics in parentheses							
*** p<0.001, ** p<0.01, * p<0.05, + p<0.1							

First, for security governance outcomes, our model is comparatively weak. In fact, it shows the second lowest  $R^2$  of all the multivariate analyses (about 30%).

Most strikingly, our measure of MoF does not significantly affect the objective measure of provision of security. An in-depth analysis shows that the reason for this are influential outliers such as Honduras, Venezuela, and El Salvador, where homicide rates of more than 60 deaths per 100,000 outweigh even the highest fatality numbers from the UCDP conflict datasets. These extreme homicide rates coincide with a high level of MoF according to our measure and other measures such as BTI (Bertelsmann Stiftung 2008), which leads to weak and insignificant regression coefficients. Furthermore, an analysis of one-sided violence fatality estimates on a sample of Somalia shows that the UCDP data may err on the conservative side when excluding unknown actors from their data set. We compared their high estimates with



the “Event Data Project on Conflict and Security (EDACS)”<sup>7</sup> whose fatality counts turned out to be higher by a factor of about two (but which covers only Sub-Saharan Africa and Somalia). In sum, we thus suspect that (a) the extreme crime situation in some Latin American countries should translate into a different coding for the MoF; and that (b) some of our indicators may (relatively) underestimate conflict fatalities. We therefore ran a robust regression using an MM estimator on security governance outcomes, a method that is robust to distortions by outliers (Verardi/Croux 2009). The robust regression does not yield a comparable  $R^2$ , but it does show that when outliers are controlled for, the MoF does have a significant impact on security governance outcomes. We thus conclude with caution that the MoF is associated with security governance outcomes, but that the effect is much less clear than we expected and that a number of Latin-American countries provide interesting outliers where a formal MoF is tremendously challenged by extreme crime. The other statehood indicators do remain insignificant – even in the robust regression.

While economic capacity also does not play a role, a very strong and highly significant effect is visible between economic inequality and security governance. This effect remains robust for every model specification and suggests a clear association between absence of violent fatalities and economic equality – a link that has been both contested (Neumayer 2003) and supported (Jacobs/Richardson, 2008; Kelly 2000) in previous contributions. All other variables, including those for regime type and economic development, to which Neumayer (2003) attributed a mitigating effect, remain insignificant.

We thus conclude that economic inequality is by far the strongest predictor of violent fatalities, with the MoF, state institutions, and regime type playing a surprisingly small role.

In contrast, the results for the subjective evaluation of the security situation tell a different story and overall the model performs somewhat better. The effect of inequality remains robust (but is somewhat weaker), as does the minor role played by the MoF (in the robust regression). However, we do see two additional and rather remarkable effects. For the subjective evaluation of security, both bureaucratic quality and foreign aid do play a role. Both variables increase the perception of security, even though this effect does not exist when the dependent variable is the objective measure. In other words, the subjective perception of security increases with bureaucratic quality and foreign aid – even if objectively speaking there is no such effect. Even more striking, accountability structures (which also objectively do not play a role) show a strong, significant, and robust *negative* effect on the perception of security. The presence of accountability structures thus drives down the perception of security; though these results may indicate responder bias. Respondents seem to evaluate security based on their perception of the state’s overall bureaucratic performance and on the presence of external help. The negative effect of accountability may also be attributed to bias in the sense of respondents not correctly reporting their opinions in, say, authoritarian regimes or, alternatively, we would have to

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7 The EDACS data set is tentatively available for download beginning of May 2012; [www.conflict-data.org](http://www.conflict-data.org).



acknowledge that such regimes (despite their various flaws) do instill a sense of security in their citizens (independent from their actual performance in the security field).

Overall, security governance outcomes are thus best explained by economic inequality and to a surprisingly small degree by the MoF; security perceptions, however, are influenced by a more complex set of conditions.

#### **4.2 Economic Subsistence Outcomes**

Economic subsistence is a difficult concept to measure, and we rely on two objective proxy variables and one subjective variable. First, we use the *percentage of children not underweight* as a proxy for the ability to meet basic levels of subsistence. This variable is defined as the percentage of children younger than five years old who are not underweight, where underweight is measured as being two standard deviations from the median weight recommended in the World Health Organization (WHO)'s child growth standards. The base data for this measure come from the WHO, but because of inadequate geographic coverage, we supplement this measure with data from Save the Children, a NGO based in the United Kingdom, and UNICEF's 2008 Child Development Index. We also transform the original variable from the WHO, which is a percentage of children who are underweight.

Our second proxy for economic subsistent is the percentage of the population with *access to an improved water source*. Examples of improved water sources include household connections, protected wells or springs, or boreholes. Unimproved sources include water vendors and tanker trucks. Data come from World Development Indicators.

Third, we use the results from a Gallup (2011) survey where respondents were asked whether there was a time over the last 12 months where they were unable to afford adequate housing. We recoded the data so that the lowest ratio of positive respondents now achieves the highest score. We obtained Gallup data from the data cataloged for the HDI.

**Table 4: Multivariate regression results for economic subsistence outcomes and perception of respondents of their housing situation**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
VARIABLES	children no under-weight	children no under-weight	children no under-weight	acc_water	acc_water	acc_water	perc_housing	perc_housing	perc_housing	
Statehood	0.134 (1.170)	0.060 (0.514)	0.126 (1.138)	-0.009 (-0.190)	-0.026 (-0.507)	-0.062 (-1.340)	0.143 (1.632)	0.096 (0.869)	0.066 (0.803)	
	-0.079 (-0.759)	0.096 (1.122)		0.254* (2.404)	0.297*** (3.505)		0.378* (2.372)	0.551*** (4.370)		
Economy	0.066 (0.842)	0.074 (0.871)	0.101 (1.293)	0.120 (1.327)	0.100 (1.219)	0.183* (2.211)	-0.150 (-1.426)	-0.147* (-2.004)	-0.015 (-0.133)	
	0.287+ (1.703)		0.255* (2.132)	0.064 (0.648)		0.265*** (3.870)	0.298+ (1.685)		0.590*** (5.597)	
	0.084 (0.866)	-0.016 (-0.186)	0.128 (1.469)	-0.102 (-1.553)	-0.114+ (-1.975)	-0.052 (-0.825)	0.094 (0.941)	0.005 (0.060)	0.086 (1.230)	
Regime Type	0.029 (0.221)	0.026 (0.209)	0.024 (0.233)	0.018 (0.224)	0.013 (0.171)	0.057 (0.722)	0.002 (0.023)	-0.086 (-0.938)	0.051 (0.552)	
	0.039 (0.344)	0.035 (0.329)	0.040 (0.403)	0.021 (0.244)	0.006 (0.068)	0.123 (1.626)	0.160 (1.417)	0.133 (1.275)	0.243* (2.173)	
External Actors	-0.278** (-3.178)	-0.371*** (-3.427)	-0.242** (-3.030)	-0.155 (-1.374)	-0.190+ (-1.928)	-0.071 (-0.732)	-0.011 (-0.093)	-0.132 (-1.559)	0.119 (1.195)	
Gender	0.429*** (3.934)	0.462*** (4.150)	0.396*** (3.967)	0.497*** (6.093)	0.520*** (6.597)	0.457*** (5.408)	0.107 (1.141)	0.107 (1.196)	0.161* (2.021)	
Size of the Challenge	-0.170+ (-1.951)	-0.101 (-1.090)	-0.128 (-1.639)	-0.035 (-0.401)	-0.015 (-0.180)	-0.105 (-1.353)	-0.028 (-0.349)	-0.006 (-0.109)	-0.042 (-0.737)	
Fragmentation	0.028 (0.221)	0.056 (0.461)	-0.072 (-0.694)	0.056 (0.902)	0.053 (0.892)	-0.026 (-0.367)	-0.147+ (-1.728)	-0.124 (-1.302)	-0.076 (-0.723)	
	0.339	0.109	0.616	-0.376	0.070	0.508	1.973	3.432	2.167	
Constant	92	95	107	98	102	113	87	91	96	
Observations	0.589	0.537	0.582	0.703	0.701	0.688	0.563	0.520	0.529	
R-squared	0.532	0.482	0.538	0.665	0.668	0.657	0.499	0.460	0.474	
Adj. R-squared	Robust t-statistics in parentheses									
	*** p<0.001, ** p<0.01, * p<0.05, + p<0.1									

Our statistical analysis in Table 4 presents a mixed picture. Although our regression models explain more than half the variation in the percentage of underweight children and access to water, few of our variables reach statistical significance. The three statehood measures are not statistically significant predictors of underweight children. In some ways, this outcome is unsurprising. Economic subsistence is a complex governance outcome: it is the product of choices at the state-level but also in the private home and economic spheres. While we might expect the state's MoF or administrative capacity to play a role in mitigating some of the problems related to underweight and malnourished children, this role appears to be too small to be detected by our model. We note that we observe no statistical significant coefficient on the state's enforcement capability, but we do not find this result to be unexpected.

Statehood performs marginally better when the economic subsistence proxy is access to an improved water source. Here, the state's bureaucratic capacity is positively and significantly related to the percentage of population with access to water. The difference here may be that access to water is a relatively linear and simple task, involving the construction and maintenance of protected sources. The state's administrative apparatus may have a direct role in providing this public good, which would be consistent with the results in the table.

We do find small effects of mean income consistent with the discussion in the previous paragraph. As the population's mean income increases, individuals are better positioned to provide for their families in ways that would increase the number of non-underweight children. Mean income is also predictive of access to water, which could suggest that individuals and communities are better financially positioned to make improvements to water sources.

Foreign aid displays a negative relationship with both economic subsistence variables, though it is not always statistically significant. This result is almost certainly due to the selection effects of aid, which is likely being disbursed to countries with worse relative economic subsistence outcomes. Even with the ten year lag and generous assumptions about positive effects of aid, this selection effect is likely to persist through time. Low performing countries may improve subsistence levels in an absolute sense but not in a relative sense, which would preserve the tendency to give to countries with worse relative outcomes.

Female empowerment is strongly statistically significant and in the predicted direction. Three mechanisms could explain this result. First, one direct mechanism could be that as a greater proportion of children attend school, a greater number of girls are able to access meals at school that they would not have had if they did not attend school. Second, in poorer countries, households do not often have enough food to provide nutritious meals, so schools that offer meals can help address this nourishment problem while at the same time offering a strong incentive to increase attendance and enrollment rates. This would suggest a reverse mechanism, where better nutrition has a positive causal effect on female enrollment rates. However, this mechanism is unlikely to operate in places where gender norms are such that girls and women have highly unequal opportunities. The third possible mechanism is a longer term one. Educated girls are more likely to find higher-paying jobs than uneducated girls once they enter

the workforce.<sup>8</sup> The increased financial resources that they bring home could allow families to better nourish their children leading, in turn, to better economic subsistence outcomes. These mechanisms are consistent with the World Food Program's view that women are key to reducing hunger. Empowering women and encouraging girls to attend school are two key pillars of the WFP's approach to reducing hunger and improving nutrition.

Female empowerment also displays a strong substantively and statistically significant relationship with access to water. Again, two mechanisms might be at work. First, there has been increasing international recognition of the role of women and water access. Women are the prime users of 'domestic water', so a greater proportion of educated and empowered women could lead to demand-side efforts to obtain sustainable access to improved water sources (UN Division for the Advancement of Women DESA 2005). A reverse mechanism may be at work as well. A recent World Bank paper suggests that female enrollments increase as a result of better access to rural water infrastructure by releasing girls from water collection, a laborious, time-consuming, and primarily female-dominated task (Koolwal/van de Walle 2010).

Finally, our measure for the size of the challenge, the percentage not of the population living in dry or arid climates, is negatively related to economic subsistence rates – as expected. Arid climates are more challenging environments for growing crops, so food may be scarcer in these regions. It is therefore not surprising that as the percentage of population living in arid zones increases, the percentage of non-underweight children decreases. Curiously, this variable is not statistically significant for water access, but it is worth noting that while overall water access is likely worse in arid climates, access to *improved* sources appears not to have this relationship.

Turning to our subjective indicator, our model's adjusted fit reaches 49.9%. Again, bureaucratic capacity appears to be a strong predictor for the subjective measure, this time together with mean income. Housing may be provided by private as well as public actors. The results shown in the table suggest both the state to have a role in providing shelter and housing as do private resources as measured by mean income. This result does not come as a surprise; the survey aimed to find situational cases of unaffordable housing, and an increase in income would directly mitigate these cases, up to a certain degree.

In sum, the statehood indicators perform relatively poorly in this model of economic subsistence governance. While our models explain a non-trivial amount of variation, other explanations likely play important roles in explaining these outcomes.

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<sup>8</sup> We assume that societies that encourage female education are more likely to accept female participation in the workforce.

### 4.3 Public Health Governance Outcomes

We use three indicators to measure the quality of health. Our first objective indicator, *average life expectancy at birth*, measures the number of years a newborn child is expected to live given current trends in mortality and health care. This measure is a broad proxy for the quality of the overall health system, including primary, secondary, and tertiary health. The data for this measure come from the HDI, which in turn draws upon data from the UN Department of Economic and Social Affairs.

Our second objective indicator, the *under-5 mortality rate*, is defined as the number of deaths of children before their fifth birthday per 1,000 live births. Unlike our other health governance indicator, under-5 mortality is a proxy for the quality of the primary health system. Interventions that reduce under-5 mortality depend on the availability of basic health services, skilled medical personnel, health infrastructure, as well as practices in the home or community such as breastfeeding. Data come from the University of Washington's Institute for Health Metrics and Evaluation.

Our final indicator is a subjective measure of the percentage of the population that report *satisfaction with health care quality*, as measured by the Gallup World Poll Database in 2010 and compiled by the Human Development Report 2011.

**Table 5: Multivariate regression results for health governance outcomes and perception of respondents of the quality of healthcare**

	VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(1)	(2)	(3)
		life_exp	life_exp	life_exp	under- mortality	under- mortality	under- mortality	perc healthcare	perc healthcare	perc healthcare
Statehood	Monopoly of Force	-0.062 (-1.623)	-0.090* (-2.319)	-0.065+ (-1.878)	0.076 (1.604)	0.113* (2.039)	0.073+ (1.947)	-0.006 (-0.092)	-0.016 (-0.225)	-0.010 (-0.136)
	Bureaucratic Capacity	0.199+ (1.861)	0.271*** (3.842)		-0.091 (-0.910)	-0.157* (-2.186)		0.522*** (4.339)	0.690*** (6.899)	
	Enforcement Capability	0.142 (1.608)	0.187* (2.155)	0.187** (3.013)	-0.111 (-1.173)	-0.118 (-1.384)	-0.134+ (-1.912)	-0.239** (-2.904)	-0.188* (-2.281)	-0.215* (-2.463)
Economy	Mean Income	0.167+ (1.697)		0.324*** (4.412)	-0.114 (-1.401)		-0.198** (-3.178)	0.368** (2.899)		0.706*** (6.169)
Regime Type	Economic Inequality	-0.164* (-2.074)	-0.189** (-2.777)	-0.164+ (-1.854)	0.073 (1.171)	0.109+ (1.812)	0.062 (0.875)	0.017 (0.193)	-0.009 (-0.107)	0.006 (0.068)
	Accountability	-0.023 (-0.421)	-0.058 (-1.192)	0.011 (0.185)	0.015 (0.259)	0.016 (0.287)	0.010 (0.172)	-0.101 (-1.329)	-0.187* (-2.450)	0.000 (0.003)
	Representation	0.119 (1.625)	0.109 (1.571)	0.199** (3.061)	-0.036 (-0.494)	-0.026 (-0.377)	-0.098 (-1.594)	0.005 (0.056)	-0.032 (-0.341)	0.083 (0.926)
External Actors	Foreign Aid	-0.251*** (-3.796)	-0.273*** (-4.710)	-0.156** (-3.254)	0.281*** (3.402)	0.312*** (4.233)	0.209** (3.291)	-0.106 (-1.314)	-0.162* (-2.071)	-0.035 (-0.430)
	Empowerment of Women	0.443*** (5.781)	0.432*** (5.934)	0.438*** (7.873)	-0.574*** (-5.761)	-0.576*** (-6.016)	-0.567*** (-8.108)	0.317*** (3.877)	0.301*** (3.514)	0.361*** (4.239)
Fragmentation	Malaria is Endemic	0.093 (1.354)	0.041 (0.643)	0.108 (1.038)	0.038 (0.594)	0.046 (0.754)	0.037 (0.439)	0.240* (2.139)	0.102 (0.946)	0.238* (1.984)
	Social Fragmentation	0.018 (0.413)	-0.001 (-0.016)	-0.030 (-0.394)	-0.034 (-0.740)	-0.045 (-0.987)	0.052 (0.742)	0.058 (0.801)	-0.005 (-0.070)	0.050 (0.641)
	Constant	** (3.051)	*** (4.392)	*** (3.940)	*** (6.266)	*** (6.429)	*** (8.796)	.	.	.
	Observations	105	109	122	105	109	122	103	107	115
	R-squared	0.795	0.792	0.751	0.809	0.802	0.785	0.629	0.587	0.482
	Adj. R-squared	0.771	0.771	0.728	0.786	0.782	0.765	0.584	0.544	0.432
Robust t-statistics in parentheses										
*** p<0.001, ** p<0.01, * p<0.05, + p<0.1										

Table 5 shows the regression results for the two objective health care indicators. The first measure of statehood, the state's monopoly over violence, is only marginally statistically significant in most models and with a small coefficient. Of note is the sign which is consistently in the wrong predicted direction. Several influential observations are responsible for this result, including Malawi, Togo, Botswana, and Zambia, who score very low on our health indicators but have an unchallenged state MoF; or Indonesia which scores comparatively well but whose MoF was challenged at the time of observation. When we run the regressions without these data points, the sign on the coefficient flips, but the result is not statistically significant for either dependent variable.

As expected, the quality of bureaucracy has a positive, statistically significant effect on average life expectancy. While the substantive importance of bureaucracy appears to be relatively small, this result is not surprising given that this independent variable captures the bureaucracy as a whole, rather than the health sector bureaucracy. Still, the result suggests that an administratively more capable state is better equipped to deliver the services necessary for improving average life expectancy. This result is robust to the exclusion of the mean income variable. The other statehood measure, cost of claim, is only statistically significant when bureaucratic quality and mean income are not both included in the model. It is not clear how enforcement capability related to access to the justice system can improve life expectancy.

Turning to the second objective indicator, under-5 mortality rates, the beneficial effects of the state appear to have dissipated. Neither variable is robust across specifications, but it is worth pointing out that greater administrative capacity appears to reduce under-5 mortality rates in model 5. The loss of significance of the statehood measures for this health outcome could be a result of the heavy emphasis on child health among donors and NGOs. Goal 4 of the MDG seeks to reduce under-5 mortality by two-thirds between 1990 and 2015. If this goal reflects widespread international and non-state interest and activity in providing funding, services, training, and other assistance for achieving this target, then it is not surprising that statehood indicators are not strongly predictive of under-5 mortality rates.

Economic inequality is strongly related to health outcomes. Greater inequality is associated with decreased life expectancy and higher mortality rates, though with the latter outcome inequality is only statistically significant in one of our three models. One mechanism by which inequality might affect health outcomes is purely economic: Where a small fraction of the population holds most of the wealth, the rest of the population has fewer private resources to pay for health services, especially in the absence of public provision. This mechanism is more plausible for the life expectancy case, where the results are strongest (in statistical terms). For under-5 mortality, access to economic resources to pay for private health services may help only the margins. Many of the interventions that can save the lives of young children, conditional on surviving past the first month of life, can be delivered in the home or community, and are not prohibitively expensive (Jones et al. 2003). This would explain why economic inequality may matter less for the narrower health governance outcome captured by under-5 mortality rates.



The lag of health aid consistently has the wrong predicted sign in all models of health governance. This result is a likely consequence of the fact that the countries with poorer health outcomes are more likely to receive health aid than countries with better health outcomes. Unfortunately, our research design does not allow us to mitigate this endogeneity problem. However, existing research suggests that health aid does have a casual beneficial effect on mortality outcomes (Mishra 2009).

The ratio of female education is strongly statistically significant and in the predicted direction. Countries with higher levels of female empowerment are likely to be the same countries where women have more freedom to access professional health services, both for themselves and for their dependents. Since women tend to be the primary caregivers in many societies, a greater freedom to access health services could lead to better health outcomes. Female education may also have direct effects on health. Girls who attend school may be able to receive some basic health care services at school, and they may be healthier overall, if they also receive meals at school that are more nutritious than those received at home.

Some of the results described above did not hold when the dependent variable in the model was the subjective indicator of perceived quality of health care. The bureaucracy quality measure was statistically significant and in the correct direction: as the state becomes more capable, perceptions of health care are more positive. This result is somewhat surprising given that statehood indicators were not strong and robust predictors of objective health. However, it may be that individuals living in high capacity, administratively competent states may conclude that their health is actually relatively good – or at least better than it would be if the state’s rule making and rule enforcement capabilities were ineffective.<sup>9</sup>

The enforcement capability indicator produced some surprising results with respect to perceived health quality. As access to the justice system becomes more expensive, individuals were on average more likely to report being satisfied with their health care. This is an artifact due to countries with low attorney fees and low perceived health outcomes, such as Guinea and Nigeria on the one hand, but also because some countries fare well in the perception of the respondents in spite of difficult access to the court system, such as Mozambique and Indonesia in our sample. Under this interpretation, the state’s rule enforcement ability has no causal effect on the perceived quality of health.

Female empowerment remained an important explanatory variable in our regression models with the subjective dependent variable. Empowered women may have a more optimistic outlook on their health because of their greater ability to care for themselves and for their dependents.

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<sup>9</sup> One problem with this mechanism is that the opposite story is also entirely plausible: in places where the bureaucracy is poor, individuals might conclude that, all things considered, their health is relatively good.



#### 4.4 Educational Governance Outcomes

Measuring educational governance is inherently difficult. Most existing cross-national indicators do not speak directly to concerns about the quality of education. Literacy rates perhaps come closest to capturing quality, but are insensitive measures for higher-performing states, where much of the variation in education quality occurs elsewhere. Moreover, literacy rate data is not available for most countries in our sample. Instead, we use two proxies for educational governance.<sup>10</sup> Our first measure is the *average pupil-teacher ratio in primary education*. The data is compiled by the UNESCO Institute for Statistics (UNESCO Institute for Statistics 2010). We argue that countries with poor or inadequate educational systems are those that stretch beyond their capacity to accommodate more students. While educating more students might seem to be a laudable goal, a higher pupil-teacher ratio suggests that the time a teacher can devote to each student decreases (UNESCO Institute for Statistics 2009). While a lower pupil teacher ratio alone does not necessarily result in better education outcomes, it can greatly improve student's performance, e.g., when combined with tracking (Duflo et al. 2012), generally allowing for better student teacher interaction (Blatchford et al. 2003; Blatchford et al. 2007). Furthermore, the measure is highly correlated with several indicators of educational attainment, such as completion and transition rates.

Our second measure of education is the *expected years of schooling* a child of school entrance age can expect to receive. Data come from UNESCO and this indicator is included in the HDI beginning in 2011. Higher values on this variable indicate that children, on average, receive more education and stay in school longer.

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<sup>10</sup> We considered two commonly-used measures of educational performance: primary enrollment rates and primary completion rates. We do not use enrollment rates because high enrollments do not imply high attendance rates. Enrollment rates are thus not useful for our purposes because they do not relate closely to the quality of education. We also do not use primary completion rates, an indicator often employed in the literature as a solution to the poor validity of enrollment rates. Completion rates can exceed 100% because students may complete school either early or late. We do not use completion rates because we wish to distinguish countries that graduate primary students on time from those that graduate students late. We also declined to truncate the variable at 100% because countries that graduate many students late would still falsely appear to perform better than countries that graduate most of their students on time. Primary completion rates may also be codetermined by the intake capacity of the secondary schooling system.

**Table 6: Multivariate regression results for education governance outcomes**

	VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
		pupil teach_rat	pupil teach_rat	pupil teach_rat	exp_years_ school	exp_years_ school	exp_years_ school
Statehood	Monopoly of Force	0.065 (0.910)	0.088 (1.216)	0.044 (0.628)	0.018 (0.317)	0.032 (0.480)	0.015 (0.279)
	Bureaucratic Capacity	0.094 (0.657)	-0.040 (-0.387)		0.152 (1.573)	0.359*** (4.386)	
	Enforcement Capa- bility	-0.209 (-1.226)	-0.213 (-1.267)	-0.261+ (-1.973)	0.028 (0.384)	0.048 (0.620)	0.043 (0.709)
Economy	Mean Income	-0.268+ (-1.865)		-0.136+ (-1.666)	0.388*** (3.482)		0.486*** (5.379)
	Economic Inequality	0.181** (2.729)	0.255*** (4.040)	0.182* (2.522)	-0.080 (-1.293)	-0.172** (-2.882)	-0.058 (-1.057)
Regime Type	Accountability	0.064 (0.872)	0.130+ (1.724)	0.078 (1.281)	0.205** (2.659)	0.122+ (1.661)	0.184* (2.543)
	Representation	-0.051 (-0.549)	-0.048 (-0.525)	-0.061 (-0.907)	0.116+ (1.735)	0.125+ (1.802)	0.176** (2.957)
External Actors	Foreign Aid	0.263+ (1.974)	0.357** (2.861)	0.190+ (1.700)	-0.091 (-1.087)	-0.218** (-2.641)	-0.083 (-1.144)
Gender	Empowerment of Women	-0.369*** (-4.172)	-0.390*** (-4.326)	-0.404*** (-4.121)	0.357*** (4.725)	0.379*** (4.385)	0.398*** (7.543)
Size of the Challenge	Population	-0.101 (-1.633)	-0.115+ (-1.765)	-0.060 (-1.199)	-0.038 (-0.704)	-0.004 (-0.056)	-0.016 (-0.326)
Fragmentation	Social Fragmentation	-0.071 (-1.046)	-0.063 (-0.914)	0.084 (0.936)	0.117* (2.169)	0.086+ (1.756)	0.101* (1.993)
	Constant	*** (4.093)	*** (3.779)	*** (3.573)	. (-1.148)	. (-0.885)	. (-1.307)
	Observations	94	97	111	105	109	122
	R-squared	0.636	0.620	0.652	0.778	0.738	0.781
	Adj. R-squared	0.587	0.576	0.617	0.752	0.711	0.761
Robust t-statistics in parentheses							
*** p<0.001, ** p<0.01, * p<0.05, + p<0.1							

The results in Table 6 follow a now-familiar pattern. Statehood variables almost uniformly have no statistical significance across our models and dependent variables. A higher MoF does not lead to better educational outcomes, though it is worth pointing out that our MoF variable captures negative security – the absence of violent challenges to the state’s authority. Given our dependent variables, there is not a priori reason to expect a higher MoF to improve the quality of education.

Bureaucratic capacity and enforcement capacity also do not display robust statistically significant relationships with our outcome variables. General administrative capacity may not have an explanatory role because it is too insensitive of a measure; the ICRG’s expert raters are unlikely to have considered the quality of the education bureaucracy when they coded this measure, and fine-grained distinctions are in any case not possible. We should not conclude that bureaucratic capacity does not affect educational quality, only that if the state’s administrative

capacity matters, we cannot detect it here in this model. On the other hand, we see no reason why greater access to justice would affect either the pupil-teacher ratio or expected years of schooling, and we do not find the lack of significance surprising in that regard.

Mean income and economic inequality are associated with both education measures in the expected direction. Higher mean incomes are associated with lower pupil-teacher ratios and longer expected years of schooling, while greater inequality is associated with higher ratios and shorter duration of education. These two indicators combined suggest that not only that private income matters, but that the distribution of that income is critical. In particular, private economic capacity can be a decisive factor in the quality of education. Decisions about enrollment, attendance, and duration of education may depend on the ability of families to pay for public school fees or private school tuition. Low income families may face greater hardship in sending children to school, so higher levels of average income may explain why more pupils can attend school (perhaps increasing pupil-teacher ratios) for longer periods of time (increasing expected years of schooling). Mean income may also speak to expectations about the returns to education. The availability of jobs paying reasonable wages may increase mean income, which would suggest that the returns of staying in school longer are worth forgoing opportunities in the present, such as helping in the home or entering the labor market early.

We find some evidence that greater democratic accountability positively affects the mean number of expected years of schooling. One mechanism that could explain this relationship is the idea that accountability pressures force elected officials to be more responsive to demands for better education in the form of longer expected years of education. Stasavage (2005) finds evidence from Africa consistent with this mechanism: Democratically elected governments in Africa have spent more on education than non-democratically elected governments (Stasavage 2005). Ansell (2008) makes a similar argument, suggesting that democracies spend more on education due to the redistributive nature of education spending, especially at the primary level (Ansell 2008). If increased spending also increases the quality of education, students may choose to stay longer in school. Increased spending could also allow the state to fund both primary and secondary schooling.

Finally, female empowerment is once again a strong predictor of the quality of educational services. Higher ratios of female attendance in school are associated with lower student-teacher ratios and longer expected years of education.

#### **4.5 Infrastructure Governance Outcomes**

With this governance dimension we cover the quality of a state's infrastructure. We selected two very different aspects of infrastructure: electricity and Internet access. The former is a classical element of infrastructure governance, traditionally closely associated with the state (or at least state oversight), while the latter refers to a much more recent infrastructure element of rapidly increasing relevance. Moreover, Internet access is neutral with regard to the provider. State-

provided or subsidized access exists alongside completely private initiatives. In addition, Internet access incorporates other infrastructural elements (such as mobile telecommunications or the availability of a cable grid) because the indicator is neutral with regard to the means of access.

Electricity data comes from the International Energy Agency (2011), which compiles statistics about “electricity access at the household level, i.e., the number of people who have electricity in their home. It comprises electricity sold commercially, both on-grid and off-grid” (International Energy Agency 2011: 1).<sup>11</sup> For Internet access, we use the number of Internet users per 100 inhabitants in any given country. Data come from the World Development Indicators catalog compiled from information from the International Telecommunications Union (ITU) and World Bank estimates (World Bank 2010).

**Table 7: Multivariate regression results for infrastructure governance outcomes**

	VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
		elec_rate	elec_rate	elec_rate	internet users	internet users	internet users
Statehood	Monopoly of Force	-0.063 (-1.036)	-0.096 (-1.651)	-0.068 (-1.260)	-0.024 (-0.630)	0.021 (0.398)	-0.029 (-1.166)
	Bureaucratic Capacity	0.052 (0.349)	0.115 (1.276)		0.270*** (3.876)	0.513*** (7.515)	
	Enforcement Capability	0.227+ (1.799)	0.252* (2.346)	0.255* (2.529)	0.050 (1.143)	0.007 (0.112)	0.058 (1.574)
Economy	Mean Income	0.124 (0.808)		0.129 (1.491)	0.468*** (3.915)		0.662*** (5.312)
	Economic Inequality	-0.128 (-1.607)	-0.175* (-2.369)	-0.182* (-2.237)	-0.194*** (-4.252)	-0.291*** (-6.411)	-0.153** (-3.378)
Regime Type	Accountability	-0.019 (-0.208)	-0.029 (-0.368)	-0.006 (-0.070)	0.193*** (3.494)	0.079 (1.554)	0.173** (3.079)
	Representation	-0.022 (-0.235)	-0.021 (-0.241)	-0.002 (-0.032)	0.185** (3.090)	0.167** (2.714)	0.238** (3.304)
External Actors	Foreign Aid	-0.211 (-1.537)	-0.244* (-2.347)	-0.181 (-1.550)	-0.003 (-0.050)	-0.176** (-3.131)	0.007 (0.144)
Gender	Empowerment of Women	0.479*** (7.150)	0.480*** (7.971)	0.458*** (7.431)	-0.028 (-0.665)	0.044 (0.870)	0.021 (0.601)
Size of the Challenge	Land Area	0.055+ (1.716)	0.065* (2.318)	0.056+ (1.753)	0.035 (1.028)	0.086* (2.356)	0.020 (0.431)
Fragmentation	Social Fragmentation	0.057 (1.096)	0.071 (1.497)	0.079 (1.389)	0.068 (1.646)	0.018 (0.415)	0.063 (1.237)
	Constant	** (-2.953)	** (-2.754)	** (-2.862)	.(-0.598)	.(-0.638)	.(-1.260)
	Observations	99	102	108	103	107	120
	R-squared	0.664	0.663	0.631	0.845	0.774	0.805
	Adj. R-squared	0.621	0.625	0.592	0.827	0.751	0.787
Robust t-statistics in parentheses							
*** p<0.001, ** p<0.01, * p<0.05, + p<0.1							

<sup>11</sup> Because of systematic gaps in data coverage for OECD countries, we used the regional aggregates for some cases.

Table 7 summarizes the respective regression results. For electrification rates, the model performs well as it explains close to and above 60% of the variation. Once more, the statehood indicators produce no significant results – with the notable exception of our measure for enforcement capabilities which shows a robust positive connection to electrification rates. Economic capacity does not play a role while inequality seems to drive down electrification rates. Neither of the regime type variables produces a significant effect, foreign aid also has no robust effect. However, once more, the indicator for female empowerment is strong and shows a robust correlation with a better electricity infrastructure. Finally, electrification rates increase with the size of the respective country – while we expected that a larger area would make this task more difficult. Notable is the poor performance of bureaucratic quality which could be seen as indicating a smaller role of the state in electrification than we assumed. For all variables that do show robust effects, however, we have difficulties theorizing a direct causal link. It is not clear why access to the legal system, equality, or the empowerment of women should have a direct positive impact on electrification rates. We expect a prior variable influencing both electrification rates and the respective independent variables. For instance, a regional study by Kemmler (2006) confirms the effect of economic inequality but also suggests economic structure of the region and employment and social status, such as caste membership of household members, as possible determinants of electrification rates, particular in rural areas – which may codetermine enrollment rates of girls in this case.

In the case of Internet access, the picture looks quite different. First of all, this particular model shows the highest  $R^2$  in our analyses with up to 80% of the variation explained. Bureaucratic quality does play an important role in this, as does economic capacity, but due to their high correlation, it is impossible to disentangle the effects. Economic equality also shows a significant positive effect on Internet access and both regime type indicators matter. All the other variables do not show robust effects. Thus, it appears that the proportion of the population with Internet access is fairly well explained by bureaucratic quality, wealth, economic equality and regime type.

#### 4.6 Environmental Governance Outcomes

Our last governance sector is environmental governance. We examined two environmental outcomes related to air quality. The first indicator, *particulate matter 10* (pm10) is an objective measure of outdoor air pollution. This measure represents the average annual exposure level of the average urban resident to finely suspended particulate matter less than 10 microns in diameter. Particulates this small can penetrate deeply in the respiratory tract, with the potential to cause serious health damage, including respiratory illnesses and cardiopulmonary diseases (Pandey et al. 2006). Since particulate exposure levels are sensitive to local environmental regulations and pollution controls, we consider it to be a proxy for environmental governance outcomes.

Our second indicator is the average *satisfaction with air quality*, a subjective measure defined by the percentage of respondents who stated that they were satisfied with their city’s or region’s air quality. The original data come from the Gallup World Poll, but were collected from the 2011 HDI.

**Table 8: Multivariate regression results for environmental governance outcomes**

	VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
		pm10	pm10	pm10	perc_air	perc_air	perc_air
Statehood	Monopoly of Force	0.031 (0.252)	0.047 (0.370)	0.039 (0.318)	-0.092 (-0.977)	-0.082 (-0.877)	-0.069 (-0.673)
	Bureaucratic Capacity	0.060 (0.335)	0.254 (1.600)		0.276 (1.638)	0.381** (3.019)	
	Enforcement Capability	-0.113 (-0.768)	-0.122 (-0.787)	-0.151 (-1.230)	0.071 (0.613)	0.064 (0.547)	0.020 (0.159)
Economy	Mean Income	0.383 (1.594)		0.414* (2.295)	0.199 (0.939)		0.302+ (1.745)
	Economic Inequality	-0.030 (-0.225)	-0.134 (-1.195)	-0.012 (-0.106)	0.173 (1.443)	0.122 (1.143)	0.081 (0.624)
Regime Type	Accountability	0.450* (2.311)	0.438* (2.255)	0.438* (2.407)	0.144 (1.318)	0.140 (1.276)	0.267* (2.186)
	Representation	-0.189 (-1.051)	-0.157 (-0.913)	-0.196 (-1.224)	0.435** (3.427)	0.444*** (3.504)	0.246+ (1.844)
External Actors	Foreign Aid	-0.073 (-0.417)	-0.202 (-1.118)	-0.120 (-0.756)	0.409** (2.793)	0.337** (2.704)	0.246+ (1.705)
Gender	Empowerment of Women	0.009 (0.052)	0.014 (0.078)	0.043 (0.322)	-0.015 (-0.142)	-0.014 (-0.131)	-0.159 (-1.361)
Size of the Challenge	Size of the Industrial Sector	-0.072 (-0.904)	-0.015 (-0.170)	-0.061 (-0.894)	-0.034 (-0.312)	-0.005 (-0.048)	0.002 (0.013)
Fragmentation	Social Fragmentation	0.236+ (1.704)	0.212 (1.614)	0.247+ (1.818)	-0.014 (-0.133)	-0.029 (-0.286)	-0.014 (-0.119)
	Constant	. (0.905)	. (0.935)	. (1.013)	+. (1.992)	*. (2.047)	*** (3.453)
	Observations	79	79	91	78	78	86
	R-squared	0.325	0.299	0.297	0.474	0.467	0.258
	Adj. R-squared	0.215	0.195	0.209	0.387	0.388	0.159
Robust t-statistics in parentheses							
*** p<0.001, ** p<0.01, * p<0.05, + p<0.1							

In general, our regression analysis performs poorly at explaining variation in environmental governance. Our models predict less than 20% of the variation in outdoor air pollution, and up to 40% of the variation in satisfaction with air quality. The poor fit is likely due to inadequate model specification for the dependent variables. Several important factors that might be unique to predicting air quality were excluded from the model. We also lack reasonable indicators that capture the composition and size of economic activity and the degree of dependence on relevant energy sources, both of which affect air pollution levels.



Yet, the state-side variables that one might expect to affect air quality – the bureaucratic and enforcement capability variables – never reach statistical significance in our models. We find this result puzzling because the ability to pass and enforce pollution regulations should in theory strongly predict resulting air quality; yet we find no consistent evidence of this relationship for either of our dependent variables.

We do find some evidence that increased representation is associated with higher rates of satisfaction with air quality, but not for objective air pollution. This disconnection between objective and subjective notions of quality is now familiar. Democratic participation does not appear to make any difference in the objective degree of air pollution, but it is strongly associated with perceptions about air quality. The likely explanation is that the two variables measure two different types of air pollution. PM<sub>10</sub> are tiny enough to enter the respiratory tract, and are therefore tiny enough to escape notice until they have caused health problems. On the other hand, satisfaction with air quality likely captures noticeable air pollution, such as smog in Mexico City or Beijing. Increased political representation and competitiveness may secure policies that objectively reduce noticeable air pollution, leading to higher rates of satisfaction, but may do little to reduce the more difficult and complex problem of reducing very fine particulates. It is worth pointing out that the only time one of our statehood measures reaches significance is with the subjective dependent variable. Because the coefficient's statistical significance is not stable, we hesitate to put much weight on this result, but it may signal that administrative capacity indirectly improves satisfaction with air quality through policies and regulations that reduce some of the most noticeable types of air pollution.

## 5. Conclusions

In this paper, we have analyzed worldwide governance outcomes in security, economic subsistence, education, health, infrastructure, and the environment at the state-level. Using available macro-quantitative datasets, we have tried to explain these governance outcomes with a model that comprises eleven independent variables arranged in what we have called six causal pathways: statehood, economic capacity and equality, regime type, external governance support, gender equality, and natural geographic and social conditions. We have first presented results on aggregate governance and then analyzed the breakdown by governance dimensions. Looking across all the analyses, and evaluating the performance of our model and its variables, a few conclusions stand out.

First, our model has performed fairly well in explaining governance outcomes. For all issue areas, except environment and security, the goodness of fit was 60% or higher.

However, statehood has played a relatively minor role in these explanations. In some cases, enforcement capabilities played a role, while in other cases bureaucratic quality mattered; but with the exception of Internet access (in the infrastructure dimension), these effects were not particularly strong. However, our statehood indicators did show robust and significant

results for all of the subjective indicators for outcomes in the different governance dimensions (wherever available). This suggests that statehood influences the *perception of governance outcomes* stronger than the actual outcomes themselves.

Given the *prima facie* plausibility of the corresponding hypothesis, it comes as no surprise that economic capacity does play an important role in a number of governance dimensions. More surprising is the important role of economic inequality, which turned out to be a strong predictor of governance performance across four out of six dimensions (security, health, education, and infrastructure).

The regime type variables played a surprisingly small role despite the literature that concludes otherwise. Neither accountability nor representation structures seem to influence governance outcomes across the board. These indicators are, however, relevant for education, health and infrastructure – at least in some specifications.

Foreign aid did play a role in economic subsistence, health and education, but the sign of the coefficients consistently point into the ‘wrong’ direction, indicating negative effects on the respective governance outcomes. This can either be interpreted as a result of insufficient control of endogeneity on our part (despite the 10-year lag) or it would support the arguments critical of aid effectiveness. For the subjective perception of governance, however, foreign aid played the expected role in a number of cases.

Rather impressive is the performance of our measure of female empowerment. It showed across the board highly significant and strong effects in most of the governance dimensions. This clearly supports the policy perspective on the key role the women play in development strategy.

In conclusion we can say that while statehood might influence the perception of governance performance, the actual performance is not as decisive for the provision of collective goods as the theoretical and policy literatures would lead us to believe. Rather governance outcomes seem to be strongly influenced by equality – be it as economic equality or, in particular, as gender equality.

The combined weight of these findings suggest that variation in the state’s MoF, its administrative capacity, and its ability to enforce rules and regulations are not strong predictors of the variation in the provision of collective goods and services across a diverse number of issue areas. We do not wish to imply that the state does not matter. Rather, we cannot discern much of an effect of statehood given the measures we have and the cross-national approach we take in this analysis. Further qualitative research, in particular on a sub-national level of analysis, is necessary to contribute to the clarification of this observation. If not the state, then what explains the remaining variation we observe in our dependent variables? With the exception of foreign aid, our models do not account for one potentially key determinant of the provision of collective goods, and that is the role of external actors.



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## Research Framework

Governance has become a central theme in social science research. The Collaborative Research Center (SFB) 700 Governance in Areas of Limited Statehood investigates governance in areas of limited statehood, i.e. developing countries, failing and failed states, as well as, in historical perspective, different types of colonies. How and under what conditions can governance deliver legitimate authority, security, and welfare, and what problems are likely to emerge? Operating since 2006 and financed by the German Research Foundation (DFG), the Research Center involves the Freie Universität Berlin, the University of Potsdam, the German Institute for International and Security Affairs (SWP), the Social Science Research Center Berlin (WZB) and the German Institute for Global and Area Studies (GIGA).

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