Public Sector Performance since 1950
A Fresh Look

Since the mid-1980s, the public sector’s share in domestic investment has been nearly halved, but its output share has remained roughly constant at about a quarter of GDP, suggesting a sustained rise in productivity over nearly two decades. The improvement in performance is also evident from (i) a rise in physical efficiency in electricity generation; (ii) a fall in public sector employment growth; and (iii) an increase in central public sector enterprises’ profitability (even after excluding the petroleum sector). Yet public sector finances have remained adverse. Why? In electricity, passenger road transport and railways the revenue-cost ratio is less than one, and has declined since the early 1990s. Moreover, over the last 40 years, the public sector price deflator declined by 17 percentage points, relative to the GDP deflator. Hence, correct pricing and collecting user charges are probably key to setting public sector finances right.

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The public sector in India, in its broadest measure as recorded in the National Accounts Statistics (NAS), currently contributes to about a quarter of the gross domestic product (GDP) increasing from slightly less than one-tenth in 1960-61 (the earliest year with firm estimates). The gross value added of the administrative departments, broadly representing Adam Smith’s “duties of the sovereign”, account for 8 to 9 per cent of GDP; natural monopolies such as the railways and the postal system add another 3 to 4 per cent. But the largest share of public sector gross value added, 12 to 13 per cent of GDP, comes from the non-departmental enterprises (NDEs), producing many private goods and services, but mainly from utilities and infrastructure, owned and operated by the central, state and local governments. NDEs are further disaggregated into (a) financial enterprises that are part of the financial sector (including the Reserve Bank of India), and (b) the non-financial enterprises, which account for much of the growth in public sector output during the last half century.

Such a rising share is justifiable on conventional economic as well as radical arguments. But extension beyond these activities has been criticised for being responsible for the widely cited inefficiency, and for the public sector’s financial losses. In the popular perception, Modern Bread and Ashok Hotel, for example, are emblematic of everything that is wrong with the extension of the state in the economic sphere. Since the public sector was an instrument of the development strategy, its microeconomic inefficiency was believed to have got translated into fiscal imbalances that periodically aggravated inflation and the balance of payments [Joshi and Little 1994].

Without denying these arguments, the growing spread of the public sector is often defended on strategic considerations as well as on the basis of many non-economic factors, with the proviso that the way to reconcile these conflicting aims is to evolve institutional mechanisms to insulate public sector management from short-term economic considerations and political interference. Many organisational innovations, with modest success, have been tried: setting up of holding companies, entering into a formal contract between the management and the government, called a memorandum of understanding (MoU), and so on.

Since the early 1990s, seized with fiscal imbalance, the government sought to dilute public ownership (and control) in order to impart capital market-based discipline on public sector management. In sectors with non-corporate entities (power and ports, for instance), corporate forms of organisation were encouraged, with (the tacit) prospect of an eventual change in their ownership. However, experience and political expediency seem to have changed the stance from disinvestment and privatisation to “public-private partnership”. The reforms sparked (an expectedly inconclusive) debate and political action, on the need for and the effects of the reforms on public sector performance.

But this has deflected attention away from a careful analysis of what has really happened. This paper seeks to redress the situation by taking a fresh look at public sector output, investment and saving behaviour over the last half century in relation to the national economic aggregates, mainly using the NAS that furnish a complete and consistent time series since 1960-61, though restricted to a few aggregative measures. Using a set of graphs, Section I tries to diagnose public sector performance; Section II suggests an explanation for the findings, and Section III draws the main conclusions and their policy implications.
I

Public Sector Performance

Output and Capital Formation

Figure 1 describes public sector gross domestic capital formation (investment, for short) from 1950-51 and output (gross value added) since 1960-61, both as a proportion of gross domestic product at factor cost (GDP fc) in current prices. The output share peaked in 1991-92 at 26.1 per cent, declining marginally thereafter with considerable yearly fluctuations, suggesting an arrest of a steadily rising public sector share in domestic output. It also implies that with the acceleration of the domestic output growth rate after 1980-81, the public sector has contributed to the additional output growth in equal measure [Nagaraj 1991]. Figure 2 describes the output composition (in the NAS categories described above), as proportions of GDP fc in constant prices, for 22 years since 1980-81. Evidently, the relative shares of the three components of the public sector described above have also remained roughly stable after 1986-87. It suggests that in spite of industrial deregulation and growing import competition, the public sector has broadly maintained its share in domestic output in producing private goods and services, and its composition has also remained roughly the same.

In contrast, however, the public investment ratio, after peaking at 12.5 per cent of GDP fc in 1986-87 nearly halved to 6.4 per cent by 2001-02, taking the ratio back to the level where it was in the mid-1950s. Clearly, what took the “big planners” three decades to accomplish, the “reformers” undid in less than two decades!

Whether the fall in the share of public investment by design (market-oriented reforms), or by default (the fiscal imbalance) is a moot point. But, undisputedly, the public sector has managed to deliver roughly an unchanging share of the accelerating domestic output for nearly 20 years, even when its investment share was halved – an impressive record of productivity growth by any yardstick, at least so far. Corroborating the finding, Figure 3 shows a steady decline in the public sector’s average capital output ratio (ACOR) in constant prices, from 7.0 in 1981-82 to about 4.4 in 2001-02. This holds true for most (1-digit) sectors of the economy as well [EPWRF 2004].

It is arguable that the decline in ACOR could mean a shift in public investment to less capital-intensive activities. But this is not the case. In fact, the share of infrastructure (sum of mining, electricity, gas and water, and transport and communication) in public sector gross capital formation – representing capital-intensive industries – has increased from 33.3 per cent in 1973-74 to over 53.5 per cent in 2001-02; the manufacturing sector’s share has declined (Figure 4). Infrastructure’s share in public sector output narrowly fluctuated around 30 per cent (Figure 5); the manufacturing sector’s share has tumbled from 23.7 in 1974-75 to 5.5 per cent in 2001-02 (Figure 6). Thus, there is little basis to suggest a shift in public investment into less capital-intensive sectors; on the contrary, the investment composition has moved in the desired direction of infrastructure that is capital-intensive, away from (much contested) manufacturing.

The above trend is consistent with the findings on total factor productivity growth, though the evidence is limited to a shorter time period [Kumari 1993]. Thus, the public sector has shown remarkable progress that has gone virtually unnoticed. What could account for the improvement? It suggests a decline in what Harvey Leibenstein called X-inefficiency (in production and in organisation), and a deceleration in investment and employment. There is evidence of both.
Fall in Public Sector Employment Growth

A bloated workforce, often employed on non-economic considerations, is widely cited as a source of public sector inefficiency. But the evidence suggests that despite such pressures, the growth rate in public employment has declined drastically: from about 6 per cent per year in the mid-1970s to a negative 1 per cent in 2002-03 in public sector enterprises owned and managed by the central government (central PSEs, for short), in quasi public sector, and in the public sector as a whole as well (Figure 7).3 Without denying the need for further rationalisation of the workforce, what can certainly be claimed is that public sector employment growth has got drastically reduced in spite of the compulsions to the contrary, contributing to the improved productivity.

Improvement in Efficiency of Thermal Power Plants

Gross inefficiency in thermal power plants, producing the bulk of the nation’s electricity generation, is also a widely cited reason for poor productivity. But the average plant load factor (PLF) for all the thermal power plants (a proxy for efficiency) has witnessed an uninterrupted rise from 44.3 per cent in 1979-80 to over 74.8 per cent in 2004-05 (Figure 8).4 Since the electricity sector roughly accounts for about a third of total public investment, such an improvement would have surely contributed to the overall productivity growth noted above.

Although the foregoing measures of physical efficiency display impressive strides, does it show up in the financial results?

Public Sector Saving

Public sector gross saving, as a proportion of current gross domestic product at market prices (GDP$_{mp}$) peaked at 4.9 per cent in 1976-77, declined thereafter, turning negative in 1998-99 (Figure 9). But much earlier in 1986-87 the saving ratio of government administration turned negative, which is the same as the government’s revenue deficit ratio. It is the NDEs’ saving that has kept the public sector saving positive for over a decade.5

Figure 10 gives a break-up of the NDEs’ saving (as proportions of current GDP$_{mp}$) into (i) non-departmental financial enterprises (NDFEs) that are part of the banking and financial system, and (ii) non-departmental and non-financial enterprises (NDNFES) that comprise public entities producing goods and services at all levels of government. Over the four decades, savings of the non-financial enterprises contributed a greater share of NDEs’ saving; the financial sector’s share is consistently lower. Between 1980-81 and 1994-95, NDNFEs’ share in gross public saving rose rapidly (though it declined in the following five years). But even this component of public saving does not seem to adequately reflect the improved physical performance noted above. In the absence of further disaggregation in the NAS, we turn to other data sources to seek an answer.

Central PSEs’ Profitability

What is the correct measure of profitability? It depends upon the purpose. From the view point of a private individual, the ratio of net profits to equity capital (or net worth) may be appropriate, but it may be unsuitable to measure a PSE’s contribution to the economy, for many reasons. One, PSEs usually have a high depreciation cost since they have to invest not only in plant and machinery, but also on social overhead capital, for which budgetary provisions are made. Second, a PSE’s capital structure is not aimed to maximise return on shareholders’ investment, but provision of goods and services that the market has not (or inadequately) succeeded in supplying – the argument of “missing market”. Third, very often PSEs start with a high proportion of debt as government expects a certain interest on its loans. When the enterprise commences production it is often saddled with a
Figure 9: Public Sector Saving

Figure 10: Disaggregation of NDEs’ Saving

Figure 11: CPE’s Profitability

Figure 12: Indian Railway’s Financial Performance

high debt-equity ratio, which is usually renegotiated to make the enterprise commercially viable. Finally, for the economy, what matters is not the capital structure but return on total capital employed. Thus, gross profit to total capital employed is a better measure of public sector profitability, which we have used below.

Thus measured, profitability of the central PSEs has increased from around 8 per cent in the mid-1970s to 21 per cent in 2003-04 – a respectable figure by any reasonable reckoning (Figure 11). Such rosy estimates may conceal the effect of high mark-up, cost-based administered pricing in the performance of petroleum companies. Surely, net of the petroleum sector, the profitability is lower, but with an unmistakable rising trend, at 18 per cent return on gross capital employed in 2003-04.

Thus, the central PSEs as a source of NDNFEs’ poor financial position is ruled out, leaving us mainly with the utilities and infrastructure services at the state level – that is, state electricity boards (SEBs) and road transport corporations (RTCs). In principle, public irrigation would belong to this category, as it accounts for a sizeable share of plan expenditure in most states. But as it is included in the administrative department, its accounts are not available separately, hence not considered here.9 But railway services are included in our analysis below as it also has similar features.

Problem of Pricing

Figure 8 also displays SEBs’ revenue-cost ratio since 1993-94, as a proxy for financial performance. Although the PLF has gone up from 55 per cent in 1975-76 to 75 per cent in 2004-05 (as noted earlier), the revenue-cost ratio has declined from 82.2 per cent in 1993-94 to 68.6 per cent a decade later. In other words, in spite of a sustained increase in the physical efficiency of power generation, the SEBs’ finances have deteriorated.

Similarly, Figure 12 records revenue-cost ratio for the railways for 53 years since 1950-51.10 The ratio was consistently greater than one up to 1990-91, but deteriorated thereafter. Though the information for the RTCs is limited to nine years, the trend is unmistakably similar: a decline from 91.4 in 1992-93 to 88.7 in 2000-01 (Figure 13).11

Thus, we identify these services as potential suspects for the public sector’s poor financial results. The finding is tentative as it is based on a single financial indicator and it warrants a more detailed analysis. But considering that they constitute the bulk of the non-financial public sector outside of the central PSEs, the finding seems robust.

Admittedly, deterioration in the revenue to cost ratio could be either due to relatively faster rise in costs and increase in inefficiency, or poor pricing and low recovery of user charges, or both. As there is an unmistakable rise in efficiency of thermal power plants for nearly 30 years now, the decline in revenue to cost ratio can only be on account of poor pricing and recovery of dues. One suspects the problem is no different in the railways and RTCs.

Thus, the real culprit of poor public sector saving is not the central PSEs (that have been the subject of much of reforms) but inadequate pricing of the utilities and infrastructure services, and lack of recovery of user charges for the services rendered. Perhaps a telling evidence of the problem, in the aggregate, is the movement of the public sector price deflator, relative to the GDP deflator since 1960-61 (Figure 14). Over the last 40 years public sector prices never exceeded the overall price level, and in 2003-04 the relative price stood just 83 per cent of what it was in 1960-61. In other words, public sector prices have risen.

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at a slower rate than the overall prices in the economy over the long run, adversely affecting its financial position. However, as these are decreasing cost industries, their prices can be expected to rise relatively slowly. But they are also capital-intensive industries, where the principle of access to these services on social considerations raises the cost of provision. Moreover, the public sector, being an instrument of public policy, is often made to shoulder many social responsibilities, increasing its expenditure, which needs to be recovered from reasonably pricing the output or from the budget. With a growing fiscal imbalance, reasonable pricing is the only avenue to compensate for the services rendered.

To recapitulate the main findings so far,

1. There is a distinct improvement in the efficiency of resource use in the public sector in the aggregate since the second half of the 1980s, and a corresponding fall in the average capital output ratio.

2. Improvement in physical efficiency, in part, may reflect a fall in public sector employment growth (however, measured).

3. Thermal power plants in India that account for the bulk of electricity generation (and a sizeable share of public investment) show an uninterrupted rise in efficiency.

4. These trends are, however, inadequately reflected in public sector financial performance, despite a sustained improvement in profitability of the central PSEs (even excluding the petroleum enterprises).

5. Thus, the source of financial distress is the utilities and infrastructure services, like the SEBs, RTCs and the railways.

6. The SEBs’ revenue-cost ratio deteriorated since the 1990s; the same is true of the railways and the RTCs.

7. That inadequate pricing of the output public sector utilities is the main reason for their deteriorating financial position is illustrated by a 17 percentage point fall in the public sector price deflator output relative to the GDP deflator over the last 40 years since 1960-61.

II
Reasons and Implications

What accounts for the changes in the performance of the public sector? Arguably, the market-oriented reforms since the 1980s could have induced the desired effect. But, such an explanation would seem too facile to be taken seriously, in the absence of a casual explanation between the reforms and the observed improvement. Since revenue to cost ratios deteriorated in the 1990s in an atmosphere of neglect and tacit threats of privatisation and retrenchment of workers, the argument of positive effects of the reforms on efficiency seems simply not a serious one.

But probably what has perhaps been happening is (i) a hardening of the budget constraint, accompanied by a greater managerial autonomy, and (ii) a growing competition in the product market. In NDNFEs, between 1960-61 and 2002-03, government’s budgetary support (sum of equity capital and loans) declined, and the share of internal resources (depreciation and net saving) rose, both as a proportion of gross fixed capital formation (Figure 15). In 1963-64, budgetary support was 97.6 per cent of fixed capital formation, which came down to as little as 16.9 per cent in 1996-97; the share of internal resource went up from 11.2 per cent in 1960-61 to 73 per cent in 2002-03. Changes in market conditions and financial governance could have ensured greater accountability and cost consciousness. But these advantages could not get translated into improved financial results, as pricing and recovery of user charges continued to remain a matter of public policy.

The problems of inadequate electricity pricing, incomplete metering of power usage and recovery of user charges are too well known to be recounted here. Railway finances were a victim of coalition politics and competitive populism, as evident from a sharp decline in the revenue to cost ratio in the 1990s. In the passenger road transport sector, open and covert deregulation of profitable long distance inter-city routes could have adversely affected RTCs’ revenues; increasing the subsidy burden on social considerations, without a rational rise passenger fares could have seriously dented their financial viability.

In principle, these financial losses can be withstood if buoyancy in tax collection as a proportion of domestic output is maintained by tapping producers and consumers at different points in the circular flow of commodities and incomes in an expanding economy. Alternatively, the growing public domestic debt burden
could be monetised, if the financial system ensured a high and
rising domestic saving rate – as China is currently doing (and
as in much of east Asia earlier). In the absence of either of these
means to finance the losses, there is little option but to squarely
address the problem of pricing and recovery of user charges to
maintain fiscal and macroeconomic balance.

Evolving a consensus on such matters is a time consuming
process that requires – paraphrasing Arthur Lewis’ wise words
– sensible politics and sound administration. But this is not easy
to attain in the best of times; it is particularly difficult in an
inequitable society with fractious and deepening democracy. But
these problems cannot be wished away by relaxing the entry or
exit barriers or more generally, by redrawing the boundaries of
the state and market – though they may help deflect public
attention and postpone the day of reckoning. Infusion of foreign
capital in public utilities and services is inherently problematic,
as it could face public hostility in the face of high tariffs, or
reduction in service quality to maintain the desired level of
profitability – as apparently happened in Orissa after the dev-
astating “super cyclone” a few years ago. The experience of Latin
America in this respect in an earlier period, in permitting liberal
entry of foreign capital and its hasty exit in a decade or later
would hold a lesson or two for us.14

In the electricity generation sector, private and foreign power
producers are now offered assured payment by escrow accounts, to
overcome the SEBs’ financial difficulties. But such a method
will only ruin them further, as it fails to address the problem
of pricing and recovery of dues, but only redeems private elec-
tricity suppliers. Similarly, in the currently fashionable PPP
model, if the gains to the private party are well defined and up

front, but the gains to the public sector are to come at the end
of the period with incomplete contracts, then the social costs of
such partnerships could be prohibitive and may not solve the
essential problem of pricing and cost recovery.

More generally speaking, the liberal reforms incorrectly di-
agnosed public ownership to be the main culprit for poor per-
formance. Conceivably, ownership changes could allow a greater
freedom to charge market-related prices to those who can pay.
But this seems a hypothetical question since public utilities and
infrastructure are network industries with considerable externali-
ties that attract regulations, hence the output pricing decision
cannot be judged independent of the related public policy de-
cisions. Thus, such entrepreneurial freedom appears to have
limited practical significance in these industries.

Moreover, as is widely acknowledged, economic theory is
agnostic about the effects of ownership on performance, but what
matters is the market structure. Since much of public investments
are in industries with considerable externalities, regulation is bound
to play a critical role in their performance, regardless of own-
ership. Therefore, in such capital-intensive industries, the sources
of funding and corporate governance could be critical, which has
apparently got little attention in the recent policy discourse.15

III

Conclusions

This paper has examined some selected aspects of public sector
performance in the second half of the last century, in relation
to the national economic aggregates, mainly using the National
Accounts Statistics. The public sector’s share rose steadily from
about 9 per cent of the domestic output in 1960-61 to about 25 per cent by the mid-1980s, remaining roughly constant thereafter. But the sector’s share in domestic investment got reduced by half after the mid-1980s – from about 12.5 per cent to 6.4 per cent of GDP, implying an impressive rise in productivity in the aggregate. The finding is consistent with the decline in the average capital-output ratio in the public sector, a result that is also true for many one-digit sectors of the economy. The decline in the capital-output ratio is not on account of a shift in the investment composition in favour of labour-intensive sectors, but, on the contrary, it has changed in favour of infrastructure that is capital-intensive. There is indeed a rise in public sector productivity, sustained for nearly 20 years now.

This bold fact is at variance with the widely held perceptions of the performance and functioning of the public sector. Pending a deeper inquiry, the proximate causes of the productivity rise are (i) a decline in employment growth, and (ii) a sustained rise plant load factor of thermal power generation, which accounts for the bulk of electricity supply and a sizeable share of public investment.

If the physical performance has shown impressive gains, why has the public sector’s finances remained in a bad shape, adversely affecting the domestic saving ratio, and the fiscal balance? This is so in spite of a steady rise in the profitability of the central PSEs, even net of the oil sector enterprises. Perhaps, tightening of the budget constraint and a corresponding managerial autonomy explain the improved financial results.

But the improvement in physical performance has not been enough to halt the decline in public sector saving as a proportion of domestic output. Where, then, is the problem? The real culprits are electricity boards, state road transport corporations and the railways, whose growth in revenues has not kept pace with costs – as measured by the revenue to cost ratio, which is less than one, and has deteriorated since the 1990s. This has happened in spite of an improvement in the physical measures of efficiency. Why? Because prices of these services have not kept pace with costs and collection of user charges has lagged behind. The most telling evidence of this is that the public sector price deflator, relative to the GDP deflator, has consistently been lower for over 40 years, standing 17 percentage points lower than what it was in 1960-61. In other words, the crux of the poor financial returns lies in incorrect pricing of these services and poor collection of user charges.

If our diagnosis is sound, it suggests that much of the preoccupation of current policy of changing public ownership and control to get greater efficiency seems misplaced. Such reforms are unlikely to make a difference as ownership has little relation to economic outcomes, either in theory or in contemporary experience. Moreover, as this study has shown, the real problem is not the lack of efficiency in production, but one of pricing and collection of user charges. Hence, unless these problems are squarely addressed, public sector finances are unlikely shape up.

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Notes

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References


1 A term apparently borrowed from the UK chancellor of the exchequer Gordon Brown’s product differentiation of Thatcher’s privatisation policy.

2 Data sources for this graph are Eapen (1982) and EPWRF (2004).

3 This figure is taken from EPWRF (2004). The figure also suggests that the decline in ACOR in the economy is almost entirely on account of the public sector.

4 Drabu (1992) had found that much of the increase in ICORs during 1961-81 was on account of electricity, gas and water. There is a reversal of the trend in the following decades.

5 In Figures 4 to 6, all variables are in current prices.

6 Data on central PSEs is taken from the department of public enterprises’ Survey of Public Enterprises and for the remaining series, from DGET, as reported in the Economic Survey.

7 Data for this graph are taken from the official annual Economic Survey and Tata Energy Research Institute’s TEDDY, various issues. As PLF could vary either because of demand for or supply of electricity, it is strictly not an efficiency measure. But, in a supply constrained situation as in India, PLF might be considered as a measure of efficiency.

8 There is, however, a turnaround since 2002-03 that is not captured in the graph.

9 However, the importance of these sectors can be gauged from the following facts. One, in most of the states, electricity and irrigation have consistently accounted for more than a half of plan expenditure in all the plans; two, financial losses of SEBs and RTCs account for the bulk of the deficits in most states.

10 Data sources are: Saxena (1991) and Handbook of Indian Railways, various issues.

11 Thomas (2000), and the web site of the Central Institute of Road Transport, Pune (www.cirtpune.com) are the sources of data for this graph.

12 Since the late 1990s, both the variables described have witnessed some stagnation with considerable fluctuation. One suspects these reflect the effects of disinvestment and privatisation on the capital finance account of the non-financial enterprises.

13 For example, a large fraction of the modest investment in railways in the 1990s was frittered away in the ambitious “unigauge” project (to replace metre gauge track with broad gauge) that added marginally to revenue but rendered a sizeable metre gauge rolling stock unusable. One suspects this grandiose and irrational project severely dented railway finances.

14 Though written from the perspective of the risks for international firms, Wells and Gleason (1995) highlight the potential economic and political difficulties in pricing of infrastructure services in Latin America.

15 For a critical review of disinvestment and privatisation, and suggestions for the reform of corporate governance with public sector, see Nagaraj (2005).

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