

Government Legitimacy Index

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Introduction

As governments around the world work through the painstaking process of reform and increased citizen involvement, there is no shortage of research to measure their progress. This may come in form of measurements of corruption and transparency (e.g., Transparency International's Corruption Perception Index), measures of regulatory openness (the Heritage Foundation's Economic Freedom Index) or measures of key economic indicators (the Frasier Institute's version of the EFI). After years of alterations, the indices are largely successful, but their models suffer from inadequacies.

First, the data in the indices is somewhat subjective, especially in the case of corruption perception indices. Naturally, such underground transactions as bribery and political corruption cannot be measured by official statistics. This necessitates surveys of perceptions—as TI uses for its compilations¹—but also makes the results less practically quantifiable. Portions of the economic freedom indices also suffer from such issues. For instance, the Heritage Foundation's variables use a written criterion for each possible integer value²; criteria for such variables as the informal market cannot help but be qualitative in nature.

This is not to discount the data these indices provide. Rather, we simply see a subjective index rating to be much more difficult to act upon in future reforms. A government with a poor index rating has much work left in the process of reform, indeed, but exactly what needs to be done to move the nation's rating one point higher? This is a question which these broad-based indices are often not fully equipped to handle.

Second, the availability of data varies from the international to the state and local levels. International models, which include such variables as trade, are obviously incongruent with the needs of local-level bodies. They also rely on vast amounts of data on economic indices which are often poorly documented at the local level.

Forming the Criteria

To fill the need for a local-level measure of governing proper governance, we looked to a data set which can be found quite readily among most regional governments: the state budget. No government holds the resources to meet all of its constituents' demands. Thus, a properly-functioning government ought to spend its money with careful discretion.

Our index works on the assumption that such spending should be used to provide only the goods which the market cannot; that is, goods whose adequate public distribution suffers from market failure—"public" or "social" goods. In the case of private goods, empirical evidence appears to show that the markets have the potential to meet society's needs. Musgrave and Musgrave look at the types and quantities of information an "omniscient planner" would have to have at his disposal to anticipate necessary market allocations, only to conclude, "we must now recognize that such a planner does not exist. It is fortunate, therefore that the efficient solutions...can be obtained by the functioning of a competitive market system."³ Thus, we exclude the category from the domain of the state.

Which goods suffer from market failure? The two most popular criteria to define these goods are *nonrivalry* and *nonexcludability*, which happen to be the first and second criteria

¹ Transparency International. 2003. Frequently asked Questions about the TI Corruption Perceptions Index (CPI) 2003. Accessed 4 December 2004 at http://www.transparency.org/cpi/2003/cpi2003_faq.en.html

² Heritage Foundation. 2004. *2004 Index of Economic Freedom*, 49. Washington, DC: Heritage Foundation.

³ Musgrave, Richard A., and Peggy B. Musgrave 1989. *Public Finance in Theory and Practice*, 64. Singapore: McGraw-Hill.

for the index. If a good is nonrival, then an individual's use of the goods does not prevent others from consuming it⁴. A unit of a rival good, such as bread, can be given to one individual alone. This enables an efficient pricing system of the good in that one can effectively calculate the (marginal) price of providing the extra good—in this case, the next loaf of bread. A nonrival good, such as a common city street, cannot be efficiently priced since the cost of provision for each user is nearly incalculable⁵. Without the ability to price a good efficiently, the market will be unable to provide the good to society's requirements.

The second criterion is that of nonexcludability. In the above example of bread, a producer can exclude an individual from owning the aforementioned loaf of bread should he fail to meet the producer's terms; the bread is thus excludable. This again allows the market's natural pricing mechanisms to allocate the resource adequately. In the case of a nonexcludable good, such as police protection⁶, the costs of excluding an individual from the good are prohibitive⁷.

Where criteria I and II are applied, and the good is found to be both nonrival and nonexcludable, we can safely conclude that the good is a *pure public good*, and that we can justify a government's spending on such a good in our model. This includes commonly-deemed public goods like transport infrastructure and the aforementioned police protection. However, we are still left with a host of other goods which are likely not provided by the markets in adequate quantities.

To account for these goods lying between the public and private categories, commonly known as "mixed" or "merit" goods, most economic models simply place the goods into a third criterion. Doing so in an economic governance index would require a somewhat arbitrary weighting system for the total of this third category—something we earlier noted was a detriment to the goals of this index.

Instead, we added a third criterion to divide this last group. If a good provides social considerable benefits (i.e., positive external benefits) which outweigh the cost of provision, but which are not efficiently included in a market pricing system, then we shift the good into the "mixed-public" category.

Public health efforts are examples of mixed-public goods. An immunization against a communicable and/or debilitating disease can be denied to an individual (excludability) and one's use of a syringe of vaccine prevents another from using that unit of vaccine (rivalry). However, the prevention of the individual's future dependence on the state after a debilitating illness and the economic benefits of preventing the spread of the disease from other productive individuals outweighs the cost of providing or at least subsidizing the service. Thus, we added spending to public health efforts into the category of "public goods spending."

⁴ Musgrave, 43.

⁵ This point may be arguable in light of such public financing innovations as congestion taxes, but for the average municipality—especially the average Indian municipality—this is not yet a *practical* efficient pricing system.

⁶ Again, the point is arguable, but efficiency and social welfare concerns have brought the consensus to this conclusion.

⁷ Musgrave, 44.

As we moved on to the building of the index, we established the final definition of a public good as one:

1. which can be consumed by one person without diminishing the amount available for consumption by another person (non-rivalry);
2. which is available at zero or negligible marginal cost to a large or unlimited number of consumers (or put another way, it is extremely difficult to exclude people from benefiting from the good once it is produced) (non-exclusiveness); and
3. which provides considerable social benefits (positive externalities), that outweigh the private cost of provision

Creating the Index

The actual calculation of the index was relatively less complex. In the prototype we created, which examined the Demands for Grants for the Indian National Capital Territory of Delhi, we simply broke the given spending figures by department into the public and private categories. In the case of mixed areas like health and education, we broke the figures down further into scheme groupings which best met our criteria. The index rating is actually the public good expenditure of that particular budget as a percentage of total spending.

We used two sets of figures in this model: the first-edition budget numbers from a given year and the actual spending figures for that year (published after a two-year lag). This enabled us to cross-check the data for inaccuracies in the data as well as giving us two different perspectives from which to view the index. The budgeted numbers give the intended course of action for a particular fiscal year, while the actual figures show what happens when these thoughts become deeds. As we will see later, an examination of the two sets gives us some interesting observations.

Significant Findings

NCT of Delhi: Spending by Goods Typology						
<i>Spending in Rs. 1000s</i>						
	BUDGETED NUMBERS			ACTUAL NUMBERS		
	Public	Private	Debt, Loans	Public	Private	Debt, Loans
2003-04	63,317,896	26,041,044	15,790,000			
	70.858%					
2002-03	58,388,918	24,148,679	12,442,700			
	70.742%					
2001-02	52,793,347	20,143,587	9,793,400	48,255,176	33,526,865	11,018,120
	72.382%			59.005%		
2000-01	46,875,833	19,381,367	7,402,000	45,271,799	23,901,250	9,118,353
	70.748%			65.447%		
1999-00	47,010,477	14,690,799	5,450,000	48,194,347	18,927,868	9,793,400
	76.190%			71.801%		
1998-99	41,748,383	13,492,233	4,371,800	43,234,430	16,774,831	7,402,000
	75.576%			72.046%		
1997-98				36,774,157	9,206,016	3,157,854
				79.978%		

NCT of Delhi: Adjusted Spending by Goods Typology*						
<i>Spending in Rs. 1000s</i>						
	BUDGETED NUMBERS			ACTUAL NUMBERS		
	Public	Private	Debt, Loans	Public	Private	Debt, Loans
2003-04	63,317,896	26,041,044	15,790,000			
	70.858%					
2002-03	58,388,918	24,148,679	12,442,700			
	70.742%					
2001-02 Adjusted	52,793,347	20,143,587	9,793,400	56,855,176	24,926,865	11,018,120
	72.382%			69.520%		
2000-01	46,875,833	19,381,367	7,402,000	45,271,799	23,901,250	9,118,353
	70.748%			65.447%		
1999-00	47,010,477	14,690,799	5,450,000	48,194,347	18,927,868	9,793,400
	76.190%			71.801%		
1998-99	41,748,383	13,492,233	4,371,800	43,234,430	16,774,831	7,402,000
	75.576%			72.046%		
1997-98				36,774,157	9,206,016	3,157,854
				79.978%		

* - Revised for 2001-02 power sector reforms

As we can see, the numbers are higher than one may expect. With numerous local legislators across the country promising spoils from government coffers, it seems quite unlikely that two out of every three Rupees budgeted (and closer to three out of five in actual spending) goes towards a public good. We can account for this discrepancy in two ways.

First, the state of Delhi is a relatively urban state. This means that the demands of urban citizens, e.g., infrastructure and direct accountability, take a higher precedence. The budget figures for urban development, public works, and transport largely confirm this view. We present the hypothesis here that in studies of more rural states, populist agricultural measures—solid private goods in our study—will come to the fore.

Second, our study is admittedly limited to distributing figures on a departmental-level, and occasionally scheme-level, basis for reasons of efficiency. There are undoubtedly line items which are either unclear or overlooked in nature which may skew the figures. We are confident, however, that the figures give the best overall examination based upon our criteria.

Delhi State Spending Index: Budgeted v. Actual			
	BUDGETED	ACTUAL	Differential
2003-04	70.858%		
2002-03	70.742%		
2001-02	72.382%	59.005%	13.378%
2000-01	70.748%	65.447%	5.301%
1999-00	76.190%	71.801%	4.390%
1998-99	75.576%	72.046%	3.529%
1997-98		79.978%	

Delhi State Spending Index: Budgeted v. Actual*			
	BUDGETED	ACTUAL	Differential
2003-04	70.858%		
2002-03	70.742%		
2001-02 adj	72.382%	69.520%	2.862%
2000-01	70.748%	65.447%	5.301%
1999-00	76.190%	71.801%	4.390%
1998-99	75.576%	72.046%	3.529%
1997-98		79.978%	

* - Adjusted for Power Sector Reforms

The Budgetary Differential

In addition to the core question, we observed an interesting gap between the budgeted and actual spending ratings: they remain somewhat steady at between three and five percentage points. Our sample size is admittedly small, and 2001-'02 numbers are not quite in line. However, when we account for budgetary issues in the power department, even those figures match up quite evenly. Furthermore, the increase in private goods distributed accounts for up to 75% of the differential. Under the present circumstances, we will not attempt a definitive statement on the issue. Suffice it to say, however, that a further study on this differential as a measure of governance in its own right may be a reasonable option.

The Breakdown: "Pure" Goods

In the case of industries, agricultural support and marketing, financial services (e.g., housing loans and small savings), recreation, utilities (including water, power, and sanitation services), and employment issues, we see a significant role for the private sector. We answered 'no' to each of these items when provided with criteria I and II, and there were no significant externalities under criterion III without some use of tortured logic⁸. Thus, we listed them all as pure private goods with no scheme-wise breakdown.

In the case of the Legislative Assembly, its auxiliary bodies (e.g., Secretariat, Council of Ministers, and informative departments), and items for revenue and pensions, we found these departments to be pure public goods by criteria I and II. One cannot exclude another from the proper functioning of government—which is ultimately the goal of funding these institutions—and the marginal cost of provision to the next individual is virtually zero. Funding for the administration of departments whose schemes are listed as private goods in

⁸ Block (1983) notes that if one pushes the question enough, one can find *some* externality to justify any government policy. The question here, albeit one with a subjective answer, is whether or not the externalities are *significant*.

whole or in part is still listed under public goods. The case is similar for law enforcement and court-related units.

Consumer safety was left to the state in our model. Schemes for drug control, standardization of weights and measures, and the prevention of food adulteration were included in the public sphere.

We tread a fine line in defining infrastructure spending as a pure public good. While expenditures on roads, irrigation, and flood control meet criteria I and II, we have to note that this was one of the first places in which we were forced to divide the group. Energy infrastructure does *not* qualify for criteria I or II. Water pipes cannot be efficiently exclusive, and our analysis of the externalities justifies some expenditure on such development; water *services* fall quite definitely under the private category. Some slum development is acceptable by the very fact that such development would be underprovided in the market, in addition to the public health concerns we will address later.

The Breakdown: “Merit” Goods

The lines drawn through infrastructure activities foreshadowed the work demanded in merit goods, which fall between the “pure” categories. We will look a bit more closely at the breakdowns here in education, the humanities, medicine and health, transport, social welfare, and the environment.

Education

Countless studies have looked into the positive externalities to society from expenditure on education—especially in the primary stages. African Economists from the University of Oxford Sharada Weir and John Knight, found massive positive benefits for the health and productivity of agricultural communities⁹ in a study of effects on Ethiopian agriculture—a particularly appealing result for an agricultural nation like India. The Dallas Federal Reserve Bank’s Lori Taylor, while being skeptical of the popularly held notions of education externalities, does note and cites studies supporting the existence of at least a couple secondary benefits¹⁰. First, higher tax revenues resulting from higher productivity allows for lower tax brackets, which in turn carry a lower societal deadweight loss. Second, human capital is inversely related to the dependence on social safety nets in the industrialized world. In India’s case, where such an extensive safety net does not exist, it implies a lower propensity for the unskilled to fall into grinding poverty.

There are several more general externalities as well. Taylor also cites Robert Lucas, who found that human capital explains much of the capital inflows gap between India and the United States¹¹. Economist Norman Gemmill points to education having a significant effect on shifting fertility rates to manageable levels¹². Finally, Milton Friedman argues that “a

⁹ Weir, Sharada and John Knight. 2000. Education Externalities in Rural Ethiopia: Evidence from Average and Stochastic Frontier Production Functions, 16. Oxford: Centre for the Study of African Economics. CSAE Working Papers, 2000.4.

¹⁰ Taylor, Lori L. 1999. Government’s Role in Primary and Secondary Education. *Economic Review*, Q1, 15-24. Dallas: Federal Reserve Bank of Dallas.

¹¹ Lucas, Robert E., Jr. Why Doesn’t Capital Flow from Rich to Poor Countries? *The American Economic Review*, 80, 2, 92-96. May 1990.

¹² Gemmill, Norman. 1997. Externalities to Higher Education: a Review of the New Growth Literature. *Report of the National Committee of Inquiry into Higher Education*, Report 8. London: National Committee of Inquiry into Higher Education.

stable democratic society is impossible without minimum degree of literacy and knowledge on the part of most citizens.”¹³

Given these benefits to grade school education, our index supports the idea of assistance to primary and secondary education (i.e., through class XII). Tertiary education’s lower marginal returns and its relatively lower urgency in a nation well short of full functional literacy lead us to place such expenditures in the private category. Since there are, in fact, some sizeable personal returns to tertiary education, the private sector may do a better job of allocating these educational resources.

In practice, this means that we have given public status for most Department of Education activities. Educational television programming, recreational activities like sports and arts, and industrial training programs (which have largely private benefits) are all separated from the Education Dept. total. Similarly, the various technical, medical, and arts colleges in Delhi are also included in the private category.

The Humanities

The externalities resulting from arts education are uncertain at best. Despite educational funding being in a perennially strained state, arts hasn’t been mentioned as a high priority issue (as opposed to, say, maths and sciences). Thus, we place arts education (and, on a similar vein, language education) in the private sector based on its poor showing in criterion III.

On the other hand, the data associated with archives and archeological data are nonrival and non excludable, and so have been placed in the public sphere. The question of “pride in history” may have surfaced in criterion III, but this is a moot point.

Medicine

The externalities of healthcare have been widely studied in the industrialized world, where services and facilities are plentiful. The issues in the developing world are quite different, given the administrative and social situation that surrounds the question of healthcare.

Two World Bank social funds impact evaluations—one studying public funds spent on medicine in Bolivia¹⁴ and one of the same in Nicaragua¹⁵—give high marks to public health facilities. The externalities from immunization and vaccination drives are well-documented, especially as manifested in better economic conditions in areas with lower infant mortality and lower preventable disease rates. Facility utilization, and thus program efficacy, was maximized when public health facilities were coupled with effective public information programs. In response to these positive externalities, we chose to classify public health spending inside the Health Services Department and out as public goods.

Another World Bank study gives a different verdict to the issue of public provision of primary healthcare¹⁶. Our initial inclination was to give it public good status. However, Filmer, et al., say that even in the face of positive externalities from health, the direct supply-side

¹³ Friedman, Milton, and Rose Friedman. 1990. *Free to Choose: A Personal Statement*. San Diego: Harcourt Brace. Cited in Taylor, 16.

¹⁴ Newman, John, et al. 2002. An Impact of Education, Health, and Water Supply Investments by the Bolivian Social Investment Fund. *The World Bank Economic Review*, 16, 2, 241-274.

¹⁵ Pradhan, Menno, and Laura B. Rawlings. 2002. The Impact and Targeting of Social Infrastructure Investments: Lessons from the Nicaraguan Social Fund. *The World Bank Economic Review*, 16, 2, 241-274.

¹⁶ Filmer, Deon, et al. Weak Links in the Chain II: A Prescription for Health Policy in Poor Countries. *The World Bank Research Observer*, 17, 2, 47-66.

involvement generally does not benefit the sector of the population for whom the market underproduces health services: the poorest quintile (or two, using some analyses). Rani Das Gupta's own recent working paper concurs, saying that the Indian healthcare sector specifically suffers from a poor ability to allocate resources¹⁷. Both studies say that improving incentives to utilize primary health facilities, like financial empowerment, were superior uses of resources. With Delhi primary health funds going towards the aforementioned supply-side factors, we finally chose to lump the primary health funds, as well as general hospital subsidies, into the private category.

Secondary healthcare was labeled private from an early date for much the same reason as tertiary education. Most funds homeopathic and Ayurvedic medicine programs went to research and education and fell into the private sector.

Transport

As mentioned earlier, roadways and other transport infrastructure projects met criteria I and II, and were swiftly included into the public goods category. The questionable areas were in public transport, where we saw excludability and rivalry, but where fears of underprovision loomed. Intracity bus terminals were included as public goods for two primary reasons. First, the classic externalities from congestion and pollution in the case of drivers who switched to public transport were considered. Second, we considered the idea of provision of transport as a social welfare service for those with no other means of transport.

A World Bank research paper looks at intraurban bus services in the city of Santiago, Chile, and found a step back towards regulation after the eager deregulation in the 1980s and 1990s. Estache and Gómez-Lobo note that in a developing country, the needs of the citizenry with respect to public transport can be vastly different: while 37% of Zurich's citizenry travel is handled by public transport, 61% of Santiago's travel depends on the city's bus services. Again, while the industrialized world may experience increased pollution or congestion from a market underprovision of public transport, the developed world's urban citizenry will face economic hardship. The authors recommend a public regulatory oversight, but concede that some public capacity may be necessary to prevent the aforementioned underprovision¹⁸.

Intracity transport has been left in the private realm. Congestion and pollution are not as severe outside of major cities, and thus do not warrant the types of measures proposed here, and underprovision of intercity transportation is not the social issue which intracity transport is. In the final breakdown, we have filtered intercity expenses, as in the realm of ISBTs, out of the main transport items.

Social Welfare

Our paradigm in the social welfare area is more progressive, if a bit Rawlsian, than the rest of our ratings system. In judging criterion III, we looked at the economic ability of an individual to lift himself from his position.

Impoverished children, widows from undereducated or impoverished families, and the elderly were the prime beneficiaries of schemes we deemed as public goods; the ability for these individuals to rise from their circumstances is heavily impaired. This led us to add such schemes as elderly homes, children's nutrition programs, and widow's pension funds to

¹⁷ Gupta, Monica, and Manju Rani. 2004. India's Public Health System: How Well Does It Function at the National Level? World Bank Policy Research Working Paper Series, 3447. November 2004.

¹⁸ Estache, Antonio, and Andrés Gómez-Lobo. The Limits to Competition in Urban Bus Services in Developing Countries. World Bank Policy Research Working Paper Series, 3447. February 2004.

the public list. In fact, we allowed the majority of funds in the Social Welfare Department to the public list.

However, we drew the line at able-bodied individuals falling between the two age groups listed above. We recognized that a basic necessity like food was a prerequisite of economic empowerment and thus allowed such schemes under the Social Welfare and Civil Supplies Departments. Upon the application of criteria I and II, housing schemes proved both rival and excludable, and are thus better served by market forces. It is our editorial opinion that underprovision of housing is not a result of market failures.

Energy & the Environment

The actual provision of power and environmental services failed criteria I and II and fall in the private sphere; the *regulation* of power and the environment may fall within the realm of the state. The overall pattern gives the ratings a boost from indirect spending, but a penalty to direct involvement.

Environmental regulatory bodies and related spending are given public status. Active environmental efforts, such as the formation of eco-clubs, public awareness drives, and pollution control minutiae, are listed as private.

Energy deserves a special note. The Power Department (beginning in FY1998-99) and miscellaneous power line items were included as private goods. Together, they comprised some 13% of budget outlays by the budget of FY 2002-03. A massive power system reform in FY 2001-'02 added some Rs. 8 billion in off-budget expenditures to the bottom line. When we adjust for this, the aforementioned patterns hold.

Sociology professor Erling Berge merges four primary types of land use with the goods typology to come up with a division of land uses based on their provision¹⁹. Berge tells us that agricultural goods largely meet the criteria for private goods²⁰, while greenbelts and wilderness (which fall under the realm of the Forestry Department) are "mostly public goods." It is in this vein that we place the Forestry Department in the public category.

Conclusion

At this project's end, we appear to have a stable measure of fiscal governance. The resulting list is a palatable compromise between economic realities and socio-political concerns. Furthermore, the list can be extrapolated to different levels of government and different regions without excessive refinement.

After this model is applied to other states, we can more accurately gauge the reliability of the ratings and smooth out any remaining questions in merit goods division. Two key areas to look for in future applications are the adjustments needed to smoothly shift from one state's budget to the next, and the analysis of the budget number differential for other states.

¹⁹ Berge, Erling. 2003. Environmental Protection in the Theory of Commons, 7. Presented at the "Trans-nationalizing the commons and the politics of civil society", Chiang Mai, Thailand, 11-14 July 2003.

²⁰ Thus, we included agricultural programs in their entirety in the private sphere.