

Governance Performance of Indian States 2001-02 and 2011-12

No. 164

07-Mar-16

Sudipto Mundle, Samik Chowdhury, Satadru Sikdar



National Institute of Public Finance and Policy

New Delhi

Governance Performance of Indian States

2001-02 and 2011-12

Sudipto Mundle, Samik Chowdhury
Satadru Sikdar¹

Abstract

There is a core concept of good governance, the combination of authority and responsibility to pursue the common good that goes back over millennia in different geographies around the world. Based on a contemporary interpretation of this concept, the paper develops a measure of the quality of governance as service delivery. This measure is applied to rate and rank the governance performance of major states in India in 2001-02 and 2011-12. The governance measure has been derived from the three main pillars of the government, i.e., the legislature, the judiciary and, especially, the executive. These pillars are represented by five dimensions: infrastructure services; social services; fiscal performance; justice, law & order; and quality of the legislature. Performance on each dimension of governance has been measured using indicators that are based exclusively on official factual data, not perceptions or opinions drawn from unrepresentative samples. The results show considerable stability of the cluster of high performing and low performing governments at the top and the bottom of governance rankings over the period analysed, though there are also some interesting dynamics of change. The paper also presents a second set of results that correct for the strong correlation between governance quality and the level of development. When we correct for the effect of development on the quality of governance, it turns out that some of the poorer states significantly improve their rank, implying their governance performance is much better than would be expected at their level of development.

Key words: Governance, service delivery, states, performance rating, development

JEL classification codes: H11 and H73

¹The authors are respectively Emeritus Professor, National Institute of Public Finance and Policy, New Delhi; Assistant Professor, Institute of Economic Growth, New Delhi, & Research Associate, National Institute of Public Finance and Policy, New Delhi. In the preparation of this paper we have benefitted a great deal from comments received in seminars that were given at the Asian Development Bank, Manila, February, 2015; the Global Observer Foundation, New Delhi, February, 2015; The Institute for South Asian Studies, National University of Singapore, Singapore, April, 2015 and the National Institute of Public Finance and Policy, New Delhi, October, 2015. However, the authors are solely responsible for the views expressed and results reported in the paper.

1. Introduction

The main purpose of this paper is to help develop a usable framework for evaluating the performance of state governments in the delivery of core public services.

The Indian Constitution lays down the jurisdiction of different tiers of government in the Seventh Schedule under Article 246. There is some overlap, especially for subjects in the Concurrent list, and in recent years a few subjects of the Union government has fallen into the jurisdiction of the states. Nevertheless, the constitutional demarcation of subjects that are the responsibility of the Union and those that are the responsibility of the states is very clear.

The 1991 liberalization reforms largely covered subjects in the Union list. The focus of second generation reforms has subsequently shifted to state subjects. The awards of successive Finance Commissions, especially the most recent Fourteenth Finance Commission, have also considerably enhanced the fiscal autonomy of the states, better enabling them to make their own choices in public action. Moreover, the performance of incumbent state governments is now beginning to count, alongside the arithmetic of traditional identity politics, in determining electoral outcomes.

These are welcome developments. They have helped to promote performance competition among states. Such competition works best when consumers, in this case voting citizens in states, are well informed and have the necessary data to objectively assess the performance of state governments. Performance league tables of state governments of the kind proposed in this paper are intended to facilitate such objective assessments, thereby promoting performance competition among state governments.

The second part of this paper deals with the concept of governance, and presents the case for assessing governance through the lens of service delivery. Part 3 of the paper develops a statistical framework for assessing governance as service delivery. The framework is then applied to assess the performance of state governments in 2001-02 and 2011-12, and changes in their performance over this period. The results are presented in Part 4. Part 5 concludes.

2. The Concept of Governance

There are varying conceptions of 'governance'. These range from a simple statist interpretation, that governance is what governments do, to a much wider interpretation of governance as the way in which individuals, groups, and institutions, both public and private, manage their affairs and resolve conflicts of interest in an orderly manner (Weiss 2000, DARPP 2009, Shome 2012). For this paper, which attempts to assess the performance of state governments in India, the statist interpretation is the most appropriate. Further, following Fukuyama (2013), governance may be defined as, "... a government's ability to make and enforce rules, and to deliver services ..."

This statist interpretation has a historical lineage going back two and a half millennia, stretching across different regions of the world. In its concept of governance, the *Arthashastra*, the authoritative traditional Indian text on statecraft dating back to the 4th century BCE, states that the king must exercise coercive authority (*Danda*) but also outlines the principles for its fair application to serve the common good (*Dharma*).² This *Danda - Dharma* duality, the importance of authority and an order preserving government to ensure peace, security and prosperity of the people, was also evident in other contemporary philosophies of governance in geographies stretching from China's Shang empire in the east to the then

²See the translation by L. N. Rangarajan. (Kautilya, 1992)

centre of the western world in Greece, i.e., Plato's concept of the optimal Athenian state (Spengler 1969).

This core concept of good governance, the duality of authority and service, has survived over the centuries through Machiavelli³, Hobbes (1651), Adam Smith (1776), and many other philosophers of statecraft down to our own times, adapted to our own conditions. Kenneth Arrow (1974) described this as authority combined with responsibility and Francis Fukuyama (2013) has recently defined governance as "a government's ability to make and enforce rules and to deliver services". Similar concepts of governance have been articulated, and its quality assessed, in seminal studies by La Porta, Lopez-de-Silanes, Shleifer and Vishny (1999) and Besley and Persson (2011) among others. While adopting the Fukuyama definition for this paper it is noted that the authority of a government (ability to make and enforce rules) is not an end in itself but a means to an end, i.e., delivering services.

The distinction between ends and means is critical in choosing an approach for evaluating the quality of governance. Fukuyama outlines four broad approaches: procedural measures, capacity or input measures, output measures, and measures of bureaucratic autonomy. He argues that good governance will follow a path of optimal balance between bureaucratic capacity and bureaucratic autonomy, with the desired level of autonomy rising with increasing bureaucratic capacity.

While the above proposition is in itself reasonable, Fukuyama has not provided any method or calibration rule for measuring the two variables capacity and autonomy. More importantly, he has not provided any precise explanation of how these two variables relate to the two core components of his own definition of governance, i.e., authority and service delivery. In other words, he has not specified the functional rule that relates bureaucratic capacity and autonomy to either authority or service delivery, or some combination of the two that can be described as the quality of governance as per his definition.

The difficulty with Fukuyama's proposal for evaluating the quality of governance is that procedure, bureaucratic capacity or bureaucratic autonomy are not ends in themselves but only means to an end i.e. inputs. The only end result is the delivery of services. That is the output. Indeed, as noted above, even the first part of Fukuyama's dual concept of governance, authority is not an end in itself but a means to an end i.e. service delivery. Hence, it is the contention of this paper that output, the quality of service delivery, is the appropriate measure of the quality of governance.

It is necessary at this point to address some of the concerns that led Fukuyama to reject the output measure of quality of governance. His main difficulty with the output measure was that important service outputs like education and health are not simply the consequences of public action, a concern that may be shared by others. However, this concern is based on a flawed interpretation of Fukuyama's own definition of governance.

Recall that in his definition, service delivery is not a function of governance, but itself, the constitutive element of governance. As such, the determinants of the quality (including level) of service delivery are not relevant to the quality of governance in his definition. The level or quality of service itself is the quality of governance. The other elements, or inputs, are to be seen as determinants of the quality of governance.

³ See the introduction by George Bull to the Penguin edition, Machiavelli (1969). The original treatise in Italian was probably completed around 1515.

As a supplementary argument, grant for a moment the flawed interpretation of Fukuyama's governance definition, namely, that service delivery is not itself governance but only a function of governance defined in some other way, say, an amalgam of all the other measures he cites, i.e., bureaucratic procedure, capacity and autonomy. Assume that governance so defined is a significant determinant of service delivery, along with other factors. Then it is reasonable to infer that a change in the quality of service delivery reflects, at least partly, a change in the quality of governance.

Analytically, if service delivery S is a function of governance G and other determinants D_1, \dots, D_n ,

$$S = f(G, D_1, \dots, D_n)$$

then, we can write the inverse function

$$G = f^{-1}(S, D_1, \dots, D_n)$$

And if we can control for the other determinants of service delivery, then the observed change in service delivery becomes a measure of the change in quality of governance.

Thus, the service delivery measure of governance quality survives even this modified definition of governance, unless we make the extreme assumption that governance is not at all a significant determinant of service delivery. Fukuyama does not make any such assumption. Moreover, such an assumption would be quite absurd in the Indian context where most key services like education, health, transport and other infrastructure, justice, law and order, etc. are all substantially provided by the government, either directly or indirectly by creating the necessary enabling environment.

However, it is not the contention of this paper that governance inputs such as bureaucratic capacity, processes, etc. are unimportant. On the contrary, if objective measures are available for such inputs, that would be excellent. Relating the quantity or quality of inputs to service delivery outputs would then enable us assess the 'efficiency' of governance. However, governance inputs should not be confused with outputs.

Governance, defined as service delivery, is closely correlated with economic development as Besley-Persson (2011), La Porta *et al.* (1999) and many others have emphasized. To put it differently, outputs of service delivery such as education, healthcare, infrastructure, etc., are all significantly correlated with per capita GDP, the latter being taken as a proxy measure for the level of development.

This closed co-relation is partly because service delivery outputs and per capita GDP are dependent on the same underlying determinants. It is also partly because these outputs and per capita GDP are mutually and causally interdependent. As a consequence, governance quality and development tend to move together over time or across geographies. Besley and Persson refer to this phenomenon as the emergence of 'development clusters'.⁴

⁴ In the literature the discussion of the relationship between governance and the *level* of development has also sometimes been extended to growth (Evans, & Rauch, 1999 and Rodrik, Subramanian, & Trebbi, 2004). In a recent paper (Wilson, 2016) has found a significant relationship between governance quality and growth at the subnational level in China, with causality running both ways. In our earlier paper on the governance performance of Indian states (Mundle *et al.* 2012) we had found a positive but statistically weak relationship between governance and growth.

Thus, two states may have an identical package of governance inputs, e.g., authority, bureaucratic capability, autonomy and processes, but different levels of service delivery if their levels of per capita GSDP are different. Hence, if we are interested in analyzing the pure impact of governance inputs on governance outputs (service delivery), then we need to control for the impact of development. This has important implications for the measurement of governance.

3. The Method of Rating Governance Quality

Exercises in rating the quality of governance fall into two broad methodological categories. One category consists of analyses based on large data processing. A wide range of indicators bearing on the quality of governance are processed into measures of five or six major dimensions of governance. The indicators include data from official sources and private sources, secondary data as well as survey data, objective data as well as perception data, data from large random surveys as well as responses from a few selected observers, and so on.⁵

The other parsimonious approach is to focus on a small set of carefully selected variables that best capture different dimensions of the quality of governance, or some particular aspect of it. Thus, Transparency International focuses on the corruption aspect of governance and produces the annual Corruption Perception Index (Transparency International 2014), the UNDP focuses on human development (UNDP 2014), Freedom House assesses governance from a libertarian perspective (Freedom House 2015) and so on. The earlier cited studies by La Porta, Lopez-de-Silanes, Shliefer & Vishney (1999) and Besley & Persson (2011) are two important examples of this parsimonious approach. They assess the overall quality of governance in a country based on a small set of selected indicators.

Most of these studies assess the quality of governance at the country level, though they may also be capturing some aspects of governance at sub-national levels in the country rating. The data they draw on are also mostly available at the country level. Sub-national assessments of the quality of governance are quite rare.

India is an exception to this pattern. Several state level assessments have been published in recent years, though most focus on specific aspects of state level governance. The first overall governance ratings for Indian states was published in 2012 (Mundle, Chakraborty, Chowdhury, Sikdar 2012), and the present study is an update of that earlier exercise⁶. Debroy and associates have adapted the methodology of the Heritage Foundation's Economic Freedom Index for countries to rate Economic Freedom in Indian states since 2005 (Debroy, Bhandari, Aiyar 2013). Bhandari (2013) rated states in terms of their delivery of infrastructure, education and health services (Bhandari 2013). Malhotra published his state level Policy Effectiveness Index in 2014 (Malhotra 2014). Earlier this year the Asian Competitiveness Institute at Lee Kuan Yu School of Public Policy, Singapore, produced its Competitiveness Index for Indian States. Most recently, the World Bank has produced its Ease of Doing Business index for Indian states (World Bank 2015).

⁵The best known example of this is the World Bank's World Governance Indicators or WGI, which is regularly updated (Kauffman, Kray, Mastruzzi 2007, Kauffman & Kraal 2015). But there are others like the Mo Ibrahim Foundation's Index of African Governance or IAG (Rotberg & Gisselquist 2009, Rotberg, Bhushan, and Gisselquist 2014).

⁶ Governance ratings in the present study are not comparable with the ratings in the earlier study. This is partly because the methodology used earlier has been modified, and also because the underlying data has been revised as often happens in India. Nevertheless, we found that the ranking of states, especially the composition of 'winners' and 'losers' at the top and the bottom of the rankings are broadly similar.

Our study belongs to the ‘parsimonious’ genre of governance rating studies. This is partly because the kind of voluminous data of different varieties used for the ‘large data’ exercises simply would not be available at the state level in India. But it is also because, in our view, assessing governance based on a limited number of strategically selected and objective key indicators is more transparent and efficient⁷. Broadly similar approaches have been followed by Besley- Persson, Debroy & associates and Malhotra. However, there are differences in the choice of indicators as well as in the methods of analysis and aggregation of the indicators.

Our choice of governance indicators is derived from the three pillars of the state, i.e., the executive, the judiciary, and the legislature. However, given the context of a developmental state, the emphasis is on the executive branch of government that is responsible for delivering most public services either directly or indirectly. Moreover, the choice of indicators has been limited to official data on objective variables. No data on perceptions of ‘experts’ or even random sample perception surveys have been used.

Fourteen indicators have been selected that capture delivery of five broad classes of outputs, namely, infrastructure; social services; fiscal performance; justice, law & order; and quality of the legislature. These have been listed in Table 1. It needs to be emphasized, that only those indicators have been used that relate to outputs in the domain of state governments.

To illustrate, in the case of infrastructure, we have only selected that category of roads for which the state government is responsible, standard state highways, not total highway kilometers in a state nor minor and village roads for which the *panchayat* is responsible. For the same reason, we have chosen state highway density rather than an alternative like village connectivity, since providing that ‘last mile’ connectivity is the responsibility of the *panchayat* rather than the state government. We have combined state highway density with the availability of power, for which again the state government is responsible. Similarly, for fiscal performance, we have taken only the states own tax revenue effort and the share of development expenditure relative to total expenditure in the state’s annual budget.

Table 1: List of Indicators

Services	Infrastructure	Social Services	Fiscal Performance	Justice, Law & Order	Quality of legislature
Indicators	Road.	Health	Development Expenditure + Total Expenditure (%)	Proportion of trials completed in less than 3 years (%)	Proportion of MLA’s with serious criminal charges pending (%)
	Standard State Highway (in kms.) per 100 sq. km. of Area.	1. Infant Mortality Rate			
		2. Maternal Mortality Rate			
		3. Life Expectancy at Birth			
	Power	Education	Own Tax Revenue + GSDP (%)	Rate of Violent Crimes (number per lakh population)	Proportion of women MLA’s(%)
	Per capita consumption of electricity (kWh)	1. Literacy rate			
2. Gross Enrolment Rate					
3. Average Years of Schooling					

Finally, as noted earlier, we have largely limited our choice to output data. Process or input data have generally not been used. The only exception is quality of legislature. While the

⁷ For an assessment of the ‘large data’ approach, see Mundle, Chakraborty, Chowdhury & Sikdar 2012 Also see Knoll & Zboczyst (2011), Olken & Pande (2011), and Mitra (2013) among others.

number of laws passed in a session or in a year can be a measure of output, it is difficult to quantify either the quality of the laws passed, or their importance. It was felt that the quality of the legislators themselves, whether they have serious criminal charges or not, and the share of women legislators might be a better measure of the quality of the legislature.

Reciprocals have been taken in the case of negative indicators such as infant mortality rate (IMR) to make all indicators unidirectional. Furthermore, since the indicators have different dimensions, they have all been transformed to a uniform (0, 1) scale to make them comparable. Sub-indicators for an output, e.g., social services, have been averaged to arrive at a state's score for that output and the output scores have in turn been averaged to arrive at the Governance Performance Index (GPI) for the state.

In our earlier paper (Mundle *et al.* 2012) we had used different methods of aggregation to construct the GPI for states in order to verify the sensitivity of governance rankings to choice of aggregation rule: Principal component analysis (PCA), Borda scoring, and average of averages. This time we have only used the average of average method of aggregation because we found this the simplest and most transparent aggregation rule. However, we have verified that the broad governance ranking of states, especially the best and worst performers, is similar using the PCA technique⁸.

Finally, to control for the impact of development on governance outputs, we have projected the expected value of a given indicator in a state for its level of development (GSDP), and taken the average of deviations from predicted indicator values to arrive at the state's development adjusted governance (DAG) score for that output. The sectoral DAG scores have then been averaged to arrive at the 'development adjusted governance index' (DAGI) for the state. Further details of the methodology adopted have been provided in the Appendix 1.

4. Governance Performance of States

Our empirical exercise covers 19 major states for which all the required data was available for our reference period. Together they account for 96% of the population. The methodology described above has been applied to arrive first at the individual output scores, and then the overall GPI for each state in 2001 and 2011. The same has been done for the DAG scores of individual service delivery outputs and the overall DAGI for each state. The empirical results have presented in Tables 2 through 7 below.

Infrastructure: The first thing to note is the vast difference across states in the level of infrastructure provided⁹. Thus road density in Karnataka in 2011 at 10.8 kms per 100 sq. kms was about five times that of road density in Odisha at only 1.95 kms per sq. kms. Similarly, power availability in Bihar increased about three fold from 36 kWh per capita in 2001 to 117 kWh in 2011. Despite this it was only about one-fifteenth of the power available in Gujarat of 1559 kWh per capita.

Other aspects of inter-state comparative performance in delivering infrastructure are presented in Table 2. The top six states for infrastructure delivery in 2001 were Gujarat, Maharashtra, Punjab, Kerala, Haryana, and Tamil Nadu in that order. By 2011 Punjab had dropped down to 7th position, while Karnataka had moved up to 3rd position.

⁸For the results of the PCA test and other technical details please refer to the Technical Note in Appendix 1 of the paper.

⁹See Appendix 2 Table A5

At the lower end, Chhattisgarh, Uttar Pradesh, West Bengal, Uttarakhand, Assam and Bihar were the six worst performers in 2001. By 2011 Odisha and Madhya Pradesh had slipped down to the bottom category while West Bengal and Chhattisgarh had moved up out of the bottom category.

Table 2: Infrastructure Delivery Ranks

2001		2011			DAG ^{infra} 2011		
Rank	States	Rank	States		Rank	States	
1	Gujarat	1	Gujarat	(0)	1	Karnataka	(+2)
2	Maharashtra	2	Maharashtra	(0)	2	Gujarat	(-1)
3	Punjab	3	Karnataka	(+4)	3	Bihar	(+15)
4	Kerala	4	Tamil Nadu	(+2)	4	Maharashtra	(-2)
5	Haryana	5	Kerala	(-1)	5	Tamil Nadu	(-1)
6	Tamil Nadu	6	Haryana	(-1)	6	Punjab	(+1)
7	Karnataka	7	Punjab	(-4)	7	Uttar Pradesh	(+10)
8	Himachal Pradesh	8	Uttarakhand	(+9)	8	Madhya Pradesh	(+6)
9	Andhra Pradesh	9	Himachal Pradesh	(-1)	9	Kerala	(-4)
10	Jharkhand	10	Andhra Pradesh	(-1)	10	Haryana	(-4)
11	Odisha	11	West Bengal	(+5)	11	Jharkhand	(+5)
12	Rajasthan	12	Chhattisgarh	(+2)	12	Chhattisgarh	(0)
13	Madhya Pradesh	13	Rajasthan	(-1)	13	Odisha	(+2)
14	Chhattisgarh	14	Madhya Pradesh	(-1)	14	Rajasthan	(-1)
15	Uttar Pradesh	15	Odisha	(-4)	15	West Bengal	(-4)
16	West Bengal	16	Jharkhand	(-6)	16	Andhra Pradesh	(-6)
17	Uttarakhand	17	Uttar Pradesh	(-2)	17	Assam	(+2)
18	Assam	18	Bihar	(+1)	18	Uttarakhand	(-10)
19	Bihar	19	Assam	(-1)	19	Himachal Pradesh	(-10)

Note: Figure in parenthesis indicate “the change in ranks in 2011 with respect to 2001, and the change in ranks in DAG^{infra} 2011 with respect to 2011”

Between 2001 and 2011, the maximum *relative improvement* in delivering infrastructure was recorded in Uttarakhand, which moved up nine ranks. Here the density of state highways rose from less than 1 km per 100 sq. kms. in 2001 to over 4.5 kms per 100 sq. kms., an increase of close to 400% in ten years. Power supply in Uttarakhand went up from 284 kWh per capita to 930 kWh over the same period, an increase of 227 per cent. Uttarakhand is followed by Bengal and Karnataka, which moved up 5 and 4 ranks respectively. In contrast the maximum *relative deterioration* was recorded in Jharkhand, which dropped down 6 ranks compared to 2001. Here state highway density barely increased from 2 km per sq.km in 2001 to 2.4 km per sq.km in 2011. Power availability increased from 364 kWh per capita to 750 kWh per capita over the same period, an increase of around 100 per cent. Jharkhand is followed by Punjab and Odisha, which dropped down by four ranks each.

When infrastructure delivery is adjusted for the level of development, there is a dramatic improvement in the relative positions of Bihar and Uttar Pradesh, which move up 15 and 10 ranks respectively. Both are low income states, hence the expected level of infrastructure availability is quite low. Allowing for this legacy of low development, the actual performance of both state governments, especially Bihar, during this period in improving the quality of infrastructure was clearly exceptional. Two other states that significantly improved their DAG^{infra} ranking after adjusting for their level of development are Madhya Pradesh, which moved up six ranks, and Jharkhand, which moved up five ranks.

Quite the opposite applies in the case of Uttarakhand and Himachal Pradesh, both of which dropped 10 ranks when the infrastructure output score is adjusted for development. Both these are relatively high income states, and the expected availability of infrastructure is much higher than what has been actually provided.

However, allowance must be made for the fact that these are both mountainous states, with much of their territory falling in the high Himalayas, and a low density of population. Building roads and delivering power in these remote districts with difficult terrain is particularly challenging. Moreover, in the case of Uttarakhand, it was noted that the actual level of infrastructure provision recorded a vast improvement between 2001 and 2011, moving it up by an impressive 9 ranks from 17th to 8th position in infrastructure provision.

Other states that slipped significantly in their DAG ranking for infrastructure (DAG^{infra}) include (undivided) Andhra Pradesh, which slipped six ranks, and Kerala, Haryana, and West Bengal, which slipped four ranks each.

Social Service Delivery: Once again we note very large variations across states. For example, in education the Gross Enrolment Rate in Himachal Pradesh in 2011-12 had already reached 100 per cent, whereas it was only 63.7 per cent in Assam¹⁰. In health the Maternal Mortality Rate in 2010-12 was 66 in Kerala as compared to 328 in Assam, and the Infant Mortality rate in Kerala was 12 in 2011 compared to 59 in Madhya Pradesh¹¹.

Five of the six states that were the best performers in social service delivery in 2001 remained at the top in 2011: Kerala, Tamil Nadu, Maharashtra, Himachal and Punjab. Gujarat slipped from fifth rank in 2001 to ninth rank in 2009, while West Bengal moved up from ninth rank in 2001 to sixth rank 2011. At the lower end, the worst six performers in 2001 were Uttarakhand, Rajasthan, Madhya Pradesh, Jharkhand, Bihar, and Uttar Pradesh. By 2011 Madhya Pradesh and Rajasthan moved up from this category, while Odisha and Chhattisgarh slipped down to it.

Table 3: Social Service Delivery Ranks

2001		2011			DAG ^{social} 2011		
Rank	States	Rank	States		Rank	States	
1	Kerala	1	Kerala	(0)	1	Kerala	(0)
2	Himachal Pradesh	2	Tamil Nadu	(+2)	2	Bihar	(+16)
3	Maharashtra	3	Maharashtra	(0)	3	West Bengal	(+3)
4	Tamil Nadu	4	Himachal Pradesh	(-2)	4	Tamil Nadu	(-2)
5	Gujarat	5	Punjab	(+1)	5	Himachal Pradesh	(-1)
6	Punjab	6	West Bengal	(+3)	6	Maharashtra	(-3)
7	Karnataka	7	Karnataka	(0)	7	Punjab	(-2)
8	Haryana	8	Uttarakhand	(+6)	8	Karnataka	(-1)
9	West Bengal	9	Gujarat	(-4)	9	Uttar Pradesh	(+8)
10	Assam	10	Haryana	(-2)	10	Madhya Pradesh	(+2)
11	Andhra Pradesh	11	Andhra Pradesh	(0)	11	Jharkhand	(+5)
12	Chhattisgarh	12	Madhya Pradesh	(+4)	12	Andhra Pradesh	(-1)
13	Odisha	13	Rajasthan	(+2)	13	Rajasthan	(0)
14	Uttarakhand	14	Chhattisgarh	(-2)	14	Uttarakhand	(-6)
15	Rajasthan	15	Odisha	(-2)	15	Chhattisgarh	(-1)
16	Madhya Pradesh	16	Jharkhand	(+1)	16	Odisha	(-1)
17	Jharkhand	17	Uttar Pradesh	(+2)	17	Gujarat	(-8)
18	Bihar	18	Bihar	(0)	18	Assam	(+1)
19	Uttar Pradesh	19	Assam	(-9)	19	Haryana	(-9)

Note: Figure in parenthesis indicate “the change in ranks in 2011 with respect to 2001, and the change in ranks in DAG^{social} 2011 with respect to 2011”

¹⁰ See Appendix 2 Table A6.1

¹¹ See Appendix 2 Table A6.2

Between 2001 and 2011 the largest relative improvement was recorded by Uttarakhand, which moved up six ranks, followed by Madhya Pradesh, up four ranks. The largest relative decline in social service was recorded in Assam, which dropped nine ranks, followed by Gujarat, which dropped by four ranks.

As is the case in infrastructure, so also in social services, some dramatic shifts are noted when governance performance is rated after correcting for levels of development. In the DAG ranks for social service delivery (DAG^{social}) Bihar and Uttar Pradesh move up by sixteen ranks and eight ranks respectively, while Haryana drops down nine ranks to the bottom and Gujarat drops eight ranks to number seventeen out of nineteen states. In some cases the high or low levels of service delivery are attributable to relatively high or low levels of per capita income rather than the quality of administrative inputs per se. In other words, there is a strong legacy effect, the cumulative effect of past development resulting in large per capita income differences among states and its impact on social service delivery. When adjusted for that, the performance of some of the better off states looks pretty poor while some of the poorer states appear to be punching well above their weight.

Fiscal Performance: For fiscal performance the two indicators selected are those which are in the control of the state governments: the proportion of total state government expenditure allocated to development expenditure, i.e., economic and social services, and the states own tax effort, i.e., the ratio of the state's own tax revenue to GSDP. It is arguable that these variables are input rather than output indicators. While revenue and expenditure are indeed inputs for the delivery of other public services, insofar as the delivery of fiscal service itself is concerned, they are indicators of outputs.

On the expenditure side, Gujarat had the highest share of expenditure allocated to development services in 2001 at 70.4 per cent, followed by 67 per cent in Karnataka. By 2011 it had been overtaken by Chhattisgarh, which led with 75.1 per cent, as well as Karnataka, Andhra, and Madhya Pradesh all of which were spending more than 70 per cent of total expenditure on development services¹² compared to 69.8 per cent in Gujarat.

At the other end Punjab, which was at the bottom with a development expenditure share of only 43.4 per cent in 2001 was still at the bottom with 48.8 per cent in 2011.

In general, the development expenditure share increased in all the states except Gujarat and Kerala. The maximum improvement over the decade was recorded in Bihar, with an increase of over 43 per cent in the share of development expenditure, followed by an increase of about 34 per cent in Odisha.

In terms of the states' own tax effort, Karnataka and Tamil Nadu were the best in 2001 with ratios of over 8 per cent, and they were still the best performers in 2011 with ratios of 10 per cent and 9 percent respectively. The weakest performers in 2001 were Bihar and Jharkhand with ratios of only 3.8 per cent. In 2011 the two worst performing states were West Bengal and Jharkhand with ratios of 4.6 and 4.8 respectively. All states improved their tax effort over the decade except Haryana and Uttarakhand. The improvement was led by Madhya Pradesh, with an increase of almost 70 percent in its own tax effort ratio, followed by an improvement of nearly 52 per cent in the case of Assam. However, Assam started from a low base ratio of only 4 per cent in 2001.

In overall fiscal performance, as measured by a composite index that combines the spending behavior of states with their tax effort, the six best fiscal performers in 2001 were Karnataka, Gujarat, Haryana, Andhra Pradesh, Tamil Nadu and Chhattisgarh (Table 4)¹³.

¹²See Appendix Table A7

¹³Also see Appendix Table A7

By 2011, Madhya Pradesh had moved into this category as the third best performer, gaining six ranks, while Haryana moved out of this category, dropping four ranks.

Table 4: Fiscal Performance Ranks

2001		2011			DAG ^{fiscal} 2011		
Rank	States	Rank	States		Rank	States	
1	Karnataka	1	Karnataka	(0)	1	Karnataka	(0)
2	Gujarat	2	Chhattisgarh	(+4)	2	Chhattisgarh	(0)
3	Haryana	3	Madhya Pradesh	(+6)	3	Madhya Pradesh	(0)
4	Andhra Pradesh	4	Andhra Pradesh	(0)	4	Andhra Pradesh	(0)
5	Tamil Nadu	5	Tamil Nadu	(0)	5	Tamil Nadu	(0)
6	Chhattisgarh	6	Gujarat	(-4)	6	Gujarat	(0)
7	Maharashtra	7	Haryana	(-4)	7	Haryana	(0)
8	Uttarakhand	8	Maharashtra	(-1)	8	Maharashtra	(0)
9	Madhya Pradesh	9	Odisha	(+7)	9	Odisha	(0)
10	Kerala	10	Rajasthan	(+1)	10	Rajasthan	(0)
11	Rajasthan	11	Uttar Pradesh	(+4)	11	Uttar Pradesh	(0)
12	Himachal Pradesh	12	Uttarakhand	(-4)	12	Uttarakhand	(0)
13	Jharkhand	13	Himachal Pradesh	(-1)	13	Himachal Pradesh	(0)
14	Assam	14	Assam	(0)	14	Assam	(0)
15	Uttar Pradesh	15	Kerala	(-5)	15	Kerala	(0)
16	Odisha	16	Bihar	(+3)	16	Bihar	(0)
17	Punjab	17	Jharkhand	(-4)	17	Jharkhand	(0)
18	West Bengal	18	Punjab	(-1)	18	Punjab	(0)
19	Bihar	19	West Bengal	(-1)	19	West Bengal	(0)

Note: Figure in parenthesis indicate “the change in ranks in 2011 with respect to 2001, and the change in ranks in DAG^{fiscal} 2011 with respect to 2011

Other states that significantly improved their relative fiscal performance by 2011 include Odisha, which moved up seven ranks, Chhattisgarh and Uttar Pradesh which moved up four ranks each, and Bihar which moved up three ranks.

The worst fiscal performers in 2001 were Assam, Uttar Pradesh, Odisha, Punjab, West Bengal and Bihar. Odisha and Uttar Pradesh moved out of this category by 2011, having significantly improved their performance as noted above. Two states that slipped into this bottom category, their relative fiscal performance having declined significantly are Kerala and Jharkhand. Kerala moved down by five ranks while Jharkhand moved down by four ranks. Relative fiscal performance also declined significantly in three other states, i.e., Gujarat, Haryana and Uttarakhand. The relative position of these states also declined by four ranks each.

Finally, it turns out that fiscal performance was not significantly related to the level of development. Consequently, there was no change in the fiscal performance rankings of states based on the development adjusted DAG^{fiscal} scores.

Justice, Law & Order: In India, perhaps the most important dimension of justice denial for citizens is the inordinate delay in completion of trials, which go on for years. As the saying goes, justice delayed is justice denied. Hence, the proportion of trials completed within three years has been chosen as a strategic indicator of justice delivery. For maintenance of law and order, or the provision of a peaceful and secure environment for citizens, the indicator selected is the reciprocal of the number of violent crimes per lakh population, a negative indicator (Table 5)¹⁴.

The best performing states for delivery of justice, law and order in 2001 were Punjab, West Bengal, Andhra Pradesh, Chhattisgarh, Tamil Nadu and Himachal Pradesh. Unfortunately, there was subsequently a sharp deterioration in the relative performance of West Bengal and also Himachal Pradesh. Their relative positions declined by eleven and four ranks respectively. Two states that moved into the top category by 2011 include Uttarakhand, which moved up by as many as twelve ranks, and Gujarat which moved up six ranks. Rajasthan is another state that significantly improved its relative performance over the decade, moving up by ranks.

¹⁴Also see Appendix Table A8

Table 5: Justice, Law & Order Ranks

2001		2011			DAG ^{lawor} 2011		
Rank	States	Rank	States		Rank	States	
1	Punjab	1	Gujarat	(+6)	1	Madhya Pradesh	(+6)
2	West Bengal	2	Andhra Pradesh	(+1)	2	Andhra Pradesh	(0)
3	Andhra Pradesh	3	Uttarakhand	(+12)	3	Chhattisgarh	(+3)
4	Chhattisgarh	4	Punjab	(-3)	4	Uttarakhand	(-1)
5	Tamil Nadu	5	Tamil Nadu	(0)	5	Gujarat	(-4)
6	Himachal Pradesh	6	Chhattisgarh	(-2)	6	Tamil Nadu	(-1)
7	Gujarat	7	Madhya Pradesh	(+4)	7	Rajasthan	(+1)
8	Haryana	8	Rajasthan	(+8)	8	Karnataka	(+1)
9	Odisha	9	Karnataka	(+1)	9	Punjab	(-5)
10	Karnataka	10	Himachal Pradesh	(-4)	10	Haryana	(+1)
11	Madhya Pradesh	11	Haryana	(-3)	11	Bihar	(+7)
12	Assam	12	Kerala	(+1)	12	Odisha	(+2)
13	Kerala	13	West Bengal	(-11)	13	Himachal Pradesh	(-3)
14	Maharashtra	14	Odisha	(-5)	14	Kerala	(-2)
15	Uttarakhand	15	Jharkhand	(+2)	15	Jharkhand	(0)
16	Rajasthan	16	Maharashtra	(-2)	16	West Bengal	(-3)
17	Jharkhand	17	Uttar Pradesh	(+2)	17	Uttar Pradesh	(0)
18	Bihar	18	Bihar	(0)	18	Maharashtra	(-2)
19	Uttar Pradesh	19	Assam	(-7)	19	Assam	(0)

Note: Figure in parenthesis indicate “the change in ranks in 2011 with respect to 2001, and the change in ranks in DAG^{lawor} 2011 with respect to 2011”

The worst performers in delivery of justice, law and order in 2001 were Maharashtra, Uttarakhand, Rajasthan, Jharkhand, Bihar, and Uttar Pradesh. Of these Uttarakhand and Rajasthan moved out of the category by 2011, thanks to significant improvement in their relative performance as already noted. They were replaced by Odisha, which moved down by five ranks, and Assam which went right to the bottom with a drop of seven ranks.

After controlling for development impact, two states moved up significantly in their relative performance ranking. Madhya Pradesh went right to the top with a gain of six ranks and Bihar went up by seven ranks. Punjab, Himachal Pradesh and West Bengal, which had already moved down in their relative performance between 2001 and 2011, shifted down further by several ranks after controlling for development. The relative position of Gujarat also shifted down in the DAG^{lawor} scores.

Quality of Legislature: As noted earlier, in the case of legislative services we have not attempted to measure an output, which is problematic, but the quality of the legislature, which is an input. The indicators used for this purpose are the reciprocal of the proportion of MLAs with serious criminal records, a negative indicator, and the proportion of women among MLAs, which is in our view is a positive indicator of the quality of legislators.

The states that had the lowest proportion of MLAs with serious criminal charges pending in 2001, around 10 per cent or less, were Assam, Punjab, Chhattisgarh, Karnataka, Uttarakhand and Andhra Pradesh¹⁵. By 2011 the proportion of such MLAs had risen slightly in most of these states but was still under 10 per cent, except in Karnataka, where the proportion went up sharply to over 17 per cent. The other state that recorded a sharp increase in the proportion of MLAs with serious criminal charges during this period was West Bengal, where the proportion rose from about 11 per cent to nearly 26 per cent.

The states with the highest proportion of MLAs with serious criminal records in 2001, ranging from about 15 per cent to over 29 per cent, were Madhya Pradesh, Odisha, Uttar Pradesh, Maharashtra, Jharkhand, and Bihar. The proportion rose even higher in these states in 2011, ranging from around 20 per cent in Maharashtra to nearly 33 per cent in Bihar.

¹⁵See Appendix Table A9

The states with the highest proportion of women MLAs in 2001, amounting to only 8 to 10 per cent, included Assam, Bihar, Tamil Nadu, Gujarat, Andhra Pradesh and Madhya Pradesh. Women's representation improved in a little over the decade, ranging at the high end from 11.6 per cent in West Bengal to 14.5 per cent in Bihar in 2011.

Women's representation in 2001 was very poor at 6 per cent or less in Karnataka, Maharashtra, Kerala, Uttar Pradesh, Uttarakhand and Punjab. It remained below 6 per cent in most of these states even in 2011, and also fell below this level in Himachal Pradesh. However women's representation increased to 12 per cent in Punjab. Other states where the representation increased significantly included Rajasthan and Chhattisgarh.

The above two indicators were combined into a composite index of the quality of legislature, and states were ranked according to this composite score (Table 6). The six states that were ranked at the top in 2001 were Assam, Punjab, West Bengal, Tamil Nadu, Chhattisgarh and Andhra Pradesh. Of these the relative quality of legislature deteriorated quite significantly by 2011 in West Bengal and Tamil Nadu. Their ranks dropped by nine and ten position respectively. Two states where the quality of legislature improved significantly over this period, bringing them into the top category of states are Rajasthan and Uttarakhand. Rajasthan moved up by seven ranks and Uttarakhand by eight ranks.

The quality of legislature is not highly correlated with the level of development; hence we do not see large shifts in DAG^{legis} ranks after correcting for the level of development. However, it should be noted that Bihar dropped down by 5 ranks, Himachal Pradesh by 3 ranks, and Assam and Uttarakhand by 2 ranks each after adjusting for the level of development.

Table 6: Quality of Legislature Ranks

2001		2011			DAG ^{legis} 2011		
Rank	States	Rank	States		Rank	States	
1	Assam	1	Assam	(0)	1	Rajasthan	(+2)
2	Punjab	2	Punjab	(0)	2	Punjab	(0)
3	West Bengal	3	Rajasthan	(+7)	3	Assam	(-2)
4	Tamil Nadu	4	Chhattisgarh	(+1)	4	Chhattisgarh	(0)
5	Chhattisgarh	5	Uttarakhand	(+8)	5	Andhra Pradesh	(+1)
6	Andhra Pradesh	6	Andhra Pradesh	(0)	6	Madhya Pradesh	(+1)
7	Gujarat	7	Madhya Pradesh	(+4)	7	Uttarakhand	(-2)
8	Bihar	8	Himachal Pradesh	(+1)	8	Gujarat	(+2)
9	Himachal Pradesh	9	Bihar	(-1)	9	Haryana	(+2)
10	Rajasthan	10	Gujarat	(-3)	10	West Bengal	(+2)
11	Madhya Pradesh	11	Haryana	(+1)	11	Himachal Pradesh	(-3)
12	Haryana	12	West Bengal	(-9)	12	Kerala	(+1)
13	Uttarakhand	13	Kerala	(+2)	13	Tamil Nadu	(+1)
14	Odisha	14	Tamil Nadu	(-10)	14	Bihar	(-5)
15	Kerala	15	Jharkhand	(+1)	15	Uttar Pradesh	(+1)
16	Jharkhand	16	Uttar Pradesh	(+1)	16	Jharkhand	(-1)
17	Uttar Pradesh	17	Odisha	(-3)	17	Maharashtra	(+1)
18	Maharashtra	18	Maharashtra	(0)	18	Odisha	(-1)
19	Karnataka	19	Karnataka	(0)	19	Karnataka	(0)

Note: Figure in parenthesis indicate "the change in ranks in 2011 with respect to 2001, and the change in ranks in DAG^{legis} 2011 with respect to 2011"

The Quality of Governance: The scores for individual service delivery outputs have been pulled together to yield the overall governance performance indices (GPI) and the development adjusted governance indices (DAGI) in Table 7. The two main features that stand out from composite GPI and DAGI ranks is the relative stability of the composition of best and worst performing states, and the sharp changes that appear when the rankings are adjusted to control for the impact of

development. Thus, Gujarat, followed by Tamil Nadu, were the two best performing states in 2001 as well as 2011. Also, five of the six best performing states in 2001 remained the best performing in 2011: Gujarat, Tamil Nadu, Andhra Pradesh, Kerala, and Punjab. At the other end, four of the six worst performing states in 2001 remained the worst performing in 2011: Odisha, Jharkhand, Uttar Pradesh, and Bihar.

Table 7: Governance Performance Index (GPI) & DAGI

GPI 2001			GPI 2011			DAGI 2011				
1	Gujarat	0.66	1	Gujarat	(0)	0.65	1	Chhattisgarh	(+7)	0.64
2	Tamil Nadu	0.60	2	Tamil Nadu	(0)	0.61	2	Madhya Pradesh	(+11)	0.63
3	Punjab	0.60	3	Andhra Pradesh	(+3)	0.59	3	Karnataka	(+3)	0.62
4	Kerala	0.57	4	Kerala	(0)	0.59	4	Tamil Nadu	(-2)	0.61
5	Haryana	0.55	5	Punjab	(-2)	0.58	5	Andhra Pradesh	(-2)	0.61
6	Andhra Pradesh	0.53	6	Karnataka	(+1)	0.57	6	Gujarat	(-5)	0.60
7	Karnataka	0.51	7	Uttarakhand	(+7)	0.56	7	Punjab	(-2)	0.58
8	Maharashtra	0.50	8	Chhattisgarh	(+2)	0.54	8	Rajasthan	(+4)	0.58
9	Himachal Pradesh	0.50	9	Haryana	(-4)	0.53	9	Kerala	(-5)	0.57
10	Chhattisgarh	0.48	10	Maharashtra	(-2)	0.50	10	Bihar	(+8)	0.55
11	West Bengal	0.44	11	Himachal Pradesh	(-2)	0.50	11	Uttarakhand	(-4)	0.50
12	Assam	0.43	12	Rajasthan	(+4)	0.50	12	Haryana	(-3)	0.50
13	Madhya Pradesh	0.38	13	Madhya Pradesh	(0)	0.49	13	Maharashtra	(-3)	0.46
14	Uttarakhand	0.36	14	Assam	(-2)	0.35	14	Himachal Pradesh	(-3)	0.46
15	Odisha	0.35	15	West Bengal	(-4)	0.34	15	Uttar Pradesh	(+4)	0.45
16	Rajasthan	0.34	16	Odisha	(-1)	0.31	16	West Bengal	(-1)	0.43
17	Jharkhand	0.27	17	Jharkhand	(0)	0.3	17	Odisha	(-1)	0.42
18	Uttar Pradesh	0.19	18	Bihar	(+1)	0.29	18	Assam	(-4)	0.41
19	Bihar	0.16	19	Uttar Pradesh	(-1)	0.29	19	Jharkhand	(-2)	0.41

Note: Figure in parenthesis indicate "the change in ranks under 2011 is with respect to 2001, while the change in ranks under DAGI 2011 is with respect to GPI 2011"

Bengal and Assam slipped down to the bottom category in 2011, while Rajasthan and Uttarakhand moved out of this category. In fact these were the two states that gained the most in their relative ranking, with Uttarakhand moving up seven ranks and Rajasthan by four ranks. The maximum decline in relative rankings was noted in Haryana and West Bengal, both of which dropped 4 ranks each.

The rankings adjusted for development impact, DAGI, result in some sharp changes in relative ranks. Madhya Pradesh, Bihar and Chhattisgarh are the biggest gainers, going up by eleven ranks, eight ranks and seven ranks respectively. Conversely, Gujarat and Kerala drop down by five ranks each and Uttarakhand and Assam drop down by four ranks each. Thus, in addition to the quality of administrative inputs, a positive or negative development legacy seems to have a strong cumulative impact on the quality of governance measured as service delivery.

It was mentioned earlier that there are several studies available now that evaluate state level performance. These are evaluations from different perspectives: economic freedom, competitiveness, ease of doing business, policy effectiveness. It is interesting to compare how the states measure up when viewed through these different lenses and our own evaluation of states in terms of service delivery. It turns out that there is a high level of similarity according to these different criteria.¹⁶

Though most of the studies do not purport to assess the overall quality of governance in a state, they do touch on some aspect of governance or another. For instance, economic freedom, competitiveness and ease of doing business all look at some aspects of efficiency in the business environment. Hence, the robustness of the rankings across studies points to the close

¹⁶See Appendix 3

quality correlation between different aspects of governance. Several studies have pointed out that development and the quality of governance are also highly correlated as we noted earlier. These correlations point to the importance of 'development clusters', the mutual inter-dependence between development and governance discussed above that was originally identified by La Porta *et al.* (1999) and Besley-Persson (2011) among others.

5. Conclusion: Governance and Development

Governance has been defined to mean different things in different contexts. In this paper it has been defined to mean service delivery, a concept of governance originally developed over two millennia ago in the *Arthasashtra* that has been maintained over the ages down to our own times (Arrow 1974, Fukuyama 2013). Governance measured as service delivery has been used to rate the performance of state governments during the period 2001-02 to 2011-12.

Such rating of state government performance acquires a special significance in the context of India's maturing democracy where the performance of governments is increasingly playing role alongside traditional identity politics in determining election outcomes. Significantly empowered by the devolution and grant awards of successive Finance Commissions, the states are increasingly competing with one another in terms of performance. Transparent and objective rating of State government performance is important for nurturing such competition.

The choice of service delivery outputs as the measure of governance quality clearly implies their priority compared to inputs such as governance capacity, institutions and processes. If these inputs impact outputs, then they will be reflected in the outputs and should not be double counted along with the outputs. If they do not effect outputs, then perhaps they do not count for much. What would it mean to say a government is excellent in its institutions, capacity, and processes if those inputs do not result in a high level of service delivery outputs.

However, this should not be interpreted to mean that institutions, capacity and processes are unimportant. On the contrary, such inputs are arguably the key determinants of the quality of governance. There are a variety of theories about the determinants of good governance. Apart from institutions and capacity; other candidates include the size of government (La Porta *et al.*); political polarisation and fractionalisation (Alesia, Devleeschauwer, Easterly, Kurlat, Wacziarg 2003), including ethnic, linguistic or religious fractionalisation (Charron 2009); competition (Greenwood 2004, DeSouza 2011); etc. However, the purpose of this paper was to rate the quality of governance, defined as service delivery, across Indian states, not identify the determinants of governance quality. Hence this question has not been explored in this paper, other than the interaction between governance and development which is discussed further below.

One of the main empirical results emerging from this exercise is the relative stability over time of groups of good and bad performing states. Thus, five of the six best performing states of 2001, led by Gujarat and Tamil Nadu, were also the best performers in 2011. Similarly, four of the six worst performers of 2001 were also among the worst performers of 2011.

An important consequence of such stickiness of rankings at the top and the bottom is growing regional disparity between the more and less developed states. 'Development clusters', combinations of quality service delivery and high per capita income, are emerging among the more developed states in the south and west of the country. They are now pulling away from and leaving behind the less developed states, especially in the eastern region.

Interestingly, after adjusting for the level of development, some of the less developed states like Bihar and Chhattisgarh move up quite significantly in the service delivery ranking. Evidently, governments in these states are attempting to offset their negative legacy of relative backwardness, delivering a much better quality of services than would be expected at the relatively low level of development of these states.

This has led to the emergence of two quite distinct paths of development in the more and less developed states. In the former state governments mainly play an enabling role, providing good infrastructure, efficient administrative processes etc. for private enterprise-led development. In some of these advanced states like Tamil Nadu such an enabling role is combined with a high level of social service delivery. But in others, like Gujarat, the challenge is their deficit in social development. Thus Gujarat tops the list for overall governance and also for infrastructure, but comes lower down the list for social service delivery. It drops down even further when the ratings are adjusted for its level of development.

In the other path, seen in less developed states like Bihar, governments play the dominant role in development since private enterprise is quite weak. Governments need to drive both public investment led growth as well as social development. It is a moot question whether this government led path of development will enable these less developed states to 'catch up' with the developed states, will there be convergence or divergence across Indian states in the years ahead.

The Union Government and Finance Commissions have a key equalising role in this context. But whether such equalising interventions will be sufficient for catch up is not clear. If not, regional disparities will continue to widen, with potentially severe political consequences.

References

- Acemoglu D. and Robinson James A., 2012. *Why Nation Fail: The Origins of Power, Prosperity, and Poverty*, New York: Crown Publishers.
- Alesina, A., A. Devleeschauwer, W. Easterly, S. Kurlat, & R. Wacziarg, 2003. Fractionalization, *Journal of Economic Growth* 8(2): 155-194.
- Arrow K., 1974. *The Limits of Organisation*, W.N. Norton & Co., New York.
- Besley T. & T. Persson, 2011. *Pillars of Prosperity*, Princeton University Press, Princeton.
- Bhandari P., 2012. *Refining State Level Comparisons in India*, Planning Commission Working Paper Series, 2012, Planning Commission, Government of India.
- Charron N., 2010. The Correlates of Corruptions in India's Analysis & Evidence from the State, *Asian Journal of Political Science*, 18(2): 177-194.
- , 2009. Government Quality and Vertical Power-Sharing in Fractionalized States *Publius* 39(4): 585-605.
- D.A.R.P.P., 2009. *State of Governance: A Framework of Assessment*, Department of Administrative Reforms, Public Grievances & Pensions, Govt. of India, New Delhi.
- Debroy B., Bhandari L. & Aiyar S. S. A., 2013. Economic Freedom of the States of India 2011, *Academic Foundation*, New Delhi.
- DeSouza E., 2011. What Constrains Business – The Role of the Single Window, International Growth Centre, India-Bihar Country Program.
- Evans, P., & Rauch, J. E., 1999. Bureaucracy and growth: A cross-national analysis of the effects of "Weberian" state structures on economic growth, *American Sociological Review*, 64: 748–765.
- Freedom House, 1996. *World Survey of Economic Freedom, 1995-1996: A Freedom House Study*, Transaction Publishers, New Brunswick, N.J.
- Fukuyama Francis, 2013. What Is Governance?, *Governance*, 26(3): 347–368 (July).
- Greenwood, Lawrence, 2004. Globalization and Economic Governance in East Asia: A New Model for Development, in (ed.) Yoichiro Sato *Growth Governance & In Asia*, Asia-Pacific Center for Security Studies, Honolulu, Hawaii.
- Hobbes T., 1651, 1981. *Leviathan*, First Published in 1651 and Penguin Books, 1981, London.
- Jolliffe, I T, 2002. Principal Component Analysis, *Springer Series in Statistics*, Springer-Verlag New York, 2002, 1986.
- Kaufman D, A. Kraay, M. Mastruzzi, 2007. *Governance Matter VI: Aggretate & In Governance 1996-2006*, World Bank Policy Research Paper 4780, Washington.
- Kautilya V., 1992. *The Arthashastra*, English translation by L.N.Rangarajan, Penguin Edition, New Delhi.
- Knoll Martin and Zloczysti Petra, 2012. The Good Governance Indicators of the Millennium Challenge Account: How Many Dimensions are Really Being Measured? *World Development* . 40(5): 900–915.
- La Porta R., F. Lopez- de - Silanes, A. Shleifer, R. Vishny, 1999. The Quality of Government, *Journal of Law, Economics, and Organization*, 15(1).
- Machiavelli N., 1640, 1961. *The Prince*, Penguin editions 1961.

- Malhotra Rajeev, 2014. *India Public Policy Report 2014 (IPPR)*, Oxford, New Delhi
- Mitra Shabana, 2013. Towards a Multidimensional Measure of Governance, *Social Indicators Research*, 2013, 112:477-496.
- Mundle S, P. Chakraborty, S Chowdhury and S Sikdar, 2012. The Quality of Governance: How Have Indian States Performed? *Economic and Political Weekly*, 47(49):41-52, (December 8).
- Olken B. A. and R. Pande, 2011. Corruption in Developing Countries *National Bureau of Economic Research (NBER)*, Working Paper 17398, September.
- Rodrik, D., Subramanian, A., & Trebbi, F., 2004. Institutions rule: The primacy of institutions over geography and integration in economic development. *Journal of Economic Growth*, 9: 131–165.
- Rotberg, Robert I., Aniket Bhushan, and Rachel Gisselquist. 2014. "The Indexes of Governance." In *Measuring Governance*, ed. Robert I. Rotberg. Waterloo, Canada: CIGI.
- and Gisselquist Rachel M., 2009. *Strengthening African Governance: Index of African Governance*, Cambridge, MA: World Peace Foundation.
- Smith A, 1776, 1970. *The Wealth of Nations Books I-III*, Penguin Edition, London.
- Shome P. (2012). "Governance: History, Contemporary Debate & Practice", in S. Kochchar (ed.) *Policy Making for Indian Planning: Essay on Contemporary Issues in Honour of Montek S. Ahluwalia*. Delhi: Academic Foundation.
- Spengler J. J., 1969. "Kautilya, Plato, Lord Shang: Comparative Political. Economy," *Proceedings of the American Philosophical Society*, 113(6): 450-7.
- Transparency International, 2014. *Corruption Perceptions Index, 2014*, Berlin, Germany: Transparency International.
- UNDP, 2014. *Millennium Development Goals - India Country Report 2014*, UNDP and Social Statistics Division, Ministry of Statistics and Programme Implementation, Government of India.
- Weiss T.G., 2000. Governance, Good Governance and Global Governance: Conceptual and Actual Challenges, *Third World Quarterly*, 2(5): 795-814.
- Wilson Ross, 2016. Does Governance Cause Growth? Evidence from China, *World Development*, 79: 138–151.
- World Bank, 2015. *Assessment of State Implementation of Business Reforms*, World Bank, September.
http://dipp.nic.in/English/Investor/Ease_DoingBusiness/StateAssessmentReport_14September2015.pdf

Appendix 1: Technical Note

Selection of Indicators

There are five dimensions (outputs) in our conception of Governance as service delivery: physical infrastructure; social service; public finance; law, order and justice; and quality of legislature. These dimensions are represented by a set of fourteen indicators. The dimensions, indicators and sources of data are presented in Table A1.

Table A1: List of Indicators and Data Sources

Dimension	Indicator	Source (relevant years)
Physical Infrastructure (Road, Power)	Standard State Highway (kms) per 100 sq. km. of Area	Statistical Abstract of India , CSO, MOSPI, GOI;
	Per Capita Consumption (kWh) of electricity	All India Electricity Statistics CEA, Ministry of Power, Government of India
Social Service (Education, Health)	Literacy Rate	Census of India
	Gross Enrolment Ratio (6-18 years)	Statistics of School Education, Dept. of School Education, Ministry of Human Resource Development
	Average Years of Schooling	National Sample Survey Organisation (NSSO)
	Infant Mortality Rate (per 1000 live births)	Sample Registration System Bulletin, Registrar General of India
	Maternal Mortality Rate (per 100,000 live births)	Maternal Mortality Rate Bulletin, Registrar General of India
	Life Expectancy at Birth	ABRIDGED LIFE TABLES- 2003-07 to 2006-10, SRS, Vital Statistics; and Compendium of India's Fertility And Mortality Indicators
	Finance Accounts of States	
Public Finance	Developmental Expenditure as % of Total Expenditure	Finance Accounts of States and Central Statistical Organisation (CSO)
Law, Order & Justice	Own tax revenue at a percent of GSDP	Finance Accounts of States and Central Statistical Organisation (CSO)
	Rate of Violent Crimes	Crime in India, National Crime Record Bureau, Ministry of Home Affairs, GOI
	Trials completed in less than 3 years as percentage of total trials in all courts	Crime in India, National Crime Record Bureau, Ministry of Home Affairs, GOI
Legislature	Percentage of MLA's with serious criminal charges pending	State wise Report of National Election Watch & Association for Democratic Reforms
	Percentage of Women MLA's	State wise Report of National Election Watch & Association for Democratic Reforms

In the case of some variables, where the data set is not available for the year 2001 and 2011, data available for the nearest year has been used and so indicated in the relevant table in Appendix 2.

Negative Indicators

Four out of the selected fourteen indicators are negative, in the sense that a higher value of these indicators implies a lower output for their respective dimensions. These are infant mortality rate, maternal mortality rate, rate of violent crimes and proportion of MLA's with serious criminal charges. In order to include them in the index, there is a need to make them unidirectional with the other indicators. We therefore take the reciprocal of these four indicators.

Normalization

The indicators are measured in different units. In order to convert them into comparable scores prior to aggregation, a process of normalization is undertaken in the following manner:

Compute $X_{ij} = \{Y_{ij} - \text{Minimum}(Y_j)\} / \{\text{Maximum}(Y_j) - \text{Minimum}(Y_j)\}$, where Y_{ij} is the value of the j^{th} indicator for the i^{th} state. This process of normalization rescales the indicators in the range [0, 1].

Aggregation

Score on a particular dimension is computed by taking the average of the normalized scores (X_{ij} 's) of its constituent indicators. The average of the scores on each dimension gives the Governance Performance Index (GPI). Thus, in effect, the method of aggregation follows an equal weight scheme at both the levels, i.e., for constructing outputs for individual dimensions as well as the GPI.

Robustness

In our earlier paper (Mundle *et al.* 2012), three alternative methods of aggregation were used. It was found that the rankings were robust across methods in the sense that the compositions of the groups of best and worst performing states were broadly similar. Accordingly, only the 'average of averages' method has been used in the present exercise as being the simplest and most transparent. Nevertheless, in order to check for robustness, we have also computed the GPI using the Principal Component Analysis (PCA) method. The central idea of PCA is to reduce the dimensionality of a data set in which there are a large number of interrelated variables, while retaining as much of the variation present in the data set as possible (Jolliffe 2002). It summarises and captures the variation in the data in the form of uncorrelated components (vectors) called principal components. Table A2 presents the GPI ranks of states estimated using the 'average of average' method and PCA method for the year 2011-12. It will be evident that the relative ranks of states are broadly similar, implying that the rankings are not particularly sensitive to the chosen method of aggregation.

Table A2: Governance Performance Index (GPI) using Alternate Methods, 2011

Rank	Average of Normalized Scores	Principal Components Analysis
1	Gujarat	Gujarat
2	Tamil Nadu	Tamil Nadu
3	Andhra Pradesh	Andhra Pradesh
4	Kerala	Punjab
5	Punjab Karnataka	Kerala Karnataka
6	Uttarakhand	Uttarakhand
7	Chhattisgarh	Chhattisgarh
8	Haryana	Haryana
9	Maharashtra	Himachal
10	Himachal	Pradesh
11	Pradesh	Rajasthan
12	Rajasthan	Madhya Pradesh
13	Madhya Pradesh	Maharashtra
14	Assam	Assam
15	West Bengal	West Bengal
16	Odisha Jharkhand	Odisha Jharkhand
17	Bihar	Uttar Pradesh
18	Uttar Pradesh	Bihar
19		

Economic Development and Governance

The literature suggests that there is a strong correlation between quality of governance and economic development, measured here in terms of per capita gross state domestic product (GSDP). This is partly because of their dependence on the same underlying drivers and also because of their mutual interdependence, giving rise to a governance rating bias in favour of more developed states. In other words, a higher value of some indicator of governance may simply be attributable to the higher level of development of the state (Mundle *et al.* 2012).

Table A3: Coefficient of correlation between Per Capita GSDP and Governance Indicators

	2001-02	2011-12
Standard State Highway per 100 sq. km. of Area	0.65**	0.60**
Per Capita Consumption of electricity	0.76**	0.77**
Literacy Rate	0.76**	0.75**
Gross Enrolment Ratio (6-18 years)	0.29	0.34
Average Years of Schooling	0.56**	0.83**
Infant Mortality Rate	-0.59**	-0.64**
Maternal Mortality Rate	-0.78**	-0.80**
Life Expectancy at Birth	0.77**	0.70**
Developmental Expenditure as % of Total Expenditure	0.11	-0.03
Own tax revenue at a percent of GSDP	0.71**	0.30
Rate of Violent Crimes	-0.41	-0.24
Trials completed in less than 3 years as percent-age of total trials in all courts	0.41	0.50*
Percentage of MLA's with serious criminal charges pending	-0.42	-0.47*
Percentage of Women MLA's	-0.28	-0.55*

** Correlation is significant at the 0.01 level (2-tailed). *Correlation is significant at the 0.05 level (2-tailed).

Table A3 demonstrates the degree of association between Gross State Domestic Product and the selected indicators. More than half the selected indicators are significantly correlated with per capita GSDP. Hence, it is necessary to control for the impact of economic development in order to isolate the pure effect of governance inputs on governance quality. We do this by adjusting the indicators for level of economic de-velopment.

Adjustment of indicators

To isolate the quality of governance, independent of the level of development, we have created a set of adjusted indicators through the following steps:

Step 1: Using data for the 17 states, we estimate for each indicator the equation $Y = \alpha + \beta X$, where Y represents the indicator of interest and X is the natural logarithm of per capita GSDP. The results of the regression are shown in Tables A4(a) and A4(b) for years 2001 and 2011. The relevant equation is then used to derive the expected value Y_{ij}^e of the i^{th} state for the j^{th} indicator. We also examine whether the estimated coefficients are statistically significant. In case they are, we proceed to Step 2, or else to Step 3.

Step 2: Compute $Z_{ij} = Y_{ij} - Y_{ij}^e$, which gives the absolute deviation of the actual value from its *expected value* for the i^{th} state on the j^{th} indicator.

Step 3: Compute $Z_{ij} = Y_{ij} - \text{Mean}(Y_j)$, which gives the absolute deviation of the actual value of the indicator from the *average value* for the i^{th} state on the j^{th} indicator. The Z_{ij} 's constitute the matrix of adjusted indicators. Thus, along with the set of original indicators we obtain a set of transformed indicators, the method of transformation depending on whether or not the relationship between the indicator and per capita GSDP is statistically significant.

Results of regression of governance indicators on log of per capita GSDP

Table A4(a): 2001-02

	Constant	Co-efficient	t	p-value
Road*	-34.91	3.86	2.92	0.010
Power**	-3551.43	394.32	4.57	0.000
Literacy**	-121.48	18.81	5.23	0.000
Enrolment	-37.89	9.66	1.81	0.088
Years of Schooling*	-0.08	0.50	2.4	0.028
Infant Mortality Rate*	306.06	-24.41	-2.54	0.021
Maternal Mortality Rate**	2781.78	-249.28	-4.17	0.001
Life Expectancy at Birth**	-10.57	7.46	4.14	0.001
Development Expenditure	16.80	4.24	0.95	0.353
Own Tax**	-19.13	2.50	4.15	0.001
Violent Crimes	97.96	-7.57	-1.81	0.088
Trial Completed*	-105.53	16.69	2.16	0.046
Criminal MLA's*	100.62	-8.76	-2.65	0.017
Women MLAs	26.81	-1.96	-1.3	0.210

** Coefficient is significant at the 0.01 level. * Coefficient is significant at the 0.05 level .

Table A4(b): 2011-12

	Constant	Co-efficient	t	p-value
Road*	-35.55	3.82	2.73	0.0140
Power**	-6953.07	737.49	5.25	0.0000
Literacy**	-48.71	11.68	4.54	0.0000
Enrolment	15.09	6.57	1.61	0.1260
Years of Schooling**	-6.00	1.09	6.75	0.0000
Infant Mortality Rate**	224.78	-17.34	-3.27	0.0040
Maternal Mortality Rate**	1504.91	-125.11	-5.14	0.0000
Life Expectancy at Birth**	16.18	4.75	3.73	0.0020
Development Expenditure	71.28	-0.54	-0.15	0.8850
Own Tax	-4.05	1.05	1.41	0.1760
Violent Crimes	85.23	-5.79	-1.09	0.2920
Trial Completed*	-140.98	18.90	2.73	0.0140
Criminal MLA's*	117.99	-9.63	-2.57	0.0200
Women MLAs*	55.33	-4.38	-2.76	0.0130

** Coefficient is significant at the 0.01 level. * Coefficient is significant at the 0.05 level .

Negative indicators

The Z_{ij} 's corresponding to the negative indicators are multiplied by the factor (-1) to make them unidirectional with the rest.

Constructing the index

The development adjusted score for a particular dimension (DAG) is computed by taking the average of the normalized scores (X_{ij} 's) of the adjusted indicators. The average of the scores of each dimension yields the Development Adjusted Governance Index (DAGI).

Appendix 2: State Performance Indicators, Scores and Ranks

Table A5: Infrastructure																
States ordered by 2011 actual rank	2001				2011							DAG ^{infra} 2011				
	Standard State Highway (in kms) per 100 sq. km. of Area, 2001	Per Capita Consumption (kWh) of electricity: 2001/02	Composite Score	Rank	Standard State Highway (in kms) per 100 sq. km. of Area, 2011	% Change 2001 to 2011	Per Capita Consumption (kWh) of electricity: 2009-10	% Change 2001 to 2011	Composite Score	Rank	Rank change w.r.t. 2001	Standard State Highway (in kms) per 100 sq. km. of Area, 2011*	Per Capita Consumption (kWh) of electricity: 2009-10*	Composite Score	Rank	Rank change w.r.t. 2011 actual
Gujarat	8.83	817	0.95	1	8.78	-0.57	1559	90.82	0.84	1	(0)	1.88	321.93	0.70	2	(-1)
Maharashtra	8.76	508	0.76	2	10.47	19.52	1054	107.48	0.77	2	(0)	3.46	-204.47	0.57	4	(-2)
Karnataka	5.12	428	0.50	7	10.8	110.94	873	103.97	0.72	3	(+4)	5.21	-112.57	0.71	1	(+2)
Tamil Nadu	3.2	623	0.51	6	8.12	153.75	1211	94.38	0.69	4	(+2)	1.37	2.54	0.54	5	(-1)
Kerala	9.44	281	0.65	4	11.17	18.33	537	91.10	0.64	5	(-1)	4.73	-612.17	0.47	9	(-4)
Haryana	5.13	533	0.57	5	5.41	5.46	1491	179.74	0.63	6	(-1)	-1.62	228.33	0.46	10	(-4)
Punjab	4.14	836	0.70	3	2.93	-29.23	1663	98.92	0.55	7	(-4)	-3.11	590.87	0.53	6	(+1)
Uttarakhand	0.95	284	0.17	17	4.54	377.89	930	227.46	0.40	8	(+9)	-2.01	-239.66	0.25	18	(-10)
Himachal Pradesh	3.58	398	0.39	8	2.92	-18.44	1145	187.69	0.39	9	(-1)	-3.63	-24.79	0.24	19	(-10)
Andhra Pradesh	1.93	494	0.36	9	3.25	68.39	1014	105.26	0.36	10	(-1)	-2.42	13.55	0.33	16	(-6)
West Bengal	2.2	218	0.20	16	4.59	108.64	515	136.24	0.27	11	(+5)	0.05	-267.97	0.35	15	(-4)
Chhattisgarh	0.63	394	0.22	14	2.13	238.10	921	133.76	0.27	12	(+2)	-2.10	198.74	0.42	12	(0)
Rajasthan	2.08	285	0.24	12	2.58	24.04	811	184.56	0.26	13	(-1)	-1.60	97.03	0.41	14	(-1)
Madhya Pradesh	2.08	273	0.23	13	3.32	59.62	618	126.37	0.24	14	(-1)	-0.10	51.11	0.47	8	(+6)
Odisha	2.39	324	0.28	11	1.95	-18.41	838	158.64	0.23	15	(-4)	-2.00	169.95	0.42	13	(+2)
Jharkhand	2.03	364	0.28	10	2.37	16.75	750	106.04	0.23	16	(-6)	-1.42	113.35	0.43	11	(+5)
Uttar Pradesh	2.53	191	0.20	15	2.77	9.49	372	94.76	0.13	17	(-2)	0.35	-1.49	0.48	7	(+10)
Bihar	2.03	36	0.08	19	4.24	108.87	117	225.00	0.12	18	(+1)	3.14	-0.28	0.64	3	(+15)
Assam	1.95	99	0.11	18	3.05	56.41	209	111.11	0.09	19	(-1)	-0.20	-323.98	0.31	17	(+2)

Table A6.1: Education

States ordered by 2011 rank	2001					2011							
	Literacy rate 2001	GER 2001-02 (6-18 years)	Average Years in school 1995-96	Overall Score	Rank	Literacy Rate 2011	% Change 2001 to 2011	GER 2011-12 (6-17 Years)	% Change 2001 to 2011	Years in School 2007-08	% Change 2001 to 2011	Overall Score	Rank
Kerala	90.9	58.7	6.01	0.89	1	93.9	3.30	90.35	53.92	6.67	10.98	0.91	1
Himachal Pradesh	76.5	62.91	5.55	0.73	2	83.8	9.54	100.43	59.64	6.4	15.32	0.85	2
Tamil Nadu	73.5	62.4	5.2	0.62	4	80.3	9.25	94.97	52.20	6.38	22.69	0.76	3
Maharashtra	76.9	69	5.11	0.70	3	82.9	7.80	87.45	26.74	6	17.42	0.66	4
Punjab	69.7	48.9	5.2	0.46	11	76.7	10.04	87.94	79.84	6.04	16.15	0.60	5
Uttarakhand	71.6	61.7	4.46	0.44	12	79.6	11.17	83.85	35.90	5.8	30.04	0.56	6
Karnataka	66.6	64.8	5.08	0.57	6	75.6	13.51	85.54	32.01	5.87	15.55	0.54	7
Haryana	67.9	49.6	5.07	0.42	14	76.6	12.81	79.53	60.34	5.9	16.37	0.50	8
Gujarat	69.1	68.2	4.81	0.57	7	79.3	14.76	82.06	20.32	5.52	14.76	0.50	9
Madhya Pradesh	63.7	63.1	4.67	0.44	13	70.6	10.83	97.68	54.80	5.03	7.71	0.47	10
West Bengal	68.6	59.2	4.5	0.40	15	77.1	12.39	87.23	47.35	5.11	13.56	0.46	11
Chhattisgarh	64.7	67.5	4.67	0.50	9	71	9.74	87.87	30.18	5.23	11.99	0.41	12
Andhra Pradesh	60.5	54.9	4.6	0.32	16	67.7	11.90	77.51	41.18	5.97	29.78	0.40	13
Odisha	63.1	62.1	5.1	0.52	8	73.5	16.48	78.43	26.30	5.35	4.90	0.37	14
Uttar Pradesh	56.3	37	4.46	0.07	19	69.7	23.80	84.6	128.65	5.13	15.02	0.35	15
Rajasthan	60.4	67.5	4.7	0.47	10	67.1	11.09	82.79	22.65	5.38	14.47	0.35	16
Jharkhand	53.6	47.2	4.7	0.21	17	67.6	26.12	82.55	74.89	4.83	2.77	0.27	17
Assam	63.3	68.4	5.07	0.58	5	73.2	15.64	63.72	-6.84	5.18	2.17	0.21	18
Bihar	47	41	4.7	0.09	18	63.8	35.74	76.33	86.17	4.47	-4.89	0.11	19

Table A6.2: Health

States ordered by 2011 rank	2001					2011							
	IMR 2001	MMR 2001-03	Life Expectancy at Birth 2001-05	Overall Score	Rank	IMR 2011	% Change 2001 to 2011	MMR 2010-12	% Change 2001 to 2011	Life Expectancy at Birth 2006-10	% Change 2001 to 2011	Overall Score	Rank
Kerala	11	110	73.9	1.00	1	12	9.09	66	-40.00	74.2	0.41	1.00	1
Maharashtra	45	149	66.9	0.46	4	25	-44.44	87	-41.61	69.9	4.48	0.57	2
Tamil Nadu	49	134	66	0.47	3	22	-55.10	90	-32.84	68.9	4.39	0.55	3
West Bengal	51	194	64.6	0.33	8	32	-37.25	117	-39.69	69	6.81	0.42	4
Punjab	52	178	69.2	0.44	5	30	-42.31	155	-12.92	69.3	0.14	0.38	5
Himachal Pradesh	43	178	70.5	0.49	2	38	-11.63	155	-12.92	70	-0.71	0.36	6
Gujarat	60	172	63.9	0.33	7	41	-31.67	122	-29.07	66.8	4.54	0.31	7
Karnataka	58	228	65.1	0.29	10	35	-39.66	144	-36.84	67.2	3.23	0.31	8
Andhra Pradesh	66	195	64.1	0.30	9	43	-34.85	110	-43.59	65.8	2.65	0.30	9
Uttarakhand	68	517	64	0.15	12	41	-39.71	162	-68.67	67.8	5.94	0.28	10
Haryana	66	162	65.9	0.38	6	44	-33.33	146	-9.88	67	1.67	0.27	11
Bihar	62	371	61.4	0.13	13	44	-29.03	219	-40.97	65.8	7.17	0.18	12
Jharkhand	60	371	63	0.17	11	39	-35.00	219	-40.97	65	3.17	0.17	13
Rajasthan	80	445	61.7	0.10	14	52	-35.00	255	-42.70	66.5	7.78	0.16	14
Chhattisgarh	76	379	60.3	0.10	15	48	-36.84	230	-39.31	62.5	3.65	0.07	15
Odisha	91	358	59.2	0.07	16	57	-37.36	235	-34.36	63	6.42	0.07	16
Madhya Pradesh	86	379	57.7	0.04	19	59	-31.40	230	-39.31	62.4	8.15	0.05	17
Uttar Pradesh	83	517	59.8	0.05	17	57	-31.33	292	-43.52	62.7	4.85	0.04	18
Assam	74	490	58.7	0.04	18	55	-25.68	328	-33.06	61.9	5.45	0.01	19

Table A6: Social Services

States ordered by 2011 actual rank	2001				2011					DAG ^{social} 2011				
	Overall Education Score	Overall Health Score	Composite Score	Rank	Overall Education Score	Overall Health Score	Composite Score	Rank	Rank change w.r.t. 2001	Overall Education Score	Overall Health Score	Composite Score	Rank	Rank change w.r.t. 2011 actual
Kerala	0.89	1.00	0.95	1	0.91	1.00	0.95	1	(0)	0.91	0.96	0.93	1	(0)
Tamil Nadu	0.62	0.47	0.55	4	0.76	0.55	0.66	2	(+2)	0.65	0.57	0.61	4	(-2)
Maharashtra	0.70	0.46	0.58	3	0.66	0.57	0.61	3	(0)	0.49	0.55	0.52	6	(-3)
Himachal Pradesh	0.73	0.49	0.61	2	0.85	0.36	0.60	4	(-2)	0.78	0.37	0.57	5	(-1)
Punjab	0.46	0.44	0.45	6	0.60	0.38	0.49	5	(+1)	0.53	0.50	0.51	7	(-2)
West Bengal	0.40	0.33	0.37	9	0.46	0.42	0.44	6	(+3)	0.46	0.76	0.61	3	(+3)
Karnataka	0.57	0.29	0.43	7	0.54	0.31	0.43	7	(0)	0.50	0.46	0.48	8	(-1)
Uttarakhand	0.44	0.15	0.29	14	0.56	0.28	0.42	8	(+6)	0.41	0.25	0.33	14	(-6)
Gujarat	0.57	0.33	0.45	5	0.50	0.31	0.40	9	(-4)	0.28	0.23	0.25	17	(-8)
Haryana	0.42	0.38	0.40	8	0.50	0.27	0.39	10	(-2)	0.30	0.15	0.22	19	(-9)
Andhra Pradesh	0.32	0.30	0.31	11	0.40	0.30	0.35	11	(0)	0.33	0.38	0.36	12	(-1)
Madhya Pradesh	0.44	0.04	0.24	16	0.47	0.05	0.26	12	(+4)	0.58	0.22	0.40	10	(+2)
Rajasthan	0.47	0.10	0.29	15	0.35	0.16	0.25	13	(+2)	0.39	0.28	0.34	13	(0)
Chhattisgarh	0.50	0.10	0.30	12	0.41	0.07	0.24	14	(-2)	0.45	0.21	0.33	15	(-1)
Odisha	0.52	0.07	0.30	13	0.37	0.07	0.22	15	(-2)	0.46	0.17	0.32	16	(-1)
Jharkhand	0.21	0.17	0.19	17	0.27	0.17	0.22	16	(+1)	0.30	0.47	0.39	11	(+5)
Uttar Pradesh	0.07	0.05	0.06	19	0.35	0.04	0.19	17	(+2)	0.59	0.28	0.44	9	(+8)
Bihar	0.09	0.13	0.11	18	0.11	0.18	0.15	18	(0)	0.41	0.86	0.64	2	(+16)
Assam	0.58	0.04	0.31	10	0.21	0.01	0.11	19	(-9)	0.36	0.08	0.22	18	(+1)

Table A7: Fiscal Performance

States ordered by 2011 actual rank	2001				2011							DAG ^{fiscal} 2011				
	Dev. Exp. % of Total Exp. 2001-02	Own tax revenue % of GSDP, 2001-02	Composite Score	Rank	Dev. Exp. of Total Exp. 2011-12	% Change 2001 to 2011	Own tax revenue % of GSDP, 2011-12	% Change 2001 to 2011	Composite Score	Rank	Rank change w.r.t. 2001	Dev. Exp. % of Total Exp. 2011-12	Own tax revenue % of GSDP, 2011-12	Composite Score	Rank	Rank change w.r.t. 2011 actual
Karnataka	67	8.18	0.94	1	73.4	9.55	10.13	23.84	0.97	1	(0)	7.88	3.08	0.97	1	(0)
Chhattisgarh	65	6.15	0.67	6	75.1	15.54	8.06	31.06	0.81	2	(+4)	9.58	1.01	0.81	2	(0)
Madhya Pradesh	65.6	5.1	0.56	9	68.3	4.12	8.65	69.61	0.74	3	(+6)	2.78	1.60	0.74	3	(0)
Andhra Pradesh	65.4	6.95	0.77	4	71	8.56	8.04	15.68	0.73	4	(0)	5.48	0.99	0.73	4	(0)
Tamil Nadu	58.1	8.08	0.76	5	63.4	9.12	8.95	10.77	0.67	5	(0)	-2.12	1.89	0.67	5	(0)
Gujarat	70.4	6.95	0.86	2	69.8	-0.85	7.44	7.05	0.65	6	(-4)	4.28	0.39	0.65	6	(0)
Haryana	64.8	7.55	0.82	3	71.8	10.80	6.76	-10.46	0.63	7	(-4)	6.28	-0.30	0.63	7	(0)
Maharashtra	55.6	7.24	0.62	7	68.4	23.02	7.31	0.97	0.62	8	(-1)	2.88	0.25	0.62	8	(0)
Odisha	52.1	4.87	0.28	16	69.7	33.78	6.21	27.52	0.54	9	(+7)	4.18	-0.85	0.54	9	(0)
Rajasthan	59.3	5.67	0.51	11	68.4	15.35	6.29	10.93	0.52	10	(+1)	2.88	-0.76	0.52	10	(0)
Uttar Pradesh	51.2	5.18	0.30	15	59.2	15.63	7.75	49.61	0.48	11	(+4)	-6.32	0.70	0.48	11	(0)
Uttarakhand	63.3	5.87	0.60	8	67.8	7.11	5.75	-2.04	0.46	12	(-4)	2.28	-1.30	0.46	12	(0)
Himachal Pradesh	62.3	5.11	0.50	12	63.2	1.44	6.32	23.68	0.43	13	(-1)	-2.32	-0.73	0.43	13	(0)
Assam	60.1	4	0.33	14	63.9	6.32	6.07	51.75	0.42	14	(0)	-1.62	-0.98	0.42	14	(0)
Kerala	53.3	7.03	0.55	10	52.2	-2.06	8.35	18.78	0.40	15	(-5)	-13.32	1.30	0.40	15	(0)
Bihar	46.7	3.81	0.06	19	66.9	43.25	5.1	33.86	0.39	16	(+3)	1.38	-1.95	0.39	16	(0)
Jharkhand	66.6	3.88	0.44	13	66.9	0.45	4.83	24.48	0.36	17	(-4)	1.38	-2.22	0.36	17	(0)
Punjab	43.4	6.04	0.26	17	48.8	12.44	7.35	21.69	0.25	18	(-1)	-16.72	0.30	0.25	18	(0)
West Bengal	53.2	4.17	0.22	18	56.7	6.58	4.63	11.03	0.15	19	(-1)	-8.82	-2.42	0.15	19	(0)

Table A8: Justice, Law & Order

States ordered by 2011 actual rank	2001				2011							DAG ^{lawor} 2011				
	Rate of Violent Crimes	Proportion of trials completed within 3 years (%)	Composite Score	Rank	Rate of Violent Crimes	% Change 2001 to 2011	Proportion of trials completed within 3 years (%)	% Change 2001 to 2011	Composite Score	Rank	Rank change w.r.t. 2001	Rate of Violent Crimes	Proportion of trials completed within 3 years (%)	Composite Score	Rank	Rank change w.r.t. 2011 actual
Gujarat	13.7	53	0.58	7	12.7	-7.30	70.22	32.49	0.92	1	(+6)	-11.02	1.35	0.80	5	(-4)
Andhra Pradesh	15.2	71.2	0.71	3	14.5	-4.61	75.5	6.04	0.89	2	(+1)	-9.22	12.69	0.90	2	(0)
Uttarakhand	19.4	47.3	0.35	15	14.8	-23.71	74.33	57.15	0.87	3	(+12)	-8.92	7.19	0.84	4	(-1)
Punjab	11.9	75.2	0.90	1	15.1	26.89	61.96	-17.61	0.75	4	(-3)	-8.62	-2.69	0.73	9	(-5)
Tamil Nadu	20.1	77.5	0.64	5	20	-0.50	74.47	-3.91	0.72	5	(0)	-3.72	6.33	0.77	6	(-1)
Chhattisgarh	20.3	81.3	0.68	4	19.9	-1.97	71.22	-12.40	0.69	6	(-2)	-3.82	15.54	0.86	3	(+3)
Madhya Pradesh	27	70	0.46	11	20.7	-23.33	72.07	2.96	0.69	7	(+4)	-3.02	20.38	0.90	1	(+6)
Rajasthan	36.6	56.9	0.25	16	15.6	-57.38	54.55	-4.13	0.66	8	(+8)	-8.12	-0.92	0.74	7	(+1)
Karnataka	23.4	67.6	0.49	10	28.3	20.94	75.34	11.45	0.61	9	(+1)	4.58	12.92	0.73	8	(+1)
Himachal Pradesh	20.7	72.7	0.58	6	17	-17.87	49.91	-31.35	0.58	10	(-4)	-6.72	-17.24	0.56	13	(-3)
Haryana	19.1	68.7	0.58	8	26.7	39.79	69.94	1.80	0.58	11	(-3)	2.98	0.41	0.62	10	(+1)
Kerala	36.3	70.9	0.40	13	42.7	17.63	79.14	11.62	0.54	12	(+1)	18.98	12.52	0.56	14	(-2)
West Bengal	11.3	57.7	0.76	2	24.7	118.58	48.47	-16.00	0.41	13	(-11)	0.98	-8.77	0.55	16	(-3)
Odisha	18.6	60	0.50	9	28.6	53.76	52.05	-13.25	0.40	14	(-5)	4.88	-2.24	0.57	12	(+2)
Jharkhand	27	41.1	0.17	17	25.2	-6.67	45.57	10.88	0.38	15	(+2)	1.48	-7.92	0.56	15	(0)
Maharashtra	18.6	46	0.35	14	23.5	26.34	41.73	-9.28	0.37	16	(-2)	-0.22	-27.69	0.37	18	(-2)
Uttar Pradesh	23	32.5	0.13	19	16.5	-28.26	22.17	-31.78	0.35	17	(+2)	-7.22	-24.57	0.49	17	(0)
Bihar	28.9	40	0.14	18	30	3.81	42.98	7.45	0.31	18	(0)	6.28	2.80	0.61	11	(+7)
Assam	33.3	74.7	0.45	12	54.2	62.76	50.71	-32.12	0.25	19	(-7)	30.48	-0.12	0.29	19	(0)

Table A9: Quality of Legislature

States ordered by 2011 actual rank	2001				2011							DAG ^{legis} 2011				
	% of MLA's with serious criminal charges pending, 2003-08	% of Women MLA's, 2003-08	Composite Score	Rank	% of MLA's with serious criminal charges pending, 2009-13	% Change 2001 to 2011	% of Women MLA's, 2009-13	% Change 2001 to 2011	Composite Score	Rank	Rank change w.r.t. 2001	% of MLA's with serious criminal charges pending, 2009-13	% of Women MLA's, 2009-13	Composite Score	Rank	Rank change w.r.t. 2011 actual
Assam	4	10.3	0.93	1	6.4	60.00	11.2	8.74	0.86	1	(0)	-13.86	0.29	0.80	3	(-2)
Punjab	4.3	6	0.70	2	6.8	58.14	12	100.00	0.86	2	(0)	-6.42	4.28	0.86	2	(0)
Rajasthan	9.2	6.1	0.42	10	9.5	3.26	14.1	131.15	0.78	3	(+7)	-8.39	4.26	0.90	1	(+2)
Chhattisgarh	6.6	6.6	0.54	5	8.9	34.85	11.1	68.18	0.69	4	(+1)	-8.89	1.31	0.76	4	(0)
Uttarakhand	10	5.7	0.38	13	7.1	-29.00	7.1	24.56	0.64	5	(+8)	-4.84	-0.04	0.62	7	(-2)
Andhra Pradesh	10.4	8.7	0.50	6	9.5	-8.65	10.2	17.24	0.62	6	(0)	-4.65	2.06	0.72	5	(+1)
Madhya Pradesh	15.4	8.4	0.41	11	19.6	27.27	13	54.76	0.52	7	(+4)	-0.21	2.29	0.65	6	(+1)
Himachal Pradesh	11.8	7.4	0.42	9	7.4	-37.29	4.4	-40.54	0.50	8	(+1)	-4.54	-2.74	0.49	11	(-3)
Bihar	29.2	10.3	0.43	8	32.6	11.64	14.5	40.78	0.50	9	(-1)	6.92	1.12	0.47	14	(-5)
Gujarat	12.1	8.8	0.47	7	13.7	13.22	8.8	0.00	0.43	10	(-3)	2.64	2.06	0.59	8	(+2)
Haryana	14.4	7.8	0.40	12	14.4	0.00	8.9	14.10	0.42	11	(+1)	3.67	2.31	0.58	9	(+2)
West Bengal	10.6	12	0.64	3	25.6	141.51	11.6	-3.33	0.41	12	(-9)	8.61	2.17	0.49	10	(+2)
Kerala	12.2	5	0.31	15	9.5	-22.13	5.1	2.00	0.41	13	(+2)	-2.71	-2.16	0.48	12	(+1)
Tamil Nadu	10.7	9.8	0.54	4	15.8	47.66	7.3	-25.51	0.33	14	(-10)	4.36	0.39	0.48	13	(+1)
Jharkhand	25	6.9	0.29	16	32.5	30.00	10.4	50.72	0.33	15	(+1)	13.60	0.10	0.30	16	(-1)
Uttar Pradesh	18.7	5.7	0.27	17	22.2	18.72	8.1	42.11	0.29	16	(+1)	-0.14	-3.76	0.36	15	(+1)
Odisha	16.6	7.6	0.37	14	21.2	27.71	4.8	-36.84	0.17	17	(-3)	2.71	-5.31	0.23	18	(-1)
Maharashtra	18.8	4.2	0.20	18	19.7	4.79	3.9	-7.14	0.15	18	(0)	8.91	-2.71	0.24	17	(+1)
Karnataka	8.3	0.5	0.20	19	17.6	112.05	2.3	360.00	0.10	19	(0)	3.25	-5.93	0.19	19	(0)

Table A10: Composite Governance Index

States ordered by 2011 actual rank	2001		2011			DAGI 2011		
	GPI 2001	Rank	GPI 2011	Rank	Rank change compared to 2001	DAGI 2011	Rank	Rank change compared to 2011 Actual
Gujarat	0.66	1	0.65	1	(0)	0.60	6	(-5)
Tamil Nadu	0.60	2	0.61	2	(0)	0.61	4	(-2)
Andhra Pradesh	0.53	6	0.59	3	(+3)	0.61	5	(-2)
Kerala	0.57	4	0.59	4	(0)	0.57	9	(-5)
Punjab	0.60	3	0.58	5	(-2)	0.58	8	(-3)
Karnataka	0.51	7	0.57	6	(+1)	0.62	3	(+3)
Uttarakhand	0.36	14	0.56	7	(+7)	0.50	12	(-5)
Chhattisgarh	0.48	10	0.54	8	(+2)	0.64	1	(+7)
Haryana	0.55	5	0.53	9	(-4)	0.50	11	(-2)
Maharashtra	0.50	8	0.50	10	(-2)	0.46	13	(-3)
Himachal Pradesh	0.50	9	0.50	11	(-2)	0.46	14	(-3)
Rajasthan	0.34	16	0.50	12	(+4)	0.58	7	(+5)
Madhya Pradesh	0.38	13	0.49	13	(0)	0.63	2	(+11)
Assam	0.43	12	0.35	14	(-2)	0.41	18	(-4)
West Bengal	0.44	11	0.34	15	(-4)	0.43	16	(-1)
Odisha	0.35	15	0.31	16	(-1)	0.42	17	(-1)
Jharkhand	0.27	17	0.30	17	(0)	0.41	19	(-2)
Bihar	0.16	19	0.29	18	(+1)	0.55	10	(+8)
Uttar Pradesh	0.19	18	0.29	19	(-1)	0.45	15	(+4)

Appendix 3: Comparison of Different State Performance Estimates

We have here compared the relative rankings for the set of nineteen states that were covered in our study. Though the different studies evaluate state performance by different criteria, the composition of best and worst performing states is remarkably robust. Thus, the top three best performers are the same in Mundle *et al.* 2015 and Debroy *et al.* 2013: Gujarat, Tamil Nadu and Andhra. The same three states appear in the group of six best performing states in three out of the five studies. Karnataka also appears in the best performing group in 3 studies (Table A11).

Table A11: Comparison of Different States' Performance Estimates

Six Best Performing States				
Public Service Delivery (Mundle <i>et al.</i> 2015)	Economic Freedom (Debroy <i>et al.</i> 2013)	Competitiveness (LKY 2015)	Ease of Doing Business (World Bank 2015)	Policy Effectiveness Index (Malhotra 2014)
Gujarat	Gujarat	Maharashtra	Gujarat	Punjab
Tamil Nadu	Tamil Nadu	Tamil Nadu	Andhra Pradesh	Himachal Pradesh
Andhra Pradesh	Andhra Pradesh	Karnataka	Jharkhand	Karnataka
Kerala	Haryana	Gujarat	Chhattisgarh	Haryana
Punjab	Himachal Pradesh	Andhra Pradesh	Madhya Pradesh	Maharashtra
Karnataka	Madhya Pradesh	Uttar Pradesh	Rajasthan	Tamil Nadu
Six Worst Performing States				
Public Service Delivery Mundle <i>et al.</i> 2015	Economic Freedom Debroy <i>et al.</i> 2013	Competitiveness LKY 2015	Ease of Doing Business World Bank 2015	Policy Effectiveness Index (Malhotra 2014)
Assam	Odisha	Himachal Pradesh	Punjab	Kerala
West Bengal	Uttar Pradesh	Bihar	Himachal Pradesh	West Bengal
Odisha	West Bengal	Assam	Kerala	Assam
Jharkhand	Jharkhand	Uttarakhand	Bihar	Madhya Pradesh (+Chhattisgarh)
Bihar	Assam	Chhattisgarh	Assam	Bihar (+Jharkhand)
Uttar Pradesh	Bihar	Jharkhand	Uttarakhand	Odisha

At the other end the same six states appear in the group of worst performing states in both Mundle *et al.* 2015 and Debroy *et al.* 2013: Assam and Bihar appear among the bottom six in all five studies. Bengal, Odisha, and Jharkhand appear in the bottom six in three out of the five studies. The main outlier among the studies is Jharkhand, which appears among the top six in the World Bank ranking but in the bottom six in all other rankings.

MORE IN THE SERIES

- Sudipto Mundle, N.R. Bhanumurthy, Surajit Das, 2010. "Fiscal Consolidation with High Growth: A Policy Simulation Model for India" No. 73 (Aug)
- Sudipto Mundle, M Govinda Rao, N.R. Bhanumurthy, 2011. "Stimulus, Recovery and Exit Policy G20 : Experience and Indian Strategy" No. 85 (Mar)

Sudipto Mundle is an Emeritus Professor and Member of the Board of Governors of the National Institute of Public Finance and Policy, New Delhi.
email: sudipto.mundle@gmail.com

Samik Chowdhury is Assistant Professor, Institute of Economic Growth, New Delhi.
email: samik@iegindia.org

Satadru Sikdar is Research Associate of the National Institute of Public Finance and Policy, New Delhi.
email: satadru.sikdar@nipfp.org.in

National Institute of Public Finance and Policy,
18/2, Satsang Vihar Marg,
Special Institutional Area (Near JNU),
New Delhi 110067
Tel. No. 26569303, 26569780, 26569784
Fax: 91-11-26852548
www.nipfp.org.in