Why Privatize? The Decline of Public Ownership and its Impact on Performance in Indian Industry

> Sumit K. Majumdar Professor of Technology Strategy School of Management University of Texas at Dallas <u>majumdar@utdallas.edu</u>

> > April 25, 2005

Why Privatize? The Decline of Public Ownership and its Impact on Performance in Indian Industry

Abstract

This article examines patterns of decline in the public ownership of the corporate sector in Indian industry over a twenty five year period, 1973-74 to 1997-98, to assess whether a transformation in ownership has taken place and whether the boundaries of the state as a participant have significantly declined. The data cover the entire industrial population of India, albeit at an aggregate level, with the findings having immediate salience and applicability to current concerns. Privatization in a significant way has not taken place in India; nevertheless, the boundaries of the state as an industrial participant have shrunk significantly as a result of the growth of private entrepreneurship in India. The numbers of private companies being established in India have grown and the volume of equity capital being invested has risen substantially, both in absolute volume terms as well as in investment per company. This trend has been pronounced in the post-1991 period, after reforms were introduced in India. Associated with this relative shrinking of government ownership is a significant increase in industrial performance. When the data for 1973-74 to 1997-98 are augmented with data for the 1998-99 to 2001-02 period the relationship between the shrinkage of the boundaries of the state and performance remains significant. Autonomous private sector growth has had a substantial impact in enhancing performance. Thus, the role of privatization as a mechanism to enhance performance becomes moot in the Indian context, especially since the costs of adjustment can be high, if the decline in relative government shareholding comes about as a result of other means, such as the growth of entrepreneurship in India. Simultaneously, the resources of the state can be better spent on actively encouraging investment activities rather than in undertaking divestment activities.

JEL Classifications: L33, G34, G32, P31

Key words: Boundaries of the state; corporate performance; crowding out; entrepreneurship; private sector growth; privatization; public ownership.

1. INTRODUCTION

There is by now a substantial corpus of work that points to significant performance differences between enterprises that are privately owned and those that are owned by governments.¹ Due to reasons such as principal-agent issues property rights over the enjoyment and disposal of assets are attenuated in government-owned enterprises because a market for corporate control is absent (Alchian and Demsetz, 1973). Consequently, there is a lack of capital market discipline to which state-owned enterprise agent-managers can be subjected to by their owner principals (Putterman, 1993). Second, there is the fuzziness of owners' identity and problems of collective action. With many owner-principals there are incentives to free-ride because any owner bearing the costs of monitoring has to share them with others (Ben-Ner, Montias and Neuberger, 1993).

Privatization has been expected to solve the above problems by bringing in capital markets discipline and obviating collective action problems (Bishop, Kay and Mayer, 1994; Caves, 1990). The current state of the debate on privatization, and, therefore, the relative merits of state ownership of enterprise, can be best summed up by the words that it depends. The mainstream academic and policy evidence for both developed and developing countries shows that privatization, by and large, has had the expected beneficial consequences of improving the performance of firms privatized.² The distributional consequences of privatization are, however, not so clear cut. In fact, Birdsall and Nellis (2003) are quite negative on the short term equity outcomes of privatization programs in various countries. There are high costs of transition.

Yet, the great aim of shrinking the boundaries of the state in a formal manner has been stalled in many cases. While the Baltic and Central European countries were able to successfully privatize their state enterprises, there was a failure of privatization in parts of Eastern Europe, such as former Czechoslovakia, and in the states of the former Soviet Union, including Russia. In Russia, particularly, speed and shock value was considered of the essence resulting in a significant breakdown of the transition process because of the absence of an institutional framework, particularly related to the effective functioning of capital markets. Many other countries, such as India, have undertaken, at best, lack-luster privatization. Though privatization has "…moved from

¹ Some of the relevant pieces are by Atkinson and Halvorsen (1986), Boardman and Vining (1989), Borcherding, Pommerehne and Schneider (1982), Chhibber and Majumdar (1998), Dewenter and Malatesta (2001), Funkhouser and McAvoy (1979), Davies (1971), Fare, Grosskopf and Logan (1985), Kole and Mulherin (1997) and Majumdar (1998). This is only a very small sampling from an extensive literature.

² Some of the relevant pieces that establish this finding are by Barberis, Boycko, Shleifer and Tsukanova (1996), Bishop and Thompson (1992), Boubakri and Cosset (1998), Bortolotti, Fantini and Siniscalco (2004), D' Souza and Megginson (1999), Eckel, Eckel and Singal (1997), Galal, Jones, Tandon and Vogelsang (1994), Ehrlich, Gallais-Hammono, Liu and Lutter (1994), Foreman-Peck and Manning, (1988), Frydman, Gray, Hessel and Rapaczynski (1994), Gupta (2005), Li (1997), Megginson, Nash and van Randenborgh (1994), Newberry and Pollitt (1997) and Omran (2004). Megginson and Netter (2001) comprehensively review the field, with its extensive literature, in their survey, though, of course, the coverage does not extend to the most recent pieces. Kikeri and Nellis (2002) highlight the conditions for privatization to be successful.

novelty to global orthodoxy in the space of two decades" (Megginson and Netter, 2001:5), it is hardly a ubiquitous feature in several institutional jurisdictions. India is a case in point.

There could be several reasons why privatization succeeds and why it fails. Kikeri and Nellis (2002) highlight some of these. Of relevance to the Indian situation are four factors: commitment, competition, transparency and mitigation, that interactively help make the process of privatization yield the necessary results. Of these four factors, Indian scores highly on two factors: competition and transparency. It scores very badly on the other two factors: commitment and mitigation.

A consistent commitment to the cause of privatization, as displayed by Mrs. Thatcher's conservative government in the early 1980s in Great Britain, is necessary for privatization to succeed. This enhances policy credibility via a signaling effect that the pace of reforms will be fast (Haggard and Webb; 1993; Levy and Spiller, 1994). Yet, this attribute has been conspicuously lacking in India. Given the lack of a clear political majority to govern, the various governments since 1991 have had to play a balancing game in satisfying various political constituencies about whether or not to privatize.

In particular, the years 1996 to 1999 were a period of musical chairs government, when four prime ministers took the seat as the head of the Central Government during that period. The prime minister and the finance and divestment ministers might have had a keen interest in seeing privatization succeed, but the other coalition members of the government have had opposing views. A corollary to commitment is the creation of the necessary institutional framework so that policies that are to be put in place to transform an economy can be implemented. Governance by tight rope-walking best describes the nature of political economy in India in the 1990s. The overall commitment to the cause of privatization, consequently, has been singularly diluted in India and neither has appropriate institutional mechanisms evolved according to global standards.

The issue of whether competition, or in other words the enhancement of market contestability, has a stronger effect than privatization in influencing superior performance is yet an open one. Several recent pieces³ provide empirical evidence that supports the notion of evolving competition as an equally strong disciplining force for improving the performance of public sector firms. Even if privatization has taken place a substantial portion of the performance improvements can be attributed not to it, but to the forces of competition. If anything, the period after the 1991 reforms is one where market contestability has been strongly enhanced in India, as Das (2002) reports. The creative destruction caused by the entry of new firms into the large and evolving Indian market is just beginning.

A third factor is transparency, a feature the lack of which has caused significant problems in the Russian case. Where property rights and control rights cannot be easily defined, because of the history surrounding the political economy of a country, or the nature of the industry such as in electric or water utilities, there is an aversion of the part of potential purchasers to proceed. Insider ownership with its attendant possible collective action problems (Barberis, Boycko, Shleifer and Tsukanova, 1996; Frydman, Pistor and Rapaczynski, 1996) and the lack of ready defensibility of

³ See, for example, Anderson, Lee and Murrell (2000), Bortolotti, D' Souza, Fantini and Megginson (2002), Caves and Christiansen (1980), Caves (1990), Nickell (1996), Pinto, Belka and Krajewski (1993), Ros (1999), Tandon (1995), Vining and Boardman (1992) and Xu (2000).

claims by new owners to the assets of the enterprises (Stephan, 1996; Summers, 1990) raise costs and the efficiency benefits of privatization are vitiated. In India, transparency has never been an issue since the debates have taken place in full public view and, if anything, a surfeit of information and facts has been generated. Judicial activism is also a major feature of the institutional environment. These factors, conversely, might lead to the generation of multiple opinions and a plethora of stands taken by the various stakeholders could comprehensively confuse the contours of the debate. Confusions can create difficulties in implementation.

The fourth issue is mitigation, which implies having the safety nets to absorb the fall-outs associated with the restructurings that inevitably follow potentially transformational changes in ownership (de Melo, Denizer and Gelb, 1996; Sattar, 1989). The lack of mitigating factors that enable those affected by the re-structuring that most often accompany privatizations to absorb the shocks has been the bone of contention between the advocates and opponents of Indian privatization. A component of the mitigating element is institutional competence such that the privatization process is managed well. On this issue, there is an apparent paradox that Shirley (1999) highlights. A state that privatizes well will also have managed its state enterprises well. Thus, a relatively incompetent government will manage its privatization process badly. Given India's track record of managing state enterprises badly, the lack of institutional competence also signals the absence of a mitigating factor that can enable the privatization process to succeed in India. This is borne out by the slow progress of privatization in India.

Given the possibilities of problems associated with privatization several alternative remedies such as partial privatization, the streamlining of objectives, increased autonomy and managerial accountability (Kay and Thomson, 1986; Vickers and Yarrow, 1991; Yarrow, 1986) have been suggested. These may or may not work. On the other hand, privatization can become irrelevant if there is an unleashing of entrepreneurial forces within a country. The evolutionary imprint of competition can soon leave its mark in such a way that the relative role of the state as a participant in the industrial activities of a country is reduced over time so drastically that the state withers away as a major player on the corporate scene. If that is the case then the debates about privatization are moot. What has been expected as an outcome from the process of ownership transformation happens anyway, but how it happens is not through sale or purchase of assets and businesses but via the forces of entrepreneurship.

In this article, I evaluate whether there is a transformation in ownership composition taking place in industry such that the role of the Indian state as an industrial participant is lessening over time. I examine changes in the composition of ownership in Indian industry using corporate sector data from the Department of Company Affairs (DCA), presently housed as a department in the Ministry of Finance though it has been a separate ministry in its own right on several occasions. Specifically, I evaluate the patterns of growth or decline in the number of privately owned and government owned firms, and the investments made in the equity capital of these firms. I, thereafter, examine the impact of such growth and decline of private and government firms on industrial performance. In that sense, this paper contributes to the literature examining the consequences of ownership transformation on performance.

To calculate indices of performance and evaluate changes in these indices, I use data from the Annual Survey of Industries (ASI). These data are available across four ownership categories as well: for units owned by the Central Government, units owned by the governments of the various States of the Indian union, units that are jointly owned by government and private interests and units that are privately owned. A comprehensive evaluation of whether changes in the composition of ownership have had an impact on industrial performance is carried out. The period covered is from 1973-74 to 1997-98. These are the years for which the ASI data are available by ownership category.

A comment on the time period covered is now in order. In the history of every nation there is a unique period or set of events which are clustered together, and these coalesce together to alter the status-quo so significantly that the situation is transformed for ever. Gladwell (2000) has used the term tipping point to describe the alteration of the status quo. These can be the sudden collapse of a system, such as in Eastern Europe (Ahluwalia, 1995; Popov, 1991; Sachs, 1992), or some other event that is potentially considered of profound eventual consequence. At these times, there is willingness on the part of individuals and firms to suspend self interest and work for the common good (Grindle and Thomas, 1991; Williamson and Haggard, 1994) or take risks that hitherto would not have seemed feasible. Das (2002) describes the 1991 reforms carried out in India, brought on by the Gulf War, oil prices and an extremely precarious foreign exchange reserves position, as such an event. This event can be classified as the tipping point that has unleashed entrepreneurship in such a way that it leaves a strong imprint on the potential structure of ownership and performance in Indian industry making privatization unnecessary. The data permit an evaluation of this proposition.

The article unfolds as follows. In the next section I describe the role that the state has played in Indian industry. In this section I describe the evolution of the state sector and the reforms that have been put into motion since 1991. In section 3 I describe the broad contours of the empirical analysis and particularly the sources of the data that will provide insights into the issues being examined. In section 4 I review the question of are the boundaries of the state, as a participant in Indian industry, shrinking. In section I describe the various econometric procedures that have been carried out to examine the issue of state sector boundary shifts and their impact on industrial performance. Section 6 contains a discussion of the several issues that are raised by the empirical analyses and section 7 contains the conclusion of the article.

2. THE STATE IN INDIAN INDUSTRY

2.1 Background

The genesis of state involvement, and centralized control, in India's industry goes back to the 1920s when eminent engineers such as Sir M. Visvesvaraiah, who headed a Committee on Indian Economic Conditions in 1925, were observing the process of Japanese industrialization and arguing that trade and industry did not occur automatically and spontaneously, but had to be systematically planned and developed. The *Bombay Plan'* of 1944, which led to the creation of a separate Planning and Development department within the Government of India establishment, proposed a key role for the state in Indian industrialization, expecting it to set up not only the infrastructure but also the key heavy industries such as steel and machine building which the nascent private sector could not. These would be the industries that led to the building of other industries. The government could use its relative position of advantage to acquire the substantial capital amounts, particularly from the foreign capital markets and agencies, necessary to implement large scale projects. To use a phrase invented by India's then prime minister Jawaharlal Nehru, the public sector enterprises were to be the *'temples of modern India'* that would ensure the conditions for successful take-off into industrialization. The economic necessity of the times required that the state play the major role.⁴

In 1948 an Industrial Policy Resolution sought government control of industrialization, and this was to be achieved through the Industries (Development and Regulation) Act of 1951. It explicitly stated that the role of government was to create industrial wealth, rather than develop guidelines for devolving industrial assets into dispersed hands as a means of redistribution. Thus, the role of the state as an important industrial entrepreneur and manager was clearly articulated, and this articulation of ideas was consistent with the industrial development model being adopted in the Western European countries at that time. However, if private firms existed in certain industries where the state was to assume a dominant role, these had freedom for efficient production and expansion. The ethos underlying policy was the development of national capabilities; the state's role was both primary, to step in where private capital was not forthcoming in actual quantity, and secondarily also to correct regional lop-sidedness in location.

In 1956 a second Industrial Policy Resolution was enunciated. This resolution then guided industrial policy-making in India for well over a quarter of a century. The principle that the state was to be the dominant industrializer was maintained and the resolution precisely operationalized the nature of public ownership. While private firms were likely to be occasionally authorized to produce items which were reserved for the state sector, the state sector could enter at will into sectors where private firms were dominant players. The second Industrial Policy Resolution coincided with the launch of the Second Five Year Plan in India, an event which decisively channeled resources to the industrial sector, and explicitly put in place a mind-set whereby the evolution of the economy was to be guided by conscious human action and choices that were to be made in New Delhi. It was the time when the *commanding heights* argument was clearly articulated.⁵

The resolution also specifically mentioned that industrial undertakings ought to behave in constraints with the social and economic policy objectives of the state, howsoever defined. The mid-

⁴ After the war, several projects, such as the multi-purpose river valley project modeled on the *Tennessee Valley Authority* (TVA), the *Damodar Valley Corporation* (DVC), and the collection of steel plants that would evolve to become *Hindustan Steel Limited* went on to the drawing board. Units in the aircraft manufacturing and shipbuilding sectors, which had been set up during the Second World War by leading private entrepreneurs of the day such as Seth Walchand Hirachand, were brought into the public domain on grounds of national interest.

⁵ The Second Five Year Plan stated that "the adoption of socialist pattern of society as the national objective, as well as the need for planned and rapid development, require that all industries of basic and strategic importance, or in the nature of public utility services, should be in the public sector. Other industries, which are essential and require investment on a scale, which only the state, in the present circumstances, could provide, have also to be in the public sector. The state has, therefore, to assume direct responsibility for the development of industries over a wider area......the public sector has to expand rapidly. It has to not only initiate development which the private sector is either unwilling or unable to undertake, it has to play the dominant role in shaping the entire pattern of investment in the economy, whether it makes the investments directly or whether these are made by the private sector. The private sector has to play its part within the framework of the comprehensive plan accepted by the community."

1950s is also the period when the second five-year plan was launched. This plan was heavy-industry oriented, and priority was given to the development of steel, heavy engineering, machine tool and heavy chemical industries. The resolution set out the following objectives for public sector enterprises: to help in the rapid growth and industrialization of the country and create the necessary infrastructure for economic development; to promote redistribution of income and wealth; to create employment opportunities; to promote balanced regional development; to assist in the development of small-scale and ancillary industries; and to promote import substitutions, save and earn foreign exchange for the economy.

2.2 The Big Picture on Patterns of Growth of the State-owned Sector in India

From the data presented by the Department of Disinvestment (DD) in the Ministry of Finance, the growth of investment in public sector enterprises in India that are owned by the Central Government rose from approximately Rupees 4,000 crores (a crore equals ten million) in 1969 to Rupees 6,000 crores in early 1974, to Rupees 18,000 crores in 1980, and then to Rupees 99,000 crores in 1990. By 1998 that sum had reached over Rupees 230,000 crores (Rupees 2.3 trillion), and this sum excluded the value of the negative net worth that had to be funded by the government.

The government, as the provider of a soft-budget constraint to its enterprises, has consistently met their financial shortfalls through further capital and cash injections. The number of enterprises rose from eighty four in 1969 to over two hundred and forty by 1998. The growth of Central sector enterprises has been accompanied by the growth of enterprises in the States sector. More recent DD data show that the States sector enterprises accounted for Rupees 250,000 crores of investments and the associated net worth deficit funded by the government was Rupees 50,000 crores. The total amount sunk by the government is over Rupees 3 trillion. The quantity of *soft* financing provided by the states is very large.

The late 1960s can be considered the tipping point for the very rapid growth of the public sector in India. At that time, populist policies, strongly supported by sloganeering that supported redistribution, were put into place, and the period from 1966 to 1991 can be considered the watershed for Indian industry. This is the period when the *'license raj'* was fully institutionalized, with controls and micro-management of all aspects industrial operations becoming the norm. The then Prime Minister Mrs. Indira Gandhi was advised by a close-knit group of politically left-leaning advisers⁶ to tighten the grip of the state on the management of the economy. The ownership of enterprises by the state permitted the state to actually indulge in this activity comprehensively and investments in these enterprises were enhanced. The motivations were now mostly political expediency and no longer economic necessity.

Thus, since 1956, every conceivable sub-sector of Indian industry has seen the presence of state-owned firms. Apart from defense firms, traditionally in the public domain, generation of atomic and non-atomic power, manufacture of aircraft, heavy machinery, and equipment for rail and sea transport are among activities carried out exclusively by state-owned firms. At present, state-owned firms also manufacture items such as nonferrous metals, chemical intermediates, iron and steel, drugs and fertilizers, and are involved in diverse activities such as construction, engineering

⁶ Among them were D. P. Dhar, P. N. Haksar, S. Mohan Kumaramangalam and T. A. Pai. See Khilnani (1997) for a readable account of the evolution of economic policies in India.

consultancy, farming, handicrafts retailing, shipping, coal mining, oil refining and commodity trading. State-owned firms have operated in many consumer-goods industries such as condoms, hotels and handicraft retailing, where competition among players is very high.⁷

Over the years a number of travails have affected the public sector. They have been prey to inappropriate location and technology choice decisions, irrational product mixes, and imposed marketing arrangements. These decisions have been made for political considerations, and have not been based on economic criteria (Bardhan, 1984; Bhagwati, 1993). As a result, few choices and incentives are given to managers to maximize economic residue, and neither are they accountable for attaining efficiency because ambiguous and non-economic objectives have driven decision-making (Marathe, 1989), and in the Indian context state-owned enterprises have been used to implement government policy with regard to stabilizing commodity trade, or in making transfer payments to sections of the community (Jalan, 1991). These have been coupled with policy and institutional failures creating large deadweight losses.⁸

A major phenomenon in India has been state-legitimized rent-seeking which has had an enervating effect on efficiency (Bardhan, 1984). First, in the absence of institutions permitting business failures, and faced with strong labor unions, unsuccessful private sector enterprises have not been allowed to go bankrupt but have been taken over by the government to preserve jobs. Thus, the state has launched numerous corporate rescue missions when private management has failed. Additionally, the creation of government-owned enterprises has not been driven not by

⁷ State owned enterprises have the dominant share of the financial sector in India, whether it is banking or insurance, but that sector is specifically excluded from the purview of these analyses. In addition, the entire railway system of India is in the public sector as is the production of defence items. These activities are undertaken by departmental enterprises and not by enterprises set up as corporate bodies. Defence equipment is produced by both corporate enterprises owned by the central government, which fall within the purview of this study, as well as by a departmental enterprise staffed entirely by civil servants. This organization, that of the Indian Ordnance Factories, is over a century old and presently contains some of the most advanced technological research laboratories and facilities in India. Another departmental enterprise is the post office. There is a move to convert this into a corporate entity along the lines of the corporation that has been created for the post office in Great Britain. A portion of the telecommunications network was transferred from the departmental organization to a corporate organization in the 1980s to create the Mahanagar Telephone Nigam Limited (MTNL). More recently, the rest of India's state owned telephone network was transferred from the departmental enterprise to form a corporation called the Bharat Sanchar Nigam Limited (BSNL). The employment in all of these departmental enterprises is substantial, running into millions.

⁸ On this issue, Das (2002: 73) has written: "In India, I later realized, we primarily focused on the numerator, that is how to raise savings, thinking that to be the essential problem. We ignored the denominator – capital productivity – and it turned out to be our Achilles' heel. Indian policy makers naively assumed that once the government made the investments, the returns would come automatically. Their innocent faith in state companies turned out to be altogether misplaced, for the output from the capital invested in this sector was unacceptably low. There were many reasons for this, the chief ones being the lack of training, autonomy, and accountability of the senior managers in the public enterprises. It was a management failure."

ideology or pragmatism, but to create extra-pecuniary opportunities for senior civil servants or politicians.⁹

2.3 Economic Reforms and Privatization in India

The process of privatization in India is linked with the economic reforms launched in 1991. The trigger for the reforms was a severe financial crisis the government faced. Caused by the profligate external borrowing of the 1980s, and the 1991 Gulf crisis, a severe shortage of foreign exchange led to a situation where basic petroleum supplies could not be obtained. Under pressure from the World Bank and the International Monetary Fund, the government agreed to several macro-economic reforms. At that time it was realized that a process of micro-economic reforms could be implemented. Several of these ended the policy of trade and industrial licensing that the *license raj* had been built on. These opened up Indian industry to the forces of entrepreneurship and competition, and made Indian markets contestable. The entry by private enterprises into sectors that were reserved for the state, or where the state had a significant presence could, therefore, create competitive pressures on existing state-owned units to perform better or through a process of atrophy reduce the proportion of overall low performing units in Indian industry as a whole.

With respect to the issue of privatization, the government recognized the need, from a fiscal perspective, of superior performance from the public sector. State-owned enterprises were an economic deadweight, causing substantial losses to the economy. The main activities during the reforms process were that of de-licensing and removal of controls. These activities required notification processes to be undertaken, and these to be undertaken by the ministries concerned, rather than the undertaking of several operational activities required to actually implement procedural changes in government departments or agencies. Institutional competence extended to the drafting of resolutions, but not to the myriad of operational tasks that would normally accompany re-structuring of processes and procedures or the sale of assets.

In accordance with this approach, the public sector reforms were initially based on what I term a strategy of notification, this being a relatively easy and painless activity to perform relative to the much harder to perform privatization activity with its various operational tasks and requirements. Before the reforms were launched in 1991, seventeen specific areas of activity were exclusively reserved for the public sector. The reforms of 1991 reduced the number of exclusive areas reserved for the public sector to eight, which were: arms, ammunition, defence equipment, including aircraft and warships; atomic energy; coal and lignite; mineral oils; mining of ferrous and certain non-ferrous metals, gold and diamonds; atomic mineral; and railway transport. In 2002, this list has been subsequently brought down to three sectors: atomic energy; atomic minerals; and railway transport. This opening up of industry segments would energize the private sector and lead to the entry of new firms.

⁹ For example, Marathe (1989: 184) quotes the late Mr. B.K. Nehru, a former ambassador of India to the United States, who had also held several other key appointments in political and economic spheres: "It is simply that it has become common practice for public sector enterprises, particularly in the States, to be made into mechanisms to provide powerful politicians, who cannot be accommodated as Ministers, with salaries, perquisites, patronage and opportunities to make money through corruption."

Several actual privatizations were anticipated.¹⁰ Nevertheless, in the period 1991-92 to 1997-98, the pace of privatization of government sector enterprises in India has been extremely slow. Unlike, say, the privatization process in the United Kingdom in which majority stakes in state enterprises were sold outright in a short time, small minority stakes were sold in Indian companies. Data from the Department of Disinvestment show that in the early years of the reforms process, the years 1991-92 and 1992-93, minority stakes in 47 and 35 companies were sold. In all of the subsequent later years to 1997-98, minority stakes in just 20 companies were sold. Of the targeted receipts of almost Rupees 30,000 crores from privatization, the actual receipts from privatization amounted to Rupees 11,000 crores in the entire period. These were extremely trivial amounts.

The amounts raised via privatization are extremely small when viewed against the average book value of investments of, say, Rupees 200,000 crores in the Central sector enterprises in that same overall period. The receipts from the privatization of the enterprises owned by the governments of the various states of the Indian union, in which approximately over Rupees 250,000 crores have been sunk, has been nil, and, on the other hand a number of these enterprises have been closed down with the governments making separation payments to the staff involved. The sums received are hardly likely to make more than a tiny hole in the fence that runs around the boundaries of the involvement of the state in Indian industry, or, for that matter, in the fiscal deficit.

Thus, a reasonably easy conclusion to draw is that the quantum of privatization in India has been so negligible as to be non-existent. This, in part, may reflect the ambivalence of the then prime minister, the late Mr. P. V. Narasimha Rao, towards privatization. Das (2002: 223) writes that: "He was against privatization of the public sector because of his deep faith in Nehru's mixed economy. 'You don't strangulate a child to whom you have given birth,' he said. However, he sought to improve the public sector's performance by introducing competition from the private sector." If privatization has been negligible and inconsequential, are the boundaries of the state in Indian industry shrinking at least, because of private sector enterprise growth, or do they still remain as they were? In the next section, the DCA data that are used to address this issue are described. The results of the analyses are reported on in subsequent sections.

3. EMPIRICAL ANALYSES

3.1 Data on the Corporate Sector in India

There are two sources of data that are used for the analyses in this article. A set of evidence that shows the growth of the corporate sector as a whole, and the changing role of the state sector within the overall corporate sector, is generated using data that are obtained from the Department of

¹⁰ The notification removing licensing controls stated that: "In the case of selected enterprises, part of Government holdings in the equity share capital of these enterprises will be disinvested in order to provide further market discipline to the performance of public enterprises." In a follow-up budget, the then finance minister stated that: "In order to raise resources, encourage wider public participation and promote greater accountability, up to 20 per cent of Government equity in selected public sector undertakings would be offered to mutual funds and investment institutions in the public sector, as also to workers in these firms."

Company Affairs (DCA) of the Government of India. The DCA is a department that is specifically interested in the corporate sector of India as a whole. Their data is at the company or corporate level. They do not, however, look after the interests of businesses that are organized either as a proprietorship, a partnership or a cooperative. Nevertheless, firms organized as corporations account for almost ninety percent of the value of industrial output in India.

The second set of data that are used are the data generated by the Annual Survey of Industries (ASI) which is carried out by the Central Statistical Organization (CSO). The appendix contains full details about the ASI. Combining these two sources of facts yields a comprehensive data set for all of Indian industry. The data coverage is for the entire population of enterprises making up the corporate sector in India. Thus, there is no inherent sampling bias that may contaminate the data. Additionally, since the results apply generally to the entire population of firms and enterprises carrying out industrial activity in India, the conclusions yield very robust policy and strategy conclusions.

The DCA data are available organized as a time-series for the period 1957-58 to 2001-02, but since the ASI coverage on the ownership structure of Indian industry is available only for the period 1973-74 to 1997-98, DCA data for only this period is initially used for the current analyses. The DCA data contains annual details on: (i) the number of private companies in India; (ii) the number of government companies in India; (iii) the total number of companies in India; (iv) the value of the paid up capital associated with the private companies in India; (v) the value of the paid up capital associated with government companies in India; and (vi) the value of the total paid up capital associated with all companies in India.

From these data, it is possible to calculate the following set of ratios that become relevant for carrying out further analyses: (a) the proportion of private companies to the total corporate sector as a whole; (b) the proportion of government companies to the total corporate sector as a whole; (c) the proportion of private companies paid up capital to the total corporate sector paid up capital; and (d) the proportion of government companies' paid up capital to the total corporate sector paid up capital. Additionally, it is possible to compute the following additional ratios that become relevant for carrying out analyses: (e) the average paid up capital per private company; and (f) the average paid up capital per government-owned company.

These statistics provide the overall picture on the evolution of the industrial structure of India for over a twenty five year period. Thus, the number of time series observations used is twenty five. Since time series data are available, it is possible to calculate the period-to-period changes for each of the variables if necessary. In addition, the data set is split into two parts for further analysis. The first part relates to the period 1973-74 to 1990-91. The second part relates to the period 1991-92 to 1997-98, which is the period after the reforms commenced in India.

3.2. Data on the Industrial Sector as a Whole

For the overall period 1973–1974 to 1997–1998 that is studied, data generated by the ASI are used to evaluate comparative performance indices for the four sectors of Indian industry: [1] that portion of industry that is owned by the central government (Central); [2] that portion of industry that are owned by the governments of the various states of India (States); [3] that portion of industry that is jointly owned by the public and private sectors, often called the mixed sector in literature (Joint); and [4] that portion of industry that is owned privately (Private).

The ASI data reported by individual enterprises are collected at the factory level. For public reporting purposes, data classified by ownership category are released only in aggregate. Thus, for every year there are four observations with respect to output and inputs, given the existence of the four ownership categories: [1] Central, [2] States, [3] Joint and [4] Private sectors. However, time-series observations for each ownership category are available for each year only between the period 1973–1974 and 1997–1998. Thus, for each category of ownership there are twenty five available observations, providing information for the quarter century period that has had maximum salience for the contemporary growth of the Indian economy. Pooling data by ownership category and time yields one hundred observations to be used for comparative assessment of the evolving structure and performance of Indian industry. Again, the data set is split into two parts: 1973-74 to 1990-91 and 1991-92 to 1997-98.

In subsequent analysis I add data for the years 1998-99 to 2001-02 to evaluate the relationship between the growth or decline of government ownership as a whole and performance. These data are for the industrial sector as a whole, since the fine-grained break up by the four categories are not available. Nevertheless, the issue of whether the broad trend persists or not can be evaluated for a much longer time span.

3.3. Performance Measures and Key Variables

For the calculation of the relative performance parameters three input variables and one output variable are used in the computation of performance indices for each observation. These performance indices are: (i) net value added per employee, (ii) net value added per unit of fixed capital, and (iii) net value added per unit of working capital. The inputs used for computation of the indices are deflated rupee values of [a] fixed capital and [b] working capital, and [c] the actual number of staff, production workers as well as managers and supervisors, employed.

Fixed capital covers, apart from plant and machinery, all other types of assets deployed for production, transportation, living or recreational facilities, hospitals and schools for factory personnel; it includes assets of the owning enterprise's head office allocable to the factory and also full value of the assets taken on hire-purchase basis excluding the interest element; it excludes intangible assets solely used for post-manufacturing activities such as sale, storage and distribution.

To create value necessitates acquisition and configuration of capabilities, which are encapsulated in physical, liquid and human capital. Capital inputs, both physical and working capital, are also expressed in crores of rupees. Human capital inputs are expressed in thousands of employees. To deflate variables expressed in rupees the wholesale price index is used; the capital inputs and the output values are then expressed in constant rupees. The output variable used is net value added, expressed in crores of rupees (a crore being equal to ten million), which is a standard measure of firm-level output (Jackson and Palmer, 1988).

In the literature on efficiency measurement both value added and gross output are used to measure output. However, Griliches and Ringstad (1971) advance arguments in favor of using value added because it facilitates comparison of results for firms which may be heterogeneous in material consumption. A further choice arises between the uses of either gross or net value added. Denison (1974) makes a case for the use of net value added by arguing that, since gross value added includes

a measure of capital consumption, there is no rationale as to why capital consumption ought to be maximized rather than minimized.

Nevertheless, as Diewert (1978) has noted, value added captures hybrid aspects of firms' activities. First, it captures a production relationship between primary factors and output. This relationship is based on managements' capabilities. Second, it captures a profit-generating relationship between firm-specific capital and firms' output, which, while dependent on management capabilities, is dependent on demand and supply conditions. In the context of state-owned firms in developing countries, governments have used state-owned firms as price administrators and indirect tax collectors, as noted by a very well-known observer of public sector enterprises (Reddy, 1990), particularly in the petroleum industry which makes up a significant part of the joint sector in India.

4. ARE THE BOUNDARIES OF THE STATE SHRINKING?

4.1. Broad Trends

The first issue to be empirically addressed is whether the boundaries of the state are shrinking in Indian industry. By that I mean whether the proportion of firms that make up the Indian industrial sector, and the proportion of equity capital invested by the government, is declining or not. Initial data on this issue are given in table 1. The table contains descriptive statistics for the corporate sector for the 1973-74 to 1997-98 period as a whole and these data are also provided for two sub-periods: 1973-74 to 1990-91 and 1991-92 to 1997-98. The second period is the one after the comprehensive reforms were launched in India.

-----INSERT TABLE 1 HERE-----

The table contains statistics on the number of government and non-government, that is to say private, companies, the nominal face value of government equity shareholding in companies, the equity shareholding value of private companies, the ratio of the value of government shareholding to private shareholding, the average equity shareholding per government company, the average equity shareholding per private company and the ratio of equity shareholding per government company to that of a private company. There are many details in this table. I will concentrate on a few key ones.

During the period as a whole there were 944 government companies on average operating in India compared to 153,300 private companies. But the average value masks the true distribution. A look at the cell for the minimum values of companies, columns (A) and (B) show that at the start of the period evaluated there were 390 government companies and 33,966 private companies but their numbers had increased to 1,220 and 449,730. The ratio of maximum number to minimum number, the maxi-min ratio, for the overall period shows that it was 3.13 for the government sector but 13.24 for the private sector. In the first period, 1973-74 to 1990-91 these ratios were 2.97 and 5.91 respectively. Government companies had grown significantly in numbers during this time but the growth in the number of private enterprises was much greater. In the second period, from 1991-92 to 1997-98, after reforms, the growth in the number of government companies had slowed down to almost nothing while the number of private sector industrial activity in India in the overall period but more so after reforms commenced. The trends that are observed for the value of government held equity are quite different. These data are in columns (C) and (D). On average, in the entire period the value of equity investments made by the government in its companies were Rupees 31,958 crores (a crore equals ten million) compared to the average value of equity investments made by the private sector companies of Rupees 20,334 crores (Rupees 203.34 billion). Thus, for the period as a whole government held equity has dominated over the quantity of private equity in Indian companies. Yet, the changes in the overall period are striking. At the minimum, the value of government equity was Rupees 2,998 crores which increased at a maximum to Rupees 84,318 crores (Rupees 843.18 billion). The equivalent values for the private enterprises were Rupees 2,750 crores and Rupees 106,201 crores (Rupees 1.06 trillion). The maximin ratios were 28.12 for the government companies and 38.61 for the private companies. There has, thus, been resurgence in the amount of private equity investments being made in India, overshadowing the role of government as an equity investor.

In the first period, 1973-74 to 1990-91 these maxi-min ratios were 15.82 and 6.25 respectively for government and private companies. Government companies had grown significantly in number during this time but the growth in the amount of equity infusions made in them was much more substantial than that of the private companies. In the second period, after reforms, the growth in the amount of equity infusion made in government companies had slowed down to yield a maxi-min ratio of 1.55 while the maxi-min ratio for private companies was 5.23. Again, there has been a substantial growth in the equity funding of private sector industrial activity in India compared to that in the government shareholding to the value of private shareholding, which averaged 2.09 times for the period as a whole, went from 2.29 times in the 1973-74 to 1990-91 period to 1.58 times in the 1991-92 to 1997-98 period.

Three initial conclusions and implications follow and the thinking on these are developed subsequently. Government companies are very considerably larger, with more substantial equity capitalizations, relative to private companies as columns (F), (G) and (H) also show. There was a substantial growth in the amount of equity funding that the government made in companies it owned in the 1970s and 1980s, even though private entrepreneurship was growing in India at a significant rate. After the introduction of reforms, a very significant growth in the number of private companies, and in the value of private equity investments, has reduced the role of the state considerably to the extent that by 1997-98 the value of private equity investment was greater than that of government equity investment in India's corporate sector. Table 2 and figures 1 and 2 are relevant for further assessment of these trends.

-----INSERT TABLE 2 HERE-----

Table 2 displays statistics of the proportions of the government and private companies to the total number of companies in India and of the proportions of the paid up capital of government and private companies to the total paid up equity capital in the corporate sector. Government companies have accounted for, on average for the entire period, less than 1 percent of the total number of companies in India but for almost two thirds, 65.85 percent, of the total paid up equity capital in the corporate sector. The trends, however, show a decline. After the introduction of reforms, government companies account for just 0.39 percent of the total number of companies and their share of the paid up equity has dropped to 58.77 percent. Figure 1 displays the trends over the several years studied of the decline in the proportion of government companies.

-----INSERT FIGURE 1 HERE-----

Figure 1 shows the proportion of government companies actually increasing in number in the early to mid-1970s. This is when the government became a very participant the various operational activities that make up the economy of a country. A number of areas, such as bakery products, were entered into so as to provide the requisite quantity of sliced white bread needed by the population. Also, in India there has been no such thing as business failure. Bankruptcy laws are non-existent. Companies do not fail or die. If they are economically unsuccessful they are taken over by the state. Thus, the government found itself the owner of a number of dubious companies, examples of some among the many are *Britannia Engineering Works*, *Braithwaite and Company*, *Jessop and Company*, *Alexandra Jute Mills*, *Indian Iron and Steel Company* and a very large number of textile mills, which, according to the laws of Darwinian evolution, should have been long extinct.

Petroleum companies such as *Burmah Shell*, *Caltex* and *Esso* were also nationalized during this period. By the late 1970s and early 1980s, there was an increase in the number of private companies entering the fray of industrial activity in India. Companies in the information technology and the software sector, such as *Infosys*, were established during this period. By 1997-98, the growth in the numbers of private companies has reduced the relative position of government companies. Figure 2 shows similar trends in respect of the proportion of government capital.

-----INSERT FIGURE 2 HERE-----

Figure 2 shows the proportion of government equity shareholding rising till the late 1980s. Thus, while private firms were setting up businesses, the lion's share of equity funding was being made by the government. Even if the number of government companies being set up was low, the existing companies were receiving substantial capital infusions to keep them operational. Thus, there has been a crowding out of private investment by government investment in the period before reforms commenced. After, the reforms started, however, not only has there been entry but there has been greater capitalization of the private firms. Private industry is scaling up. While not, on average, as large as the government firm, the size of the private firm as measured by the average value equity capital invested is increasing. The combined effect of these trends, shown in figure 2, is that the share of government companies' shareholding in the total capital of India's corporate sector is steadily declining and has become less than half by 1997-98. Specific details of the rates of change, and whether these are significant or not, are provided in the next sub-section.

4.2. Rates of Change

The data show that there is change taking place in India's corporate sector. The next two questions are: how large or small are these growth rates and are they significant? Table 3 provides descriptive statistics of the rate of change in the various parameters discussed earlier. Table 4 evaluates the changes in some of the key parameters over time. Figure 3 displays the patterns of growth or decline in some of these parameters.

-----INSERT TABLE 3 HERE-----

Table 3 data, in a sense, mirror those in table 1. Column (A) shows that over the full period the proportion of the number of government companies has been declining at 5.58 percent per year. This decline has been 10.11 per years in the period after reforms. Similarly, the share of government

equity in the total equity of corporate India has declined overall, see column (B), but at just 0.52 percent per year. There was a rise of 2.11 percent per year in the period before reforms, but the rate of decline has been 6.9 percent after reforms were introduced. The shape of figure 2 bears out this trend.

Concomitantly, the share of private equity in the total equity of corporate India has risen overall, see column (D), but at just 0.99 percent per year. There was a decline of 3.24 percent per year in the period before the reforms took place, as government investments crowded out private investments, but the rate of growth has been 11.27 percent per year after reforms were introduced. This further augments the conclusion as to the resurgence of private industrial activity in India. Columns (E) and (F) show the growth in the average shareholdings per government and private company. Both government and private companies have scaled up in terms of the nominal values of equity capital investments made per company, but for the period as a whole the growth for government companies has been greater at 9.96 percent per year. In the period after reforms were introduced, the growth rate for private has been 15.77 percent per year while that of government companies is 7.83 percent per year. Figure 3 shows the trends over time in the rates of growth or decline in the proportion of government companies, by number, as well as in their share of equity capital.

-----INSERT FIGURE 3 HERE-----

The percentage of government companies has been continuously declining since the late 1970s and early 1980s, as the number of private enterprises has grown. The share of government capital has started declining continuously since the early 1990s, as the reforms commenced. Prima facie, there is support for the proposition that the boundaries of the state have started shrinking in Indian industry. The role of government as an investor, and as a creator of enterprises has shrunk in a substantial manner. Nevertheless, whether the shrinking of the boundaries of the state, as a participant in Indian industry, has been significant or not needs statistical evaluation before a conclusive opinion is articulated. The results of the statistical tests are given in the sub-section that follows.

4.3. Statistically Has Government Involvement in Corporate Activity Shrunk?

To statistically evaluate the proposition that there has been shrinkage in the boundaries of the state as a participant in India's corporate sector, I regress certain key variables on two variables that capture time trends. The variables so evaluated are: (a) the growth or decline in the proportion of government companies to the total number of firms in India's corporate sector as a whole; (b) the growth or decline in the proportion of government companies paid up capital to the total corporate sector paid up capital; (c) the growth or decline in the ratio of the value of government shareholding in India's corporate sector to the value of private shareholding; (d) the growth or decline in the average paid up capital per government company; and (e) the growth or decline in the ratio of shareholding per government company to the shareholding per private company.

Specifically, each variable is regressed on two independent variables: a time index and the squared value of the time index. The regressions permit a statistical evaluation of the growth rates of these variables. The equation is of the general form: $\Delta = \alpha + \beta t + \delta t^2 + \mu t$. The symbol Δ denotes the change for each of the variables and t is the time index. A significantly positive value of δ

indicates an acceleration in the pace of change; a significantly negative value indicates deceleration. The inclusion of time squared on the right-hand side introduces a multi-collinearity problem. This is solved by normalizing time in mean deviation form. That is, it is set to zero on the mid-point of the time series.

This normalization makes time and its square orthogonal. The normalization of time only affects β . The estimate of δ and its standard error are invariant with respect to the normalization. In the log-quadratic estimation, the value of β is the same as in the log-linear model. The standard error of β is the measure of instability of the growth rate of efficiency. If it is assumed that the log-quadratic form is a better estimator of the true trends in the growth rate of efficiency, the instability measure of β is also improved, since systematic specification errors are cleansed from the data. The results are given in table 4.

-----INSERT TABLE 4 HERE-----

Table 4 consists of five columns. I deal with each in turn. From column (A) the decline in the proportion of government companies to the total number of firms in India's corporate sector as a whole is statistically significant in the overall period as well in the two sub-periods: 1973-74 to 1990-91 and 1991-92 to 1997-98. From column (B) the decline in the proportion of government companies paid up capital to the total corporate sector paid up capital is statistically significant in the overall period. In the first sub-period of 1973-74 to 1990-91 there was significant growth in this variable, while in the post-reforms period of 1991-92 to 1997-98 the decline in this variable has been significant. In particular, the magnitude of decline has been very substantial.

Data in column (C) supports the above noted trend. The results for the growth or decline in the ratio of the value of government shareholding in India's corporate sector to the value of private shareholding show that, on the whole, while the ratio has declined this has not been significant. For the period prior to reforms, this ratio grew significantly. Recollect that substantial investments continued to be made by the government in the companies that it owned. After reforms, this ratio has significantly declined and this decline is of a high magnitude. Columns (D) and (E) show the results for the growth or decline in the average paid up capital per government company; and the growth or decline in the ratio of shareholding per government company to the shareholding per private company. The first ratio has increased significantly overall and in both periods. These increases are substantial and denote the scaling up of government firms' capital base in nominal terms. The second ratio has risen significantly as a whole, but the primary rise was in the first subperiod of 1973-74 to 1990-91 while after the 1991 reforms there has been a significant decline in this ratio. This significant decline is in keeping with all the other trends noted so far.

What do the results imply? First, there has been a significant decline in the share of government firms, not just in sheer numbers, but, more important, in their shares of the equity investments to the total equity pool that makes up India's corporate sector. This share was very large, in fact more than half and close to two-thirds, at the start of the period being evaluated, but has reduced in size significantly since then. Even if further investments are being made by the government in its companies, the private sector has been extremely dynamic in establishing more firms relative to government firms, in augmenting the overall value of private sector equity investments that have been made and in enhancing the amount of equity capital invested per company. Thus, the shrinkage of the boundaries of the state, as a participant in India's corporate

sector, has been significant. This is particularly true in the period 1991-92 to 1997-98, which is the period after the transformational reforms commenced in India. In this period, the decline of public ownership in Indian industry has been extremely significant. Competition has begun to leave its evolutionary imprint as new entrants alter the ownership composition of Indian industry.

5. ANALYSIS OF PERFORMANCE PATTERNS: 1973-74 to 1997-98

5.1 Details of the Performance Indices

The description of the performance indices to be calculated has been given in sub-section 3.3. Specifically, using ASI data performance indices are calculated for four categories of enterprises in Indian industry: those that are owned by the Central Government (Central), those owned by the governments of the various Indian States (States), those that are jointly owned (Joint) and those that are privately owned (Private). The average values of the three indices: (i) net value added per employee, (ii) net value added per unit of fixed capital, and (iii) net value added per unit of working capital, are presented for: (1) the overall period, (2) the period prior to reforms and (3) the period after reforms in table 5. Additionally, table 5 also lists the ratio of fixed to working capital for each of the three time periods. This measure helps to assess the nature of capital intensity, by ownership category, in Indian industry and over time.

-----INSERT TABLE 5 HERE-----

Column (A) of table 5 shows that the average net value added per employee ranges from Rupees 18,500 for the Central units to Rupees 12,300 for Private units for the overall period. Columns (B) and (C) show that for each of the ownership categories there has been an increase in this performance between the first time period, 1973-74 to 1990-91, and the second period, 1991-92 to 1997-98. The averages were Rupees 14,500 for the Central units, Rupees 10,500 for the States units, Rupees 13,600 for the Joint units and Rupees 10,000 for the Private units. These have increased to Rupees 28,700, Rupees 17,700, Rupees 28,700 and Rupees 18,200 respectively.

Similarly, the values of the net value added per rupee of fixed capital input are given in table 5. These range from Rupees 0.301 for the Central units to Rupees 0.771 for Private units. Marginal increases in this performance measure have taken place for central and States units but there has been a decline for Joint and Private units. The values of the net value added per rupee of working capital input are also given in table 5. These range from Rupees 0.694 for the Central units to Rupees 1.311 for Private units. Increases in this performance measure have taken place for Central, States and Joint units but there has been a decline for Private units. The ratio of fixed capital to working capital is greater than 1 for all ownership categories, but is the highest for the States sector units followed by the Joint sector units. The States sector comprises of a large number of electricity units while the Joint sector comprises of a large quantity of assets in the petroleum sector. These are two sectors, while critical for meeting India's energy needs, which are very intensive users of fixed capital assets. The results of the tests of significance for the various performance indices between ownership categories is given in table 6.

-----INSERT TABLE 6 HERE-----

Table 6 shows that with respect to the net value added per employee measure, the Central sector measure was significantly larger than that of the States and Private sector units, while the

States sector measure was significantly smaller than that of the Joint sector but not different form that of the Private sector. The measure for the Joint sector was significantly larger than that of the Private sector. These trends have held for the time period as a whole and for each of the separate time periods: in the 1970s and 1980s, and after the 1991 reforms. For the net value added per Rupee of fixed capital invested measure, the measure for the Central sector was significantly larger than that of the States sector but lower than that of the Joint and Private sectors. The States sector measure was significantly lower than that of the Joint and Private sectors while that for the Joint sector was significantly lower than that of the Private sector. These have been the trends for the full period. Similar trends were noted in the 1973-74 to 1990-91 period, and in the 1991-92 to 1997-98 period after reforms commenced.

For the net value added per Rupee of working capital invested measure, the measure for the Central sector was significantly smaller than that of the States sector and lower than that of the Joint and Private sectors. The States sector measure was not significantly different from than that of the Joint and Private sectors while that for the Joint sector was significantly lower than that of the Private sector. These have been the trends for the full period. Similar trends were noted in the 1973-74 to 1990-91 period. In the 1991-92 to 1997-98 period after reforms commenced, while other trends are similar to those noted in the pre-reforms period, the measure for the States sector has become significantly larger than that of the Private sectors. By and large, the Private sector is superior in performance relative to the other sectors, but the other sectors display a catch-up in performance in the period after reforms commenced. A key question, however, remains. Is the shrinking of the boundaries of the state associated with a significant increase in the parameters of performance? In the next sub-section, I describe the design of the tests used to evaluate this issue and also discuss the results that follow.

5.2 Regression Analysis of Public Ownership Decline and Performance: 1973-74 to 1997-98

To assess whether the shrinking of the boundaries of the state, as described and discussed earlier, has had an impact on the performance of enterprises in Indian industry, I regress the three performance measures: (i) net value added per employee, (ii) net value added per unit (Rupee) of fixed capital and (iii) net value added per unit (Rupee) of working capital, on a set of variables that capture the extent of the shrinkage of the state as a corporate owner, as well as control for other factors that impact performance. The principal explanatory variables are: (a) the proportion of the number of government companies of the total number of companies in India's corporate sector (*PROP GOV*), and (b) the proportions of the paid up capital of government companies to the total paid up equity capital in the corporate sector (*GOVT EQUITY*).

Other than these two variables, I control for scale effects by introducing three variables. These are: (c) the amount of fixed inputs used per factory (*FIXEDCAP FCTRY*), (d) the amount of working capital units used per factory (*WORKINGCAP FCTRY*) and (e) the number of employees per factory (*EMPLOYED*). These are standard measures in the literature. Since the data are pooled across ownership categories, I also control for ownership effects by introducing three dummy variables: (f) for the *STATES SECTOR*, (g) the *JOINT SECTOR* and (h) the *PRIVATE SECTOR* units. The base case observations are those for the Central sector. The estimation is carried out using a standard econometric procedure that corrects for heteroscedasticity and autocorrelation within a pooled data set. The results of the regression analysis are given in table 7.

-----INSERT TABLE 7 HERE-----

Columns (A) and (B) show the results where the dependent variable is net value added per employee. The PROP GOV variable is negative and significant (p < 0.01) while the GOVT EQUITY variable is also significant but at lower level of significance (p < 0.10). In other words, the greater that the shrinkage has been in the boundaries of the state as an industrial participant and the larger decline in public ownership, the better that resultant performance has been. These are statistically significant relationships that provide confirmation of the overall trends in India's industrial performance assessed so far. In column (B) the results show that the scale variables have different effects on performance. Greater capital intensity and usage, as captured by the FIXEDCAP FCTRY variable, is negatively and significantly (p < 0.01) related to the creation of net value added per employee. Conversely, the WORKINCAP FCTRY and EMPLOYED variables display positive and significant relationships (p < 0.01 and p < 0.05 respectively). These results are obtained after controlling for ownership effects, the model being a fixed effects model in a sense.

Columns (C) and (D) display the results where the dependent variable is net value added per Rupee of fixed capital. The results for this variable are not so robust. Other than the ownership effects which are significant, since the measure the differences in average scores between the various ownership categories, other than the *WORKINCAP FCTRY* variable, none of the other variables are significant. On the other hand, the results for the net value added per unit of working capital are much more robust. The *PROP GOV* variable is significant in both specifications, while among the scale variables the *WORKINCAP FCTRY* and *EMPLOYED* variables are significant. The *PROP GOV* estimate is negative, which implies that a drop in the proportion of government companies is associated with an increase in performance, and the magnitude of the variable is also substantial in both specifications. In fact, the magnitude of the estimate is the largest for this particular measure of performance. The basic conclusion that can be drawn from the regression analysis is that the shrinkage of the boundaries of the state has had a positive impact on performance in Indian industry over the time period studied.

5.2 Additional Analysis for the Period 1998-99 to 2001-02

As previously mentioned, the ASI ownership data are available only till the years 1997-98. Therefore, fine-grained analysis by ownership categories is not possible after that period. The DCA data for evaluating changes in corporate patterns, however, extend till 2001-02. The ASI data are also available up to that year. Thus, a more aggregate analysis can be performed, relating corporate trends to the performance parameters but calculated for Indian industry as a whole, for the three decades form the early 1970s to the early 2000s, rather than for each ownership category. I calculate the three performance parameters: (i) net value added per employee, (ii) net value added per unit of fixed capital and (iii) net value added per unit of working capital for the years 1973-74 to 2001-02 for all of Indian industry in the aggregate. I then regress these measures on the two variables: *PROP GOV* and *GOVT EQUITY*. The results of this regression are given in table 8. Table 8 also contains details of the changes in these variables for the four years: 1998-99 to 2001-02.

-----INSERT TABLE 8 HERE-----

Part A of table 8 displays the relative proportions of government companies and government companies' share of equity form 1998-99 onwards. The share of government companies by number has stayed broadly the same at less than a quarter percent of the total corporate sector in India. The share of private companies to the total number of companies is over

99 percent. The proportion of government equity holding relative to the total equity holding in corporate India displays a very substantial drop in the four years from 1998-99 to 2001-02. In 1997-98, this percentage was over 44 percent. By 2001-02 it was down to just over 30 percent. Correspondingly, the share of the private companies' equity investments has risen to almost 70 percent. The growth statistics are given in part B of the table. Cumulatively, the proportion of the number of government companies has declined by over 17 percent while that of government companies' share of equity investments has declined by over 30 percent in the period after 1997-98 and up to 2001-02.

The regression results are shown in part C of the table. For the net value added per employee measure, the *PROP GOV* and *GOVT EQUITY* variables are significant (p < 0.01 and p < 0.05) and negative. For the net value added per unit of fixed capital measure, the *PROP GOV* variable is positive and mildly significant while the *GOVT EQUITY* variable is not. Correspondingly, for the net value added per unit of working capital measure the *PROP GOV* and *GOVT EQUITY* variables are significant (p < 0.01 and p < 0.10) and negative. These results strongly support the other regression results hitherto discussed. For the subsequent period, 1998-99 to 2001-02 that has been evaluated, the relatively aggregate analysis reveals that the boundaries of the state as an industry participant is further shrinking, and this shrinkage has also had a positive impact on performance. Between 1973-74 and 20021-02 the share of government companies share of equity capital in India's corporate sector had risen from 52 percent, peaking at almost 75 percent in the late 1980s, and then has declined to 30 percent. Since the late 1980s the drop in share has been consistent and rapid, providing evidence of a substantial growth in India's private sector.

6. DISCUSSION OF THE RESULTS

6.1 Is There Any Need for Further Privatizations?

There are two basic reasons for undertaking privatizations. As the name implies, the first is to return ownership of firms to the private sector. The second is to enhance performance. If both have occurred in the absence of any major privatization efforts taken up by the Indian state, the question now remains: does further privatizations have to be undertaken? The share of the state has dropped from 75 percent of the equity capital investments in India's corporate sector to 30 percent in the space of less than a decade and a half. In the four years from 1997-98 to 2001-02 the share of the state has dropped at an annualized rate of 7.5 percent. If this trend continues, and there is no reason why it should not do so given the enormous entrepreneurial activity in progress in India, the role of the government as a shareholder should become trivial by the end of this decade.

Clearly, the crowding in that is in progress by private enterprise will comprehensively crowd out the state sector from India's industry. The forces of competition will leave behind their evolutionary imprint in India's industry by fully changing the nature of ownership of India's corporate sector. By 2010, if the same annualized rate of drop in the government's share of equity capital in companies, that has been noted so far, continues this share should be zero. This, of course, assumes that the present rate of entry by private companies and rate of equity investments is maintained. If these rates of private entry and the levels of investment per firm increase, then it is likely that it will be even sooner that government companies become an anachronism on the industrial landscape of India. The prevailing orthodoxy, and the literature on the topic is by now quite substantial, suggests that there are substantial post-privatization performance enhancements. Indirectly, this article provides support for this proposition but in an aggregate sense. The phenomenon that occurs with privatization is a decline in the share of government ownership. This decline then is found to be positively related to a variety of performance parameters. This study finds the phenomenon to be in existence in India. A decline in government ownership is associated with performance improvements for the Indian industrial sector as a whole. The declines in government ownership have, however, taken place because of autonomous increases in the investments made by private sector firms rather than because of government sector divestments.

Enhancing competitiveness, via increasing market contestability, and privatization are two of several institutional mechanisms put in place to enhance performance. Which comes first has been debated, though the preference has been to enhance market contestability. In the presence of market contestability, performance differences between private and government firms disappear. Thus, privatization becomes a non-issue. The metric of enhanced competitiveness is an increasing level of investments being made in an economy. The fact that funds are being sunk into an economic system, ipso facto, signals that the economy in question holds promise. In a Darwinian sense, entry by firms and investments made in an economy reveal the presence of an environment in which an ever-increasing number of highly capable players will enter and alter the status quo. Those firms unable to compete will disappear. This is very basic evolutionary theory. Death of the government sector firms by transformation of the industrial population of India will have taken place.

Since investments and divestments are two facets of the same phenomenon, it can be argued that if increased investments have the same effect on performance that a strategy of divestment is expected to have achieved, then, surely, it is going to be of much more significant practical and financial consequence for the long run that the strategy of investments be supported rather than the strategy of divestment, especially since the strategy of divestment has been so poorly implemented in India. In the pantheon of competition, regulation and privatization as key institutional mechanisms that will support economic growth and performance, the first two means are of significant consequence. Thus, I strongly feel that, while the need to raise money by selling assets that the state owns is one issue, the need for further privatizations in Indian industry is moot if the objective is to enhance the performance of government firms and industry as a whole.

6.2 The contours of institutional incompetence

One reason that it is better to let the market forces play out in India is because of what might be termed institutional incompetence. While privatization has been conceptually agreed to, since 1991, as a reforms policy measure that requires full implementation, the reality is that the amounts of privatization have been minimal. To be sure, since the bulk of the paid up equity capital of Indian industry was owned by government companies, to unload a large portion of it to the public-at-large would be difficult. The situation was quite different to that, say, in Great Britain where, in the full blaze of publicity, just a few companies, such as *British Airways* and *British Telecom*, were privatized. The share of government companies' equity ownership in the British corporate sector was trivial. On the other hand, where the state sector has been dominant, as in Russia, the problems have been substantial. So it is actually quite difficult to privatize an economy of a very large country with significant state presence and expect optimal outcomes.

Nevertheless, the track record of India is particularly poor. As noted earlier in the article, the period from 1991-92 to 1997-98, the actual receipts from privatization amounted to Rupees 11,000 crores. Subsequently, in the period form 1998-99 to 2001-02 the amounts raised were not much more. The total receipts during this period amounted to Rupees 14,856 crores. Thus, in the decade since the reforms were implemented, a total of approximately Rupees 26,000 crores was raised via privatizations. The sums budgeted for had been Rupees 66,000 crores. Therefore, the rate of realization was just 40 percent. Also, the sums actually received amounted to perhaps less than a tenth of what the state had sunk over time in the various enterprises that were set up by the Central government and the government of the various states of the Indian union.

The real concern lies with the structure of the privatization process of the Indian government, which could have been designed by Rube Goldberg.¹¹ First, there is a Disinvestment Commission, consisting primarily of retired civil servants, that reviews the situation and recommends the sale of particular units. Second, the concerned Ministry or Department under whose charge the specific company falls adds its views and inputs. Third, these recommendations are processed by a separate Department of Disinvestment, which is the administrative body consisting of a group of serving civil servants handling the privatization process, and then, fourth, these are further debated on by a Core Group of Secretaries on Disinvestment headed by the Cabinet Secretary.¹² This is the ultimate bureaucratic body taking a view on what ought to be done. Fifth, the final decision on whether a company is to be privatized at all or not is taken by a Cabinet Committee on Disinvestment, consisting of Ministers who are, in almost all instances, senior politicians each with a personal political agenda.¹³

To be sure, many considerations other than economic lay behind the creation of government enterprises in India. The same sets of considerations are possibly being kept in mind while decisions on privatizations are being taken. Since the process is cumbersome and time-consuming, with decisions guided by administrative and political rather than economic considerations, it is no wonder that the amounts raised by privatization have been small. Decisions on privatization are taken by a large group of bureaucrats who are not practitioners at the cutting edge of economic thought or business practice. Time compression economies are not a concern. Fuzziness problems associated with owners' identities remain. Problems of collective action remain, since there is a variety of bodies each taking part in the process of decision-making. Also, there are so many involved in the

¹³ To add to the list of this large collection of administrative bodies, there is also a Bureau of Public Enterprises (BPE) within a separate Ministry of Heavy Industry and Public Enterprises. To deal with the issue of almost terminally ill government companies, of which there are several, there are three other bodies. These are: the Board for Industrial and Financial Reconstruction (BIFR), the Appellate Authority for Financial and Industrial Reconstruction (AAIFR) and a Board for Reconstruction of Public Sector Enterprises (BRPSE).

¹¹ Rube Goldberg was an American cartoonist whose cartoons were commentaries on the expending of maximum effort to achieve the minimum results, and in particular on the overcomplicating of matters of everyday life.

¹² A Secretary to the Government of India, normally in charge of a Department or a Ministry, is the highest rank that is attainable within the realms of the civil service of India, equivalent to a Permanent Secretary in Whitehall. The Cabinet Secretary is the highest ranking civil servant among all of the civil servants in India.

process that there are incentives to free-ride. No civil servant has long enough tenure in each appointment so that accountability will be an issue.

Institutional considerations have, thus, limited the success of India's privatization efforts. This reflects the incompetence of the state in its drive to achieve it aims, and the more profound need, a-priori, for privatization to have succeeded was appropriate institutional mechanism design. This has not taken place in India. What the system has created is a replica of its standard time-honored approach to dealing with issues. The process, while transparent, is not compatible with the requirements of a framework that is required to implement a divestment strategy according to global standards. The procedures to divest were created by members of a system that had created the system to invest in government companies in the first place. Implicitly, therefore, there may well have been a desire to design the mechanisms in such a way so as not to strangulate one's progeny, a sentiment once expressed by the late prime minister of India Mr. P. V. Narasimha Rao.

Since both implementation and design are concerns, it is useful to evaluate whether the weak state versus strong state paradoxes apply to India. There are two paradoxes highlighted in the contemporary literature. According to Shirley (1999) a state that is competent enough to manage its enterprises well is also competent enough to privatize its assets well. Similarly, Weingast (1995) has suggested that a state strong enough to create appropriate safeguards and implement them is also strong enough to re-appropriate the assets if that is found to be necessary. These paradoxes have been observed in the cases where privatization has been a relative failure. Yet, there is a third paradox. A robust and dynamic free market economy also requires the presence of an effective and centralized state with superior mechanism design and efficient implementation abilities (Rostow, 1960).

While the activities of the Indian government are transparent and it is committed to economic growth and a free market economy, clearly its mechanism design and implementation abilities put it in the weak state category. The need to create the appropriate mechanisms is perhaps overwhelming if any privatization is to be undertaken. But, this is unlikely as the present system has been well-honed by more than half a century of post-independence practice which had been preceded by at least a century of organizational history. On the other hand, since the introduction of laissez-faire competition after 1991 has actually promoted substantial market entry, perhaps government time is better spent designing the regulatory institutions and the infrastructure that permits private competitive industry to succeed.

6.3 Is a supply-side revolution on the cards?

Since considerable private sector entry growth in Indian industry has been noted in the analyses so far, a final diagram depicts whether or not a supply side revolution in India is taking place. By supply side is specifically meant here the infusion of private equity capital into Indian industry. The details of whether this is taking place or not are shown in figure 4.

-----INSERT FIGURE 4 HERE-----

Figure 4 depicts the growth patterns in the value of equity capital investments in government and private companies for the period 1991-92 to 2001-02. This is essentially the full period after reforms, and the trends are very revealing. The value of private equity holdings were Rupees 20,000 crores in 1991-92 and have risen to almost Rupees 250,000 crores by 2001-02. This a rise of over ten times in the space of a decade. The value of government equity holdings were approximately Rupees 55,000 crores in 1991-92. Hopefully, the numbers should have stayed the same or fallen, but they have not. Instead, they have risen but the rise is considerably less in magnitude. By 2001-02 the amounts of equity capital invested were approximately Rupees 110,000 crores. This is a rise of two times over the space of a decade in which privatization was accepted as state policy.

The figure shows that growth of private investment, which has been remarked on several times earlier as being substantial, is on a strong upward trajectory and that a supply side revolution is well under way. The intellectual foundations behind the raising of entrepreneurs' morale were provided by the 1991 reforms, as Das (2002) has described, and the response has been dramatic. In that sense, the reforms of 1991 were a tipping point for the Indian economy to make a transition into another quite different path. Hence, in spite of the institutional limitations that persist in the process of privatization, if the supply of private equity capital investments in Indian industry continues at the same pace, then transformation of ownership will be complete and performance outcomes associated with a competitive environment realized.

Therefore, the question for policy makers to address is why privatize? The market will keep doing its job in the future in the same way as it is doing it now. The supply side revolution may well overwhelm the institutional incompetencies that exist in the Indian system. Nevertheless, the need for a state has to be strong in institutional mechanism design and regulatory compliance implementation remains. These capabilities have to be strengthened so that competition can flourish regardless of whether privatization occurs or not.

7. CONCLUSION

In this article I have examined patterns of decline in the public ownership of the corporate sector in Indian industry over a twenty five year period, 1973-74 to 1997-98, to assess whether a transformation in ownership has taken place and whether the boundaries of the state as a participant have significantly declined. The literature on ownership and privatization suggests that there is a positive relationship between a decline in public ownership and performance and I also evaluate this proposition. The data obtained from the Department of Company Affairs and the Central Statistical Organization cover the entire industrial population of India, albeit at an aggregate level. Thus, the findings have salience and applicability to current concerns.

Privatization in a significant way has not taken place in India, in spite of the post-1991 reforms process highlighting this as a key component of the process. There remain several institutional lacunae in India as a result of which the design of privatization procedures and processes are steeped in old-established administrative traditions that have not ensured progress. Nevertheless, the boundaries of the state have shrunk significantly, primarily as a result of the growth of private entrepreneurship in India. Not only have the numbers of private companies being established in India grown, but the volume of equity capital being invested has also risen substantially, both in absolute volume as well as in investment per company, thus crowding out government ownership of Indian industry. This trend has been particularly pronounced in the post-1991 period, after reforms were introduced in India.

Associated with this shrinking of government ownership in Indian industry is a rise in industrial performance, hence calling into question the policy of privatization on which a lot of debating and intellectual energies have been expended with little by way of results to show for.

Autonomous private sector growth, the openness of the Indian economy to competition since 1991 and the operation of entry mechanisms, are having a substantial impact in enhancing performance. Thus, the role of privatization as a mechanism to enhance performance becomes moot in the Indian context since the decline in relative government shareholding comes about as a result of other means, such as the growth of entrepreneurship in India.

The data for 1973-74 to 1997-98 are augmented with further data for the 1998-99 to 2001-02 period. If anything, the growth in private entrepreneurship has been pronounced in this period and the share of the state as an owner has shrunk back significantly. The relationship between the shrinkage of the boundaries of the state and performance remains significant, when data for the additional period are introduced into the analysis. The overall data do indicate that a supply side revolution, defined as the enhancement of the growth of private capital in Indian industry, is making significant strides in India. If the rate of enhancement continues, then the supply side revolution will make the role of the public sector irrelevant in India, and whether further privatization is to be carried out or whether there are institutional incompetencies in existence making the process fraught could both be moot questions that will no longer require to be addressed.

References

- Ahluwalia, M. S. 1995. India's Economic Reforms, in R. Cassen and V. Joshi, Eds. *India: The Future of Economic Reform.* New Delhi: Oxford University Press.
- Alchian, A. and Demsetz, H. (1973): The Property Rights Paradigm, Journal of Economic History, 33, 1, 16-27.
- Anderson, J. H., Lee, Y. and Murrell, P. (2000): Competition and Privatization Amidst Weak Institutions: Evidence from Mongolia, *Economic Inquiry*, 38, 4, 527-549
- Atkinson, S. E. and Halvorsen, R. (1986): The Relative Efficiency of Public and Private Firms in a Regulated Environment: The Case of U.S. Electric Utilities. *Journal of Public Economics*, 1986, 29. 281-294.
- Barberis, N., Boycko, M., Shleifer, A. and Tsukanova, N. (1996): How Does Privatization Work? Evidence from the Russian Shops. *Journal of Political Economy*, 104, 4, 764-790.
- Bardhan, P. (1984). The Political Economy of Development in India. Oxford: Blackwell.
- Ben-Ner, A., Montias, J. M. and Neuberger, A. (1993): Basic Issues in Organizations: A Comparative Perspective. *Journal of Comparative Economics* 17: 207–242.
- Bhagwati, J.N. (1993): India in Transition: Freeing the Economy. Cambridge, MA: The MIT Press.
- Bishop, M., Kay, J. and Mayer, C. (1994): Privatization and Economic Performance. Oxford: Oxford University Press.
- Bishop, M. and Thompson, D. (1992): Regulatory Reform and Productivity Growth in the UK's Public Utilities, *Applied Economics*, 24, 1181-1190.
- Birdsall, N. and Nellis, J. (2003): Winners and Losers: Assessing the Distributional Impact of Privatization, *World Development*, 31, 10, 1617–1633
- Boardman, A. and Vining, A. R. (1989), Ownership and Performance in Competitive Environments: A Comparison of the Performance of Private, Mixed, and State-owned Enterprises, *Journal of Law and Economics*, 32, 1-33.
- Borcherding, T. E., Pommerehne, W. W. and Schneider, F. (1982): Comparing the Efficiency of Private and Public Production: A Survey of the Evidence from Five Federal States. Zeitschrift f ur National okonomie Supplement 2: 127–156.
- Bortolotti, B., D'Souza, J., Fantini, M. and Megginson, W. L. (2002): Privatization and the Sources of Performance Improvement in the Global Telecommunications Industry, *Telecommunications Policy*, 26, 5-6, 243-268
- Bortolotti, B., Fantini M. and Siniscalco, D. (2004): Privatisation Around the World: Evidence from Panel Data, *Journal of Public Economics, 88,* 1, 305-332.

- Boubakri, N. and Cosset, J.-C. (1998): The Financial and Operating Performance of Newlyprivatized Firms: Evidence from Developing Countries, *Journal of Finance* 53, 1081-1110.
- Caves, Richard E. (1990): Lessons from Privatization in Britain: State Enterprise Behavior, Public Choice, and Corporate Governance, *Journal of Economic Behavior and Organisation*, 13, 145-169.
- Caves, D. W., and Christiansen, L. R. (1980): The Relative Efficiency of Public and Private Firms in a Competitive Environment: The Case of Canadian Railroads, *Journal of Political Economy*, 88, 958-976.
- Chhibber, P. K. and Majumdar, S. K. (1998): State as Investor and State as Owner: Consequences for Firm Performance in India. *Economic Development and Cultural Change*, 46, 3, 561–580.
- Das, Gurcharan (2002): India Unbound: A Personal Account of a Social and Economic Revolution, New York: Knopf.
- Davies, David G. (1971): The Efficiency of Public versus Private firms, The Case of Australia's Two Airlines. *Journal of Law and Economics*, 1971, 14, 1, 149-165
- D'Souza, J. and Megginson, W. L. (1999): The Financial and Operating Performance of Privatized Firms During the 1990s. *Journal of Finance*, 54, 4, 1999. 1397-1424
- de Melo, M., Denizer, C. and Gelb, A. (1996): Patterns of Transition from Firm to Market. *World Bank Economic Review*. 10. 3. 397-424.
- Denison, E. F. (1974): Accounting for United States Economic Growth, 1929 to 1969. Washington, D.C. : The Brookings Institution.
- Dewenter, K. and Malatesta, P. H. (2001): State-owned and Privately-owned Firms: An Empirical Analysis of Profitability, Leverage, and Labor Intensity. *American Economic Review* 91, 320–334.
- Diewert, E. (1978): Hicks' Aggregation Theorem and the Existence of a Real Value Added Function. In M. Fuss and D. McFadden, Eds., *Production Economics: A Dual Approach to Theory and Applications*. Amsterdam: North-Holland.
- Eckel, C., Eckel, D. and Singal, V. (1997): Privatization and Efficiency: Industry Effects of the Sale of British Airways. *Journal of Financial Economics*, 1997, 43, 2, 275-298.
- Ehrlich, I., Gallais-Hamonno, G., Liu, Z. and Lutter, R. (1994): Productivity Growth and Firm Ownership: An Empirical Investigation. *Journal of Political Economy*, 1994, 102, 5, 1006-1038
- Fare, R., Grosskopf, S. and Logan, J. (1985): The Relative Performance of Publicly Owned and Privately Owned Electric Utilities. *Journal of Public Economics*, 1985, 26, 1, 89-106
- Foreman-Peck, J. and Manning, D. (1988): How Well is BT Performing? An International Comparison of Telecommunications Total Factor Productivity. *Fiscal Studies*, 1988, 9(3).

- Funkhouser, R. and MacAvoy, P. W. (1979): A Sample of Observations on Comparative Prices in Public and Private Enterprises. *Journal of Public Economics*, 10: 313–331.
- Frydman, R., Gray, C. W., Hessel, M. and Rapaczynski, A. (1999): When does Privatization Work? The Impact of Private Ownership on Corporate Performance in Transition Economies, *Quarterly Journal of Economics*, 114, 1153–1191.
- Frydman, R., Pistor, K and Rapaczynski, A. (1996): Exit and Voice after Mass Privatization: The Case of Russia. *European Economic Review*. 40. 581-588.
- Galal, A., Jones, L., Tandon, P. and Vogelsang, I. (1994): Welfare Consequences of Selling Public Enterprises. New York: Oxford University Press.
- Gladwell, M. (2000): The Tipping Point: How Little Things Can Make a Big Difference, Boston: Little, Brown.
- Griliches, Z. and Ringstad, V. (1971): Economies of Scale and the Form of the Production Function. Amsterdam: North-Holland.
- Grindle, M. S. and Thomas, J. W. (1991): Public Choices and Policy Change: The Political Economy of Reform in Developing Countries. Baltimore, MD.: Johns Hopkins University Press.
- Gupta, N. (2005): Partial Privatization and Firm Performance, Journal of Finance, 60, 2, 987-1016.
- Haggard, S. and Webb, S. B. (1993): What Do We Know About the Political Economy of Economic Policy Reform. *World Bank Research Observer*. 8. 2. 143-168.
- Jackson, P. M. and Palmer, A. J. (1988). The Economics of Internal Organization: The Efficiency of Parastatals in Less Developed Countries. In P. Cook and C. Kirkpatrick, Eds., *Privatization in Less Developed Countries*, 195–216. New York: St. Martin's Press.
- Jalan, B., (1991): India's Economic Crisis: The Way Ahead. Oxford University Press, New Delhi.
- Kay, J. A. and Thompson, D. J. (1986): Privatization: A Policy in Search of a Rationale, *Economic Journal*, 96, 18–38.
- Kikeri S. and Nellis, J. (2002): Privatization in Competitive Sectors: The Record to Date, *Policy* Research Working Paper Series 2860, Washington, D. C.: The World Bank.
- Kole, S. R. and Mulherin, J. H. (1997): The Government as a Shareholder: A Case from the United States, *Journal of Law and Economics* 40, 1-22.
- Levy, B. and Spiller. P. T. (1994): The Institutional Foundations of Regulatory Commitment: A Comparative Analysis of Telecommunications Regulation. *Journal of Law, Economics and* Organization. 10. 2. 201-246.
- Li, W. (1997): The Impact of Economic Reform on the Performance of Chinese State Enterprises, 1980-1989, *Journal of Political Economy*, 105, 1080-1106.

- Majumdar, S. K. (1998): Assessing Comparative Efficiency of the State -owned, Mixed, and Private Sectors in Indian industry, *Public Choice* 96, 1-24.
- Marathe, S. S. (1989): Regulation and Development, New Delhi, Sage.
- Megginson, W. L. Nash, R. C. and van Randenborgh, M. (1994): Financial and Operating Performance of Newly Privatized Firms: An International Empirical Analysis, *Journal of Finance*, 1994, 49, 2, 403-452
- Megginson, W. L. and Netter, J. (2001): From State to Market: A Survey of Empirical Studies on Privatization, *Journal of Economic Literature*, 39, 321-389.
- Newberry, D. M. and Pollitt, M. G. (1997): The Restructuring and Privatization of Britain's CEGB -Was it Worth It? *Journal of Industrial Economics*, 1997, 45, 3, 269-303
- Nickell, S. J. (1996): Competition and Corporate Performance, *Journal of Political Economy*, 104, 4, 724-796.
- Omran, M. (2004): The Performance of State-Owned Enterprises and Newly Privatized Firms: Does Privatization Really Matter? *World Development*, 32, 6, 1019–1041
- Pinto, B., Belka, M. and Krajewski, S. (1993): Transforming State Enterprises in Poland: Evidence on Adjustment by Manufacturing Firms, *Brookings Papers on Economic Activity*, 213-261.
- Popov, V. (1991): Soviet Economic Reform: Possible Difficulties in the Application of Public Choice Theory. *Journal of Comparative Economics*. 15. 2. 304-324.
- Putterman, L. (1993). Ownership and the Nature of the Firm. Journal of Comparative Economics 17: 243–263.
- Reddy, Y. V. (1990). Liberalization and Privatization of Public Enterprise in India. In J. Heath, Ed., *Public Enterprise at the Crossroads*, 98–109. London: Routledge.
- Ros, A. J. (1999): Does Ownership or Competition Matter? The Effects of Telecommunications Reform on Network Expansion and Efficiency, *Journal of Regulatory Economics* 15, 219-244.
- Rostow, W. W. (1960): The Stages of Economic Growth, Cambridge: Cambridge University Press.
- Sachs, J. (1992): The Economic Transformation of Eastern Europe: The Case of Poland. *Economics of Planning*. 25. 1.
- Sattar, Z. (1989): Privatizing Public Enterprises in Bangladesh: A Simulation Analysis of Macroeconomic Impacts. *Applied Economics*, 21. 1159-1176.
- Shirley, M. (1999): Bureaucrats in Business: The Roles of Privatization versus Corporatization in State-owned Enterprise Reform. *World Development*, 27, 1, 115-136.

- Stephan, P. B. (1996): Toward a Positive Theory of Privatization: Lessons from Soviet-Type Economies. International Review of Law and Economics. 16. 173-193.
- Summers, L. (1990): Comments on D. Lipton and J. Sachs, Privatization: The Case of Poland. Brookings Papers on Economic Activity. 2.
- Tandon, P. (1995): Welfare Effects of Privatization: Some Evidence from Mexico, Boston University International Law Journal, 13, 2, Fall, 329-330.
- Vickers, J. and Yarrow, G. (1988): Privatization: An Economic Analysis. MIT Press, Cambridge, MA.
- Vining, A. and Boardman, A. (1992): Ownership versus Competition: Efficiency in Public Enterprise. *Public Choice*, 37, 205–239.
- Weingast, B. (1995): The Economic Role of Political Institutions: Market-Preserving Federalism and Economic Development. *Journal of Law, Economics and Organization*. 11. 1. 1-31.
- Williamson, J. and Haggard, S. (1994): The Political Conditions for Economic Reform, in J. Williamson, Ed. *The Political Economy of Policy Reform*. Washington, D. C.: Institute for International Economics.
- Xu, L. C. (2000): Control, Incentives, and Competition: The Impact of Reform in Chinese State-Owned Enterprises, *Economics of Transition* 8, 1, 151-173.

Yarrow, G. (1986): Privatization in Theory and Practice. Economic Policy, 2, 324-364.

Appendix: Details of the Annual Survey of Industries Data

The history of industrial statistics in India unfolds as follows. Though the first Factories Act was enacted in India n 1881 and revised in 1891, 1911, 1922 and 1934, the importance of collecting comprehensive industrial statistics was not realized until 1942. The Industrial Statistics Act 1942 was passed in that year and it empowered the Government of India to collect various industrial statistics from establishments registered under the then Indian Factories Act 1934. The Directorate of Industrial Statistics was set up in 1945 to co-ordinate and supervise the collection of statistics through industrial census operations and to compile and publish their results. An annual census of 29 industry groups of these 63 groups was conducted from 1946 to 1956 under the provisions of the Industrial Statistics Act of 1942 and the Census of Manufacturing Industries (CMI) Rules of 1945 framed there under.

Based on the recommendations of the National Income Committee, a Sample Survey of Manufacturing Industries (SSMI) was started in 1950 covering all the 63 industry groups on a sample basis. Subsequent to the passing of Collection of Statistics Act 1953, which replaced the Industrial Statistics Act of 1942 in 1956, the CMI continued on voluntary basis for the years 1957 and 1958. The SSMI also continued up to 1958. All the reports from the manufacturing census from 1946 to 1958 were published. Although the CMI covered factories employing 20 or more workers using power in any manufacturing process, there has been year-to-year variation in the geographic area covered and the response rate. The CMI published information on capital (fixed capital, working capital and depreciation), employment (workers and persons other than workers), man-hours, payment to each category of employees along with the value of benefits and privileges, inputs (fuels, materials and total), the value of output of products and by-products and net value added.

Although the Collection of Statistics Act of 1953 came into force on November 10th, 1956, the Collection of Statistics (Central) Rules framed under the same Act came to be notified in January 1960, providing for a comprehensive Annual Survey of Industries (ASI) in India as from 1959. Thus the ASI replaced both the CMI and SSMI as from that year. Since 1959, the survey is being conducted annually under the statutory provisions of the 1953 Act and 1959 Rules, except in Jammu and Kashmir where it is conducted under the state Collection of Statistics Act 1961 and the rules framed there under in 1964. The ASI extends to the entire country except the states of Arunachal Pradesh, Mizoram, Sikkim and the union territory of Lakshadweep.

The ASI data relate to the organized sector of manufacturing industry and have seen prior use. The factory sector summary is used as the data-source for this study. From the data set, labor and capital inputs as well as output measures can be identified. The advantage of using this data is that information for the entire Indian industry is available. This includes information on firms owned by the governments of the various states in the Indian Union which are also substantial players in the industrial arena, and whose performance has been empirically analyzed in only a limited way. In particular, the enterprises owned by the state governments run substantial operations in the field of transport services and power generation, though they also undertake an extraordinarily large variety of other activities. Joint sector enterprises have a particular presence in the field of hydrocarbons, which is a sector of economic importance to the country and where government presence in ownership was sought to be attained for the purposes of ensuring economic security.

The characteristic of this particular data-base is that data are aggregate because of the reporting policies of the Department of Statistics of the Government of India. However, the

aggregation issue is unavoidable since information on a key variable, on firm-level employment, is just not available for private sector firms from any source whatsoever. In fact, the availability of employment data is one of the unique strengths of the ASI system. Hence, any comparative study of efficiency and performance has to use a data-base such as this. Aggregate data also helps avoid any sample-selection biases, since data on the entire industrial population is considered for comparative efficiency assessment purposes.

The ASI coverage and the over two decades of time-series data yield rich information on the entire population of enterprises that make up the organized industrial sector of India, and the data generated by the ASI constitute the most crucial component of industrial statistics in India. According to the Department of Statistics, the industrial sector is broadly classified into organized and unorganized sector. These institutional categories are found in all the three major groups of industries, namely, mining and quarrying, manufacturing, and electricity generation, transmission and distribution. The ASI covers organized segments of the last two groups and excludes mining and quarrying from its purview.

Services and activities such as cold storage, water supply and repair of motor vehicles and of other durable goods are also covered under the survey, as they are incidental to manufacturing process. Some other servicing industries like motion picture production, personal services like laundry services and job dyeing are also covered under the survey, though their data are not tabulated as these industries do not fall under the scope of industrial sector as defined by the United Nations. Defense establishments, oil storage and distribution depots, and services such as restaurants, hotels, cafes, computer service centers and technical training institutes are also excluded from the purview of the survey.

The ASI does not cover the unorganized or unregistered manufacturing sector of Indian industry. The ASI, however, covers all factories registered under sections 2 m (i) and 2 m (ii) of the Factories Act 1948, which are factories employing 10 or more workers with the aid of power and those employing 20 or more workers without the aid of power, respectively, on any day of the preceding 12 months. In 1973-74 a new and expanded system of National Industrial Classification was introduced by the Central Statistical Organization (CSO), subsequent to the publication of the International Standard Industrial Classification in 1968 by the United Nations Statistical Office (UNSO). It resulted in a major overhauling of the classification system as from 1973-74. The data since that time period adhere to this industrial classification scheme. All concepts and definitions have been uniformly applied for over twenty five years.

The ASI frame of reference is based on the list of registered factories maintained by the Chief Inspector of Factories (CIF) in each state, and those maintained by licensing authorities for indigenous tobacco and cigar establishments and electricity undertakings. The ASI frame gets revised from time to time by deletion of de-registered factories and inclusion of newly registered ones. Initially, the ASI was being revised once every two years until 1981-82. Between 1982-83 and 1988-89, the frame was revised once in four years. From 1989-90 onwards, the frame is revised once in three years. But new registrations are added in the existing frame every year, and the regional offices of the Field Operations Directorate (FOD) of the CSO, which keep close liaison with the offices of CIF in the states, update the frame every year.









	Government Companies (Numbers)	Non Government Companies	Value of Government Companies' Shareholding	Value of Non Government Companies' Shareholding	Ratio of Value of Government to Non Government	Average Shareholding Per Government Company	Average Shareholding Per Non Government Company	Ratio of Shareholding Per Government to Non
		(Numbers)	(in Rupees Crores)	(in Rupees Crores)	Shareholding	(in Rupees Crores)	(11 Rupees Crores)	Government Company
	Column (A)	Column (B)	Column (C)	Column (D)	Column (E)	Column (F)	Column (G)	Column (H)
			Part A:	1973-74 to 1997	-98			
Average	944	153,300	31,958	20,334	2.09	29.450	0.102	276.74
Standard Deviation	250	124,109	26,297	27,360	0.67	19.971	0.044	136.29
Minimum	390	33,966	2,998	2,750	0.79	7.687	0.075	94.95
Maximum	1,220	449,730	84,318	106,201	2.96	69.113	0.236	513.21
Maxi-Min Ratio	3.13	13.24	28.12	38.61	3.74	8.99	3.14	5.40
Part B: 1973-74 to 1990-91								
Average	846	87,233	17,968	7,051	2.29	18.863	0.081	233.86
Standard Deviation	228	52,569	13,952	4,407	0.56	10.745	0.003	129.62
Minimum	390	33,966	2,998	2,750	1.09	7.687	0.075	94.95
Maximum	1,160	200,968	47,451	17,193	2.96	40.906	0.086	478.15
Maxi-Min Ratio	2.97	5.91	15.82	6.25	2.71	5.32	1.14	5.03
			Part C:	1991-92 to 1997	-98			
Average	1,196	323,186	67,932	54,489	1.58	56.673	0.156	386.98
Standard Deviation	19	83,763	10,849	32,388	0.69	8.207	0.055	83.65
Minimum	1,167	223,285	54,485	20,313	0.79	46.688	0.091	292.67
Maximum	1,220	449,730	84,318	106,201	2.68	69.113	0.236	513.20
Maxi-Min Ratio	1.04	2.01	1.55	5.23	3.39	1.48	2.59	1.75

Table 1: Descriptive Statistics for the Corporate Sector in India from 1973-74 to 1997-98 including Sub-periods

Relative Proportion of Government and Non Government Companies								
	Percent of	Percent of	Percent of	Percent of				
	Government	Private	Government	Private				
Years	Companies to	Companies to	Companies Paid	Companies				
	Total	Total	Up Capital	Paid Up				
				Capital				
Full Period:	0.93	99.07	65.85	34.15				
1973-74 to 1997-98								
Prior to Reforms:	1.14	98.86	68.66	31.34				
1973-74 to 1990-91								
After Reforms:	0.39	99.61	58.77	41.23				
1991-92 to 1997-98								

Table 2: Details of Corporate Sector in India from 1973-74 to 1997-98

		Change in		Change in	Change in	Change in
	Change in	Proportion	Change in	Proportion	Average	Average
	Proportion	of	Proportion	of Non	Shareholding	Shareholding
	of	Government	of Non	Government	Per	Per Non
	Government	Companies'	Government	Companies'	Government	Government
	Companies	Shareholding	Companies	Shareholding	Company	Company
	Column	Column	Column	Column	Column	Column
	(A)	(B)	(C)	(D)	(E)	(F)
		For the perio	od: 1973-74 to .	1997-98		
Average	-5.58	-0.52	0.04	0.99	9.96	4.85
Standard Deviation	7.26	5.84	0.08	8.65	9.13	8.14
Minimum	-12.82	-12.97	-0.21	-18.19	-16.04	-2.95
Maximum	17.50	16.72	0.13	16.27	34.28	25.10
		For the peri	od: 1973-74 to .	1990-91		
Average	-3.71	2.11	0.03	-3.24	10.84	0.35
Standard Deviation	7.88	4.27	0.09	5.51	10.58	2.34
Minimum	-12.62	-2.32	-0.21	-18.19	-16.04	-2.95
Maximum	17.50	16.72	0.13	4.86	34.28	4.34
		For the peri	o d: 1991-92 to 2	1997-98		
Average	-10.11	-6.90	0.04	11.27	7.83	15.77
Standard Deviation	1.60	3.85	0.01	5.63	3.65	6.56
Minimum	-12.82	-12.97	0.03	2.11	3.53	6.34
Maximum	-8.51	-0.76	0.05	16.27	14.13	25.10

Table 3: Descriptive Statistics of the Rates of Change in the Proportion of Government Companies and Government Companies' Shareholdings

	Growth or Decline in	Growth or Decline in	Growth or Decline in	Growth or Decline in	Growth or Decline in
	Proportion of	Government	Ratio of Government	Shareholding Per	Ratio of Government
	Government	Companies'	to Non Government	Government	to Non Government
	Companies	Proportion of Share	Company	Company	Shareholding Per
		Capital	Shareholding		Company
	PAI	NEL A: For the time	period: 1973-74 to 1992	7-1998	
	Column	Column	Column	Column	Column
	(A)	(B)	(C)	(D)	(E)
Intercept	1.007***	74.884***	2.789***	23.887***	321.456***
Growth	-0.056***	-0.202**	-0.005	2.617***	15.203***
Acceleration	-0.002**	-0.174***	-0.013***	0.107***	-0.860**
\mathbb{R}^2	0.890	0.900	0.89	0.994	0.763
	PAI	NEL B: For the time	period: 1973-74 to 1990	0-1991	
Intercept	1.307***	71.138***	2.450***	14.921***	192.864***
Growth	-0.052***	1.045***	0.099***	1.888***	23.092***
Acceleration	-0.006***	-0.092***	-0.006***	0.146***	1.523***
\mathbb{R}^2	0.895	0.952	0.965	0.994	0.988
	PAI	NEL C: For the time	period: 1991-92 to 1997	7-1998	
Intercept	0.384***	59.032***	1.464***	9.900***	377.145***
Growth	-0.042***	-4.997***	-0.319***	0.452**	-38.267***
Acceleration	0.001**	-0.095	0.029***	-0.032	2.460**
R ²	0.998	0.992	0.996	0.594	0.988

Table 4: Evaluating changes in the proportions of government companies and their shareholdings from 1973-74 to 1997-98

*** p < 0.01; ** p < 0.05; *p < 0.10*

	For the Period: 1973-74 to	For the Period: 1973-	For the Period: 1991-
	1997-98	74 to 1990-91	92 to 1997-98
	Column	Column	Column
	(A)	(B)	(C)
Net Value Added Per	Employee: Averages in Rupe	es (Standard deviation i	n parentheses)
Central Sector	18,500 (8,700)	14,500 (4,300)	28,700 (6,900)
State Sector	12,500 (4,300)	10,500 (2,900)	17,700 (2,700)
Joint Sector	17,900 (8,700)	13,600 (4,800)	28,700 (7,000)
Whole Public Sector	16,300 (6,900)	12,900 (3,600)	25,000 (5,100)
Private Sector	12,300 (4,200)	10,000 (2,000)	18,200 (2,200)
Net Value Added Per	Rupee of Fixed Capital: Aver	ages (Standard deviation	n in parentheses)
Central Sector	0.301 (0.069)	0.298 (0.064)	0.307 (0.085)
State Sector	0.167 (0.039)	0.151 (0.029)	0.207 (0.035)
Joint Sector	0.399 (0.062)	0.409 (0.058)	0.374 (0.067)
Whole Public Sector	0.289 (0.034)	0.286 (0.031)	0.296 (0.043)
Private Sector	0.771 (0.197)	0.865 (0.139)	0.529 (0.077)
Net Value Added Per	Rupee of Working Capital: A	verages (Standard devia	tion in parentheses)
Central Sector	0.694 (0.228)	0.587 (0.112)	0.968 (0.227)
State Sector	1.179 (0.436)	1.019 (0.348)	1.591 (0.374)
Joint Sector	1.118 (0.366)	1.027 (0.226)	1.350 (0.551)
Whole Public Sector	0.997 (0.267)	0.878 (0.183)	1.303 (0.194)
Private Sector	1.311 (0.177)	1.370 (0.139)	1.160 (0.185)
Ratio of Fixed Capital	to Working Capital		
Central Sector	2.36	1.98	3.13
State Sector	6.74	6.56	7.08
Joint Sector	3.02	2.68	3.49
Private Sector	1.95	1.67	2.20

Table 5: Performance across sectors decomposed by each category of input consumption per unit of output across the full time period and the two different time sub-periods

		Central Sector	State Sector	Joint Sector
Net Value Added Per Employee For	State Sector	6.100		
the Period 1973-74 to 1997-98	Joint Sector	0.886	-5.240	
	Private Sector	6.839	0.751	5.551
Net Value Added Per Employee For	State Sector	5.578		
the Period 1973-74 to 1990-91	Joint Sector	1.106	-4.798	
	Private Sector	7.035	1.348	4.959
Net Value Added Per Employee For	State Sector	5.456		
the Period 1991-92 to 1997-98	Joint Sector	-0.028	-5.305	
	Private Sector	5.083	-0.776	4.892
Net Value Added Per Fixed Capital	State Sector	8.427		
Unit For the Period 1973-74 to 1997-	Joint Sector	-5.594	-15.508	
<i>98</i>	Private Sector	-10.515	-13.191	-9.744
Net Value Added Per Fixed Capital	State Sector	7.777		
Unit 1973-74 to 1990-91	Joint Sector	-6.143	-17.311	
	Private Sector	-14.873	-19.230	-13.559
Net Value Added Per Fixed Capital	State Sector	3.669		
Unit 1991-92 to 1997-98	Joint Sector	-1.563	-6.756	
	Private Sector	-3.663	-8.340	-3.838
Net Value Added Per Working	State Sector	-6.111		
Capital Unit For the Period 1973-74	Joint Sector	-6.203	0.664	
10 1997-98	0^{or} State Sector 6.100 Joint Sector 0.886 -5.240 Private Sector 6.839 0.751 . State Sector 5.578 Joint Sector 1.106 -4.798 Private Sector 7.035 1.348 . State Sector 5.456 Joint Sector -0.028 -5.305 Private Sector 5.083 -0.776 <i>ital</i> State Sector 8.427 0^{7-} Joint Sector -5.594 -15.508 Private Sector 7.777 Joint Sector -6.143 -17.311 Private Sector 7.777 Joint Sector -6.756 Private Sector -3.663 -6.756 Private Sector -6.111 74 Joint Sector -6.203 0.664 Private Sector -5.542 Joint Sector -5.542 Joint Sector -7.293 -0.131 Private Sector -7.293 -0.131 Private Sector -3.060 Joint Sector -3.060 Joint Sector -1.518	-2.435		
Net Value Added Per Working	State Sector	-5.542		
Capital Unit 1973-74 to 1990-91	Joint Sector	-7.293	-0.131	
	Private Sector	-16.506	-4.298	-7.283
Not Value Added Der Working	State Sector	-3.060		
Capital Unit 1991-92 to 1997-98	Joint Sector	-1.915	0.839	
	Private Sector	-1.518	3.121	0.946

Table 6: Non-parametric test results of performance parameters

Figures in the cell: *t* statistic for test of performance differences between two ownership types **Null hypothesis tested:** No performance difference between the ownership type as listed in the column versus the organization type as listed in each of the rows.

Alternative hypothesis tested: Performance score of the ownership type as listed in the column is significantly greater (+) or smaller (-) than the performance score of the ownership type as listed in each of the rows.

	Net Value Added		Net Valu	Net Value Added		Net Value Added	
	FEI LII	npioyee	rer Unit Cap	Capital		n working vital	
	Column	Column	Column	Column	Column	Column	
	(A)	(B)	(C)	(D)	(F)	(G)	
	Parameter	Parameter	Parameter	Parameter	Parameter	Parameter	
	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	
Intercept	0.343***	0.349***	0.267***	0.389***	0.880***	1.092***	
	(0.034)	(0.035)	(0.069)	(0.080)	(0.268)	(0.239)	
PROP GOV	-0.113***	-0.070***	0.018	-0.007	-0.323***	-0.271**	
	(0.015)	(0.018)	(0.022)	(0.028)	(0.103)	(0.099)	
<i>GOVT EQUITY</i>	-0.002*	-0.002*	0.000	0.000	0.002	0.000	
-	(0.001)	(0.001)	(0.010)	(0.000)	(0.004)	(0.003)	
FIXEDCAP FCTRY	. ,	-0.001***	. ,	-0.000	. ,	-0.000	
		(0.000)		(0.000)		(0.000)	
WORKINGCAP FCTRY		0.001***		-0.001**		0.001**	
		(0.000)		(0.001)		(0.000)	
EMPLOYED		0.007**		0.001		-0.002***	
		(0.002		(0.001)		(0.001)	
STATES SECTOR	-0.067***	-0.090***	-0.140**	-0.178**	0.449***	0.210*	
	(0.019)	(0.022)	(0.057)	(0.069)	(0.132)	(0.144)	
JOINT SECTOR	-0.004	-0.026	0.087**	0.028	0.403***	0.256*	
5	(0.020)	(0.024)	(0.128)	(0.050)	(0.119)	(0.140)	
PRIVATE SECTOR	-0.071***	-0.109***	0.419***	0.328**	0.573***	0.416**	
	(0.018)	(0.035)	(0.123)	(0.125)	(0.129)	(0.178)	
R^2	0.503	0.713	0.286	0.363	0.288	0.518	

Table 7: Regression Results for Evaluating Performance: 1973-74 to 1997-98

Heteroscedastic corrected standard errors in parentheses. *** p < 0.01; ** p < 0.05; *p < 0.10*

Table 8: Additional Details of Corporate Sector Composition in India and an Evaluation of
Performance Trends after 1997-98

Part A: Relative Proportions of Government and Non Government Companies and Government								
and P	and Private Shares of Equity Capital Investments from 1998-99 to 2001-02							
	Percent of	Percent of Private	Percent of	Percent of Private				
	Government	Companies to Total	Government	Companies Paid Up				
Years	Companies to Total	Number of	Companies Paid Up	Capital				
	Number of	Companies	Capital					
	Companies							
1998-99	0.25	99.75	40.87	59.13				
1999-00	0.24	99.76	36.42	63.58				
2000-01	0.23	99.77	32.26	67.74				
2001-02	0.22	99.78	30.72	69.28				
Part B: Changes in	n the Relative Propo	rtions of Governmen	nt and Non Governm	nent Companies and				
Government	t and Private Shares	of Equity Capital In	vestments from 1998	3-99 to 2001-02				
	Annual Change in	Annual Change in	Annual Change in	Annual Change in				
	Percent of	Percent of Private	Percent of	Percent of Private				
Years	Government	Companies to Total	Government	Companies Paid Up				
	Companies to Total	Number of	Companies Paid Up	Capital				
	Number of	Companies	Capital					
	Companies							
1998-99	(6.696)	0.018	(7.647)	6.071				
1999-00	(4.905)	0.012	(10.892)	7.529				
2000-01	(4.384)	0.011	(11.423)	6.544				
2001-02	(3.078)	0.007	(4.776)	2.274				
Between 1997-98 and								
2002-02	(17.773)	0.048	(30.587)	24.285				
Part C: Results of H	Regression of Perform	mance Parameters for	or the Period 1973-74	to 2001-02				
		Net Value Added	Net Value Added	Net Value Added				
		Per Employee	Per Unit of Fixed	Per Unit of Working				
			Capital	Capital				
Intercept		25390.620***	0.361	1.494***				
PROP GOV		-8022.450***	0.019*	-0.192***				
<i>GOVT EQUITY</i>		-66.362**	0.000	-0.001*				
\mathbb{R}^2		0.858	0.169	0.521				

*** p < 0.01; ** p < 0.05; *p < 0.10*