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Comparing Indian Railways and Airlines

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Abstract

The paper examines the basic reasons and feasible remedies for organizational weakness, and the possible contribution of ownership, industry and management structure, leadership, social norms, and institutional incentives to alleviating the weaknesses in the Indian context. The arguments are illustrated with reference to the public rail and air services and help to understand why some public sector transport undertakings performed better than others. The most effective changes are those that create incentives, broadly defined, for individuals to improve productivity.

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1. Introduction

Systemic changes are required to improve the delivery of public services and the quality of public goods for the common man. This is the single most pressing reform essential to fertilize all others. Experience with reform has clearly shown market failure to exist along with government failure, especially in the provision of public services. We will compare public rail and air services in India to explore the range of issues impacting public service provision and draw out some implications for policy.

Williamson (1999) suggests the "remediableness criterion"—what is a feasible replacement for or modification of an inefficient organization? He further defines "governance as the means by which *order* is accomplished in a relation in which potential *conflict* threatens to undo or upset opportunities to realize *mutual* gains (pp.312)" thus lowering transaction costs. We search for this order in the context of the Indian transport sector, examining design elements that improve incentives for the delivery of public services. Incentives are not just monetary but include mechanisms that motivate players to cooperate and compete at those margins that raise productivity[2]. Rise in quality and decrease in the cost of public services has great potential for lowering inequality as the quality of life improves for the average citizen.

Both the public air and rail networks were created by nationalization of private lines. The State owned Indian Airlines (IA) (largely domestic) and Air India (AI) (the International carrier) are under the Ministry of Civil Aviation. With the repeal of the Air Corporations Act in 1993 Government monopoly was abolished. A number of private players entered. The number of aircraft increased 3 times in ten years, although the number is still small by international standards. Some restrictions

[2] Goyal 1999, 2003, 2004 and 2007 has explored such incentives in the context of public deficits, budgets, provision of water and design of welfare schemes. This paper draws on and extends the earlier analysis and applies it to public transport undertakings.

continue—foreign airlines cannot invest more than 49 percent in any private India-based airline, the Airports Authority of India still largely controls airports, and taxation and other charges are high by international standards. There is now severe congestion at airports. Some private participation has occurred and expansion is on going. Fifty percent of the revenue collected in air travel goes to the government. After an earlier rebranding as Indian, IA has been merged with AI in 2007, and the combined entity will be known as Air India. Its market share has shrunk and it has gone deep into the red, despite advantages such as better airport space. Competition has reduced fares, innovation has raised the facilities and conveniences offered and no frills airlines are making it possible for the common man to fly, a task government airlines could not achieve (Raghavan, 2007, Wikipedia, 2007).

The Indian railway (IR) is a department of the Government of India, managed by a railway board, under the railways ministry. After nationalization of private and princely lines in 1951 Indian railways has a monopoly on rail transport. The network a1ready largely covered the country at the time of independence, but carrying capacity has increased substantially in the period since. Both passenger and freight traffic increased about 8 times, and train density doubled. But while the growth in freight traffic has been less than that of GDP, increase in passenger traffic has far exceeded population growth, as mobility increased. For many years railways have barely been covering operating expenses, and are dependent on government transfers for expenditures on maintenance, capacity expansion and upgradation for safety. Shortfall in capital expenditure is met by borrowings through the Railway Finance Corporation and budgetary transfers from the Central Government. Indian railways also pays dividend to the Central Government on capital-at-charge[3]. Inefficiency, wage costs, populist cross-subsidization (without attention to elasticity of demand) and inability to raise fares, contributed to this state of affairs. Remunerative freight traffic was over-priced compared to passenger fares and lost to competitors. Even so, it contributed 70 % of rail revenues and made profits compared to losses on passenger traffic. The highest-to-lowest passenger fare ratio was 14.4 in the late 1990s. Second class ordinary passengers were 71 percent of the total passenger traffic but contributed

[3] This was 6 percent in the early nineties. At this time an accounting reform made the railways depreciation reserve fund (DRF) count as part of capital-at-charge creating perpetual dividend liability owed to the Government.

only 16 percent of the revenue in 2003-04. Employment in the railways peaked at 1.6 million[4] in the late 90s, and provisions for pensions were about 20% of operating costs in 2005-06 (Gokarn, 2007, Wikipedia, 2007). There has been some rationalization of freight and premium passenger fares. IR has 16 zones further divided into divisions (67 in all) reporting to the board. Functional specialists report to their division heads. Restructuring of departments and reorganization along corporate lines would be helpful.

Under the new rail minister Lallu Yadav, appointed in 2004, rail finances have seen a turnaround with passenger and freight traffic and revenue rising with an operating ratio of 80 percent and fund balance of Rupees 20,000 crores expected in 2007. The primary contribution has been from management innovations and better use of resources and new technology. Load limits for freight wagons were raised by 11percent, and turnaround times speeded up. There are attempts to structure like a corporation, even while fulfilling social responsibilities. Liberalizers generally push for privatization and raising user charges. But partial privatization, better utilization of assets, and corporatization or restructuring of management are delivering. The ideas were there, but someone to push and implement, seems to have made a difference. Among partial privatization initiatives are outsourcing stations management, rail hospitals, allowing companies to run their own container trains, letting suburban trains run as separate companies, raise funds through and accept the discipline of markets. The management structure has been largely unchanged since independence.

Both IR and AI are planning massive modernization expenditures with a thrust on infrastructure—modern freight corridor for IR, aircraft acquisition for IA, largesse coming from the higher growth of the economy, improved demand and government finances.

IA also made a profit in 2003 after a loss the previous year. But profits as a percentage of revenues were only 2.7 compared to 20.7 for IR in 2005-06, and its revenues were only 8.5 percent of the IR revenues[5]. The costs of the merger will be

[4] Indian railways are the second largest employer in the world after the Chinese army.
[5] AI had been making profits since 2002-03 after a string of losses, but made a loss of over 500 crores in 2006-07 (it is probably even higher since doubtful accounting practices adopted led to dissent notes

about Rs 1000 crores. Productivity has plummeted with hectic lobbying at the ministry for reduced posts. AI was operating in more competitive environment compared to IR yet IR has done better. IA had the opportunity to learn and adopt the best practices of its rivals, but did not. It has gone in the space of a few years from being the monopoly player to not even being the dominant player[6]. Neither ownership nor industry structure is able to explain these outcomes. Ownership was the same and IA was operating in a better market structure. It is true that AI did not have full commercial freedom, there was no acquisition over 1999-2003 when private airlines were expanding, passenger service was poor, there was a shortage of pilots, fuel prices shot up but, other airlines and the railways did well in similar circumstances. Below we explore the other factors that matter.

The structure of the paper is as follows. Section 2 asks what are fundamental organizational weaknesses and feasible responses. The subsequent sections take up these responses one by one and analyze their performance as actual or suitability as potential reform of Indian railways and airlines. Section 3 examines the contribution of varying degrees of ownership, the extent to which an activity should be in the public or in the private sector. Section 4 turns to the industry structure, Section 5 the role of leaders and organization norms, Section 6 management reforms and individual incentives, Section 7 Institutional incentives. Section 7 makes a concluding assessment.

2. Organization structures as a response to transaction costs and contracting failures

Contracts, which are bilateral coordination arrangements for market transactions, tend in general, to be incomplete because of bounded rationality. Opportunism makes them difficult to enforce. Although economic actors may not have perfect foresight, they have the capacity to look ahead and plan strategically. These features are the core of transaction cost economics (Williamson, 1999), which says that alternative modes of governance differ with respect to incentive intensity, administrative controls and the

from the board) the biggest in its 70 year history. Indian made a small profit of 57 crores (Economic Times, November 24, 2007).

[6] India Aviation's profiles the fall in IA's market share from 100% in 1994, 40% in 2004 and just 20% by 2007. See http://indiaaviation.aero/news/airlineCarrier/view/77/107/Indian+Airlines

contract law regime. Markets emphasize autonomy by the combination of high-powered incentives, few controls, and legalistic dispute settlement; hierarchy seeks to achieve cooperation through low-powered incentives, extensive controls, and internal dispute resolution.

Since contracts are incomplete, a variety of institutional features have evolved to enforce commitments[7]. Renegotiations, laws, regulations, sanctions, private conflict resolution mechanisms, organizational forms, and norms, all have a role in providing the required mix of commitment and flexibility. It is not possible to costlessly include unforeseen or unspecified contingencies in contracts, so the ex-post bargaining position is important. Residual rights of control, in uncontracted for circumstances, determine agents' incentives. For example, either residual control rights must be given to the party who makes a relationship specific investment or that party will underinvest. When such allocation of control is not possible, internalizing the transaction can improve welfare. This is one of the justifications for the existence of a firm.

Under complete contracts agents are induced to take appropriate discretionary actions and reveal their information. Control rights, however, cannot fully substitute for this mechanism. If control rights are conferred on a single group it may result in self-serving actions. Therefore control rights have to be carefully divided and civic society and other democratic pressures used. Supervisory or coercive mechanisms may be required to ensure that parties respect their commitments, but these should not restrict the flexibility required to ensure ex-post optimal coordination. Different transaction structures solve the coordination problem to different degrees. If complete contracts could be written public or private provision of public services would be equivalent.

3. Ownership: Public or Private Sector or a combination?

A number of factors affect the decision on whether an activity should be in the public or the private sector. Since modern technology facilitates unbundling this is no longer

[7] The discussion in this section draws upon Tirole (1994), Hart. et.al. (1997), Williamson (1999) Brousseau and Glachant (2002), papers collected in the latter, and Goyal (2004).

an either or decision—various degrees of privatization are possible. A division between public and private based on first principles can improve outcomes.

The prime motive for public ownership and control comes from externalities that the private sector would neglect in its decisions. In public transport in a poor country these include universal service obligations (USO). This is more relevant for rail while air was earlier regarded rather as a luxury good that should pay high taxes and contribute to cross subsidization. Public ownership or at least regulation is essential to prevent potential exploitation of consumers since network economies of scale give rail transport some features of a natural monopoly.

Wherever multiple objectives have to be satisfied the public sector is more likely to provide them. Incentives have to be low for bureaucrats to satisfy these multiple objectives, some of which are not measurable. High-powered incentives or residual control rights for measurable performance targets lead to a neglect of non-measurable aspects. Among non-incentivized tasks a public good provider has to satisfy is inclusion of the poor, or geographically dispersed difficult to serve categories, and other USOs.

The more specific assets are to the particular service the more ownership and control should stay with the public sector. The private sector would have an incentive to underinvest, since it is liable to "holdup" once it has invested in assets, which have no use elsewhere.

Public sector provision should dominate, the greater the uncertainty affecting the quality, and the more difficult it is to enforce quality standards or contract for quality. Public goods and services are often experience rather than search goods—only consuming reveals their quality. Contracts are incomplete for such goods because all dimensions of quality of service cannot be fully specified. The literature generally expects quality to be higher in the public sector because incentives to reduce costs and quality are too high for the private sector.

Two extremes in pricing rules have opposite effects on the incentives of a firm. With a price cap, incentives are high-powered since the residual profit share lies with the

producer. The latter is motivated to decrease costs. Since rate of return regulation reimburses the cost of the service, incentives are low-powered. Profits from improvements do not stay with the producer. Thus there is a trade-off between rent extraction and providing incentives for additional effort. With a low enough price cap the regulator extracts all rent, but incentives to invest and improve quality may fall. Since costs rise with quality low-powered incentives are required for the provision of quality.

With residual control rights or under a price cap from a regulator the service provider would retain any profits made from a reduction in cost. Better accounting and more transparency makes price caps possible. Laffont (2005) argues that poor monitoring in developing countries limits the power of incentives that regulators can give public service providers. But technology is changing this. He advocates cost plus pricing initially in developing countries and a shift to price caps later as accounting improves.

In the public sector, the bureaucrat-manager has poor incentives or control rights since he is transferable, but mission, reputation or career concerns, or political pressure may enforce quality service. Hart et. al. (1997) point out that while private provision will always have lower costs than public, quality in private provision may be lower if quality requires higher costs but higher if quality increases with innovation. The latter is normally higher under private provision and is likely to be more important in some kinds of services. Private provision would be superior in cases where quality can be contracted for, or is insensitive to cost reduction, or opportunities for cost reduction are small. Private provision will also dominate if incentives for quality improvement are poor for public managers, or low quality is used as a means of rationing.

What then explains the poor quality associated with provision of public sector services in India? Competitive populism in an era of political fragmentation did not allow user charges to rise after the 1970s oil price shocks. This effectively meant price caps were low. Even costs were not covered. This over-extraction of rent created a disincentive to invest and expand capacity. Even the sunk costs made for investment were expropriated. Low quality, delays and overcrowding, served as a rationing device helping target the poor, but made things worse as revenue sources

found alternatives leaving only the subsidy burden. In railways, the revenue to cost ratio fell steadily from the early 70s. The ratio of the public sector deflator to GDP deflator was below 100 since 1961, there was a sharp fall in 1973, some recovery, but in 2001 it was still 83 % of its level in 1961 (Nagaraj, 2006). The Indian railways were eating reserves: “all along the provision for depreciation was tampered with for presenting an unreal rosy picture (Sriraman 1998, p.282)”.

Maintaining quality and servicing the poor in the context of a natural monopoly are strong arguments for a public railway service, but neither objective has been achieved very satisfactorily. Other changes we examine below can improve outcomes even with public ownership.

4. Industry Structure

It is frequently argued that the change in industry structure with more competition due to entry of the private sector and the opening of the economy has led to improvements in the public sector also. It did lead to more freedom from political interference and more managerial autonomy. High debt made it difficult for the government to continue to fund losses through taxpayers’ money, forcing attempts at commercial viability. More information about and examples of best practices were available. But as we saw, competition has not helped Indian airlines. The railways did better with milder competition from other modes of transport.

Competition is not dependent on industry structure. Despite many public services being local monopolies, a regulator can introduce elements of yardstick competition. For example one railway zone or division can be benchmarked with another similarly placed section, and thus forced to reduce costs. There can be competitive bidding for the award of service utility contracts. Unbundling makes competitive supply possible for parts of the public good or service. If the latter is a search good, where consumers can assess quality for themselves, and suppliers are perfectly competitive at each level of quality, private supply would face socially optimal incentives (Hart et. al. 1999). Citizen or user groups are another useful source of information for the regulator, to discipline public monopolies. Such countervailing pressures make it feasible for incentives to be high powered even in the provision of public goods. Divesting and

trading shares is another way to achieve market discipline. The necessity of publishing quarterly annual reports increases transparency.

That railways have performed better than public airlines despite limited changes in industry structure, suggests other changes have greater impact. Market pressures can be created even without formal changes in industry structure.

5. Social, Cultural and Psychological Factors

Other important factors affecting performance are the culture of an organization, and psychological and social ways of coping. Since social norms become sticky, leaders have a major role as change agents.

Cultural attributes come from national characteristics interacting with an organizations own culture and history. Thus AI focused on Indian hospitality and is known for its good food. A strong sense of hierarchy meant that VIPs were very well cared for[8]. But, in the Indian way, other relationships are taken for granted and communication is poor. If the culture is healthy, a large public sector organization can do better than a small one. History, pride, belonging and participation can all contribute. Peer pressure can be more effective in a large organization[9]. On this count IR is doing better than AI currently.

Psychological and cultural traits interact with economic conditions. Public transport systems are known for frequent breakdowns and delays, with minimal information given to and arrangements made for passengers affected. The strategy routinely used is similar to the "kheechna" textile exporters in Gujarat use to draw in the buyer. Knowing that once he has sunk costs he will adjust to delays, they assure a buyer that they will deliver by a certain date, knowing that if it rains the dyes will not dry and the consignment will not be ready. Similarly in IA technical snags and expected delays are never clearly communicated. If any communication is made a blanket

[8] Thus a media celebrity (Vir Sanghvi) complained in his Hindustan Times column that Air India's record of hospitality was being spoilt by outsourcing to foreign workers. A German girl was rude to him—presumably she did not recognize him, as an Indian would have. VIPs do not experience and therefore do not understand the shabby treatment given to the average traveler.

[9] Hammer et. al. (2007) suggest that large public sector hospitals deliver better services than other public health care partly for these reasons.

optimistic tone is adopted to make people accept delays longer than their initial tolerance levels. Systems that are prone to shocks lead to stratagems such as "kheechna". But they become habitual, being used even when they are not necessary. A clear well communicated contingency plan would lower costs and raise welfare. Habit and culture perhaps explains why IA has not emulated private competitors who are doing much better in these respects[10].

"Passing the buck" is another frequent coping strategy. The remedy for this is decentralization with clear individual rather than collective responsibility. Sometimes delays are consciously created as a way of rationing limited resources.

A major problem, often spoken of sotto voice, is the pervasive corruption that hemorrhages revenues, diverts subsidies, and leads to sub-standard procurement.

Figure 1 illustrates tipping equilibria, due originally to Shelling, showing how corruption can shift from low to high levels, and then persist as a social norm. The percentage of corrupt employees in a public transport undertaking, $e_{t,}$ are measured on the *x*-axis; the *y*-axis gives employment in the next period, e_{t+1}. In equilibrium the two quantities must equal each other, that is, the curve must cross the forty-five degrees line. A stable equilibrium will exist if the curve crosses the forty-five degrees line from above, since in that case, at below equilibrium values, the value in *t+1* would be higher than that in *t*, causing *e* to rise to *e**, and above equilibrium values it would fall to approach *e**.

The solid curved line in Figure 1 gives the amount by which returns to corruption exceed those to honesty, as a function of the number of corrupt in the organization. Since returns to honesty are high initially but fall as the percentage of corrupt rise, initial returns to corruption are low. But they rise at an increasing rate with the percentage of corrupt before falling as corruption decreases business. The shape shown in the diagram follows for the solid curve. There are two stable equilibria. Initially equilibrium maybe at the low-level of corruption e_L*, But an exogenous shock or organizational decay that raises the returns to corruption can push the

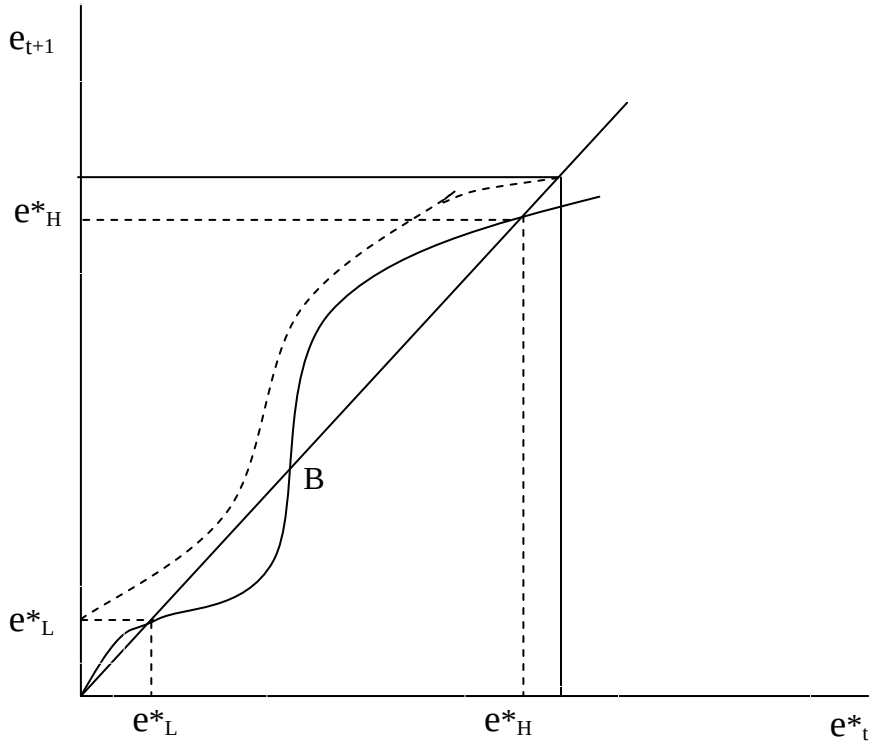
[10] A managing director of Indian Airlines had written in their flight magazine that Indian Airlines does not consider ten minutes to be a delay!

outcome to the unstable equilibrium B and lead to an escalating increase reaching e_H*, where the majority are corrupt. If the decay is sufficiently pervasive the entire solid curve can shift up to the dashed curve. Now the only stable equilibrium is where all are corrupt. Corruption becomes the difficult to remove norm, and modes of sharing extra-legal payoffs become standard.

Such shocks probably occurred in India around the seventies. First, political fragmentation weakened the government, multiple power centers developed. Second, user charges were not raised in the face of large cost shocks, as populism increased. The transport undertakings found it difficult to meet costs, salaries were also squeezed, encouraging extra-legal means of making money.

Jalan, (2005, pp. 112) quotes from a former cabinet secretary's memoirs, "Politics having become the most lucrative business in the country, with few checks and controls, there is a compulsion for the minister or political leader to attempt to coerce civil servants to collude with him for mutual benefit…The service rules and procedures have been progressively adapted to facilitate this process. (Subramaniam 2004)"

Figure 1: Low and High Levels of Corruption



Corruption has decreased to the extent discretionary controls have been dismantled, but it continues, especially with State governments, where arbitrary decisions are taken and there is a lack of accountability, or special favors and sanctions are required. Reforms that have reduced corruption at the Centre need to be carried out also in the States.

In procurement etc. operations, sub-standard materials allowed suppliers to make money while officials siphoned off payments. This is what Shleifer and Vishny (1993) call corruption with theft. The redistribution motive in the presence of shortages necessitated a discretionary allocation structure and monitoring for consumers more than for officers. Populist employment creation created multiple points where consumers were subjected to the discretionary powers. Relatively free entry into bribe collection and weak or collusive governments that were unable to punish, meant that officials functioned as independent monopolists. In such conditions the bribe prices rise while revenue and sale of government goods fall as people seek alternatives.

In a multiple hierarchy between politicians and the people, middle layers can have an information advantage, which facilitates theft. It is human nature as well as feudal practice to give something for getting something. This reciprocity benefits middle-rung officials charged with re-distribution or rationing allocation. The RTI Act and the realization that officials are there to implement a citizen right, not for doing a favour, can help.

More accountability to the public with penalty for non-delivery is required. But too strict punishment does not work also, since that can paralyze individual effort and risk-taking. Established norms are difficult to change. But better accounting systems with random checks facilitated by the use of ICT can check corruption with theft. Competitive supply of the government good, as occurs for example through Internet enabled non-discretionary sale of tickets, can reduce monopolistic bribe collection. Better systems together with RTI reduce discretionary powers in general. One department should be clearly responsible for one objective, with competition in

delivery. There should be multiple provision, but not multiple responsibility. Better finances with more market-linked discipline can also help.

If equating marginal returns to the marginal cost of corruption determines equilibrium extraction, then any measure that reduces the return and raises costs of corruption would lower extraction. Higher probability of getting caught, with online accounting systems, increases the cost of corruption.

Changes in management routines are necessary to break out of habitual coping modes. Better systems would also reduce the necessity for such modes.

6. Management Reform

In much of the public sector, management systems reflect the old structure of government, which was oriented towards command and control. In terms of Williamson's classification, the Indian public sector is characterized by low-powered incentives, hierarchical administrative controls, and legalistic dispute settlement across departments even though the latter is normally found in market-based non-hierarchical structures. A large percentage of cases pending in the courts originate in the public sector.

Jalan (2005, pp. 105), records the decay in Indian public services: "the system is dominated by internal conflicts of interest (for example, powerful but separate trade unions for different classes of government employees), political interference, statutory provisions, complicated seniority bound procedures, fiscal stringency and the proliferation of agencies which operate at cross purposes without any clear division of work".

More competition and hardening of the budget constraint enforce some discipline, but losses will truly affect performance only when they affect individual salaries and jobs. Technology allows breakup of jobs so that there are no longer multiple people for same function and there is clear individual responsibility. Improved accounting of actual costs and outputs possible may also make it possible to give high-powered incentives to staff, so that they are able to retain gains from efficiency and are

motivated to accept more accountability. Whether incentives are high or low powered is tied to information availability (Tirole, 1994). Technology and transparency allow less rigid rules. Reduction in theft from the government, and unbundling and restructuring that improves efficiency, may allow better services without large price increases.

Incentive compatibility is key; he who gains from something should be given responsibility for it. Management changes that give space for individual creativity and initiative are required to support these changes. The gain can be recognition, reputation, and interaction, leading to a better work culture, decreasing conflict. Much of the growth in Indian aviation has come from innovations such as APEX pricing to differentiate between and suit the requirements of different market segments. Non-discretionary outcome related assessment and high-powered incentives would encourage similar innovation in public airlines. At present the officers are only concerned to please their superiors who write their performance reports. This is also a source of corruption as political, bureaucratic bosses, assessment committees and their families are lavishly hosted at the taxpayer's expense.

Accounting reform should make possible a shift to modern management information systems, which clearly allocate responsibility for outcomes, measured as variance from budgeted amounts, right down the hierarchy, together with continuous feedback. Mid-term correction becomes feasible ensuring delivery. Daily expenditure control is possible.

Since bureaucrats have multiple objectives it is normally difficult to give high-powered incentives. But public sector transport undertakings provide a paid service. Although money does follow the service the providers continue to have fixed salaries. This can change. Even where the job is not so clearly linked to one measurable output, new technology makes better measurement of work possible. Hammer et. al.(2007) point out that worldwide money follows the delivery of public services, fixed salaries do not work.

It is possible to design management systems with variable pay linked to performance. Regular appraisals with clear performance targets get taken seriously. These have

been newly introduced even in Indian private corporate organizations and the government is also exploring performance-linked pay[11]. Performance can include that of the individual and organization as a whole.

Mr. Sreedharan, who set up the Konkan railway line and the Delhi Metro demonstrated that good management is possible in public sector transport projects. The projects were completed in record time, without delays and cost overruns, and were of high quality. Planning, conceptualization and implementation were all good. Delhi Metro was also given the critical freedom from political interference, for example there was no pressure to provide employment. The Delhi government made the land available for the metro, and ensured that nothing that concerning the Metro was negotiable in a court of law (Sankhe, 2007).

Arbitration and support across government departments are required. A special agency should be set up for inter-sectoral coordination and public hearings. Most of the massive infrastructure projects the Government has taken up are delayed. Mumbai flyovers are an example. One department blames the other for delays, since one is responsible for construction, the other for clearances and the third for facilities. Anyone affected by a project can lobby against it, bureaucrats do not want to be blamed, so the matter goes to the courts, resulting in years of delay.

Jalan (2005, pp. 197) notes that real successes were achieved where "old and cumbersome administrative procedures" based on multiple discretionary approvals were "replaced by a rule-based system largely based on self-certification" as in release of foreign exchange.

PPP is another type of restructuring to overcome specific weaknesses of public ownership and of markets. A choice of PPP in a particular public service delivery normally offers a menu of contract choices, ranging from outright privatization or divestiture, to long-term concessions or management contracts where asset ownership

[11] The GVR group introduced such a system recently. The Mumbai administration has in 2007 introduced 5 key parameters on which bureaucrats will be given a ranking of 1 to 10 on their annual Performance Appraisal Report. These are time-bound disposal of files, utilization of state and central funds, implementation of the relevant minister's assurances in the state legislature, satisfying auditor's queries, and filling up departmental vacancies and promotions. The 6th Pay Commission has asked IIMA to study the feasibility of measuring performance in government employment through five parameters of skill, effort, output, productivity and quality.

remains in the public sector, to outsourcing of specific jobs. Control, asset ownership and risk shared by the private sector falls in moving from the first to the last. The general principle is that risk should stay with agency most able to bear and best able to alleviate it. Service contracts normally vary over a period of 6 months to 2 years. Private sector expertise is used or it may be developed and competition increased. The responsibility for coordination and for investment rests with the public sector. Management contracts transfer responsibility for operation and maintenance (O & M) also to the private sector. These run typically for 3 to 5 years. They may have a fixed fee and include a performance target. In a lease contract the private party buys rights to the income stream so it assumes the commercial risk. Incentives for reducing costs and quality standards can be written in. Concessions last for 25 to 30 years. Responsibility for operation and management (O&M) as well as investment is transferred while asset ownership remains with the Government. The contracts set out performance targets, standards, investment amounts, mechanisms for adjusting tariffs, and arrangements for arbitrating disputes. Assets are to be returned in good condition and consumers are to be protected from monopoly pricing. Under divestiture, asset ownership also passes into private hands and the Government is only left with the task of regulation. Given the existing large management establishments in the public transport sector political willingness at present seems only to consider service contracts. Outsourcing hygiene, security, dining etc can be a way to improve these services and also earn revenue Goyal (2004). These contracts should give preference to developing local entrepreneurship over large foreign firms pushed by aid agencies. The latter may have more management experience but lack local knowledge and tend to generate political resistance.

The private sector may be able to provide funds that highly indebted governments lack. But the former will be motivated to provide the funds only if it is possible to recover the investments through user charges. Therefore pricing becomes a key reform. Reasonable user charges can make either a public or a private project viable, and a larger customer base will increase profitability. A financially constrained public sector entity has a greater incentive to outsource, and a larger population or consumer density will make outsourcing more feasible without large price increases.

Theoretical arguments of maintaining quality support public ownership of assets, but the command and control management structure has strained finances and reduced quality. Therefore reform of management is the essential precondition that may allow assets to remain in the public sector while improved quality of services are provided at reasonable prices.

7. Institutional Incentives

In so far as public sector enterprises will continue to have unique features, and remain a forum for resolving the competing claims of different stakeholders, checks and balances will continue to be required. These reduce efficiency, but institutional structures with better incentives can be designed to motivate bureaucrats, reduce corruption and delay.

Turning again to Williamson's 3 categories, to the extent technology is making it possible to shift to more high powered incentives, administrative controls can be reduced. Encouraging arbitration is one way of reducing the excessive dependence on the legal system. To the extent a public sector organization continues to consist of multiple hierarchies with differential information in the different layers the reliance on legalistic modes of conflict resolution can be reduced. Arbitration based on this information advantage would work well in conjunction with the formal legal system (Dixit, 2004). Private modes of conflict resolution have the informational advantage of more industry specific knowledge and better verifiability. Arbitration tribunals could be set up with the law promising to enforce the judgements of the tribunals subject to appeals. More reliance on other private informal enforcement such as handshakes and oral agreements will reduce the cost of using the legal system, and improve the work atmosphere. Apart from costs arising from problems of verifiability, lack of industry specific knowledge, requirements of disclosure in any formal legal system, the huge delays in the backlogged Indian legal system are a major cost. Reducing the public sector's reliance on this system will also reduce the pressures on and delays in the system.

Optimal cross-subsidization is derived if social welfare is maximized subject to a budget constraint. This gives the Ramsey-Boiteux rule that the price marginal cost

gap should be inversely proportional to elasticities of demand. Thus the poor should be charged higher prices if they have a lower elasticity of demand, but they can be cross-subsidized as long as the budget is balanced. The rule has been generalized into the theory of optimal non-linear tariffs. These pricing principles are violated if, in the aggregate, charges do not even cover costs. Cross-subsidization is then excessive and generates inefficiencies that raise cost further. Moreover, competitive entry occurs if, with cross subsidization, the price in any sub-market exceeds cost, or if new technology lowers cost or breaks a natural monopoly. Then government revenues from these sub-sectors fall further. This happened as Indian Airlines lost its natural monopoly; railways lost freight traffic to the roadways due to higher freight prices. It is necessary to pay attention to changes in to the elasticity of demand and the development of competing transport modes. Beyond a point subsidies for USO obligations should come from the general budget not from other traffic. One-way of achieving this is to switch controls to managers or bureaucrats and away from politicians during waves of competitive populism, for example by empowering regulators. In the Indian democracy other checks and balances are in place but politicians have gained too much power over bureaucrats.

In budgetary processes separation of powers can reduce expenditure if it removes conflict of interest, for example, the agent who has proposal rights over expenditure should not be the one who stands to directly gain from it. Whoever cuts a cake should not be responsible for distribution of the slices. The countervailing pressures generated induce, although they may not ensure, a more fair and efficient allocation. Consider a closed rule where proposals cannot be amended. An agenda setter makes a proposal, the board votes on it, if a simple majority approves, the proposal is implemented, otherwise the status quo remains. Spending will be lower if members who do not represent special interests are given special powers including agenda setting rights, right of veto, and setting binding limits on allocations. This hierarchical process strengthens collective interests, against the interests of representatives of specific constituencies. In zero-base budgeting the default alternative acts as a further disciplining factor to control excess spending.

Under an open rule other members have amendment rights, and there can be separation of proposal powers. For example, there may be a vote on an amendment

offered on an initial proposal, with further rounds of amendments. Although the possibility of amendments in the budgetary process should increase wasteful expenditure the latter can actually be higher under a closed rule compared to an open rule. The reason is forward looking and sophisticated members internalize the stages of the budget process. Therefore in order for them to support a budget proposal, when no amendments are allowed, net benefits they gain must exceed those that could be expected if the proposal is defeated and the budgetary process continues. To gain majority support such a proposal needs to be large enough to please everyone. There may be non-budgetary or office related payoffs.

A similar problem can occur under two-stage budgeting (2SB). Under 2SB, aggregate spending is decided before allocations of expenditure in order to insulate the total from interest group pressures. But if sophisticated members realize the implications of their decisions for subsequent appropriations, a larger size would be set at the first stage. But 2SB combined with appropriate choice of the agenda setter does lower equilibrium expenditure. For example, if the agenda setter is not the "residual claimant" at the second stage, he will have no interest in expanding the budget. Tirole (1994) suggests multiple control rights with control switching to a more conservative agency when finances are under strain.

Budgetary implementation through control and monitoring make incentives low powered. The use of self-motivation is minimal; agents are supposed to just obey instructions. This works better for simple processes where effective and low-cost monitoring is feasible. In more complex processes monitoring needs to be complemented by delegation to residual claimants. The latter have high-powered incentives, since the returns from greater efficiency stay with them. Following the control philosophy budgetary implementation in India, although quite detailed, tends to focus on monitoring inputs. This makes participants strategic and forward-looking. They try to maximize their allocations, but have little incentives for delivery. Modern management information systems, in contrast, build in strong incentives for delivery.

To the extent bureaucrats or politicians are self-interested, or there is the possibility of regulatory capture, processes that restrict efficiency have to be designed.

Since public sector organizations have a multi-hierarchical structure, parts may have more information compared to others. If they have sufficient discretion they could use the informational advantage to benefit interest groups they favour. In general interest groups that benefit from withholding of information stand to gain. They have an incentive to persuade the official not to release information that harms them. If the officials have to follow a rulebook, then interest groups have less of a stake in the decision and therefore less incentive for regulatory capture. This is one reason officials are made to follow rules. Thus low-powered cost plus rules are less subject to regulatory capture, since they leave low rents with the firm, and the regulator has little discretion. If high-powered incentive schemes such as price caps are to be retained then alternative pressure groups such as user groups are required to guard against regulatory capture by the supplier. Control rights need to be divided among countervailing groups.

In government auctions discretion in judging quality gives scope for favouritism. Therefore tangible variables such as price are given precedence (Tirole, 1994). Large discretion in the award of contracts can lead to allegations of payoffs received from the firms selected. Transparent rules that minimize discretion may be necessary even at the cost of some flexibility.

Other ways of getting around the above problem are (i) short-term public service contracts that are subject to re-bidding, and (ii) checks and balances designed to prevent corrupt politicians making money from privatization or using public utilities for patronage.

In many situations social welfare is enhanced if a benevolent government can make an intertemporal commitment to a long-term complete contract--this would remove fears of expropriation and encourage utilities to achieve optimal efficiency and investment. But short-term commitments provide a check against decisions taken to favour interest groups. Thus re-bidding rail or air service contracts may not only keep a check on costs but also allow removal of a corrupt or inefficient firm (Tirole, 1994). Since governments can loose elections they cannot commit not to 'hold-up' sector specific investment, so private investment would not be optimal.

In addition to the division of control rights among the judiciary, executive, and the legislature, the media, user and other independent groups must be given a formal role. Often advocacy by each group reveals valuable information for a decision-maker (Tirole, 1994).

To the extent corruption is widespread in public life, more independent private sector management or sale of public utilities would be beneficial. The latter would prevent the non public-spirited politician from obliging special interest groups such as trade union vote banks of sources of illicit funding (Hart et. al. 1997).

8. Conclusion

Our survey of relevant theoretical insights is motivated by the differential performance of Indian public rail and air rail, and helps to explain it. It suggests that there may be grounds for public sector control of assets and delivery of public services. Just changes in ownership, industry structure and competition will not necessarily improve delivery and quality. Better individual motivation, through changes in management structure and institutional design holds the key. All types of organizations are imperfect, but context-specific feasible modifications exist that can improve outcomes. We identify such that could apply to Indian rail and air services.

Market structure alone was not enough to improve the performance of Air India. Indian Railways have done better as leadership implemented managerial changes, which created better incentives.

Leaders are important to push change when dysfunctional social and organizational norms set in. But their main contribution is in implementing better systems against resistance or inertia. A few good people can make a difference; but good systems can induce better behavior from most people.

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