

**CORPORATE STATISTICS: THE MISSING NUMBERS \***

**N. Shanta**  
**and**  
**J. Dennis Raja Kumar**

Centre for Development Studies  
Thiruvananthapuram

May 1999

---

\*This is a revised version of a paper presented at the 35th Annual Conference of The Indian Econometric Society held at Jaipur, Rajasthan from 11 to 13 March, 1999. We are extremely grateful to Prof. K.K Subrahmanian for his valuable comments which greatly helped to improve the paper. The errors that remain are however our own.

## **ABSTRACT**

This paper reviews the current status of Indian corporate statistics. It makes a critical evaluation of the various sources of data such as ASI, RBI, ICICI, IDBI, BSE, CMIE and DCA in terms of comprehensiveness, reliability and timeliness. In this process it identifies the gaps in the data and gives suggestions for improvement taking into account the increasing demand for data following globalisation. It emphasizes the role of firm level / industry-wise / state-wise / size-wise data on a census basis.

**JEL Classification:** C 80

**Key Words:** India, Private Corporate Sector, Corporate Statistics, Database

**Introduction:**

Liberalisation measures introduced gradually since the mid 1980s have far-reaching implications for the growth and behaviour of the private corporate sector in India. For any meaningful analysis of their implications, the most important pre-requisite is a sound database. Unfortunately, statistics in the area are quite confusing and wanting in several respects. Besides, statistics for the corporate sector as such do not exist<sup>1</sup>, so much so, that much of the work on the corporate sector has been on methodological issues relating to and building up of population estimates for this sector with lesser attention to the substantive issues. This state of affairs needs to be changed particularly in the context of the growing significance of the corporate sector in the economy.<sup>2</sup> It therefore seems relevant to make a critical assessment of the database of the private corporate sector with particular reference to its comprehensiveness and usefulness so that the gaps in the data can be identified. What is the nature of the data available? What are its problems? How can they be improved to make them more useful? This paper addresses these issues.

We confine ourselves to the non-government non-financial private corporate sector. In this category, we include public limited companies, private limited companies, foreign controlled rupee companies, and branches of foreign companies.<sup>3</sup> The survey of different sources of data for these sub-sectors of the private corporate sector is confined to the important sources of published data.

This paper is divided into three sections. Section 1 deals with the major sources of data and identifies the gaps in them. Section 2 outlines how these data sources have been used. Section 3 gives suggestions for improving the database.

## **Section 1**

### ***Major sources of data:***

The corporate sector can be analysed at, firm level, aggregate level, size-wise, industry wise, and state-wise. The study of significant issues at each of these levels requires detailed data. The main published sources of data for analysing the private corporate sector are the data published by

1. *Central Statistical Organisation (CSO)*,
2. *Reserve Bank of India (RBI)*
3. *Industrial Credit and Investment Corporation of India (ICICI)*,
4. *Industrial Development Bank of India (IDBI)*,
5. *Bombay Stock Exchange (BSE)*,
6. *Centre for Monitoring Indian Economy (CMIE)*, and
7. *Department of Company Affairs (DCA)*.

The level of aggregation, the variables for which information are given, and the period for which it is available varies across these sources.

### ***Central Statistical Organisation :***

At the outset, it must be mentioned that most of the databases of the private corporate sector are in the form of financial statements and give data only in value terms. This in turn has determined the type of studies undertaken in this area. Perhaps, the oldest data relating to private corporate sector was an exception to this. The oldest data source on the private corporate sector was published in *Census of Manufacturing Industries (CMI)*. The CMI gave information by type of ownership<sup>4</sup> at the aggregate level, that is, for the entire manufacturing sector for the years 1951 to 1958. Variables for which information was available included productive capital, persons employed, salaries, wages and benefits to employees, gross output, materials consumed, and value added. Since 1954, this information was given at the industry level. This was, however, available only up to the year 1958. One major drawback of this data source was that it did not distinguish between government and non-government companies. It also did not distinguish between workers and salaried-class. The *Annual Survey of Industries (ASI)* replaced CMI in 1959 and brought changes in the format and coverage. These changes were useful in several ways but affected corporate statistics adversely. To be explicit, the provision of information by type of ownership ceased to be published and, thereby, a major source of information to analyse corporate sector ceased to exist.

To a certain extent, this was compensated by the publishing of the series titled, *Annual Survey of Industries, Summary Results for the Factory Sector*. It gives information by type of ownership and organisation since 1973/74. The information provided includes number of factories, fixed capital, productive capital, invested capital (since 1980/81), workers (since 1979/80), employees, wages to workers (since 1979/80), total emoluments, total input (since 1978/79), gross output,

depreciation (since 1979/80), net value added, rent paid (since 1993/94) and interest paid (since 1993/94). The major problem with this source of data is that it does not directly give information on the private corporate sector as such. Estimates for private corporate sector have to be prepared by combining information given by type of organisation and by type of ownership (See Appendix 1). This is fraught with a number of difficulties (Shanta, 1994a). In particular, the results could be overestimates or underestimates depending upon the method used for arriving at the estimates. Another problem with the use of this data is that the details of each category are not made explicit. For instance, since 1988/89 some changes have been made in the presentation of the data. A new category, namely, Joint Family (Hindu Undivided Family) has been separately enlisted. No mention is made, however, as to where this category had been included hitherto. This makes comparability over time difficult. Again, neither industry- wise nor state-wise analysis is possible with this data source.

***Reserve Bank of India (RBI) :***

Another source of data for aggregate analysis is the data published by the RBI. It is also the most commonly used source of data for corporate analysis.<sup>5</sup> Data published by RBI is essentially sample data. The RBI provides data on company finances consistently from 1950/51 onwards. It is essentially based on the financial statements of companies, that is, Balance sheets and Profit and Loss accounts and, therefore, gives information only in value terms. It provides information for the various sub-sectors of the corporate sector such as Medium and Large Public Limited Companies, Large Public Limited Companies (from 1965/66),<sup>6</sup> Small Public Limited Companies,<sup>7</sup> Medium and Large Private Limited Companies (from 1955/56), Small Private Limited Companies,<sup>8</sup> Foreign Controlled Rupee Companies and Branches of Foreign Companies<sup>9</sup>, and Financial Performance of Private Corporate Business (from 1993/94)<sup>10</sup>.

Data was provided on a quinquennial basis until 1980/81<sup>11</sup>, since then it is provided for three years. From the financial year 1982/83 (*RBI Bulletin*, May 1987), the survey of Medium and Large Public Limited Companies and that of small companies were merged and was published under the title 'Finances of Public Limited Companies'. So also is the case with private limited companies. Although the specificity of companies included in the sample and the changes in them over time are not clearly known;<sup>12</sup> this data is useful for time series studies based on ratio analysis. Aggregate time series analysis can be carried out after blowing up. The RBI also gives industry-wise<sup>13</sup> and size-wise data<sup>14</sup>. Public and Private Limited Companies are classified under six broad industry groups.<sup>15</sup> Data are also available at a more disaggregated level of industry classification for Public Limited Companies, but not for Private Limited Companies. Size-wise, industry-wise data is available with RBI but not published.

Since RBI data source is essentially based on sample data, estimation is involved for studying the whole of the corporate sector. Also, all the problems associated with using this useful data set arises because of this. One important and most commonly accepted method of estimating for the whole is the blow up method. For this, information for the corporate sector as a whole with respect to any variable becomes very important. The DCA provides aggregate data with respect to number of companies and paid-up capital for public and private limited companies.<sup>16</sup> By suitably adjusting for government and financial companies, it is possible to work out the aggregate paid up capital for non-government non-financial public and private limited companies. It is also available industry-wise. For making any aggregate estimates, one will have to rely on this information.

The variable commonly used for blowing up is the paid up capital. The method of blow up is as follows: first work out a blow up factor,

which is the ratio of total paid up capital of all companies to paid up capital of sample companies. And then multiply the variables with this factor to arrive at the aggregate figure.<sup>17</sup> For example,

$$\begin{aligned} GFA_T &= GFA_S * (PUC_T/PUC_S) \text{ or} \\ GFA_T &= (GFA_S/PUC_S) * PUC_T \end{aligned}$$

Where  $GFA_T$  = Gross fixed assets of total population

$GFA_S$  = Gross fixed assets of the sample

$PUC_T$  = Paid up capital of total population

$PUC_S$  = Paid up capital of the sample

In the case of foreign companies, information on total assets held by all branches in India is available and this could be used to work out blow up factor.<sup>18</sup> Coverage for this set of companies is in terms of net assets.

As industry-wise total paid up capital is available, it is possible to blow up the sample data at the level of major industry groups. This will take care of the inter-industry differences, while building estimates for the corporate sector as a whole.<sup>19</sup> This process can be expressed in a formula as follows:

$$GFA_i = \sum_{j=1}^n GFA_{ji} (PUC_{pji}/PUC_{sji})$$

Where  $GFA_{ji}$  = Gross fixed assets  $j^{\text{th}}$  industry in  $i^{\text{th}}$  year;

$PUC_{pji}$  = Total paid up capital of  $j^{\text{th}}$  industry in  $i^{\text{th}}$  year;

$PUC_{sji}$  = Sample paid up capital of  $j^{\text{th}}$  industry in  $i^{\text{th}}$  year

As mentioned above, the blow up method requires information on the coverage of the sample in terms of the paid up capital or the blow up

factor. While RBI provides the coverage<sup>20</sup> for the sample as a whole, it does not give such information for industry-groups or size-classes. This precludes any sectoral and structural analysis at the aggregate level. Alternate sources like the DCA and CCI may perhaps be used for arriving at blow up factor but they have their limitations.

Shanta (1991) had evolved an alternate to the blow up method. She proposed a method of estimation by taking the ratio of the variable to be estimated of newer companies (normally enlarged samples) to the older samples of overlapping year and multiplying it with the corresponding variable of previous years of the sample period.<sup>21</sup> After a series is constructed using this procedure, she linked it to the actual value of each variable for all companies available from RBI census data.<sup>22</sup> This method though it overcomes the limitation of using paid up capital, as a blow up factor for all variables, is dependent on the availability of Census data.<sup>23</sup>

The main problem with this data source is that it is based on sample data and the sample size is changed every 5 or 3 years. So there are breaks in the series. Since it is sample data it is more suited for ratio analysis than for aggregate analysis. Ratio analysis deals with proportions and cannot reflect the magnitudes involved. It also precludes one from making a comparison of the relative position of the private corporate sector vis-à-vis other sectors of the economy. We have already explained the problems involved in building estimates for the whole. Secondly, the source of information for RBI is the Registrars of Companies and, in some cases, it takes direct recourse. This has not only rendered it difficult to do scientific sampling (DCA, 1998) but caused delay in the publication of results of the study<sup>24</sup> at least by three years.<sup>25</sup> Data is also published for different subsector at different time points, which implies more delay for aggregate analysis.

**ICICI and IDBI:**

The Industrial Credit and Investment Corporation of India (ICICI) brings out an annual series titled '*Financial performance of companies: ICICI portfolio*'.<sup>26</sup> The companies covered are essentially those on its portfolio. The first of this series began for 1970/71 covering 543 companies including both public and private limited companies. Since 1976/77, only public limited companies are covered. The samples are distributed according to industry, size, and state. There are broadly 17 industry groups based on the United Nations "International Standard Industrial Classification of all Economic Activity". Gross fixed assets were the basis for size-wise classification<sup>27</sup>. The state wise classification is based on the location of units<sup>28</sup>.

The Industrial Development Bank of India (IDBI) also compiles accounts of its client companies in an annual volume titled '*Performance of IDBI assisted companies in private sector*'. Like ICICI, only those companies on its portfolio form its sample. These companies are public limited companies including joint sector companies directly assisted by IDBI.<sup>29</sup> The financial statistics are available industry-wise and state-wise. The basis for industry-wise classification is not clear. State-wise classification is based on location of the manufacturing units.<sup>30</sup>

While both sources have some similarities in terms of nature of information furnished, ICICI provides some more useful information, in particular, on industry-wise employment such as number of employees (skilled and unskilled) and man-days worked. These information, which are not available elsewhere, are very useful but the manner in which the data are given, does not allow one to use them fruitfully. While, ICICI gives the coverage of their sample, it is not given for all years. A bigger problem is encountered when one tries to make use of the information on employment. The data are collected for a sub-sample,

part of which, is included in the larger ICICI sample, but not the whole.<sup>31</sup> For some years, information on these companies, which form part of the larger ICICI sample, are given separately, so that one could again make approximations to the larger sample and subsequently to the whole. But even this information is not given uniformly. The biggest problem arises when one comes to the data on man-days employed. No information on any other variable for this sample of companies that can be linked to other available information for the corporate sector is available.

Besides, the coverage of these two sets of data is limited since it relates to only those companies that have borrowed from them. It is also biased in favour of larger companies. The drawbacks of sample data for differing cohorts of companies for different years applies to this data set also. As in the case of RBI data this data set can be used for estimating aggregates, only if appropriate blow up factors are available and, hence, more suited for ratio analysis.

### ***Bombay Stock Exchange (BSE):***

In contrast to CMI/ASI, RBI, ICICI and IDBI data, BSE deals with company level data and can, therefore, be used for firm level analysis. The BSE publishes financial statistics of individual companies in its *Stock Exchange Official Directory*. Every issue contains data for 10 financial years. The financial statistics provided also include Balance Sheets and Profit and Loss Accounts, and equity share, closing quotation on selected date, and highs and lows of equity share. Trend analysis of some worked out financial ratios is also presented.

Besides financial statistics, the directory also provides for each company, information on the objectives and activities of the company, place of its incorporation, registered office and address, directors' name and some important dates and a description of the company's activities

over the years. To study at firm level, this is one of the best available sources of data, which can be obtained from the early 1960's. The main drawback of this data is that it is confined to quoted public limited companies only.

***Centre for Monitoring Indian Economy (CMIE):***

The CMIE's provision of corporate statistics is larger in scope. It gives financial statistics and market shares. The publications of CMIE relevant for corporate analysis are '*Key financial data on larger business units*', '*Trends in company finance: industry aggregate*', '*Statistical profile of 500 private corporate giants*' and '*The Corporate Sector*'. What is missing in the CMIE's publications is that information on any particular category of companies is not brought out consistently. To illustrate, since June 1978, CMIE had been compiling financial statistics of companies in a volume entitled '*Key financial data on larger business units*'. Initially, they started with 750 companies of both private and public sector having sales of more than Rs. 5 crores. This gives company-wise income and expenditure account, profit and their appropriation accounts, assets and liabilities, and total exports and imports. Besides, it also gives particulars such as name of the company and ownership, the major products of the company including their installed capacity and production<sup>32</sup>, the location of plants, the major projects on hand, and, board of directors. In January 1993, information was presented separately for top 500 giants covering five financial years (1985/86 to 1989/90) and other companies numbering 1986 covering three years (1987/88 to 1989/90). In January 1994, they brought out a separate volume titled '*Statistical profile of 500 private corporate giants*', covering companies in the private sector only for five years (1988/89 to 1992/93). The last of this series was published in January 1995.

Since 1986, the CMIE also provided statistics at the industry level under the title '*Trends in Corporate finance: aggregate results*', presenting results for five financial years. The data was culled out from '*Key financial data of larger business units*'. Initially they covered 48 industry groups, which was later on expanded to include 60 groups.<sup>33</sup> Aggregate results were presented for different types of ownership.<sup>34</sup> Selection of companies was based on the criteria that more than half of their sales/income was derived from mining and manufactured products. Since November 1992, only companies in private sector were covered under the title, '*Company finance: industry aggregates*'. This series included companies engaged in services and utility besides mining and manufacturing. The last one was published in November 1994.

Since April 1996, only one volume was brought under the name '*The Indian Corporate Sector*', which was later on changed to '*The Corporate Sector*' in July 1997. The latest one is available for April 1999. They cover eight years and provide statistics, mostly in the form of ratios by types of industry, ownership, age, and size.

The CMIE also gives data for about six thousand companies listed in BSE in its computerised database known as PROWESS (formerly CIMM). The great advantage of this data set is that it is computerised and is timely. It is useful for cross section analysis. Its utility for time series analysis now is limited because it is available only from 1988/89 onwards. From this data source, it is possible to gain a lot of qualitative understanding of a firm regarding the movements of its share prices, press releases, reports of board of directors, shareholding pattern, year of incorporation, capacity utilisation, and so on. Another advantage of PROWESS is that the companies could be classified according to predetermined criteria such as types of ownership, products, industry groups, year of incorporation and financial performance. Aggregate

analysis is also possible. As PROWESS is the most currently used data set, some of the anomalies are being pointed out here to caution the users.

For instance, the R&D expenditures of firms in PROWESS (updated up to 06/04/99) are collected from the report of board of directors of respective companies. The R&D of TELCO are reported 0 in the PROWESS. The company, however, had R&D of Rs. 68 crores for the financial year 1994/95<sup>35</sup>. Studies using R&D figure, as reported by PROWESS, would not consider TELCO for analysis because its R&D expenditure is reported to be 0. Given its importance in the segment of transport equipment,<sup>36</sup> results obtained using samples, which excludes TELCO, can be partial and misleading. Yet, another problem is with regard to classification. For instance, Maruti Udyog Limited is classified under Foreign Private Sector, but foreign equity share holding is given as 0. This has not only 50 per cent foreign participation but is also an important player in the sector of passenger cars and jeeps.<sup>37</sup> The foreign participation is, however, mentioned in the background report. This requires that users have to read the background report of each and every firm under consideration and one has to be extremely careful while employing the data extracted from this data source.

Finally, all these data sets based on financial statements of companies (wherein the variables are expressed in value terms) have certain limitations in common. While particulars of income and expenditure are at current prices, assets are reported at their historical prices and do not reflect the current value of the assets. This requires revaluing of assets, if they have to be related to any variable that is being expressed in current values. Balance Sheet information pertains to a particular point of time of a particular year (i.e., March 31) and is subject to window dressing. Again, financial statements are prepared based on

Generally Accepted Accounting Principles (GAAP), conventions and some personal judgements. Users should be aware of the items liable to window dressing. Some of these items are inventories, trade credit, depreciation, intangible assets, and provisions. Methods used, while preparing financial statements, for valuing inventories, calculating depreciation etc. can have serious implications for fixed assets, working capital, and cost of production, profits, and rate of return. These have to be borne in mind by the users of these statistics. The users should, hence, be cautious in deriving conclusions from such data. It is suggested to confirm such conclusions by taking into account the performance of the industry in general or of other firms in the industry over time. Above all, the information given in Balance Sheet and Profit and Loss Accounts is with reference to a unit of organisation and not with reference to a unit of production. This reduces its utility for studying production function or related issues.

***Department of Company Affairs (DCA):***

The main sources of data published by DCA are

1. *Directory of Joint Stock Companies in India* published annually,
2. *Quinquennial Directory of Joint Stock Companies in India*
3. *Registration & Liquidation of Joint Stock Companies in India* published annually,
4. *Annual Report on the Working and Administration of Companies Act 1956*, and
5. *Company News and Notes* published monthly.

The *Directory of Joint Stock Companies* gives information on important financial variables such as paid up capital, reserves and surplus,

total assets, net fixed assets, borrowing, turnover, profit before tax. It also distinguishes between government companies, MRTP companies, industry groups and state. Since this gives firm level information, identification of companies is possible. However, the utility of this information is lost because it is arranged in the alphabetical order of the name of the companies. It would have been much more fruitful if it was arranged state wise and would have facilitated preliminary level analysis at the state level before one could go in for detailed analysis of their respective balance sheets and profit and loss account. Of course, inclusion of more information on other variable is always welcome. It also gives a list of branches of foreign companies. The last series published was in 1990. The data are now available only on CD-ROM and can be obtained on request (DCA, 1988). This can take care of the some of the problem with the printed data.

The annual publication '*Registration & Liquidation of Joint Stock Companies in India*' contains complete list of companies registered and liquidated during the respective financial years. Like the Directory, it also gives various particulars of the companies registered, including their names, registered address, State in which registered, industrial classification code, date of registration and authorised capital. List of companies which went into liquidation or whose names were struck off under section 560 of the Companies Act 1956 is also provided.

The *Annual Report* gives very useful information. Data relating to registration of companies are provided in terms of number of companies and authorised capital. And, they are given by region, public or private, activity-wise<sup>38</sup> and size-wise<sup>39</sup>. The main limitation of this data is that since activity-wise state-wise registration of companies is not available, one cannot distinguish between financial and non-financial companies for state level analysis. Although, the *Statistical Abstract*

published by CSO provides data on Joint Stock Companies newly registered according to activity and state<sup>40</sup>, it does not distinguish between government companies and non-government companies. The *Company News and Notes* gives registration of companies state-wise.

As regards companies at work, the Annual Report gives state-wise and activity-wise information relating to number of companies and paid up capital. But size-wise data is not given. Unlike newly registered companies, information is not available activity-wise state-wise. A state-wise analysis of distribution of companies according to activity is, thus, not possible.

***Other sources:***

Besides these, there are other sources of data, which give information on matters relating to the private corporate sector. For example, the *Kothari's Industrial Directory of India* (Kothari Enterprises, 1996) is available since 1936 and serves as a useful document to understand the growth of the private corporate sector in a historical perspective. It gives the various regulations promulgated from time to time with regard to industry, company taxation, stock exchanges, etc. In addition, it gives detailed write up of several industries along with brief statistics relating to individual companies. While the statistics for each company is limited and not suitable for detailed analysis, the facts regarding the industry are very useful and serve to supplement firm-wise analysis based on other sources.

The *Industrial Databook* of Centre for Industrial & Economic Research (1998) New Delhi, provides information relating to installed capacity, annual production, sales, equity, and gross profit of a large number of individual firms. This data book has been published for some years since 1986. While this databook classifies firms according to the

industry group they belong to, it does not distinguish between private and public sector companies.

It is also possible to get information from various chambers of commerce and industry and trade associations. For instance, the *ASSOCHAM Parliamentary Digest* published by Associated Chambers of Commerce and Industry in India (ASSOCHAM) is a vital source of information about policy changes related to trade, industry and other spheres affecting corporate sector, industrial growth, foreign investment, and so on. This is based on the questions and answers sessions of Parliament. Researchers interested in industry case studies can obtain information related to a particular industry from the associations concerned and use them to supplement the analysis based on other sources of data.<sup>41</sup> The EPW Research Foundation, Mumbai collects company data and periodically publishes them in the *Economic and Political Weekly*. The Institute for Studies in Industrial Development (ISID) in New Delhi collects companies' data from their respective annual reports. It is made available on request and is used for firm-level analysis (Basant and Fikkert, 1996).

## **Section 2**

### ***How has each of these data sources been used?***

The above mentioned sources of data formed the basis for a number of studies of both private corporate and for industry as whole. Studies have used ASI data for understanding the growth trends, relative performance, and relative position of the private corporate sector in India (Bardhan, 1984; Chandra, 1991; Shanta, 1991, Majumdar, 1995; ). But, studies based on this source have been very few. The RBI database is the most widely used and has been employed to analyse trends in capital formation, savings, sales, value added, profitability, corporate financing

and investment behaviour, import intensity and export performance, and so on.<sup>42</sup> It has been used for building up aggregates as well as for ratio analysis. The RBI also makes available unpublished firm-wise data on request, which have been used to examine various issues like market structure, productivity, profitability, and performance (Kambhampati, 1996; Kumar, 1994; and Srivastava, 1996). The ICICI and IDBI data have largely been used by the respective institutions to analyse trends in capacity utilisation, export performance, and productivity. The BSE data have been used to analyse growth, factor productivity, and investment behaviour of specific industries at firm level (Anandaraj, 1987; Krishnamurthy and Sastry, 1975; Shanta, 1994b). The CMIE PROWESS data is currently widely used more for firm level analysis to study issues like factor productivity, export and import intensity, R&D intensity, foreign collaborations, impact of FDI on R&D, technology and productivity, and so on. The DCA data, while used in combination with other sources of data, has been mostly used for departmental analysis. The issues studied include registration and liquidation of companies, amalgamations, take-overs and mergers, operation of MRTP Act, cases of restrictive trade practices, capital issues and so on. These studies generally appear in *Company News and Notes* of DCA and are mostly authored by Officials of DCA.

With liberalisation, Indian industrial sector is likely to undergo structural changes. In this context, issues which become important are capital structure, investment behaviour, cost structure, wage structure (wages vis-à-vis managerial remuneration), R&D intensity, advertising intensity, FDI, technology spillover, foreign exchange earnings, import and export intensity, mergers, amalgamations, take-overs and acquisition, profitability, competition, employment, and so on. These issues can be studied separately or in conjunction with one another. Choice of a particular data source depends both on its suitability to answer the

questions analysed and on its availability. Firm-wise data are often found to be more useful in this context.

### **Section 3**

#### ***Suggestions for improving the database:***

Much more structural analysis of the private corporate sector is possible using these sets of data in isolation or in combination. This could be gainfully and more easily achieved if the limitations of the data are overcome and the gaps filled. In the light of this, we have the following suggestions to make.

The ASI's statistics by type of ownership / organisation could be made available industry-wise and state-wise to facilitate state-wise and industry-wise studies. The CSO could widen the pool of information in ASI to include capital structure, export, import, foreign exchange earnings, etc taking into consideration the new demands for data. It would be useful if data are given along with definitions of each category of organisation and ownership.

As regard the RBI database, it is necessary to have systematic information on blow up factor for different subsectors, industry groups and size classes. Size class could be defined in terms of net assets, as it is a better indicator of size than paid up capital. Size-wise and industry-wise information for private limited companies that are available with RBI could be published. As censuses provide benchmarks, RBI should continue to conduct census of public limited companies at least once in 5 years and extend its coverage to private limited companies and foreign companies. The studies of branches of foreign companies should be revived, considering the importance of this sub-sector under globalisation. Detailed industry-wise data for both foreign controlled and branches of foreign companies are equally important in this context.

In addition to the existing information, RBI could give more information on employment, man-days, and capacity utilisation, and distribution of samples by state and year of incorporation. We understand that these information are available with RBI. In the wake of financial liberalisation, it is important to make the sources of funds as explicit as possible. It would be useful to have institution-wise, instrument-wise sources of funds. Further, study of foreign assets and liabilities and transactions in foreign currency of Indian companies becomes equally important to analyse the performance of Indian companies under globalisation. Attempts could also be made to reduce the time lags involved in the publication of the RBI studies.

Some rare information on employment, man-days worked, etc. is provided in ICICI, but only for sub samples. It would be useful to give blow up factors clearly for all the samples and for the sub samples in relation to the larger samples. This would improve the utility of the information provided. The IDBI could also provide this type of information of the companies assisted by them.

The BSE Official Directory gives data for some companies relating to capacity, quantities produced, shareholding pattern, business group to which they belong, and so on. Once these information are made available uniformly and for all companies, inter-firm and inter-industry comparisons could be made. Attempts could also be made to add information on exports, imports and employment, and to provide more details of financial particulars.

The information presented by CMIE in PROWESS should be complete across all companies. The missing values should be pointed out by some method in stead of the current practice of putting '0s' and anomalies taken care of. Again it would be useful to give detailed break up of foreign share holding pattern of a company.

The DCA could provide paid up capital of companies at work, activity-wise, by size and by state. The size class of above Rs. 1 crore could further be divided into various sub-groups. This would enable building up of aggregate estimates based on other sources of data like RBI and to carry out structural analysis. The revised figures of paid up capital activity-wise, state-wise and size-wise should be given. Now we get only the provisional figures for this break up, whereas paid up capital as a whole is revised.

Our survey of the database has made it clear that analysis of certain crucial aspects of corporate sector is handicapped due to non-availability of firm-wise data on certain aspects. In particular, mention may be made of the lack of data on shareholding pattern, employment details and a firm's estimates of revaluation of fixed assets. It may be mentioned that divulgence of these types of data need not necessarily affect the inter-firm competitive position. It is, therefore, legitimate for a researcher to feel that firms should be willing to provide such micro level data, which can be used for analysing the corporate performance, behaviour, etc. that will have policy implications for corporate development. The authors would venture to suggest that the government might even consider amendments to Companies Act or other relevant legislation making it mandatory for companies to divulge these particulars as additional information in the report of board of directors.

Further, it is also useful if a central agency compiles and presents annual accounts of companies following a uniform method. Shetty (1998b) had suggested constituting a Statistical Authority of India. If constituting a new institution is expensive, we would even suggest that RBI, being the apex body of the financial system, could require all financial institutions including Development Financial Institutions and

Commercial Banks to supply information relating to companies assisted by them. Almost all companies have a link with financial institutions and, hence, obtaining information through these institutions is possible. Once this method of obtaining information is followed and codified, it would not only be possible to gather other-wise rare information like employment, capacity utilisation, share holding pattern and so on for a larger number of companies but also help to reduce the delay in the compilation of data. State level information on the corporate sector with implications for regional development has also become very important. Attempts could be made to collect state level information through State Level Financial Corporations.

### ***Summing up:***

In the context of liberalisation, study of the private corporate sector has assumed significance. This requires a sound database. Our review showed that the different data sources contain a variety of useful information, although sometimes wanting in comprehensiveness, timeliness and accuracy. A major lacuna is that firm-wise data are not available in respect of private limited companies, excepting with RBI. To strengthen the utility of the private corporate statistics on the whole, it is suggested to collect as much information as possible both physical and financial, taking into consideration the new requirements for information consequent to the globalisation of the economy. Firm level / state level / industry level / size-wise data is what one should aim at complemented with periodic censuses. The growing significance of comparative studies of foreign and domestic firms underlines the need to gather information on foreign companies and their activities. Industry-wise information on foreign companies will be useful. Given the extreme competition between states for wooing foreign investment, state level information on the corporate sector with implications for regional

development has also become very important. In this context, it may be worthwhile to institutionalise collection of data under a single agency.

## APPENDIX 1

### *Principal Characteristics by Type of Organisation (since 1988/89)*

1. Individual Proprietorship
2. Joint Family (HUF)
3. Partnership
4. Public Limited Companies
5. Private Limited Companies
6. Government Departmental Enterprises
7. Public Corporations
- Corporate Sector (4+5+6+7)**
8. Co-operative societies
9. Others

### *Principal Characteristics by Type of Ownership (since 1988/89)*

1. Wholly Central Government
2. Wholly State/local Government
3. Central and State/local Government
- Public Sector (1+2+3)**
4. Joint Sector - Public
5. Joint Sector - Private
- Joint Sector (4+5)**
6. Wholly Private
7. Unclassified

### *Format obtained by combining data by Type of Organisation and Ownership:*

1. Wholly Private
2. Individual Proprietorship
3. Partnership
4. Co-operative societies
- Private Corporate Sector (1-(2+3+4))**

## End Notes

- 1 The data relating to savings and capital formation published by Central Statistical Organization (CSO) in the National Accounts Statistics is an exception.
- 2 While the data base relating to industrial statistics is, of late, receiving special attention of several researchers (EPW Research Foundation, 1998; Ghosh, 1998; Maulik, 1998 and Nagaraj, 1999; Pradhan and Saluja, 1998), little attention has been paid to data by the type of industrial organization, particularly the private corporate sector. Studies which did concentrate on the data base of the corporate sector such as that of Barman (1998), Department of Company Affairs (1998), and Shetty (1998) have not adequately brought out the limitations of the data or identified the gaps in the data.
- 3 The CSO, while providing information on savings and capital formation by types of institutions, defines private corporate sector to include non-government financial and non-financial public and private limited companies, and cooperative institutions. While presenting Flow of Funds account, the RBI defines private corporate sector as consisting of the private corporate business sector and the co-operative non-credit societies. The former includes non-government non-financial public and private limited companies (including foreign controlled rupee companies) registered under the Indian Companies Act 1956, and branches of foreign companies operating in India. See, the Supplement to RBI Bulletin, December 1988.
- 4 There were 5 types of ownership, namely, Individual Proprietors, Partnership Firms, Private Limited Companies, Public Limited Companies, and others. Although CMI uses the term 'by type of ownership', it would be more appropriate to use 'by type of Organization'.
- 5 The CSO uses RBI data for estimating capital formation and savings of private corporate sector. The Flow of Funds (FoF) account for private corporate sector is also based on RBI sample studies. The FoF account provides aggregate data on the sector-wise (including for the private corporate sector) and instruments-wise sources and uses of funds.
- 6 Large companies were those with paid up capital of more than Rs. 1 crore. First of this survey appeared in RBI Bulletin October 1971, covering the second half of 1965/66 to 1969/70.
- 7 Small companies were those with paid up capital of less than Rs. 5 lakhs. This survey was available for financial years from 1956/57 to 1975/76
- 8 This was available for financial years from 1963/64 to 1975/76 and covered companies with paid up capital of less than Rs. 5 lakhs.
- 9 Foreign Controlled Rupee Companies (FCRC) are Indian joint stock companies which are subsidiaries of foreign companies. These are companies in which 40 per cent or more of the equity capital is held outside India in any one country and companies in which a foreign company or its nominees hold 25 per cent or more

of the equity capital. This survey excludes Banking, Insurance and Government companies. These companies also form samples of the regular studies on public and private limited companies. Branches of Foreign Companies (BFC) are those not registered under the local law.

The statistics on FCRC and BFC used to appear together and was available for financial years from 1957/58 to 1980/81. Since then, only the Finances of FCRC are published. With the enforcement of FERA 1973, which required foreign companies to convert themselves into rupee companies (Kumar, 1994), number of BFC has reduced significantly and this consequently affected the coverage. May be because of this, the RBI has stopped survey of BFC (see RBI Bulletin August 1984: p. 298). The last of the series of FCRC has appeared for the year 1990/91, published in RBI Bulletin, November 1994. The latest study in this series is entitled 'Finances of FDI companies: 1993/94', published in RBI Bulletin, March 1999.

Information on foreign investments can be collected from the survey of 'Indian Foreign Liabilities and Assets' as well. The last of this is available for the year 1994/95, published in RBI Bulletin, April 1998.

- 10 This series is rather a new one, first of which was published in July 1995. The latest one is available for the financial year 1997/98 published in January 1999. This article is based on the abridged audited / unaudited financial results of companies collected from financial/news dailies and The Stock Exchange, Mumbai. The study covers non-governmental non-financial public limited companies. As limited information is provided, this series could be considered as a guidepost. This series is not discussed.
- 11 Unlike medium and large companies, studies on small companies did not have a quinquennial series. They were for two years.
- 12 For instance, distribution of sample according to year of incorporation is not known and, hence, the age composition of the sample cannot be gauged.
- 13 The industry-wise classification of sample companies was based on the Standard Industrial Classification of All Economic Activities as adopted by Government of India. Accordingly a company with more than one activity is classified under that industry from which it derived more than half of its sales or main income according to the latest information available at the time of its inclusion in the studies.
- 14 The size wise classification of sample companies was based on their paid up capital and was available from the accounting year 1959. Size-wise data is available only for Public Limited Companies. A quinquennial series following size-wise classification based on net asset is available for some years from the financial year 1965/66 (see RBI, 1975).

The size classes of paid up capital consists of Rs. 5 lakhs to Rs. 10 lakhs, Rs. 10 lakhs to Rs. 25 lakhs, Rs. 25 lakhs to Rs. 50 lakhs, Rs. 50 lakhs to Rs. 1 crore, and Rs. 1 crore and above. Since 1970/71, some new size classes were added. They

are Rs. 1 crore to Rs. 2 crores, Rs. 2 crores to Rs. 5 crores, Rs. 5 crores to Rs. 10 crores, Rs. 10 crores to Rs. 25 crores and Rs. 25 crores and above.

- 15 They are 1) Agriculture and allied activities; 2) Mining and quarrying; 3) Processing and manufacture - foodstuffs, textiles, tobacco, leather and products thereof; 4) Processing and manufacture - metals, chemicals and products thereof; 5) Processing and manufacture - not elsewhere classified; and 6) Other industries.

For Small Public/Private Limited Companies, industry level data is not available.

- 16 Controller of Capital Issues (CCI) used to furnish data on the capital raised by private sector. Between DCA and CCI, Rangarajan and Patel (1979) rejected DCA data in favor of CCI because they observed some amount of inconsistencies of DCA with that of RBI. For example, the total paid up capital for public limited companies for 1971/72, after making adjustment, was found to be almost equal to that of sample companies of RBI, whereas RBI claimed only 80 per cent coverage of paid up capital.
- 17 This method, thus, assumes a linear relationship between individual items of company accounts and paid up capital.
- 18 The RBI uses this in their Flow of Funds account.
- 19 Another method of blowing up used by Roy Choudhury (1992) can also be followed. In the RBI sample survey, information is given for a common year for two consecutive samples. Roy Choudhury uses this common year and adjusts the sample results. The process followed is to take an adjusting factor which measures the difference in the sample results for the common year in consecutive surveys, that is, adjusting the sample data to larger samples and ultimately blowing up to the total. She argues that since sample size has been gradually increasing, if one starts with the latest survey, then such exercise involves a series of adjustments beginning with the most recent, overlapping years. This adjustments factor has to be obtained separately for each variable and adjusted accordingly. This makes the whole series comparable over time having adjusted for gradual increase in sample size and having made use of data for common years. Having adjusted the data and constructed a series, she uses blow-up factor based on paid up capital to arrive at aggregate estimates.
- 20 The RBI gives its coverage in terms of paid up capital based on DCA's figures, which is likely to change along with DCA revision. Hence, care should be taken while comparing RBI's claim with the DCA's revised figures.
- 21 This method assumes that the variable of the enlarged sample change exactly in the same direction and at the same rate as that of older sample through the year  $t-4$  to  $t-1$ .
- 22 This method and the one suggested by Roy Choudhury crucially depend upon a condition that the newer series needs to be larger than the previous series. Once this condition is not satisfied, the numerator would be smaller than the denominator and, thereby, smaller adjusting factor which eventually deflates the series
- 23 The RBI has published Census of Public Limited Companies for the account years 1970/71 and 1971/72, 1975/76, and 1980/81 and 1981/82. This was an

extremely useful source of data. Detailed information, size-wise and industry-wise was also available. Since then, this has been discontinued. This needs to be revived, at least for providing a benchmark.

- 24 The latest study published in November 1998 covered the financial year 1995/96.
- 25 The latest survey of public limited companies accounts for, in terms of paid up capital, 28.8 per cent of all non-Government non-financial public limited companies as at the end of March 1996 (RBI Bulletin, November 1998). This coverage used to be above 80 per cent in the initial years.
- 26 The other important publications of ICICI include 'Capacity Utilization in the Private Corporate Sector' and 'Productivity in Indian manufacturing: Private Corporate Sector'.
- 27 Till the 1982/83 series, the size class were as follows: Rs. 1 crore and below; Rs. 1 crore to Rs. 5 crores; Rs. 5 crores to Rs. 10 crores; and Rs. 10 crores and above. Since 1982/83, these size classes were changed and remain as follows: Rs. 5 crores and below; Rs. 5 crores to Rs. 20 crores; Rs. 20 crores to Rs. 50 crores; Rs. 50 crores and above.
- 28 In the case of multi-plant firm, having plants in various states, the state where a unit, having largest share in the total turnover is located is treated as the state, where the company belongs. For the service activities, the location of head office is considered. State-wise data are not available since 1990/91.
- 29 Assistance includes schemes for Project Finance, Soft Loan, and the Technology Development Fund.
- 30 In the case of multi-product companies with plants in different states, the location of unit assisted is taken into consideration and in case more than one unit is assisted, the location of the unit having largest share of assistance is taken into account.
- 31 Due to gaps in the category wise data or because of not getting enough or timely reply from sample companies, some companies which are normally included in the particular series are excluded. The number of companies for which this information is available is, thus, less than the number for which other financial statistics are available.
- 32 The engineering concept of capacity utilization, that is, production to installed capacity, can, thus, be worked out at the firm level.
- 33 If a product contributes more than half of the company's gross sales, it is clubbed into the industry group to which the product belongs. Those companies that could not be classified were grouped under a category called 'diversified groups'.
- 34 Two broad classifications are used - public sector and private sector. The latter is divided into Indian and Foreign. The Indian private sector is further divided into large houses and other companies.
- 35 See Department of Science and Technology 1996: 88.

- 36 During the year 1994/95, TELCO's market share was 70 per cent in medium and heavy commercial vehicle, 59 per cent in light commercial vehicle, and 10 per cent in passenger cars. See, CMIE, 1998: Industry: Market Size and Shares, July 1998, Mumbai: CMIE, Pp. 455-457.
- 37 During the period between 1991/92 and 1996/97, Maruti Udyod Limited accounted for 67.94 per cent (CV was .02) of market share in passenger car and 13.1 per cent (CV was .28) in jeeps. See, CMIE, 1998: Industry: Market Size and Shares, July 1998, Mumbai: CMIE, Pp. 458-460.
- 38 The major activity group are: 1) Agriculture and Allied Activities; 2) Mining & Quarrying; 3) Manufacturing; 3a) Foodstuffs, Textiles, Wood Products, Leather and Products thereof; 3b) Metals & Chemicals and Products thereof and Machinery & Equipment; 3c) Electricity, Gas & Water; 4) Construction; 5) Wholesale & Retail Trade and Restaurants & Hotels; 6) Transport, Storage & Communication; 7) Finance, Insurance, Real Estate & Business Services; 8) Community, Social & Personal Services.
- Wholesale & Retail Trade and Restaurants & Hotels included finance until 1989/90 since when this was clubbed with Finance, Insurance, Real Estate & Business Services.
- 39 The size classes are: 1) Below Rs. 1 lakh; 2) Rs. 1 lakhs to under Rs. 5 lakhs; 3) Rs. 5 lakhs to under Rs. 10 lakhs; 4) Rs. 10 lakhs to under Rs. 25 lakhs; 5) Rs. 25 lakhs to under Rs. 50 lakhs; 6) Rs. 50 lakhs to under Rs. 1 crore; and, 7) Rs. 1 crore and above.
- 40 The information was based on the returns received from Registrars of Joint Stock Companies.
- 41 Addresses of these associations are available in Kothari's Industrial Directory of India (Kothari Enterprises, 1996).
- 42 See, Anand, 1995; CSO; Krishnamurthy and Sastry, 1975; Mani, 1991; Misra, 1989; Raja Kumar, 1995; RBI; Rangarajan and Patel, 1979; Roy Choudhury, 1996; Shanta, 1991; Sharma, 1991; Siddharthan, 1989; Subrahmanian, 1987.

## References

- Anand MR, 1995: *Private Corporate Investment in India Trends Patterns and Determinants*, Unpublished M. Phil Dissertation submitted to Jawaharlal Nehru University, New Delhi, Centre for Development Studies, Thiruvananthapuram.
- Anandaraj, 1987: *Firm Level Analysis of Productivity Change in Cotton Textile Industry in India: 1965/66 - 1978/79*, Unpublished M. Phil Dissertation submitted to Jawarhalal Nehru University, New Delhi, Centre for Development Studies, Thiruvananthapuram.
- Bardhan, P 1984: *The Political Economy of Development in India*, New Delhi: Oxford University Press.
- Barman, R B 1998: 'Financial and Banking Statistics in India: A Position Paper', Paper presented at a seminar on *Restructuring Indian Statistical System* held at New Delhi.
- Basant R and Fikkert, B 1996: 'The Effects of R&D, Foreign Technology Purchase, and Domestic and International Spillover on Productivity in Indian Firms', *Review of Economics and Statistics*, Vol. 78 (2), May, Pp. 187-199.
- Bombay Stock Exchange: *Stock Exchange Official Directory*, Bombay: Bombay Stock Exchange.
- Central Statistical Organisation, *Census of Manufacturing Industries*, Central Statistical Organisation, Calcutta: (formerly Directorate of Industrial Statistics, Ministry of Commerce and Industry, Government of India).
- Central Statistical Organisation, *Annual Survey of Industries Summary Results for Factory Sector*, New Delhi: Ministry of Planning and Programme Implementation, Department of Statistics, Various issues.
- Central Statistical Organisation, 1989: *National Accounts Statistics: Sources and Methods, 1989*, New Delhi: Department of Statistics, Ministry of Planning, Government of India.

- Central Statistical Organisation, 1998: *Statistical Abstract of India*, New Delhi: Department of Statistics, Ministry of Planning, Government of India, Various issues.
- Centre for Industrial & Economic Research, 1998: *Industrial Databook 1998*, New Delhi: Sage Publications.
- Centre for Monitoring Indian Economy: *Corporate finance: aggregate results*, Bombay: Centre for Monitoring Indian Economy. Various issues.
- Centre for Monitoring Indian Economy: *Corporate finance: first half results*, Bombay: Centre for Monitoring Indian Economy. Various issues.
- Centre for Monitoring Indian Economy: *Corporate results*, Bombay: Centre for Monitoring Indian Economy. Various issues.
- Centre for Monitoring Indian Economy: *Corporate Sector*, Bombay: Centre for Monitoring Indian Economy. Various issues.
- Centre for Monitoring Indian Economy: *Industry: Market Size and Shares*, Mumbai: Centre for Monitoring Indian Economy. Various issues.
- Centre for Monitoring Indian Economy: *Key financial data on larger business units*, Bombay: Centre for Monitoring Indian Economy. Various issues.
- Centre for Monitoring Indian Economy: *Statistical profile of 500 private corporate giants*, Bombay: Centre for Monitoring Indian Economy. Various issues.
- Centre for Monitoring Indian Economy: *Trends in company finance: industry aggregates*, Bombay: Centre for Monitoring Indian Economy. Various issues.
- Chandra, NK 1991: 'Growth of Foreign Capital and Its Importance in Indian Manufacturing', *Economic and Political Weekly*, Vol. XXVI (11&12), Annual Number, Pp. 685-687.

Department of Company Affairs: *Annual Report on the Working & Administration of the Companies Act, 1956*, New Delhi: Ministry of Finance, Government of India, Various issues.

Department of Company Affairs: *The Directory of Joint Stock Companies in India*, New Delhi: Ministry of Finance, Government of India, Various issues.

Department of Company Affairs: *Registration & Liquidation of Joint Stock Companies in India*, New Delhi: Ministry of Finance, Government of India, Various issues.

Department of Company Affairs, 1998: 'Position Paper on Corporate Sector Statistics', Paper presented at a seminar on *Restructuring Indian Statistical System*.

Department of Public Enterprises: *Public Enterprises Survey*, New Delhi: Ministry of Industry, Government of India. Various issues.

Department of Science and Technology, 1996: *Research and Development in Industry 1994-95*, New Delhi: Ministry of Science and Technology, Government of India.

EPW Research Foundation, 1988: 'Industrial Production Statistics of India', *Economic and Political Weekly*, Vol. XXXIII (21), May 23-29, pp. 1271-1284.

Ghosh, A 1998: 'Modernisation of the Statistical System in India: Industrial Statistics', Paper presented at a seminar on *Restructuring Indian Statistical System*.

Industrial Credit & Investment Corporation of India : *Financial performance of companies: ICICI portfolio*, Bombay: Industrial Credit & Investment Corporation of India Limited. Various issues.

Industrial Credit & Investment Corporation of India 1984: *Export Performance of ICICI Financed Companies*, Bombay: Industrial Credit & Investment Corporation of India Limited.

- Industrial Credit & Investment Corporation of India 1994: *Capacity Utilisation in the Private Corporate Sector*, Bombay: Industrial Credit & Investment Corporation of India Limited.
- Industrial Credit & Investment Corporation of India, 1994: *Productivity in Indian manufacturing: Private Corporate Sector 1972-73 to 1991-92*, Bombay: Industrial Credit & Investment Corporation of India Limited.
- Industrial Development Bank of India: *Financial performance of IDBI-assisted companies in the private corporate sector*, Bombay: Industrial Development Bank of India. Various issues.
- Kambhampati, US 1996: *Industrial Concentration and Performance: A Study of the Structure, Conduct and Performance of Indian Industry*, Delhi: Oxford University Press.
- Kothari Enterprises, 1996; *Kothari's Industrial Directory of India 1996-97 (Fortieth Edition)*, Chennai: Kothari Enterprises.
- Krishnamurthy K and Sastry DU, 1975: *Investment and Financing in the Corporate Sector in India*, New Delhi: Tata McGraw-Hill Publishing Company Ltd..
- Kumar, N 1994: *Multinational Enterprises and Industrial Organisation: The case of India*, New Delhi: Sage Publications.
- Mani, S 1991: 'External Liberalisation and Import-Dependence: A Note' *Economic and Political Weekly*, Vol. XXVI (27-28), July, Pp. 1693-1696.
- Maulik, M S 1998: 'Industrial Statistics: Current Status, Limitations & Data Gaps and Suggestions for Improvements', Paper presented at a seminar on *Restructuring Indian Statistical System*.
- Misra BM, 1989: *Financing pattern of private corporate sector in India 1961/62 to 1985/86*, Unpublished M. Phil Dissertation submitted to Jawaharlal Nehru University, New Delhi, Centre for Development Studies, Thiruvananthapuram.

- Majumdar, SK 1995: 'Public, Joint and Private Sectors in Indian Industry: Evaluating Relative Performance Differences, *Economic and Political Weekly*, Vol. XXX (7&8), February 18-25, Pp. M-25 – M-32.
- Nagaraj, R 1999: 'How Good Are India's Industrial Statistics? An Explanatory Note', *Economic and Political Weekly*, Vol. XXXIV (6), February 6, pp. 350-355.
- Pradhan, B K and Saluja, M R 1998: 'Industrial Statistics in India: Sources, Limitations and Data Gaps', *Economic and Political Weekly*, Vol. XXXIII (21), May 23-29, pp. 1263-1270.
- Raja Kumar, J. Dennis, 1995; 'Commercial banks finances to private corporate sector in India: 1969/70 - 1990/91', *Journal of Indian School of Political Economy*, Vol. 7 (4), October - December, Pp. 647-660.
- Rangarajan C and Patel, K 1979: 'On constructing a new series on corporate investment', *Journal of income and wealth*, Vol. 3 (2), April, pp. 153-164.
- Reserve Bank of India, 1967: *Financial Statistics of Joint Stock Companies in India 1950/51 - 1962/63*, Bombay: Reserve Bank of India.
- Reserve Bank of India, 1975: *Financial Statistics of Joint Stock Companies in India 1960/61 - 1970/71*, Bombay: Reserve Bank of India.
- Reserve Bank of India, 1977: *Financial Statistics of Joint Stock Companies in India 1970/71 - 1974/75*, Bombay: Reserve Bank of India.
- Reserve Bank of India: *Reserve Bank of India Bulletin*, various issues, Bombay: Reserve Bank of India.
- Roy Choudhury, Uma Dutta, 1992: 'Finances of the private corporate sector: 1955-56 to 1986-87', *Journal of Indian School of Political Economy*, Vol. IV (4), October - December, pp. 599-653.

- Roy Choudhury, Uma Dutta 1996: *Private corporate sector: Generation and Regeneration of wealth*, New Delhi: Vikas Publishing House Pvt Ltd.
- Sharma KC, (1991): 'Investment and Financial Behaviour of Public Limited Companies', *Reserve Bank of India Occasional Papers*, Vol. 12 (2), June, Pp. 59-109.
- Shanta, 1991: *Trends in private corporate savings*, Occasional paper series, Centre for Development Studies, Trivandrum: Centre for Development Studies.
- Shanta, 1994a: 'Estimates for Private corporate sector : A note', *Economic and Political Weekly*, Vol. XXIX (29), July 16, Pp. 1874-1876.
- Shanta, 1994b: *Growth of Firms in Indian Manufacturing Industry*, Monograph series, Centre for Development Studies, Trivandrum: Centre for Development Studies.
- Shetty, S L 1998a: 'Data Base of the Indian Financial System including Finances of the Corporate Business Sector', Paper presented at a seminar on *Restructuring Indian Statistical System*.
- Shetty, S L 1998b: 'Project on Modernisation of India's Statistical System. A few general suggestions', Paper presented at a seminar on *Restructuring Indian Statistical System*.
- Siddharthan, NS 1989: 'Impact of Import Liberalisation on Export Intensities: A Study of the Indian Private Corporate Sector', *Indian Economic Journal*, Vol. 37 (2), October-December, Pp. 103-111.
- Srivastava, V 1996: *Liberalisation, Productivity and Competition: A Panel Study of Indian Manufacturing*, Delhi: Oxford University Press.
- Subrahmanian, KK 1987: 'Towards Technological Self reliance: An Assessment of Indian Strategy and Achievements in Industry', in PR Bramananda and VR Panchamukhi (eds.), *The Development Process of Indian Economy*, New Delhi: Himalaya Publishing House, Pp. 420-446.

**CENTRE FOR DEVELOPMENT STUDIES**  
**LIST OF WORKING PAPERS**

*(From 1991 onwards)*

- MRIDUL EAPEN** Hantex: An Economic Appraisal.  
September, 1991, W.P.242
- SUNIL MANI** Government Intervention in Commercial Crop Development:  
A Case of Flue Cured Virginia Tobacco.  
November, 1991, W.P.243
- K. PUSHPANGADAN** Wage Determination in a Casual Labour Market: The  
Case Study of Paddy Field Labour in Kerala.  
January, 1992, W.P.244
- K.N. NAIR & S.P. PADHI** Dynamics of Land Distribution: An Alternative  
Approach and Analysis with Reference to Kerala.  
January, 1992, W.P.245
- THOMAS ISAAC** Estimates of External Trade Flows of Kerala - 1975-76 and  
1980-81.  
March, 1992, W.P.246
- THOMAS ISAAC, RAM MANOHAR REDDY, NATA DUVVURRY**  
Regional Terms of Trade for the State of Kerala.  
March, 1992, W.P.247
- P. MOHANAN PILLAI** Constraints on the Diffusion of Innovations in Kerala:  
A Case Study of Smokeless Chulas.  
March, 1992, W.P.248
- R. ANANDRAJ** Cyclicity in Industrial Growth in India: An Exploratory  
Analysis.  
April, 1992, W.P.249
- T.M. THOMAS ISAAC, RAM MANOHAR REDDY, NATA DUVVURRY**  
Balance of Trade, Remittance and Net Capital Flows: An Analysis of  
Economic Development in Kerala since independence.  
October, 1992, W.P.250
- M. KABIR, T.N. KRISHNAN** Social Intermediation and Health Transition:  
Lessons from Kerala,  
October, 1992, W.P.251

- SUNIL MANI, P. NANDAKUMAR** Aggregate Net Financial Flows to India: The Relative Importance of Private Loan vis-a-vis Foreign Direct Investments.  
August, 1993, W.P.252
- PULAPRE BALAKRISHNAN** Rationale and the Result of the Current Stabilisation Programme.  
November, 1993, W.P.253
- K.K. SUBRAHMANIAN, P. MOHANAN PILLAI** Modern Small Industry in Kerala: A Review of Structural Change and Growth Performance.  
January, 1994, W.P.254
- DILIP M.MENON** Becoming Hindu and Muslim : Identity and Conflict in Malabar 1900-1936.  
January, 1994, W.P.255
- D. NARAYANA** Government Intervention in Commodity Trade: An Analysis of the Coffee Trade in India.  
January, 1994, W.P.256
- K.J. JOSEPH, P. NANDAKUMAR** On the Determinants of Current Account Deficits: A Comparative Analysis of India, China and South Korea.  
January, 1994, W.P.257
- K.K. SUBRAHMANIAN, K.J. JOSEPH** Foreign Control and Export Intensity of Firms in Indian Industry.  
February, 1994, W.P.258
- PULAPRE BALAKRISHNAN, K. PUSHPANGADAN** Total Factor Productivity Growth in Indian Manufacturing - A Fresh Look.  
April 1994, W.P.259
- D. NARAYANA, K.N. NAIR** Role of the Leading Input in Shaping Institutions: Tendency in the Context of Irrigation Uncertainty.  
May, 1994, W.P.260
- G. MURUGAN, K. PUSHPANGADAN** Pricing of Drinking Water: An Application of Coase Two-part Tariff.  
December, 1994 W.P.261
- MOHANAN PILLAI** On the Mexican Crisis.  
December, 1995, W.P.262
- SUNIL MANI** Financing Domestic Technology Development through the Venture Capital Route.  
December, 1995, W.P.263

- T.T. SREEKUMAR** Peasants and Formal Credit in Thiruvithamcore: The State Institutions and Social Structure 1914-1940.  
December, 1995 W.P.264
- AMITABH** Estimation of the Affordability of Land for Housing Purposes in Lucknow City, Uttar Pradesh (India): 1970-1990.  
March, 1996. W.P.265
- K. PUSHPANGADAN, G. MURUGAN, K. NAVANEETHAM** Travel Time, User Rate & Cost of Supply: Drinking Water in Kerala, India:  
June 1996. W.P.266
- K.J. JOSEPH** Structural Adjustment in India: A Survey of Recent Studies & Issues for Further Research,  
June 1996 W.P.267
- D. NARAYANA** Asian Fertility Transition: Is Gender Equity in Formal Occupations an Explanatory Factor?  
October, 1996 W.P.268
- D. NARAYANA, SAIKAT SINHARROY** Import and Domestic Production of Capital Goods from Substitution to Complementarity,  
October 1996. W.P.269

<b>NEW SERIES</b>
-------------------

- W.P. 270 ACHIN CHAKRABORTY** *On the Possibility of a Weighting System for Functionings* December 1996
- W.P. 271 SRIJIT MISHRA** *Production and Grain Drain in two inland Regions of Orissa* December 1996
- W.P. 272 SUNIL MANI** *Divestment and Public Sector Enterprise Reforms, Indian Experience Since 1991* February 1997
- W.P. 273 ROBERT E. EVENSON, K.J. JOSEPH** *Foreign Technology Licensing in Indian Industry : An econometric analysis of the choice of partners, terms of contract and the effect on licensees' performance* March 1997
- W.P. 274 K. PUSHPANGADAN, G. MURUGAN** *User Financing & Collective action: Relevance sustainable Rural water supply in India.* March 1997.
- W.P. 275 G. OMKARNATH** *Capabilities and the process of Development* March 1997
- W. P. 276 V. SANTHAKUMAR** *Institutional Lock-in in Natural Resource Management: The Case of Water Resources in Kerala,* April 1997.

- W. P. 277 PRADEEP KUMAR PANDA** *Living Arrangements of the Elderly in Rural Orissa*, May 1997.
- W. P. 278 PRADEEP KUMAR PANDA** *The Effects of Safe Drinking Water and Sanitation on Diarrhoeal Diseases Among Children in Rural Orissa*, May 1997.
- W.P. 279 U.S. MISRA, MALA RAMANATHAN, S. IRUDAYA RAJAN** *Induced Abortion Potential Among Indian Women*, August 1997.
- W.P. 280 PRADEEP KUMAR PANDA** *Female Headship, Poverty and Child Welfare : A Study of Rural Orissa, India*, August 1997.
- W.P. 281 SUNIL MANI** *Government Intervention in Industrial R & D, Some Lessons from the International Experience for India*, August 1997.
- W.P. 282 S. IRUDAYA RAJAN, K. C. ZACHARIAH** *Long Term Implications of Low Fertility in Kerala*, October 1997.
- W.P. 283 INDRANI CHAKRABORTY** *Living Standard and Economic Growth: A fresh Look at the Relationship Through the Non-Parametric Approach*, October 1997.
- W.P. 284 K. P. KANNAN** *Political Economy of Labour and Development in Kerala*, January 1998.
- W.P. 285 V. SANTHAKUMAR** *Inefficiency and Institutional Issues in the Provision of Merit Goods*, February 1998.
- W.P. 286 ACHIN CHAKRABORTY** *The Irrelevance of Methodology and the Art of the Possible : Reading Sen and Hirschman*, February 1998.
- W.P. 287 K. PUSHANGADAN, G. MURUGAN** *Pricing with Changing Welfare Criterion: An Application of Ramsey- Wilson Model to Urban Water Supply*, March 1998.
- W.P. 288 S. SUDHA, S. IRUDAYA RAJAN** *Intensifying Masculinity of Sex Ratios in India : New Evidence 1981-1991*, May 1998.
- W.P. 289 JOHN KURIEN** *Small Scale Fisheries in the Context of Globalisation*, October 1998.
- W.P. 290 CHRISTOPHE Z. GUILMOTO, S. IRUDAYA RAJAN** *Regional Heterogeneity and Fertility Behaviour in India*, November 1998.

- W.P. 291 P. K. MICHAEL THARAKAN** *Coffee, Tea or Pepper? Factors Affecting Choice of Crops by Agro-Entrepreneurs in Nineteenth Century South-West India*, November 1998
- W.P. 292 PRADEEP KUMAR PANDA** *Poverty and young Women's Employment: Linkages in Kerala*, February, 1999.
- W.P. 293 MRIDULEAPEN** *Economic Diversification In Kerala : A Spatial Analysis*, April, 1999.
- W.P. 294 K. P. KANNAN** *Poverty Alleviation as Advancing Basic Human Capabilities: Kerala's Achievements Compared*, May, 1999.

This work is licensed under a  
Creative Commons  
Attribution – NonCommercial - NoDerivs 3.0 Licence.

To view a copy of the licence please see:  
<http://creativecommons.org/licenses/by-nc-nd/3.0/>