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Expenditure Governance and IT: Assessing India's Situation and Potential

NIRVIKAR SINGH

Introduction

Given the acknowledged poor quality and effectiveness of much of the government expenditure in India, it is important to analyze ways of improving effectiveness through better monitoring of expenditures and outcomes. Improvements in outcomes include better targeting of redistributive measures and more efficient spending on productive projects. Improvements in information and monitoring are an essential component of better accountability, which in turn can provide incentives for better expenditure quality. Information technology provides an important potential tool for achieving these goals.

This paper examines some of the problems of expenditure quality and budgetary management in India. It then assesses accountability mechanisms in India and discusses a conceptual framework for improvements in accountability, including institutional reform and the role of improved information or transparency. Finally, it analyzes the role of information technology, drawing on other countries' experiences to derive guidance for future IT applications in India. The use of IT plays a dual role in increasing expenditure efficiency and effectiveness. First, its use can improve internal government processes. Second, transparency, accountability, and responsiveness can be enhanced by using IT to alter the citizen-government interface. The two roles are connected and are best integrated for benefits to be realized. The conclusion offers a summary as well as a perspective on drawing lessons for India from international experience.

Expenditure Quality and Budgetary Management

Expenditure quality, as measured by public service delivery, is poor at all levels of government in India. The problem is more acute at the

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subnational level because day-to-day and basic services—such as health care, education, water and sanitation—are more the responsibility of subnational tiers, while at the same time these tiers of government have been disadvantaged with respect to fiscal and administrative capacity. Increases in patronage politics and rent-seeking over time have also resulted in a decline in the quality of public expenditure. Arguably, those with the greatest distance (social, political, or geographical) from the locus of decision-making suffer the most, which suggests that reduction of this distance may be a beneficial direction of reform.

There are two kinds of evidence for the poor quality of public expenditure and service delivery, including tangible public goods and services, as well as various forms of social insurance. One is measurement of performance and outcomes, such as educational attainment, either directly, or as inferred from the response of citizens who exit from the system by use of private alternatives, signaling poor quality of public options. A second is evidence based on inputs and processes of government, such as overall spending patterns and teacher absenteeism.

Measures of state level human development performance provide a first-level indicator of inefficiency, as measured by outcomes, since better-performing states provide a standard against which others can be judged. A Human Development Index (HDI) constructed by the Planning Commission incorporates eight different dimensions of development performance: per capita expenditure, headcount poverty rate, literacy rate, a formal education enrollment index, infant mortality rate, life expectancy, access to safe water, and access to housing constructed with relatively permanent materials. The variation in the HDI across states is not increasing over time, but neither is it the case that gaps are narrowing.¹ Long run district-level analyses² also show considerable variation in the nature and levels of public goods provided. The main conclusions from these studies are about political economy and the impact of initial conditions, but the variation in outcomes, beyond what might be explainable by income differences, is also a possible indicator of inefficiency in service delivery.

Another outcome indicator of inefficiency is the performance of state-level public enterprises, with the State Electricity Boards standing out in this respect. Their large financial losses, while partly the result of poor pricing policies, are strongly indicative of inefficient operations.

Finally, lack of good targeting of expenditures, so they do not focus on the intended beneficiaries, is another indicator of inefficient service delivery. For example, a World Bank study concludes that, "The burden of weak administration falls particularly on the poor, who suffer from skewed government spending, limited access to services, and employee indifference."³

An indirect indicator of inefficiency in public service outcomes is private or self-provision.⁴ This may be natural and acceptable if there are income effects (e.g., private vs. public transportation) associated with quality of service. Thus, the rich may always choose this route for many quasi-public goods. However, the Indian case is one where the middle class and even the poor rely on costly methods⁵ of private provision, because public service delivery is so poor in quality. Household-level generation and storage of electric power and private purchase of water from tankers are two pervasive examples in India. The latter, in particular is often the only route available to the poor for household water supplies.

Second, there are inefficiencies in input and processes. While outcomes are what ultimately matter, input measurement can be a valuable tool for identifying the locus of problems with respect to quality of outcomes and, hence, pinpoint solutions. Studies of the functioning of government in India suggest pervasive examples of inefficiency in processes of public service delivery, including the functioning of core administrations, plan and ministry projects, and public sector enterprises. The evidence indicates that for many of the states, subsidies⁶ and salaries are taking a larger and larger share of expenditure, though the states' performance in this respect is not uniform—some state administrations are more efficient than others.⁷ There is also evidence that public sector enterprises are grossly over-staffed. While public sector employees currently enjoy monetary rents or leisure, at least some of the leisure in such inefficient organizations is involuntary and results in frustration rather than any utility gain. Areas in which administration can be improved include budgeting procedures, accounting and auditing methods, personnel policies and tax collection, among others.⁸

The low efficiency of delivery of health and education in rural areas because of absenteeism and low effort by government employees is also well documented.⁹ There is evidence that institutional innovations that correct frontline provider incentives or modify the conditions of

provision can improve efficiency.¹⁰ There is also evidence that decentralization of control over staff can improve incentives if implemented effectively, as in the Madhya Pradesh Education Guarantee Scheme.¹¹ Governmental decentralization in this manner is not exclusive of community, private, or NGO participation.

With respect to internal processes, India's formal institutions of budgetary management are not immediately obvious culprits in poor outcomes. Budgetary procedures for the national and state level legislatures are spelled out in the constitution. Budgeting is the responsibility of national and state-level finance ministries. Bureaucratic support and monitoring are also provided through specialized cadres of the civil service. In particular, members of the Indian Civil Accounts Service (ICAS), under the Expenditure Secretary of the central Finance Ministry, deal with maintaining central government accounts, and there are similar state level cadres. The Indian Audit and Accounts Service (IAAS), under the independent Comptroller and Auditor General of India (CAGI), handles auditing of government accounts at the national and state levels. At the national level, accounting procedures are relatively strong, and the system is reasonably good at detecting certain types of malfeasance. However, various kinds of corruption do flourish and poor use of funds is not well-detected under the current system. In some cases, recommendations of the CAGI for procedural improvements have been ignored or buried.

Problems of poor budgeting and expenditure practice are more significant at the level of the states. Some states are much better than others in terms of their governance traditions, but all of them came under fiscal stress in the 1990s, and budget practices deteriorated in an environment of heightened political competition, greater uncertainty, relaxation of hierarchical controls, and new complexities of governance. Shortcomings in budgetary and expenditure practices include lack of multi-year budgeting, unrealistic projections, poor tracking of spending and outcomes, unclear assignment of responsibilities among different state government departments and agencies, lack of transparency, and inappropriate degrees of control—too loose in some parts of the process, too tight in others.¹² The intergovernmental transfer system contributes to the problem of budgetary management at the state level. It involves multiple channels of funding, some ad hoc and discretionary, and other channels are implicit (i.e., subsidized loans and others that will very probably be forgiven), and has aspects that respond to states'

projected revenue gaps. These features encourage unrealistic budgeting to try and enhance transfers and make clear budgeting and proper tracking of spending and outcomes difficult. In particular, “plan transfers,” and central ministry transfers for numerous and varied projects and programs can include conditionalities that distort state-level decision-making and cut across functional departmental authorities. The complexity and poor implementation of these “schemes” also undercuts any fulfillment of national-level objectives such as correcting for externalities or spillovers.

The budgetary autonomy of local, particularly rural, governments is much less than that of the states. The assignment of revenue sources is very limited. Funds that flow from state governments come with strings attached; they are disbursed in an uneven and uncertain manner, and sometimes fail to come through when promised. Some of these budgetary management problems flow from lack of willingness on the part of state government actors, and others from lack of capacity (both fiscal and human) on the part of state government bureaucracies.¹³ A further problem has been the lack of capacity at the local level. The depth of this problem (compounded by lack of positive efforts by state governments) is illustrated by the fact that grants made by the Eleventh Finance Commission to improve the databases and accounts of local bodies (urban and rural) remained 70 percent unutilized when the next commission examined the situation almost five years later.¹⁴

Accountability Mechanisms

In the context of governance, accountability means that members and agents of government, i.e., politicians, employees, and contractors are ultimately answerable to the citizens who provide the funds for their functioning, through taxes, fees, and loans. Therefore, persistently poor public expenditure quality and inefficient delivery of public services, beyond what can be attributed to unavoidable constraints placed by financial and human resource limitations, must be traceable to weak accountability mechanisms operating for individuals (politicians and government employees) and for organizations (ministries and various public sector enterprises). Weak accountability also is central to the problem of corruption, which contributes to poor quality of public services.

Accountability is implemented through the provision of appropriate incentives for performance. For most of government, incentives

and accountability are quite indirect, operating through organizational hierarchies. Only politicians are directly answerable to citizens through elections,¹⁵ and these are based on aggregate and incomplete assessments by citizens of politicians' performance. Day-to-day accountability of politicians works through mechanisms such as the answerability of the executive to the legislature, the oversight of the judiciary, and general checks and balances within government. A federal structure adds the electoral dimension of accountability to subnational governments, but this can complicate the task of citizens in trying to assess performance.

To elucidate, one can categorize two fundamental types of accountability in governance: (1) that of elected officials to citizens and (2) that of other government employees to elected officials.¹⁶ The first can also be termed accountability through what Hirschman in 1970 termed "voice," political accountability, or external accountability.¹⁷ An additional mechanism that provides external accountability is what Hirschman termed "exit." Citizens may exit in two ways, either by shifting jurisdictions, or by going to the private sector for fulfilling wants that the government fails to provide adequately or effectively. In either case, the key enabler of exit is competition, between jurisdictions or between public and private provision.

The second type of accountability is more complex, since there can be vertical and horizontal chains of accountability within government as a whole, and within specific parts of government. Thus, this type of accountability includes "hierarchy" as a mechanism as well as checks and balances.¹⁸ One can also term this as "internal" accountability, broadening that usage to include checks and balances.¹⁹

External Accountability

How well has political accountability worked in India? Some theoretical models of the democratic political process predict efficient responsiveness to voters' preferences, driven by politicians' preferences for re-election.²⁰ However, the possibility of interest groups can lead to lobbying or political pressure by well-endowed groups and to biased outcomes. National and state level politics in India do seem to have been characterized by such "rent-seeking," evidenced in various subsidies, overstaffing of government and government-owned enterprises, and diversion of expenditures or distortion of expenditure plans. It has also been argued that rent-seeking increased over time.

Chhibber explains the deepening of rent-seeking—including the persistence of the laws that make it possible—in terms of the intensifying needs of political competition. Powers of patronage for electoral support became more important in the 1970s and 1980s, overwhelming concerns about the inefficiency of the system. Chhibber provides empirical evidence that central loans, food assistance and subsidies to the states were all linked to electoral considerations.²¹ Rao and Singh, Kapur and Mehta, and others have argued that large payments were directed by the center in the late 1990s to the states of origin (Andhra Pradesh and Punjab) of regional parties that were key coalition partners.²² Here, the political support mechanism was direct, the objective being to build a post-election majority coalition in parliament, whereas in Chhibber's analysis it derived from the pre-election need to mobilize state-level political resources for national elections.

State level policies with respect to expenditure allocations have definitely been influenced by intra-state competition for political power.²³ Comparing national and state elections, Khemani finds evidence that voters reward (punish) governments for good (poor) economic performance more vigilantly at the state than the national level.²⁴ This result is consistent with survey evidence that indicates voters look primarily to state governments for provision of many important public goods.²⁵ At the same time, the central government tries to influence state-level policy choices, and indirectly, voters, through funds transfers to states.²⁶ Other studies at the subnational level indicate the limits of pure electoral competition in determining outcomes: both social conditions and political institutions such as reservations for scheduled castes and tribes, affect the allocation of public goods.²⁷

Much recent work on electoral accountability has focused at the local level, where the measurement of local public good delivery can also potentially be more precise, through geographically concentrated survey data. Recently instituted regular direct local elections have the potential to increase the accountability of local government by providing more direct and refined incentives to satisfy constituents' wants. The counter argument is that interest groups or powerful individuals will instead have more influence at the local level. In fact, concerns about elite domination of elected rural local bodies, have existed since independence. There is evidence that local electoral participation is beginning to influence outcomes through increased electoral accountability. Chaudhuri finds that devolution of budgetary authority to

elected rural local governments in Kerala did improve perceived delivery of roads, housing and child development services.²⁸ Besley, Pande, and Rao and Besley, Pande, Rahman, and Rao for southern India, and Bardhan and Mookherjee for West Bengal in eastern India also find evidence that electoral competition affects the allocation of local public goods and services.²⁹ All these studies find evidence that initial social conditions such as education and caste, as well as the precise structure of political institutions matter for outcomes.³⁰ External accountability through exit, or “voting with one’s feet,” has been quite limited in India. Before the economic reforms of the 1990s, state governments were severely constrained in terms of their economic policies.³¹ They could choose tax and expenditure policies according to their constitutional assignments and within the further constraints imposed by central government policies that emphasized central planning and centralized direction of the allocation of resources. Since private and public investment was largely directed by the central government, there was a minimal role for state governments to compete with each other for private sector capital. Economic reforms have given state governments more freedom to make policies independently. This has increased capital mobility within the country, but not necessarily the movement of constituents in response to the quality of public goods.

Internal Accountability

India’s multiple layers of government create somewhat long chains of internal accountability. Hierarchical control has been important across different levels of government, and not just within bureaucracies at each tier. Political parties have also served to enforce hierarchical control outside the formal structures of government. This was particularly true for some years after independence, where a strong central party leadership was able to directly enforce a degree of accountability of state governments, in some cases replacing regional leaders as state chief ministers.

With the rise of multi-party competition, Article 356 of the Constitution also came to be used to exercise hierarchical control. This article allows the governor of a state to advise the president that the government of the state is unable to carry on “in accordance with the provisions of this Constitution,” and allows the president to assume “to himself all or any of the functions of the Government of the State.” In practice, “President’s Rule” means rule by governing party

at the center. Accountability of the states to the center through this constitutional provision did not translate into better accountability of elected officials to their constituents. The opposite was the case: state-level elected politicians were able to claim central interference as a reason for lack of performance.

The nature of state-local hierarchical accountability in the political arena was much more extreme than the center-state case. While there is a constitutional limit on the length of President's Rule in a state, there was no limit in the case of local governments being superseded by states. Before the 1993 passage of the constitutional amendments on local government, at any given time since independence, 40–50 per cent of local government bodies in India were under state supersession.³² The amendments place a limit of six months (the same as President's Rule) on the period of supersession of any local government. In the context of accountability, it is important to re-emphasize that the old system of strong hierarchical political control did not translate into good performance in delivery of public goods and services. Extreme interventions could not substitute for accountability mechanisms for day-to-day operations.

Even after reform, local governments still lack fiscal and human capacity. On the other hand, states have a reasonably well-defined locus of authority, and longstanding, bureaucracies. While they depend on the center for a significant portion of their funds, there is a relatively transparent and independent (though not optimal) procedure for making these transfers. Tax sharing and unconditional grants through the Finance Commission require no formal accountability to the central government. Even Planning Commission (PC) grants are mainly formula-based, and while the PC is nominally responsible for monitoring outcomes and could conceivably adjust future transfers based on performance, this does not happen. Central ministry transfers, in the form of various "schemes," do have conditionalities built in very strongly. However, the actual monitoring of the use of these funds is poor,³³ and the hierarchical accountability of the use of funds through center-state transfers is weak. This is distinct from a formal maintenance of budgets and accounts, since the state government accounts are typically reasonably well-maintained at a formal, aggregate level.

Bureaucracies are ideally designed to implement the wishes of citizens as translated into policy by their elected representatives. State level bureaucracies in India are also connected to the national bureaucracy,

and this affiliation creates another avenue of hierarchical accountability across layers of government. The colonial Indian bureaucratic system was designed to maintain basic law and order and efficient revenue collection, built around district level administrators with substantial powers and discretion. Independence led to expanding the duties of these administrators to encompass a range of functions meant to promote economic development. State level political control became more important than in the past, as democratic institutions supplemented hierarchical administrative control. The core of the state-level bureaucracy (the IAS and Indian Police Service) remains tied to the central bureaucracy, but the accountability that this creates (through competition for promotion to the highest level central posts) is countervailed by political pressures that can vary across states. Specifically, corrupt politicians at the state level can override hierarchical accountability mechanisms that are internal to the bureaucracy.

In addition to direct political pressures on bureaucrats, which distort impartial administrative decision-making, there are distortionary incentive mechanisms such as frequent transfers of bureaucrats. Job transfers can be part of an elaborate rent-seeking and rent-distribution mechanism, where administrators and politicians may be equally complicit.³⁴ One theoretical justification for transfers³⁵ is to reduce corruption by reducing opportunities for enduring corrupt relationships to develop between bureaucrats and their clients, but in practice the frequency, variability and arbitrariness of transfers is much greater than would be indicated by any such justification. As a result, the bureaucracy's role in carrying out administrative policies derived from underlying legislative goals is severely hampered. Political accountability thus weakens the hierarchical bureaucratic accountability that is subordinated to it, but is itself ineffective. Better insulation of bureaucratic transfers from inappropriate political pressures is a significant component of an emerging reform agenda for the Indian civil services.³⁶

At the local level, there are continuing political, financial and administrative limitations on local governments, despite their new constitutional status. Some of the problems are structural. The insufficient assignment of revenue authority constrains local governments in all three of these dimensions. There are also structural limitations in the new political arrangements, ostensibly designed to promote political accountability, but serving in practice to maintain control of resources by elected officials of the state and national governments.

This is particularly true for rural governments: members of parliament and of state legislatures can serve on governing councils at the block (intermediate) and district levels.

The pre-reform hierarchical accountability system was ineffective in delivering services at the local level. At the same time, examples of misuse of funds through incompetence, malfeasance, or both, were common before reform.³⁷ The level of auditing, both quantitatively and qualitatively, was inadequate, applying not just to the identification of irregularities, but also to the enforcement of minimum accounting standards. More effort was devoted to other kinds of monitoring rather than to auditing or performance monitoring. Local government in India involved excessive control of inputs and process, to the detriment of attention to performance and outcomes.³⁸ Examples were common of detailed approval required from higher level governments for relatively small projects or expenditures, sometimes as part of a top-down national and state planning exercise in which local governments had little input. At the same time, performance was often neglected, with overdue and abandoned projects being common. In sum, the implementation of accountability through “hierarchy” has been flawed.

Post-reform, the central government has been seeking to increase the accountability of state governments for local government performance. The last three Finance Commissions (FCs), which reported after the 1993 reforms, have tried to get the states to carry out their constitutionally mandated and legislated responsibilities to local governments, in addition to directly supporting local government capacity building through various conditional and unconditional transfers (all constitutionally required to be channeled through the states). As the FC reports make clear, one of the main problems in holding local governments accountable for their own performance, and state governments for local performance, is the lack of reliable and detailed data: information and transparency are key inputs for any kind of accountability mechanism to work.

Information and Accountability

Problems of inefficiency (e.g., absenteeism or low effort) and corruption in service delivery stem from the lack of proper incentives, both internal to government and external. Thus, any solution must tackle the organization of administration and the nature of political influence. In

this context, purely technological approaches will not work. However, it is also true that accountability is built on transparency, that is, the public availability of information that allows performance and processes to be measured and evaluated.

Transparency that improves accountability can improve public expenditure quality. Information may be self-disclosed, or obtained by monitoring and investigation. Often, though, disclosure of information must be a legal requirement, since the incentive to disclose problems will not exist, and gathering information may be impossible or very costly without legal backing. A simple example illustrates this point. In the context of rural local government, Bajaj and Sharma noted the problems that can arise, in terms of the information required to assess elected officials:

When village pradhans were entrusted JRY [acronym for a central government employment program] funds for construction of community assets, the village community at large did not have knowledge about the total funds received and the annual expenditure incurred on various projects. The pradhan [village executive] and the village panchayat [village council] officer, who jointly operated the panchayat account, kept the details a closely guarded secret.

They go on to describe the resolution of the monitoring problem in their example:

[The higher level] government made it mandatory for information to be posted publicly about the works executed, estimated and actual expenditure and savings if any. The displaying of relevant information on bulletin boards in public places and community halls resulted in community pressure on pradhans to account for public funds, and had the effect of many unfinished projects being rapidly completed.³⁹

This is an example of very basic information disclosure, through a very traditional method. It highlights the point that information, whatever form in which it is made available, is the key enabler of accountability. Digital technology is just one possible tool for this information to be made available. As an aside, in the example given,

there is no evidence as to whether the disclosure requirement continued to be met, how pervasive was compliance, or the extent to which improved performance was sustained. These questions re-emphasize the importance of broader organizational reforms, and stronger enforcement mechanisms for accountability.

Kaushik and Singh describe another example of information flows, which involved partial use of information technology. This was an effort by a private organization called Drishtee, in Sirsa district in the state of Haryana. In this case, the information flow was from citizens to government, either requesting services, or registering complaints:

The government information services facilitated by Drishtee include filing applications for the Prime Minister's Rozgar Yojana (PMRY—a central government anti-poverty scheme), registering complaints, issuance of 'below poverty line' (BPL) certificates required for welfare payments, and registration for old age pension (OAP).⁴⁰

The innovations were with respect to digital entry and storage of information, and in some cases, digital transmission.

Each kiosk with a phone line is connected to the hub of the Drishtee intranet at Sirsa, run by a partner. All queries received at the nodal point are passed on to the DRDA's [District Rural Development Agency] web server (maintained by Drishtee), and thereafter to the respective government departments. To make this work the local DRDA office agreed to accept electronic applications and complaints. Kiosks without phone lines aggregated user requests and sent them through the state transport bus driver, who would pass the packet to an employee of the partner in Sirsa. The packet was then taken to the hub office, which registered the request directly on the web server.⁴¹

In this example, resistance from government employees, loss of local government support as a result of the transfer of the Deputy Commissioner (the district's chief administrative official), and the organization's own inability to "keep up" led to a withering away of much of the initial e-governance effort.⁴²

In the case of certificates and licenses, the new method of providing and transmitting information reduced discretion and, therefore, corruption opportunities for lower-level officials. Complaints were subject to a different set of problems, since they directly seek to impose accountability by calling out lack of performance. They are also more complex in terms of the internal information exchange and data retrieval that has to take place to assess and address complaints. Without some internal process re-engineering, digital collection and delivery of complaints is of limited value. Indeed, in this example, citizens found after a time that easy registration of complaints did not significantly improve redressal.

The Role of Information Technology

The discussion of accountability yields several implications. First, accountability mechanisms are varied and complex. Second, good information bases and flows are necessary but not sufficient for accountability to operate. Sufficiency requires supporting organizational structures with appropriate incentives. Third, information technology (IT) can be a useful tool for creating the basis for accountability mechanisms, but again it is not sufficient. In this section, we explore in more depth the role of IT in expenditure governance and service delivery. We introduce a conceptual framework that is helpful for considering IT use in governance contexts, and show how it can be applied to evaluating a large-scale implementation in India, namely, railway reservations. We then summarize a range of international examples, using these and domestic examples together to draw lessons for India. The international cases are chosen, not because there is a paucity of Indian examples, but instead to emphasize that issues dealing with IT implementation and benefits transcend the specifics of the Indian context. Furthermore, the most successful international examples help to make an important point about back-end versus front-end IT use, particularly relevant with respect to India's new national e-governance initiative.

IT and Public Service Delivery

Pritchett and Woolcock offer a conceptual framework for considering public service delivery that is particularly useful in thinking about the impacts of IT.⁴³ They begin by identifying two dimensions of variation for public services: transaction intensity and degree of discretion. They further distinguish between policies (when the service is

non-transaction-intensive and discretionary), programs (transaction-intensive and non-discretionary problems), and practices (transaction-intensive and discretionary services). They argue that practices are the most challenging category from the perspective of governance.

Shah uses the Pritchett-Woolcock framework to articulate three benefits of IT implementations for service delivery: (1) reducing discretion (converting practices to programs), (2) reducing transaction costs, and (3) improving incentives by improving information and transparency. The third of these addresses the core problem of achieving improved accountability. Shah discusses several examples of large-scale government IT implementations, but his case study of the computerization of the railway reservation system is particularly relevant for our analysis.⁴⁴

Given the size and reach of the Indian Railways, this has rightly been viewed as one of the most successful government implementations of IT in India. Shah discusses how the use of IT achieved all three of the benefits he identifies: reducing the discretion of individual reservation clerks, cutting transaction costs, and increasing transparency (reducing information control by any individual)—thereby improving incentives for reservation clerks. A key feature of the analysis is Shah's identification of the stages of implementation. Implementation began in 1985, and proceeded from branch-level databases to a unified national database, with electronic remote access by consumers via the Internet (i.e., an IT-based citizen-government interface) coming much later. In fact, the vast majority of ticket purchasers still do so by traditional means, queuing up at reservation counters. As Shah points out, opportunities for discretion and corruption remain, but they have been substantially reduced.⁴⁵

While the railway reservation system is large and complex, it is inherently well-suited to the strengths of IT as a process tool. No basic reorganization of work was required, since the fundamental process of a purchaser lining up to buy a ticket at a counter remained unchanged in the initial implementation phase. The organizational structure of the railways was already large and had historically been quite effective. In some ways, the scale of the organization helped, because large numbers of individual reservation clerks could not effectively collude to manipulate information in the new system.

Examining the railway reservation example more closely, one can see that reducing discretion is a benefit when the discretion is misused:

this is therefore a subset of improving incentives. Incentives are improved, and inappropriate discretion curbed, when digital information systems increase transparency and access by service users. Taking this approach, we can combine benefits (1) and (3) in Shah's categorization, to finally have two fundamental benefits: reducing transaction costs and improving incentives.

Report cards that rank various e-governance initiatives use an array of evaluation criteria, including "ease of use," "speed of delivery," "low incidence of errors," "reduction in corruption," "staff behavior," and "staff competence."⁴⁶ With some minor over-simplification, one can argue that these lists can also be reduced to the two fundamental criteria of reducing transaction costs and improving incentives. Going back to the Pritchett and Woolcock classification, one can further argue that the basic characteristic for citizen-facing public services is transaction-intensity, while discretion is a much more malleable and variable characteristic: practices typically have the potential to be programs.⁴⁷

To summarize the argument so far, citizen-facing public service delivery that is transaction-intensive suffers from two potential problems. First, the transaction costs are often quite, uniformly across users, irrespective of the effort of service providers (government officials). In the language of economics, the production technology is inefficient. If IT can be implemented to reduce these transaction costs, by making access to information easier, or executing procedures (e.g., applications for documents and certificates, or making payments) more efficiently, this is a straightforward welfare gain. If service providers are not hurt (losing income or jobs) by the information technology, they should not be opposed to such implementation.

The second problem is essentially one of distortion of targeting and of user charges. Citizens may have to pay more than is required by law to access services, or may not be able to obtain services to which they are legally entitled, if service providers are able to exercise inappropriate discretion. Using IT to correct this second problem can conflict with the interests of government service providers, since it reduces their real income. Depending on the nature of the service, controlling discretion may also require organizational restructuring, which is challenging in any circumstance and for any purpose. Shah suggests that the failure to understand the needs and difficulties of incentive-restructuring lies behind the failure of several government-sponsored IT projects in India.

A further aspect of the general issue of public expenditure governance is quite distinct from the case of transaction-intensive service delivery, even though the ultimate goal is still provision of public services. Recall that in the example from Bajaj and Sharma, the accountability issue was simply that of the appropriate use of budgeted funds. Public infrastructure projects, whether national highways or local village meeting halls, are subject to varying degrees and types of malfeasance, including rigged bidding, skimming or totally misappropriating funds, skimping on construction materials, and defective design.⁴⁸ Many of these problems require monitoring by technically qualified outsiders, and IT has a different role to play, by permitting better information-sharing, tracking, benchmarking, and decision-making overall.

The village example, however, is a more basic problem of transparency of budgeting. Posting flyers on bulletin boards may reveal the information, but could be subject to manipulation as well. The use of IT for creating electronic records potentially allows such information to be independently verified, whether by citizens or by higher-level officials. In fact, the absence of the latter verification has been a key weakness of hierarchical mechanisms of accountability in the Indian context. To emphasize this point, note that IT, by making information available simultaneously to a larger number of people, and by increasing the ability to track and analyze information, also preserves the integrity of information, and reduces the scope for inappropriate discretion (e.g., diversion of public funds to unintended beneficiaries).⁴⁹ This benefit applies to transaction-intensive public service delivery to citizens (e.g., welfare payments to the poor), as well as to public investments that will ultimately generate citizen benefits (e.g., a village meeting hall).

A final point in considering the benefits of IT pertains to the relative or joint benefits of interventions at different points of the delivery system. Even IT use that improves the citizen-government interface in transaction-intensive public service delivery (the front-end) may need to be complemented by the introduction of IT systems inside government (the back-end): the lack of the latter component was one feature of the Drishtee example given earlier. In the case of public investments that generate future citizen benefits, the back-end is crucial for monitoring the actual investment process, with the front-end being really its extension (e.g., villagers and higher-level bureaucrats both being

able to view *panchayat* accounts). The new national e-governance plan also deserves mention in this context. It focuses on a broad, ambitious set of public services, delivered through a vast new, decentralized infrastructure (100,000 common service centers). Implicitly, therefore, its focus is on IT for transaction-intensive service delivery and citizen-government interfaces, rather than for state and local expenditure management systems. In other words, the emphasis is more on the front-end rather than the back-end, somewhat in contrast to the railways example. A neglect of investment in the IT back-end may limit the benefits that can be realized, even for transaction-service delivery, whereas other benefits that come from improved monitoring of investments in other categories of public goods may not be realized at all.

Examples of International Experience

Sections 2 and 3 focused on Indian institutions, both to identify problems of public expenditure quality and to illustrate weaknesses in accountability. However, in examining the role of IT in overcoming these weaknesses, examples from other developing countries of IT use in government have a particular value. Even though India offers many examples of “e-governance” initiatives, they are often considered only in the Indian context. International examples, by abstracting from the details of Indian institutions, allow greater focus on the essentials of what makes IT projects more likely to be successful. The ten examples are selected from three continents, with a variety of per capita income levels. There is also a range of applications, from simple information portals to citizen-transaction sites, to internal IT system implementations. There are hundreds of international examples that could have been chosen, but the ten cases chosen offer a variety of objectives, scale and levels of success.⁵⁰ Comparisons with Indian cases will be discussed once the ten examples have been described.

The examples are organized by continent. Table 1 summarizes the ten projects, including subjective assessments, and a brief description and evaluation of each case follows, which provides some basis for these assessments. The third column classifies the projects in terms of whether they addressed internal (back-end) IT implementations, citizen-facing (front-end) IT, or both. The objectives of most of the projects are described in terms of improved efficiency, this potential improvement coming from the impact on information access and incentives, as

TABLE 1
INTERNATIONAL EXAMPLES OF IT IN GOVERNANCE

Continent	Country	Project	Objective	Scale	Assessment
Africa	Ghana	Information portal (Both)	Government information sharing	National	Ineffective
Africa	Tanzania	Management information system (Back)	Improved efficiency	Local	Moderate
Africa	Kenya	Corruption complaint portal (Front)	Controlling corruption	Local	Ineffective
Africa	South Africa	Social security applications (Both)	Improved access and efficiency	Local to national	Good
Latin America	Chile	Public expenditure management (Back)	Improved overall efficiency	National to local	Good
Latin America	Guatemala	Public expenditure management (Back)	Improved overall efficiency	National to local	Good
Latin America	Bolivia	Public management (Back)	Improved overall efficiency	National	Ineffective to moderate
Asia	Malaysia	Procurement (Both)	Improved efficiency in procurement	National	Limited
Asia	China	Performance based budgeting (Back)	Improved efficiency in budgeting	Local	Limited
Asia	Uzbekistan	Public health and disease database (Back)	Improved health monitoring and response	National	Good

discussed earlier. The South African example is the one which most clearly illustrates transaction-intensive service delivery, and reduced transaction costs as a benefit. The impact of IT use on accountability is ultimately measured by the improvement in the efficiency or effectiveness of government expenditure.

Africa

Ghana: Information clearing house. A clearing house facility was planned in 1998, to be set up at the Ministry of Communications. Four government institutions with good IT capabilities were to be linked to the clearinghouse. The institutions were the Ghana Export Promotion Council, Ghana Free Trade Zones Board (GFTZB), Ghana Investment Promotion Centre (GIPC), and Ministry of Roads and Transport (MRT). The primary development objectives were to provide better coordination of the information facilities developed in government and private institutions, improved exchange of information between the institutions, and better access to the information. In practice, this turned out to be an amorphous and open-ended project, with few measurable results.⁵¹

Tanzania: Improved district governance. This was a classic attempt to establish a simple management information system at the district level to capture information generated from three selected areas namely: education, health and birth, and marriage and death registration for decision making. The project was conceived as a pilot in one district, in 1999. By 2008, there appeared to be a solid implementation, but little concrete information in terms of measurable impacts in service delivery or expenditure management.⁵² However, it appeared that staff had been trained, internal efficiency possibly improved, and databases for applications such as land records were being developed.

Kenya: Electronic graft management. This project was under the Kenya Anti-Corruption Authority, but implemented by the Information Technology Standards Association (ITSA) of Kenya. It was entered in the Stockholm Challenge in 2001. The EGM project offered a corruption reporting facility in six towns with existing Internet infrastructure.⁵³ Anonymity of users was ensured and reports were transmitted to EGM centers for analysis and follow-up with relevant

authorities, including the Kenyan Anti-Corruption Authority. However, little appears to have come from this project.

South Africa: South African Social Security Agency (SASSA). The SASSA was established as an extension of government agency that administers the delivery of social grants to the poorest citizens of South Africa.⁵⁴ In a pilot implementation that was gradually expanded, a basic networked IT implementation increased the ability of citizens to submit applications from remote locations and sped up the processing of applications.

Latin America

Chile: Public expenditure management project. Unlike the previous examples, this was a large-scale, national-level project, with World Bank funding. Beginning in 2001, an integrated financial management system was implemented in most central government agencies, along with a budget evaluation system, including various different assessment tools for assessing expenditure management efficiency.⁵⁵ Some of the potential payoff from this IT implementation appears to come from being integrated with a National Public Investment System that systematically assesses public projects. A key extension of the project, now ongoing, is to cover municipalities, which suffer from weak expenditure management systems.

Guatemala: Public expenditure management project. This project has also been World Bank funded, and predates the Chilean case, having begun in 1995. It is now in its third phase. Electronic financial management has been extended to municipalities, and procurement procedures have been made more transparent, though online bidding is not yet feasible. Benefits according to World Bank country assessments include transparency and competition in public procurement processes that have generated important fiscal savings from lower costs and better quality of goods and services acquired by public entities, as well as enhanced control of public finances and automation of processes in municipalities that have improved the overall quality of expenditures, increased tax collection and yielded better public services quality and delivery at the local and community levels, with these outcomes being measured through user perception surveys as well as direct analysis of outcomes.⁵⁶

Bolivia: Results-based public management. This includes an array of various initiatives, with the key conclusion that implementation of an integrated financial management system was ineffective without complementary development of reliable databases and institutional reform.⁵⁷ In turn, institutional reform was ineffective when it created ad hoc parallel institutions. Finally, external monitoring was an important missing piece in the overall efforts.

Asia

Malaysia: e-Perolehan (e-Procurement). Under the project, begun in 1999 and implemented in phases, the government and suppliers can conduct procurement activities electronically. Suppliers can present their products on the Internet and can receive, manage, and process purchase orders online. Government agencies may approve and submit the purchase orders and also select items to be purchased and initiate the approval process electronically. There are several issues that have arisen after implementation. A survey in 2005 revealed low participation rates, partly because of fixed costs of switching and adopting the new system for private suppliers, usage costs (including government fees), lack of skills among smaller firms, and some problems with the robustness of the system.⁵⁸

China: Performance-based budgeting in Guangdong. In 2003, Guangdong province became the first Chinese provincial government to launch reforms for performance-base budgeting. The finance department created a performance evaluation division, which in turn developed new software to enable reporting of data by individual departments such as tourism and transportation, which implemented pilot projects. However, the pilot projects did not have systematic methods for raw data collection, and the data made available tended to be qualitative and subjective. The effort required additional staff time and training, as well as a linkage to budgeting, which was almost wholly absent.⁵⁹

Uzbekistan: Disease and public health database. The national Epidemiology Service introduced new IT systems for gathering, processing, storing and reporting public health data. These effectively created a single common system for information on specific diseases and public health risks, with local, regional and national databases searchable in

various ways, based on common data. The system has worked well since being introduced in 1997, though mainly for users within the Epidemiology Service itself. For example, the system uncovered a rise in diphtheria cases, and enabled a rapid response through increased vaccination coverage. Costs were also reduced through better prioritization, planning and targeting.⁶⁰

Comparisons and Lessons

What can one learn from varied international examples, and comparisons with India, which has also seen a rich variety of IT implementations for governance? One preliminary observation is how similar the international examples are to various governmental IT implementations in India, both urban and rural.⁶¹ Indian examples include bill payment, complaints and queries, applications for government benefits, databases, and some budget and expenditure management efforts. A decade ago, Nagaraj Vittal, as head of the Central Vigilance Commission, began posting the names of corrupt and allegedly corrupt government officials on the Internet.⁶² Like the electronic graft management project in Kenya, this kind of effort tends to peter out. The problem is that it does not address systemic issues, and while information transparency is valuable, it has to be routinized. Indian legislation such as the Right to Information Act, passed in 2005, is an important step in driving transparency. This is a significant lesson from international and Indian experience: successful IT implementations for tackling incentive problems need legislative backing and/or institutional reform.

It should also be kept in mind that the international examples mostly involve countries that are much smaller than India. Chile or Guatemala's population is of the order of that of a smaller Indian state, and their public expenditure management IT projects have involved multimillion dollar investments. In that respect, Indian states have proven to be good arenas for implementing IT projects designed to improve expenditure governance. They have the physical scale, financial resources and administrative commitment to implement projects that do not work in isolation at the district level or below. This has been a consistent problem with e-governance (e.g., land records, e-procurement, bill payment) experiments in India that begin with local pilots that are not part of a larger systemic plan—they depend too much on local effort, without adequate financial and administrative backing and without being part of a larger infrastructure.

In some cases, cities are of sufficient scale to successfully implement IT projects, particularly those that facilitate services that are important in urban settings, such as payment of utility bills.

The scale issue is a complicated one with respect to the center and the states, in that there can be advantages to standardization and compatibility at the national level and also some network effects. At the same time, trying to do things in one fell swoop for the whole country can be an impossible task. In this context, the railway reservations example illustrates how the implementation was built up from the level of branch offices, so that ultimately a single system for the entire network was put in place.

An important lesson from the international examples is the danger of trying to be too broad in scope. This seemed to be an issue with the Bolivian case. While scale is an advantage, scope can be a problem. It is tempting to seek economies of scope in using an IT infrastructure. At the micro level, for example, privately-driven rural Internet kiosk efforts in India tried to offer a sufficient array of services that would lead to commercial sustainability.⁶³ Government-led IT initiatives may also seek the same economies of scope. In some cases, there can be a suite of services that can be combined. However, they must be carefully identified and implemented, because each application or service can require a specialized software implementation and connections to different databases or departments. Government use of IT for better service delivery seems to work best when it is specific and well-targeted, as in the railway reservation case.

Alignment with a particular government department or administrative authority is also important. Comparing two of the international examples illustrates this point, though of course many other variables differ across countries. The Ghanaian example of an information clearing house was not clear in its goals, required cooperation across agencies and was not specific enough in the services to be provided. On the other hand, the Uzbekistan health database was specific, contained within an agency, and clearly targeted in its potential value. The users of the IT system achieved direct benefits in carrying out their work, aside from the benefits of resulting improved service delivery.

To graphically illustrate the issue of scope, Figure 1 provides a schematic way of thinking about IT for expenditure governance: the columns are specific sectors of government service delivery or public

FIGURE 1
SCOPE OF IT FOR EXPENDITURE GOVERNANCE

<i>Sectors</i>	Health	Education	Infrastructure
<i>Value chain</i>			
Technology infrastructure	↑ ↓	↑ ↓	↑ ↓
Organizational infrastructure			
Public goods and services			

goods provision (there can be more than just the three illustrated), while the rows indicate different components or stages of the value chain. The argument here is that each column must be carefully implemented and that trying to cover multiple columns at once can make implementation difficult. In fact, each column may have several sub-categories, and further specialization may be required for success.

The importance of comprehensive expenditure management reform through IT comes out from the international examples. The Chilean and Guatemalan cases are just two of many such World Bank efforts. The attempt to first implement better systems across all national government agencies, and then push similar systems down to the level of local governments, seems like a successful and viable model. A caveat is the difficulties that arise when complementary institutional reforms are needed, as seems to emerge from the Bolivian example. Hence, one has first to strive for and solidify cost and internal process efficiencies through IT, in ways that do not threaten existing government workers. Implementation is also going to be much easier with a well-trained workforce that has appropriate capacity—certainly a feature of the Chilean case. In India, there is a steep skills gradient in government (as in all of the economy),⁶⁴ and that reality has to be addressed in planning IT implementations, although one should not underestimate the

capabilities of lower level officials to master basic IT-based tasks. Railway reservation clerks have adapted, and the evidence from rural India suggests that Internet kiosk operators can succeed with as little as a high school education provided they are properly trained.

A reasonable conjecture is that there is a considerable untapped potential to introduce IT into the internal workings of government at the state level. India seems to lag many other countries in terms of actually implementing processes for performance-based budgeting and expenditure management. Such an effort would be an important precursor of attempting the same at the local level, where governmental institutions are still in the nascent stages of development. Much of the case for hierarchical control of subnational governments in India has rested on concerns about low local capacity. This argument has also been applied to larger urban bodies, with a perceived lack of expertise at the local government level.⁶⁵ In practice, this was translated into direct control of decision-making, rather than technical assistance coupled with performance monitoring. Hence, lack of capacity in India's local governments was a self-fulfilling expectation, since decision-makers at that level were not given the opportunity to learn by doing. It is well understood that building local capacity in areas such as budgetary management is critical, but there have been problems in getting the states to pursue this objective effectively.⁶⁶ In fact, many of the states' own fiscal and expenditure management practices reflect a lack of capacity. Hence, an integrated approach to using IT to address these expenditure management issues at the state and local level seems to be an important need in India.

A final lesson that can also be drawn from international experience is the importance of the first two components of the value chain in Figure 1. The chances of success are enhanced by addressing the entire value chain for service delivery (a whole column in Figure 1) and not just the front-end for service delivery or citizen feedback. Clearly, the ultimate goal is to improve the delivery of public goods and services, either directly or through better expenditure control. Many studies emphasize the importance of citizen participation and participatory planning in improving governance in general. However, the Indian and international experience suggest that getting the technology and organizational infrastructure (the latter including training and organizational buy-in) right for IT implementations is critical, even when there is a well-defined service application to be improved. This is not

to downplay the importance of an external focus—merely to note that it has to be built upon internal improvements in governmental functioning. In fact, once internal systems are in place, external accountability becomes easier to obtain. Responding to requests under the Right to Information Act, or posting performance information for benchmarking government agencies can only be achieved at an effective scale and scope if internal IT systems are in place.

From the perspective of this analysis, the national e-governance plan may overpromise as well as focus on the wrong initial areas for improvement. As long as state and local expenditure management systems are not upgraded through the implementation of IT systems, training, and reorganization where necessary, it will be difficult to deliver the kinds of services that are envisaged in the national plan. It is also not clear if national control will override decisions best made at the state and local level, in terms of local infrastructure and service delivery: this is a trade-off with standardization and inter-operability that has to be recognized. Of course, the front-end citizen-government interface is important for engaging ordinary people in the functioning of government, but the less glamorous, less politically popular back-end should not be neglected. And with respect to the back-end, there are two layers as well—one which provides the infrastructure for IT-based service delivery, but also, another deeper layer, which provides basic tracking of expenditure and outcomes. This tracking can be integrated into a “dashboard” for guiding better policy-making and expenditure management.

Conclusion

This paper has examined India’s institutions for public expenditure management and service delivery, in the context of a situation where neither aspect of governance is as efficient as might be expected, given India’s development status. The paper also provided a discussion of accountability mechanisms in the Indian context. The argument was made that reforms that can improve service delivery involve strengthening accountability at each level of government, through internal reorganization for better incentive provision and through greater transparency and more effective monitoring. Weaknesses in accountability can also be traced to the nature of expenditure and revenue assignments across levels of government.

The role of IT was discussed in improving the efficiency of internal government processes and in enhancing transparency, accountability,

and responsiveness by altering the citizen-government interface. International comparisons were used to make several points: the importance of legislative or administrative backing for IT implementations that seek to change incentives; the importance of adequate scale; the benefits of building up to a national-level implementation from the state level, as well as down to the local level; the dangers of trying to be too broad in scope, or not specific enough in applications or services; the need to address all value chain components; and the centrality of internal expenditure (and general information) management systems in successful IT implementations in government.

Even though the paper provided a detailed review and assessment of India's situation with respect to expenditure governance and quality, the ultimate message with respect to the potential for the use of IT to improve matters in this dimension is that one can extract informal general principles from international experience and comparisons. The specifics of the Indian case, particularly with respect to its social stratification and heterogeneity, matter greatly for broader issues of development and government accountability. These specifics will also affect the precise impacts of any IT implementation. However, considerations of scale, scope, capacity, incentives, and value chain coverage go deeper than social or institutional idiosyncrasies.

NOTES

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4. This phenomenon is totally distinct from deliberate public use of private contractors for service delivery or infrastructure provision or maintenance. See Sandipan Deb, ed., *The India Infrastructure Report: Policy Imperatives for Growth and Welfare*, Volumes I-III, Chapter 7. (New Delhi: National Council of Applied Economic Research, 1996); and

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5. The inefficiencies include both the failure to capture scale economies and negative externalities.
 6. The point is that subsidies are poorly targeted and inefficient. In this context, a system of explicit user charges often allows for more efficient, as well as more equitable delivery of services such as drinking water, health, and education. See World Bank, *India: Sustaining Reform*, Chapter 3; and World Bank, *State Fiscal Reforms in India: Progress and Prospects (A World Bank Report)* (New Delhi: Macmillan India, 2005).
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 13. World Bank, *Overview of Rural Decentralization in India, Volumes I-III* (Washington, DC: World Bank, 2000); World Bank, *Fiscal Decentralization to Rural Governments in India* (Washington, DC: World Bank, 2004); and World Bank, *India: Urban Finance and Governance Review, Volumes I-II*, Energy and Infrastructure Unit, South Asia Region (Washington, DC: World Bank, December, 2004).
 14. Finance Commission, *Report*, 2004, paragraph 8.43.
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