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Measurement and evolution of state capacity: exploring a lesser known aspect of governance.

Antonio Savoia and Kunal Sen¹

¹ IDPM, University of Manchester

(Email correspondence: antonio.savoia@manchester.ac.uk;
kunal.sen@manchester.ac.uk)

ISBN: 978-1-908749-06-2

email: esid@manchester.ac.uk

Effective States and Inclusive Development Research Centre (ESID)

School of Environment and Development, The University of Manchester, Oxford Road,

Manchester, M139PL, UK

www.effective-states.org

Abstract

This paper offers an overview of the strengths and limitations in current empirical research on the measurement of state capacity. The paper also surveys the fast emerging literature on the determinants and effects of state capacity. We argue that existing measures on governance quality used in cross-national research can be usefully exploited to capture different aspects of state capacity. We utilise them to provide stylised facts on its evolution, and that post the end of the Cold War in the early 1990s, developing economies have experienced improvements in legal, administrative and bureaucratic capacity, but the gap with advanced economies is still wide. We note that empirical analysis is constrained by the short temporal coverage of available measures. Future research should also address this, as well as providing a systematic econometric assessment of the determinants of capacity and of its effects on development outcomes, such as health and education, which have not received sufficient scrutiny.

JEL Classification: O4, P5, N4

Keywords: state capacity, governance, measurement, Cold War.

1. Introduction

For at least the last fifteen years, research on economic development has been engaging with aspects of economic governance, striving to estimate its causal effect on national income levels or growth rate. Although other development outcomes – such as inequality, health and education – have received far less attention, the current consensus is that improved governance leads to economic development. Most research so far has examined aspects of property rights security, but recent research in economics tends to view governance through the prism of the state. This literature builds on well-established studies on developmental states (e.g., Evans 1995, Evans and Rauch 1999), seems to increasingly recognise the importance of *state capacity* as a fundamental ingredient for effective governance.

So far, some have reassessed the role of the state as capable of overcoming coordination failures and as a provider of public goods (Bardhan 2005 and Mosley 2012), and have called for further analysis of state institutions. Others have advanced the theory of mechanisms leading to the formation of effective states (Besley and Persson 2009 and 2011; Acemoglu, Ticchi and Vindigni 2011) or to their collapse (e.g., Collier 2009). This paper contributes to the revival of interest in the role of the state by critically examining some empirical aspects, i.e., the measurement and evolution of its most significant capacities.

Empirical research can borrow measures of state capacity from the cross-national literature on governance quality. Building on the theory and practice of measuring governance quality, we review how, and how well, existing databases and measures capture state capacity: which aspects they measure; what and how robust the methodology is with respect to the hypotheses we want to test. Once identified, we shall see how such measures have been used. Therefore, we also offer a review of previous studies looking at the effect of the state on development outcomes and at the determinants of state capacity. Finally, we shall use the available measures to illustrate its historical evolution, examining the trends of legal, bureaucratic and administrative capacities.

The paper proceeds as follows. Section 2 gives the background discussion on the measurement of state capacity. Section 3 presents the most representative measures illustrating the evolution in the key dimensions of capacity. Section 4 reviews the literature on its effects and determinants. Section 5 concludes.

2. Measuring state capacity

This section provides the background discussion and motivates the use of governance measurement in state capacity research. We need two building blocks. Firstly, we need to define the object of measurement and its dimensions. Secondly, aided by the debate on governance, we must discuss the methodological issues and the properties of state capacity measures. This precedes the illustration of a series of indicators, in Section 3, assessing how the key aspects of state capacity have evolved.

2.1 State capacities: defining what to measure

State capacity can be defined as the institutional capability of the state to carry out various policies that deliver benefits and services to households and firms (Besley and Persson 2011: 2).¹ Its analysis is closely related to that of governance, as state capacity is one of its key aspects. Consider the World Bank's definition of governance as "the manner in which power is exercised in the management of a country's economic and social resources for development" (World Bank 1992: 1).² Such definition fits a multiplicity of dimensions. And it may well include the power of the state and the quality of its institutions and policies, which historically plays a crucial role in the functioning of economies.

From this, identifying the object of measurement is not quite so straightforward. We must first consider how many functions the state should serve. Political and economic theories of the state differ tremendously on this matter. Traditionally, there has been no agreement on where and how much the state should intervene in the economy. The pendulum may swing from one extreme to the other, depending also on the historical conditions (e.g., for an illustration of the various positions, see Stigler and Samuelson 1968; Stiglitz 1989). Similarly, to remain within the literature on economic development, the type of state capacity that promotes development may vary according to the proposed mechanisms through which the state affects development outcomes: some emphasising the protection of property rights (e.g., Acemoglu, Johnson, and Robinson 2001); others pointing to the state involvement in overcoming coordination failures (e.g., Bardhan 2005); or protecting specific economic sectors, supporting technological innovation, providing infrastructure and engaging in human capital formation (e.g., Evans 1995). Consequently, the concept of state capacity must be dissected in order to identify the measures that are best aligned with it. It is perhaps appropriate to map state capacities according to the functions the state performs. A plausible list would start with:

- **Bureaucratic and administrative capacity.** Whatever we may maintain a state should do to foster development, it needs a bureaucratic apparatus to design and implement policies. This dimension is central to all areas of research on state and development. Traditionally, state capacity indicators would focus on the competence and ability of bureaucracy (e.g., Evans and Rauch 1999, Rauch and Evans 2000), and generally include the ability of spending the tax proceeds efficiently on public goods.
- **Legal capacity:** (i) the capability of enforcing contracts and property rights (i.e., a judicial system for settling disputes, rule of law); and (ii) security (i.e., protection of national borders, rule of law). The consensus is that, at the very least, the state has to provide such public goods, as they are ill-suited to private provision (Besley and Persson 2009 and 2011; Lin and Nugent 1995; Collier 2009).
- **Infrastructural capacity.** This refers to the territorial reach of the state, the extent to which control can be exercised over the territory, i.e., the geographical area within which policies can be enforced (see Soifer 2008).
- **Fiscal capacity** is the state's ability to raise revenues from taxes (Besley and Persson 2009 and 2011).
- **Military capacity.** This refers to external security and has mainly concerned civil conflict scholars, who argue that an increase in police and military forces can repress insurgent groups (Hendrix 2010).

¹ Following the tradition, we use the term *capacity*, although semantically different from *capability*.

² Incidentally, there are no clearly accepted definitions of governance. Detailed discussions of conceptual issues are in Kauffman and Kraay (2008 and Holmberg et al (2009).

The set of capacities listed above, without implying its exhaustiveness, constitute a starting point.³ Because of the attention received in the empirical literature, but without considering them priors, the discussion will focus mainly on examples of legal, bureaucratic and administrative capacity. On the other hand, improvements in these types of capacities may be complementary and reinforce the establishment of state authority over the territory, promote taxation, military defence, the provision of public goods and market intervention.

2.2 Methodological issues

Empirical research on governance quality has designed numerous and diverse measures which are suitable to capture aspects of state capacity: the protection of property rights; quality and performance of the bureaucracy; the administration of justice; as well as micro and macroeconomic management.⁴ Therefore, we can use and adapt the methods and findings from such literature to the case of state capacity.

A popular classification divides governance indicators in *objective* and *subjective* measures (e.g., see Williams and Siddique 2008).⁵ Examples of measures constructed from hard data try to capture political instability and violence using historical records of political assassinations, riots, demonstrations and so forth from Banks (1994). Such measures are imperfect proxies of governance and current research has not often used them (see Williams and Siddique 2008 and references therein). Coming to the theme of state capacity, a relevant example of objective measure is the use of government revenue as a percentage of GDP, as a proxy of fiscal capacity. There are a number of limitations to this approach: (i) it seems to be an outcome of state capacity, rather than an assessment of its quality; (ii) it is constructed from macroeconomic variables that may fluctuate with the cycle, thus recording a change in state capacity when instead the state apparatus has not been reformed; (iii) such a proxy may reflect the role of national culture and values, where citizens tend to evade taxes less, rather than state capacity itself. The literature on tax evasion has argued, and provided evidence, that agents may follow moral norms and so be more inclined to pay taxes.

A second class of objective measures are rule-based, i.e., constructed by rating the existence and strength of certain formal (*de jure*) rules. Alternatively, subjective measures are perception-based, i.e., ratings rely on perceptions of the *de facto* functioning of rules, coming from: (i) experts' opinions, e.g., risk-rating agencies, foreign investors, academics or NGOs; and (ii) surveys of national respondents (firms or individuals). Surveys have the advantage of capturing the views of domestic agents directly involved in the institutions of the country, but are more expensive to administer (and hence less likely to be repeated) and less suitable for cross-country comparability than expert assessments. Measures from the World Governance Indicators – which have been widely used in academic research and, as it appears below, are relevant to capturing the state capacity – combine both types of subjective information from either experts or surveys, while the ICRG and Fraser Institute property rights measures rely on the perceptions of experts. Which types of measures have the best properties? In terms of the type of methodology, the advantage of rules-based indicators is that they are free from political or ideological biases that, say, experts'

³ Our definition of state capacity differs somewhat from that of Vom Hau (2012), who takes state capacity as capturing both the organisational and relational qualities of states, and as being composed of three distinct, but interrelated dimensions: (1) the *external embeddedness* with non-state actors, (2) the *organisational competence* of state agencies, and (3) the *territorial reach* of state institutions. Our emphasis in this paper is on the second and third dimension of the definition of state capacity as in Vom Hau.

⁴ Thorough surveys on measuring governance are Williams and Siddiqui (2008) and Kauffman and Kraay (2008). Useful guides to most governance indicators are Besançon (2003) and UNDP (2007).

⁵ Its appropriateness is not undisputed. Kaufmann and Kraay (2008) argue that the objective-versus-subjective distinction is somewhat not a very useful one. Measuring governance quality always requires some degree of subjective judgement (even, for example, when selecting the elements of an objective measure). Glaeser et al (2004) argue the opposite case: objective measures are better suited to capture the concept of institutions, which by definition constrain agents' behaviour and evolve slowly.

assessments may have. In addition, such measures have the advantage of synthesising many and diverse formal institutional and policy elements into one single aggregate governance index. However, they could well be vulnerable to gaps between the essence of rules on codes and how they function on the ground (e.g., bribes can be codified as illegal, but no anticorruption agency exists). Hence, perception-based measures should be sensitive to any institutional and policy change: both formal and informal.

An additional limitation, which perhaps applies to all subjective indicators, is that in practice they do not indicate which specific policy intervention is actually responsible for observed changes in governance quality or state capacity. Perception-based measures could be particularly prone to this problem. Since this is a popular example, let us consider the ICRG and Fraser Institute measures used to express the degree of property rights protection. Each of their subcomponents is, in principle, different (and could be correlated with different intensity and direction to development outcomes). There is no compelling reason to believe that, for instance, a policy intervention aimed at improving the rule of law affects other aspects of state capacity, such as the recruitment of bureaucrats. This may or may not happen, depending on the actual policy. Yet, the correlations amongst each of these property rights components show that all sub-indices are highly and positively correlated among themselves (Table 1).

Table 1: Correlations amongst property rights indices and their components

Panel a: correlation among Fraser property rights components						
	Pr.rigths (Fraser)	Judicial Independ.	Impartial courts	Pr.rigths	Mil. in politics	Rule of law
Pr.rigths(Fraser)	1.0000					
Judicial Independ.	0.9245*	1.0000				
Imp. courts	0.9026*	0.9253*	1.0000			
Pr.rigths	0.8899*	0.8526*	0.8412*	1.0000		
Mil. In politics	0.8527*	0.6719*	0.6876*	0.6257*	1.0000	
Rule of law	0.8481*	0.7137*	0.6387*	0.7116*	0.6401*	1.0000
Pr.rigths(ICRG)	0.8932*	0.8060*	0.7902*	0.7849*	0.8063*	0.7277*
Panel b: correlation among ICRG property rights components						
	Pr.rigths (ICRG)	Bureaucr. Quality	Rule of law	Corrupt. in Govt.	Expropr. risk	Govt.rep. contracts
Pr.rigths (ICRG)	1.0000					
Bureaucr. Quality	0.8993*	1.0000				
Rule of law	0.9207*	0.7742*	1.0000			
Corrupt.in Govt.	0.8526*	0.7857*	0.7381*	1.0000		
Expropr. risk	0.8915*	0.6915*	0.8016*	0.6252*	1.0000	
Govt.rep.contract	0.9096*	0.7530*	0.7881*	0.6553*	0.8970*	1.0000
Pr.rigths(Fraser)	0.8932*	0.8154*	0.9030*	0.7603*	0.7836*	0.7850*

Notes: * stand for significant at 5% confidence level or higher. Fraser institute index disaggregation in sub-indices is incomplete and available only for releases after 2000.

This suggests that policy intervention in one area might be perceived as improving the general governance environment, in which case we infer that perception-based indices might have limited power in distinguishing different attributes of governance. However, the correlations in Table 1 alternatively also suggest that there are relevant complementarities amongst dimensions of governance (as argued in Besley and Persson 2011), in which case subjective measures would correctly record a simultaneous change in all the components.

Table 2: Classification and properties of governance measures

Type of measure	Objective		Subjective
based on:	Proxies from hard data	<i>De jure</i> rules	<i>De facto</i> rules
Advantages	Not affected from observer's bias	Not affected from observer's bias; isolate specific gov. dimensions	Capturing formal and informal rules
Limitations	At best expressing outcomes of governance; do not address specific governance aspect	May not capture the functioning of informal mechanisms	Affected from observer's bias; unable to isolate specific gov. dimensions

Despite the potential limitations, there is scope for using subjective assessments: having a wider range of measures can only increase the number of questions that empirical research can address. Researchers must carefully choose the appropriate measure or use more than one measure in conjunction, if the concept of governance under scrutiny requires so. To this aim, Table 2 summarises types and properties of governance measures.

Having provided an overview of the methodological issues, we finish the section with some remarks on the construction of a composite index, which would capture diverse capacities. If the purpose is mainly research, a database of measures of state capacity does not necessarily have to provide a synthetic index. It would be debatable how many dimensions should be part of a composite index. Even if one could reach a consensus on which dimensions should be included, we would still be left with the task of elaborating an appropriate formula to aggregate the would-be components. For example, should it be additive? Multiplicative? This can only be decided on the basis of further theoretical foundations. Meanwhile, researchers should be able to use disaggregated measures: addressing specific research questions may require combining measures in a different fashion each time. From this, it follows that a useful property of any state capacity (or governance) index is to make its components available. Bearing this in mind, a composite index, while not always indispensable for academic research, would be useful to policy makers. To this aim, some institutions have designed general measures, inspired by the literature on state failure. Such indices are aimed at capturing conditions when the state apparatus does not command one or more of its capacities and hence cannot deliver its core functions. An excellent guide is UNDP (2009). Table A1 in the appendix gives three examples of state fragility indices, chosen because of their extensive coverage of countries and time. Apart from the '*political stability and absence of violence*' index from the WGIs, which concentrates on the likelihood of conflict, the other two have among their components variables that should result as outcomes of state capacity (e.g., GDP).

While governance literature provides a number of variables to research state capacity, the proposed measures are subject to the same methodological disputes. However, such plurality of indicators and databases is beneficial to future research. Different measures capture distinct aspects of state capacity. However, they should not be necessarily considered interchangeable (for the purpose, say, of conducting robustness checks). Instead, they should be carefully selected depending on the type of development outcome one wishes to study, as recently demonstrated in Cheibub, Gandhi and Vreeland (2010) regarding political regime measures. On the other hand, if one believes that there could be complementarities among different elements of state capacity, further discussion on a composite measure combining the different aspects of state capacity would have greater scope.

3. The evolution of state capacity: measures and some statistics

What are the available measures? As it will appear below, efforts to provide comparable governance and state capacity measures face either the constraint of limited country coverage or of time coverage. Here we focus on the most representative measures. The appendix, instead, gives a broader overview of the available databases and measures (see table A1). This section also offers some statistics. Empirical studies have mostly focussed on the variation across countries. Here, instead, we also illustrate the trends over time.

Given its most extensive country coverage, influential articles on governance and development (e.g. Rodrik et al. 2004, Easterly and Levine 2003, Glaeser et al. 2004) utilised data from the World Governance Indicators (WGIs). Five (out of six) indicators assess dimensions of state capacity: *rule of law*, *regulatory quality* and *government effectiveness*, as well as *control of corruption* and *political stability and absence of violence*. The first three indicators may be used to express the degree of legal, infrastructural and administrative capacity, respectively. The remaining two measures are proxies for bureaucratic capacity or state fragility. These are all subjective measures that try to improve on country coverage by aggregating the ratings from over thirty organisations (see Kaufmann et al 2009; World Bank 2011).⁶ For all the indices, a higher score indicates a better rating. Table 3 compares developing and developed economies over 1996-2008.

⁶ The risk of using many sources is that, adopting different underlying concepts and aspects of governance, may not offer a fine-grained view of the specific aspect under scrutiny.

Table 3: Governance quality in developed and developing economies: 1996-2008

Year	1996	1998	2000	2002	2004	2006	2008
Political Stability and absence of violence in Developed economies							
mean	0.93	0.98	1.00	1.01	0.85	0.85	0.85
sd	0.44	0.50	0.49	0.60	0.56	0.52	0.53
N	34.00	34.00	34.00	34.00	34.00	34.00	34.00
Political Stability and absence of violence in Developing economies							
mean	-0.38	-0.38	-0.39	-0.39	-0.34	-0.33	-0.33
sd	0.93	0.90	0.90	0.88	0.92	0.93	0.94
N	140.00	142.00	142.00	142.00	147.00	147.00	147.00
Government Effectiveness in Developed economies							
mean	1.60	1.45	1.52	1.56	1.59	1.56	1.50
sd	0.69	0.56	0.54	0.53	0.53	0.51	0.48
N	34.00	34.00	34.00	34.00	34.00	34.00	34.00
Government Effectiveness in Developing economies							
mean	-0.45	-0.41	-0.43	-0.43	-0.45	-0.43	-0.43
sd	0.55	0.71	0.67	0.66	0.66	0.67	0.70
N	143.00	147.00	147.00	147.00	147.00	147.00	147.00
Regulatory Quality in Developed economies							
mean	1.02	1.28	1.33	1.37	1.42	1.39	1.42
sd	0.32	0.41	0.42	0.37	0.34	0.36	0.35
N	34.00	34.00	34.00	34.00	34.00	34.00	34.00
Regulatory Quality in Developing economies							
mean	-0.33	-0.39	-0.40	-0.42	-0.43	-0.41	-0.40
sd	0.88	0.82	0.79	0.77	0.75	0.78	0.78
N	143.00	147.00	147.00	147.00	147.00	147.00	147.00
Control of Corruption in Developed economies							
mean	1.50	1.46	1.48	1.50	1.50	1.48	1.47
sd	0.72	0.69	0.65	0.69	0.65	0.69	0.70
N	34.00	34.00	34.00	34.00	34.00	34.00	34.00
Control of Corruption in Developing economies							
mean	-0.47	-0.41	-0.42	-0.42	-0.44	-0.42	-0.41
sd	0.64	0.69	0.69	0.68	0.68	0.68	0.70
N	116.00	147.00	147.00	147.00	147.00	147.00	147.00
Rule of Law in Developed economies							
mean	1.40	1.39	1.37	1.38	1.41	1.39	1.42
sd	0.51	0.48	0.45	0.46	0.48	0.51	0.47
N	34.00	34.00	34.00	34.00	34.00	34.00	34.00
Rule of Law in Developing economies							
mean	-0.47	-0.46	-0.45	-0.46	-0.45	-0.45	-0.45
sd	0.73	0.70	0.72	0.71	0.73	0.73	0.74
N	141.00	147.00	147.00	147.00	147.00	147.00	147.00
Notes: World Bank (2001) data. Countries' classification follows the IMF system, considering per capita income level, export diversification and degree of integration into the global financial system (http://www.imf.org/external/pubs/ft/weo/2011/01/weodata/groups.htm , retrieved on 25 th Aug 2011).							

Bearing in mind that the inference of time trends may reflect, as Kauffman et al (2009) warn, changes in the number of underlying data sources used, one stylised fact is that governance quality from the mid 1990s to the late 2000s has been stable in both rich and poor countries. Hence, the gap between the two groups is unchanged (or even widening with respect to *regulatory quality*). A second stylised fact is that, along all six dimensions, the developed economies are a more homogenous group than developing economies, which show greater variability in governance quality over the period. Also note the peculiar behaviour of the *government effectiveness* index, whose cross-sectional dispersion declines over time in developed economies and increases in developing ones.

The WGI statistics also suggest that governance quality is a slow-changing phenomenon. To observe sharper changes, it should be analysed over a longer period. The WGIs only go back to 1996, but a longer view of the historical evolution of governance quality is still possible if we resort to other governance databases, in addition to the WGIs. The IRIS database from the International Country Risk Guide (ICRG, 1997) covers similar aspects of governance to the WGIs (and is also included amongst its sources), but looks back at the 1980s and 1990s, although it observes a much smaller sample of countries. From this source, Knack and Keefer (1995) first introduced a 50-point property rights index spanning from 1984 to 1997. Such an index was calculated by summing the values of the *government repudiation of contracts*, the *expropriation risk*, *rule of law*, *corruption in government*, and *bureaucratic quality* indices. The first three are indicators of legal capacity; the last two capture the level of bureaucratic and administrative capacity. In this case, the original data comes from assessments of foreign investors and business experts (who are not based in the country under scrutiny).

Table 4 shows the trends of the property rights index and each of its components, comparing developing and developed economies. A first stylised fact from this period is that developing economies' governance fared well below the developed countries average along all five dimensions until 1990. But, post Cold War, such countries experience sizable governance improvements, mainly along three dimensions. While bureaucratic and administrative capacity improves but still retains low ratings, the legal capacity components tend to move closer to the averages of developed countries. This suggests that the end of the Cold War has been a positive shock for governance quality. A second noteworthy fact, however, is the decrease in the cross-sectional dispersions over time of *bureaucratic quality*, *corruption* and *rule of law* in both developing and developed economies. The remaining measures see a decrease in developed economies only (and an increase in one case in developing economies).⁷

⁷ The regional trends across the developing world reflect this evidence. Bureaucracies improved less and retain low scores across the MENA, sub-Saharan Africa, Latin America and Asia. On the contrary, legal capacity improves substantially in all regions (with higher increases in the MENA countries).

Table 4: Property rights security in developed and developing economies: 1985-1997

Year	1985	1990	1995	1997
Property Rights in Developed economies				
mean	42.06	43.56	46.59	46.02
sd	7.00	6.40	3.21	2.91
N	31.00	32.00	32.00	32.00
Property rights in Developing economies				
mean	23.23	23.63	31.34	31.82
sd	6.61	6.62	7.02	6.69
N	92.00	94.00	95.00	95.00
Bureaucratic quality in developed economies				
mean	8.42	8.41	9.03	9.01
sd	1.88	1.89	1.34	1.10
N	31.00	32.00	32.00	32.00
Bureaucratic quality in Developing Economies				
mean	4.19	4.32	4.72	4.76
sd	1.83	1.83	1.58	1.53
N	92.00	94.00	95.00	95.00
Rule of Law in Developed Economies				
mean	8.46	8.34	9.77	9.41
sd	1.89	2.23	0.57	0.96
N	31.00	32.00	32.00	32.00
Rule of Law in Developing Economies				
mean	4.30	4.03	6.31	6.27
sd	1.96	1.92	1.92	1.83
N	92.00	94.00	95.00	95.00
Corruption in Government in Developed Economies				
mean	8.39	8.26	8.33	7.86
sd	1.82	1.67	1.51	1.44
N	31.00	32.00	32.00	32.00
Corruption in Government in Developing Economies				
mean	4.53	4.70	5.06	4.69
sd	1.97	1.96	1.62	1.69
N	92.00	94.00	95.00	95.00
Expropriation Risk in Developed Economies				
mean	8.47	9.48	9.95	9.97
sd	1.25	0.85	0.20	0.18
N	31.00	32.00	32.00	32.00
Expropriation Risk in Developing Economies				
mean	5.29	5.68	8.28	8.68
sd	1.56	1.57	1.70	1.60
N	92.00	94.00	95.00	95.00
Government Repudiation of Contracts in Developed Economies				
mean	8.32	9.07	9.53	9.78
sd	1.11	1.08	0.64	0.46
N	31.00	32.00	32.00	32.00
Government Repudiation of Contracts in Developing Economies				
mean	4.92	4.89	6.97	7.41
sd	1.56	1.60	1.89	1.90
N	92.00	94.00	95.00	95.00
Notes: data is from ICRG (1997). Countries' classification follows the IMF system, based on per capita income level, export diversification and degree of integration into the global financial system (http://www.imf.org/external/pubs/ft/weo/2011/01/weodata/groups.htm , accessed on 25/8/2011).				

There are two databases that, observing similar governance dimensions, allow the widest view and bring together the two periods: the *Quality of Government index* assembled by Teorell et al (2008) and the *Legal Structure and Security of Property Rights index* (Gwartney and Lawson 2007).

The quality of the *Legal Structure and Security of Property Rights*, which is a component of the *Fraser Institute index of Economic Freedom*, is a continuous variable ranging between 1 and 10, with a higher score corresponding to higher legal capacity. This is the only available indicator over a long time span, and also for a number of developing economies. It has, in

fact, been recorded for every five years from 1970 until 2000 (and every year from 2001 on), but between 1970 and 1975 only fifty countries are observed. This makes it crucial to conduct panel data analysis, as it is more likely to capture the time variation of slow-changing variables such as institutions. Its major drawback is that it samples fewer countries than the ICRG and WGI's data. The index has been assembled over the years from different sources – essentially, but not exclusively, from: the ICRG, the Business Environment Risk Intelligence and the Global Competitiveness Report published by the World Economic Forum – and has undergone some changes in definition, although the underlying concept remains unchanged (see, for details, Gwartney and Lawson, 2007).⁸ The statistics below allow the observation of both sub-periods, from the 1980s up to the mid 1990s, and from the late 1990s up to recent years, which we had to observe separately with the ICRG and WGI's databases.

Teorell et al (2008) have extended the IRIS database, but focussing only on three variables. The *Quality of Government index* is calculated as the average of *rule of law*, *corruption in government*, and *bureaucratic quality* indices from various editions of the International Country Risk Guide (the other two components seen above were discontinued after 1997). It spans 1984 to 2008 and is rescaled to lie between 0 and 1.

Panel (a), in Table 5, shows that since 1980 both developing and developed economies have experienced improvements, which were larger in developing economies. However, they still lag behind the developed group. Geographically, the MENA region records the highest improvement, while in sub-Saharan Africa governance quality has remained constant. Also in this case, it appears that governance improvement occurred with the end of the Cold War. However, the interpretation of these trends is clouded by the fact that, although it provides the widest view, it relies on a smaller sample size than the ICRG and WGI. Moreover, disaggregation by subcomponents is only possible for release after year 2000.

This portrait is somehow different when looking at the *Quality of Governance* (panel b). The trends indicate, in fact, that developing economies were in 2005 approximately on the same level as in 1985, after a sharp improvement following the end of the Cold War. Regionally, sub-Saharan Africa has experienced deterioration, while Asia is almost unchanged. Finally, it is noteworthy that the cross sectional dispersion over the whole period in developing economies decreases in both measures (monotonically in the *Quality of Governance* case). There is not strong evidence, instead, that the group of developed economies tends to be more homogenous as time goes by.

Apart from providing some stylised facts, the evidence presented in this section also illustrates the difficulties faced by empirical research on state capacity (and governance alike). There is a trade-off between the number of countries and number of years observed.

⁸ It includes: **(a)** Judicial independence (from GCR): the judiciary is independent and not subject to interference by the government or parties in dispute (This component is from the *Global Competitiveness Report's* question: "Is the judiciary in your country independent from political influences of members of government, citizens, or firms? No—heavily influenced (=1) or Yes—entirely independent (=7).” See World Economic Forum, *Global Competitiveness Report* (various issues), at <http://www.weforum.org/en/initiatives/gcp/index.htm>). **(b)** Impartial courts (from GCR): a trusted legal framework exists for private businesses to challenge the legality of government actions or regulation (this component is from the *Global Competitiveness Report's* question: "The legal framework in your country for private businesses to settle disputes and challenge the legality of government actions and/or regulations is inefficient and subject to manipulation (=1) or is efficient and follows a clear, neutral process (=7).” **(c)** Protection of property rights (from GCR): this component is from the *Global Competitiveness Report's* question: "Property rights, including over financial assets are poorly defined and not protected by law (=1) or are clearly defined and well protected by law (=7).” **(d)** Military interference in the rule of law and the political process (from ICRG); this component is based on the *International Country Risk Guide's Military in Politics*: "In the short term a military regime may provide a new stability and thus reduce business risks. However, in the longer term the risk will almost certainly rise, partly because the system of governance will become corrupt and partly because the continuation of such a government is likely to create an armed opposition.” **(e)** Rule of law (from ICRG, see above): it is defined as *integrity of the legal system*, i.e., strength and impartiality of the legal system and popular observance of the law.

Even the richest governance databases, presented above, force researchers to choose between temporal and geographical dimensions. The time dimension is particularly problematic. Changes in governance quality originate from institutional changes. These are long-run phenomena that are best observed with measures spanning many decades back in time.

Table 5: Quality of governance in developed and developing economies: 1980-2005

Panel (a): Legal system and property rights						
Year	1980	1985	1990	1995	2000	2005
Developed economies						
mean	7.22	7.13	7.61	8.08	8.18	8.04
sd	0.97	1.17	1.07	1.03	1.20	0.99
N	27.00	30.00	30.00	33.00	33.00	33.00
Developing economies						
mean	4.03	4.31	4.43	5.06	4.96	5.13
sd	1.47	1.37	1.43	1.11	1.29	1.34
N	62.00	78.00	79.00	88.00	88.00	104.00
Latin America						
mean	4.18	3.94	4.53	5.03	4.81	5.22
sd	1.54	1.40	1.50	0.81	1.17	1.23
N	22.00	23.00	23.00	24.00	24.00	24.00
Middle-East & North Africa						
mean	2.90	4.53	3.97	5.60	5.98	6.44
sd	1.38	1.34	1.14	0.90	1.18	0.91
N	10.00	12.00	12.00	12.00	12.00	12.00
Sub-Saharan Africa						
mean	4.23	4.20	4.23	4.67	4.55	4.44
sd	1.16	1.21	1.19	1.37	1.42	1.39
N	21.00	27.00	28.00	29.00	29.00	35.00
Asia						
mean	4.42	4.53	4.32	5.05	4.60	5.14
sd	1.66	1.51	1.73	0.78	0.95	1.20
N	9.00	11.00	11.00	12.00	12.00	18.00
Panel (b): Quality of Government index						
Developed economies						
mean		0.87	0.86	0.92	0.85	0.82
sd		0.16	0.17	0.09	0.11	0.13
N		27	28	30	32	32
Developing economies						
mean		0.42	0.42	0.53	0.47	0.43
sd		0.18	0.17	0.16	0.14	0.13
N		87	93	96	105	105
Latin America						
mean		0.39	0.40	0.51	0.52	0.46
sd		0.19	0.19	0.11	0.12	0.12
N		24	25	25	25	25
Middle-East & North Africa						
mean		0.43	0.42	0.60	0.53	0.49
sd		0.11	0.13	0.13	0.13	0.12
N		16	17	17	17	17
Sub-Saharan Africa						
mean		0.43	0.42	0.46	0.38	0.35
sd		0.19	0.17	0.18	0.13	0.12
N		28	31	32	32	32
Asia						
mean		0.42	0.39	0.57	0.49	0.44
sd		0.23	0.19	0.11	0.10	0.10
N		13	14	14	14	14

Notes: data is from Quartney and Lawson (2007) and Teorell et al (2008). Countries' classification follows the IMF system, based on per capita income level, export diversification and degree of integration into the global financial system (<http://www.imf.org/external/pubs/ft/weo/2011/01/weodata/groups.htm>, accessed on 25/8/2011).

4. Effects and determinants of state capacity: a short survey

This section reviews the subset of governance literature intersecting with the literature on state capacity. We first give a brief account of the empirical literature that has used governance measures expressing aspects of state capacity (such as the above measures) to estimate their effects on development outcomes, including some econometric

considerations on this research. The second task of this section is to review the literature on the determinants of state capacity.

4.1 State capacity and development outcomes

Does state capacity matter for development? What has the empirical literature found? Table 6 summarises recent contributions focussing on state capacity aspects, and which have used some of the measures reviewed here, to explain a series of development outcomes.

Most studies aimed at explaining economic growth and national income levels. These are by far the outcomes that have received the most scrutiny, of which thorough reviews already exist (see Tabellini 2005; and Aron 2000). Therefore, Table 6 reports only two representative articles. Despite the high level scrutiny received, it is still unclear whether the high correlation between property rights institutions and national income levels results from reverse causation (in the case of economic growth, the correlation is not always robust). Future research should, however, explicitly focus on the multiple facets of state capacity.

Most of the space in Table 6 is, instead, devoted to illustrate what type of effects the empirical literature has found with respect to other, and equally important, economic outcomes. Two recent studies find contrasting results regarding the role of bureaucratic quality and the level of aggregate investments (Cavallo and Daude 2011; Keefer and Knack 2007). Two other articles unanimously find that economies with institutional deficiencies are more prone to economic crises, despite the role of macroeconomic policies (Acemoglu et al 2003; Du 2010).

Table 6: State capacity and development: empirical research

Author(s) and year	Countries and Time frame	Econometric methods	Findings
National income (level and growth)			
Rauch and Evans (1999)	Cross-section of 35 less developed countries, 1970-1990	OLS	State bureaucracies characterised by meritocratic recruitment and predictable, rewarding career ladders are associated with higher growth rate.
Acemoglu, Johnson and Robinson 2001	Cross-section, 67 ex-colonies	OLS and IV	Variation in property rights institutions established in colonial times explains long-run development, once accounting for endogeneity.
Investment			
Cavallo and Daude (2011)	Panel, 1980- 2006, 116 developing econ.	GMM-IV	Public investment crowding-out effect is smaller or even reversed where bureaucracies and rule of law are stronger.
Keefer and Knack (2007)	Cross-section, 114 countries	OLS and IV	Public investment levels are higher where property rights are weaker and corruption is higher.
Economic crises			
Du (2010)	Cross-section and 1970-1999 panel, 69 countries	OLS and Probit	Historical institutions (reflected in the legal origins and settler mortality) predict the occurrence and intensity of currency and real crises better than time-varying institutions do.
Acemoglu et al (2003)	Cross-section and 1970-1999 panel, 64 ex-colonies	OLS and IV	Exchange rates are less misaligned, inflation and budget deficits are smaller in systems where governments are held accountable, via political checks and balances, and there is effective property rights enforcement and less corruption.
Income distribution			
Amendola et al (2011)	Cross-section and panel 1970-2004, 47 developing countries	OLS and LSDVC	Property rights increase income inequality, but the effect is smaller in democracies.
Chong and Calderon (2000)	Cross-section, 70 countries	OLS and IV	Evidence of a hump-shaped relationship with legal and bureaucratic capacity.
Poverty			
Chong and Calderon (2000)	Cross-section, 49 countries	OLS and IV	Improvements in ICRG measures reduce the degree, severity and incidence of poverty.
Tebaldi and Mohan (2010)	Cross-section, 107 countries	OLS and IV	Improvements in the WGLs reduce poverty levels via economic growth.
Health & Education			
Dawson (2010)	Panel, 93 countries, 1990-2005	LSDV	Stronger rule of law decrease child mortality. Fiscal capacity has no significant effect.
Raikumar and Swaroop (2008)	Panel, 91 countries, 1990-2003	OLS	Public spending has no effect on health and education in countries with worse bureaucracies and corruption.
Happiness			
Bjørnskov, Dreher and Fischer (2010)	Panel, 62 countries	OLS	Higher WGLs and better legal system are associated with improvements in self-reported well-being.

Classic development outcomes, such as inequality and poverty, have received scant attention. The results so far seem to indicate that the effects on income distribution may be nonlinear, while higher state capacity has been associated with lower poverty levels. Perhaps the literature considering the effects on human capital formation has received even less scrutiny so far, with Dawson (2010) looking at child mortality and Rajkumar and Swaroop (2008) looking at some health and education attainments. Finally, not reported in table 7, there is a separate literature on conflict research, which has tried to demonstrate that strong states have decreased risk of civil war (see Sobek 2010).

The rest of this section discusses some econometric issues that research design has not always addressed. Regarding the econometric strategy, as a result of the availability of comparable units of analysis, most studies use national-level data to assess the influence of key governance variables on economic performance. The most used econometric approach relied on cross-section methods. To handle reverse causality and omitted variable problems, the challenge has been to identify the effect of governance by constructing instrumental variables and natural experiments (e.g., Acemoglu, Johnson, and Robinson 2001). While this is appropriate, as the underlying relationships of interest are long-run phenomena, in practice it is not easy to justify the validity of instruments and history does not always provide natural experiments.

However, findings from econometric analyses at cross-country level have limitations below national levels of analysis. In many respects, developing countries exhibit a high degree of heterogeneity, thus national level trends may not reflect distinctive developments at the subnational or regional level. Focusing on the case of India, the work by Besley and Burgess (2002), Banerjee and Iyer (2005) and Cali and Sen (2011) have offered useful insights into the political economy of governance and development of subnational units. But in general, research at subnational level is impaired by the fact that there are no ready-made governance measures.

In principle, panel data methods (with $N > T$ so far) could facilitate handling endogeneity and dealing with heterogeneity. However, such an approach in practice is still constrained by data limitations. Governance quality is a persistent phenomenon. Sharp changes are unlikely, as they involve changes within the institutional framework that in turn bear distributive consequences that the ruling class will resist. Therefore, it should be observed and analysed over the long run. Available measures, also covering a large sample of countries, only go back the last thirty years. Unfortunately, there is no measure of economic governance going further back in time that would have substantial time series variation. This issue should be addressed by future research on governance. Political scientists have constructed measures of political democracy, instead, stretching as far back as the beginning of the 19th century (see Munck and Verkuilen 2002). There is a lot to gain from similar research efforts in the future: for example, creating a database that, exploiting comparative historical analysis, brings temporal depth to some governance measures. Meanwhile, empirical research on the role of the state, whether at the national or subnational level, has to make the best possible use of the available governance measures.

In addition, most governance databases do not include a non-trivial number of developing economies, which could instead be very relevant for questions on the effects of governance on economic development. Apart from the WGI, available governance measures, especially those produced by political risk consultancies, are not immune to this criticism. It is perhaps also true that recent updates of governance measures observe a larger sample of countries, which is more likely to be representative. Econometric research can face this by explicitly addressing sample selection problems.

Finally, as Kauffmann and Kraay (2008) have stressed, governance measures can be subject to measurement error. It is well understood in regression analysis what the consequences are for parameter estimates of errors in variables from the “left” and from the “right”. However, empirical papers should explicitly comment on this problem, so shedding further light on the relevance of the findings.

4.2 Determinants of state capacity

Since the studies above highlight the role of state capacity for development outcomes, we should also look at the conditions under which certain states develop higher capacity. There are three broad groups of determinants, related to historical, geographical or political economy explanations. Borrowing from the scholarship on institutional development, here

we review the main ideas and the related evidence. The literature has inevitably concentrated on the long run determinants of state capacity. We begin with the group focusing on historical factors:

- *Length of statehood.* Bockstette, Chanda and Putterman (2002) have suggested, and constructed *ad hoc* variables, that state history could be important for state capacity. Their *state antiquity index* is based on the plausible intuition that longer histories of statehood lead to higher quality administration due to 'learning by doing' effects. They also show that state antiquity is a good instrument for institutional quality in regressions that aim to explain long-run development. A measure for the antiquity of the state is constructed for 149 countries by observing their state history over the period from 1 to 1950 A.D. For each 50-year period, each country has been allocated a score for the existence of a government above tribal level; whether the government is locally based or foreign; and how much of the territory of the modern country was ruled by this government. The scores for each 50-year sub-period have been multiplied by one another and then summed by weighting down the periods in the more remote past. Future research can exploit this variable to address econometric problems due to reverse causality and omitted variables.
- *External conflict.* In line with the tradition in historical research on state formation in the West (see Spruyt 2002: 135-137), Besley and Persson (2009) emphasise the role of external conflicts. The rationale is that, in a society where groups compete for power, the incidence of wars supports the demand for common-interest public goods (i.e., defence) that, in turn, increases the incentive to invest in fiscal and legal capacity. They also explore some conditional correlations between some aspects of state capacity and the determinants suggested by the literature, finding cross-sectional evidence supporting this idea.
- *Legal origins.* La Porta et al (1999) have argued that developing 'good' governance relates systematically to legal origins. Anglo-Saxon common law legal systems, in particular – which spread through colonisation, conquest and cultural influence – historically developed higher degrees of judicial independence from the executive and the legislature than French civil law because landed aristocracy and merchants pursued stronger protection of property rights from the crown. Hence, common law systems supposedly deliver better protection of property rights, and a more limited, efficient state than civil law systems. Cross-section empirical evidence in La Porta et al (1999) supports this idea, but it remains unclear whether the effect of legal origins is actually capturing the effect of some other factors (e.g., inequality).

A number of other explanations have considered geographical characteristics and political economy mechanisms. Often, the two are intertwined so that one struggles to separate the two. Such explanations highlight the following factors:

- *Colonisation strategy.* According to this view, the disease environment shaped colonisation strategies and, in turn, the type of governance structures in the ex-colonies. If settlers' mortality was high, colonisers would establish extractive institutions, because they favour the position of the extractors (Acemoglu et al 2001). By extension, one can argue that such ex colonies would end with states which would not pursue property rights protection or the efficient delivery of public goods. It is less immediate, instead, to conjecture the effect on bureaucratic capacity and fiscal capacity. Presumably, extractive colonial powers were interested in collecting as much revenue as they could, and to do so needed effective bureaucrats, but were not interested in developing lasting fiscal capacity or a bureaucracy that would work to develop the colonial territory.
- *Inequality.* Historians Engerman and Sokoloff (2002) contend that inequality is detrimental to the emergence of legal and fiscal capacity in Latin America. Due to their factor endowments – natural resources and soil suitability for large-plantation

commodities – most areas in South and Central American colonies were historically associated with high inequality. This led to oligarchic (rather than democratic) politics and exploitative institutions. In societies that began with extreme inequality, the wealthy colonial minority was both inclined and able to establish a basic legal framework that ensured them a disproportionate share of political power, and to use that influence to establish rules, laws, and other government policies that gave them greater access to economic opportunities than the rest of the population. This created states where property rights, legal systems, and fiscal institutions ensured such elite a disproportionate influence on the economy (and perpetuated the existing inequalities). Easterly (2007) extended this idea and tested the effect of income inequality using agricultural endowments (the abundance of land suitable for growing wheat relative to that suitable for growing sugarcane) as an instrument for the share of income accruing to the middle quintiles or the Gini index. The results show a robust inverse relationship between inequality and institutions, when using an all-embracing measure taken as the average of the WGI.

- *Structure of the economy.* Economies where a substantial part of national income accrues from natural resources, and to the extent that such resources flows accrue directly to the government, have less incentive to invest in fiscal and legal capacity. Isham et al (2005) argue that countries rich in resources extracted from a narrow geographic or economic base are predisposed to heightened economic and social divisions and have weakened institutional capacity. They also find that such countries have worse government effectiveness and rule of law, and have grown more slowly. Similarly, Vicente (2010) presents experimental evidence from Sao Tome and Principe supporting the hypothesis that oil increases perceived corruption along a series of dimensions.

Some recent contributions have also considered the case of economies whose structure is aid-dependent. Rajan and Subramanian (2007) document governance-dependent industries (e.g., manufacturing, as this sector rests on complex transactions between parties that require regulation and rule of law) grow more slowly in countries receiving more aid. Empirically, Busse and Gronig (2009) find that countries receiving greater amounts of foreign aid tend to have less bureaucratic and administrative capacity, as the elite may have less incentive to reform the state apparatus.

- *Fractionalisation.* Social divisions along ethnic, linguistic and religious lines is associated with less efficient states as the group in power tends to engage in patronage spending and decrease the production of public goods (Alesina et al 1999). The empirical evidence has been mixed. La Porta et (1999) generally find no significant effects in cross-section regressions, while Alesina et al (2003), using improved measures, find that both ethnic and linguistic fractionalisation matter for governance (less so does religious fractionalisation). The latest extension of this line of research accommodates the idea of segregation (Alesina and Zhuravskaya 2011).
- *Incentives and type of recruitment of the bureaucracy.* According to this argument, the development of effective bureaucracies depends on the level of wages in the public sector relative to the private sector, which provides an incentive against corruption, and a recruitment process conditional on passing a civil service exam or attainment of a university degree. Based on data on the recent history of developing economies, Evans and Rauch (1999) find that meritocratic recruitment has a robust and positive effect on bureaucratic quality, but for the effect of competitive salaries there is no clear evidence.
- *Political democracy.* In democracies, citizens and parties enjoy substantial representation and executive power is subject to checks and balances. Hence, in such systems, incumbents will tend to promote common interests rather than using

the state to retain power (Besley and Persson 2009). Adserà et al (2003), in a 1980–1995 panel study, present evidence that free and fair elections are associated with better governance, using ICRG data. However, the role of democracy is controversial as, historically, developmental states in Asia existed under authoritarian regimes (e.g., Taiwan and South Korea). Whether or how democracy affects state capacity remains an open question (see Lin and Nugent 1995, p.2336).

In economics, the literature on the origins of state capacity is still relatively young. It is too early for an assessment. Here we only offer some initial thoughts. Whilst historical factors have been important for some of economies, there is no guarantee (or it is not desirable in the case of external conflicts) that history will unfold at the same way or play the same role in developing economies. With regard to geographical factors, while they can explain cross-sectional variation in state capacity, they offer little guidance to understand why states may change and have weak policy implications (as geography can hardly be changed). Political economy explanations, perhaps, are a more promising avenue to understand reforms or the inertia of state structures. The common thread to most of the proposed explanations is the role of the elite. In particular, their behaviour and the type of incentives they face matters insofar as they allow investment in and accumulation of state capacity. For example, Acemoglu et al (2011), who also emphasise the role of economic inequality, model a specific political economy mechanism whereby, through patronage politics, the rich choose to distort the state structure to limit redistribution and the bureaucracy will support the elite ruling party, as the elite maintain the very state structure from which they obtain rents. An initial assessment of the role of the elite for institutional persistence is Robinson (2010), showing the usefulness of a greater understanding of how elites form and reproduce, and of how reforms influence their status.

On the empirical side, the existing evidence finds some support for most of the factors outlined above, but also many inconclusive results. Similar to other areas of governance research, some of its determinants evolve endogenously with state capacity (e.g., inequality and the structure of the economy), so making it hard to disentangle spurious correlation and causal effects. A systematic econometric analysis of the determinants of state capacity, assessing their relative importance, is missing and is a task for future research.

5. Conclusions

This paper offered an overview of the virtues and limitations in current empirical research on the role of state capacity in economic development. Existing measures on governance quality used in cross-national research can be usefully exploited to capture different aspects of state capacity. We utilise them to provide stylised facts on its evolution. Post the end of the Cold War in the early 1990s, developing economies have experienced improvements in legal, administrative and bureaucratic capacity, although the gap with advanced economies is still considerable. In some cases, the decline in cross-sectional dispersion seemed to suggest that economies with worse state capacity would catch up. In this respect, the issue of whether relatively low-capacity states remain so for many generations, or whether such gaps across countries are narrowing over time, is an interesting one. Evidence of convergence, or the lack of, can provide further stylised facts for future research on governance change. In fact, the academic community has not thoroughly explored the dynamics of governance measures yet, with the exception being Sobel and Coyne (2011). The issue of convergence is relevant to policy makers alike. For donor countries and development agencies, which devoted significant resources with the aim of improving governance in less developed economies, it would be of practical relevance to assess where to direct their efforts. Perhaps, if we knew that governance quality in poor economies would catch up, we would be less pessimistic about current income disparities.

One factor limiting current research is the relatively short time coverage of state capacity measures, which are persistent phenomena whose trends should be studied over the long run. Future research should concentrate on building a database of measures extending over the longest possible period, possibly in a similar fashion to existing measures of political democracy. An additional task for empirical research is a systematic econometric assessment of the determinants of state capacity. For example, in political economy explanations, the role of the elite is pivotal. Econometric analysis should also focus on the role of political democracy, which seems ambiguous. Lastly, empirical research examining its effects should also concentrate on development outcomes such as health and education, which have not received sufficient scrutiny.

A.1 Measures of state capacity

Table A1. State capacity: comparing available indicators

Index and source	Methodology	Coverage	Data
Bureaucratic and administrative capacity			
<i>Bureaucratic quality</i> , ICRG (1997)	Experts' assessments which indicate autonomy from political pressure and strength and expertise to govern without drastic changes in policy or interruptions in government services and also the existence of an established mechanism for recruiting and training.	145 countries	Panel, 1984-1997
<i>Quality of Government</i> , (Teorell et al. 2008)	The mean value of the ICRG variables "Corruption", "Law and Order" and "Bureaucracy Quality", scaled 0-1. Higher values indicate higher quality of government.	145 countries	Panel, 1984-2008
<i>Government effectiveness</i> , WGI (World Bank 2011)	Expert assessments and surveys. Aggregating components from various sources. Continuous, scale: -2.5 to 2.5.	202 countries	Panel, 1996-2009
<i>Impartiality and Professionalism of Public Administration</i> - Teorell et al. (2008)	Quality of Government Institute survey on the quality and behaviour of the public administration	58 countries	Cross-section, 2008-2009
<i>Bureaucratic compensation, career opportunities and meritocratic recruitment</i> - Evans and Rauch (1999), Rauch and Evans (2000)	Experts' survey (academics and non) answering questionnaires on "Career Opportunities", "Bureaucratic compensation" and "Meritocratic recruitment". The three measures are equal-weight indices of a subset of questions eliciting evaluations on recent history (roughly 1970-1990 period), ranging all from 0 to 1.	35 less developed economies	Cross-section, 1970-1990
Infrastructural capacity			
<i>Regulatory quality</i> , WGI (World Bank 2011)	Expert assessments and surveys. Aggregating components from various sources. Continuous, scale: -2.5 to 2.5.	202 countries	Panel, 1996-2009
<i>Quality of public administration</i> - Country Policy and Institutional Assessments (World Bank 2002)	Experts assessment of the extent to which civilian central government staffs (including teachers, health workers, and police) are structured to design and implement government policy and deliver services effectively.	77 less developed economies	Panel, 2005-2009
<i>Stateness</i> , BTI, Bertelsmann Foundation (2011)	Expert assessment evaluating to what extent the state's monopoly on the use of force covers the entire territory; to what extent all relevant groups in society agree about citizenship and accept the nation-state as legitimate; to what extent the state's legitimacy, and its legal order, is defined without inference by religious dogmas; and to what extent basic administrative structures exist.	119 less developed economies	Cross-section, 2006
<i>Quality of budgetary and financial management</i> - Country Policy and Institutional Assessments (World Bank 2002)	Experts assessment of the extent to which there is: (a) a comprehensive and credible budget, linked to policy priorities; (b) effective financial management systems to ensure that the budget is implemented as intended in a controlled and predictable way; and (c) timely and accurate accounting and fiscal reporting. The index ranges between 1 (lowest) and 6 (highest).	77 less developed economies	Panel, 2005-2009
Fiscal capacity			
<i>Efficiency of revenue mobilisation</i> - Country Policy and Institutional Assessments (World Bank 2002)	Expert assessments of the overall pattern of revenue mobilization, not only the tax structure as it exists on paper, but revenue from all sources as they are actually collected. The index ranges between 1 (lowest) and 6	77 less developed economies	Panel, 2005-2009

(highest).			
Legal capacity			
<i>Steering capability</i> , BTI, Bertelsmann Foundation (2011)	Expert assessment evaluating to what extent the political leadership sets and maintains strategic priorities; how effective the government is in implementing reform policy; how flexible and innovative the political leadership is; and if the political leadership learns from past errors.	119 less developed economies	Cross-section, 2006
<i>Legal System and Property rights</i> , Fraser Institute	It is a subjective assessment combining survey and experts' opinions, ranging between 1 and 10; a higher score corresponds to a stronger protection of private property rights.	137 countries	Panel, 1970-2008
<i>Rule of law</i> , WGI (World Bank 2011)	Expert assessments and surveys. Aggregating components from various sources. Continuous, scale: -2.5 to 2.5.	202 countries	Panel, 1996-2009
<i>Rule of law</i> , ICRG (1997)	It reflects the degree to which the citizens of a country are willing to accept the established institutions to make and implement laws and adjudicate disputes, its scores evaluate soundness of political institutions, the strength of the court system, and the provisions for an orderly succession of power, as opposed to a tradition depending on physical force or illegal means to settle claims.	145 countries	Panel, 1984-1997
<i>Expropriation risk</i> , ICRG (1997)	It is an assessment of the risk of outright confiscation or forced nationalisation.	145 countries	Panel, 1984-1997
State fragility			
<i>Political stability and absence of violence</i> , WGI (World Bank 2011)	Experts assessments and surveys. Aggregating components from various sources. Continuous, scale: -2.5 to 2.5.	202 countries	Panel, 1996-2009
<i>State Fragility Index</i> , Marshall and Cole (2008)	SFI = <i>state effectiveness</i> + <i>state legitimacy</i> . Each of them is evaluated along Political, Security, Social and Economic components. Data from expert assessments and public statistics. Discrete, scale: 1-25.	164 countries	Panel, 1995-2009
<i>Failed States Index</i> , Foreign Policy and Fund for Peace (2009)	Sum of 12 indicators on data from Content analysis / expert survey / public statistics. Scale: 1-120.	177 countries	Panel, 2005-2009
<i>Implementation and enforcement index</i> (Berkman et al 2008)	Subjective measure of countries' ability to implement and enforce regulations and policies, as well as collecting taxes. It is the average of experts' evaluations and survey responses measures from the BTI, the Global Competitiveness Report and the Columbia University State Capacity Survey.	152 countries	Cross-section, 1990-2006 average

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Effective States and Inclusive Development Research Centre (ESID)

School of Environment and Development, The University of Manchester, Oxford Road,
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