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Editor's Note: University and college teachers and students of Economics, Political Science and Sociology/Social Anthropology are invited to send to us questions of wider interest on the subjects of their study. We shall endeavour to publish in subsequent issues of the journal answers to selected questions received by us. This will form a separate section of the journal. The authors of the selected questions shall receive complimentary copies of one year's issues of the journal, as a token of our appreciation.

INTER-STATE ANALYSIS OF THE ORGANISED MANUFACTURING SECTOR IN INDIA

L.G. Burange Rucha R. Ranadive

The manufacturing sector of a country is generally considered an engine of growth. The performance of the manufacturing sector in India has become a central issue during the post-reform period which needs to be assessed empirically. The share of employment, output, gross value added and capital of the industrially developed states such as Maharashtra, Gujarat and Tamil Nadu was high in the organised manufacturing sector. Even so, their growth rates of the organised manufacturing sector were quite low compared to the other small states such as Uttarakhand, Jammu and Kashmir and Himachal Pradesh. The higher growth rates of these states could be the result of the narrow industrial base which has enabled the State Governments to focus on a few industries. Due to their targeted policies, these states have encouraged many industries to set up their plants there. Industrially developed states showcased less concentration of industries in their manufacturing sectors while industrially less developed states such as Odisha, Jharkhand, Chhattisgarh and Goa registered high concentration over the period. It is also observed that industrially developed states have more localised industries whereas Andhra Pradesh, Chhattisgarh, Kerala and Odisha have only a few localised industries. The assessment of the factor intensity of the states/UTs reveals that the industrially developed states made higher use of the capital-intensive techniques. Over the period of the study, the states have exhibited shifts in their factor intensities used in the production process. Uttarakhand, Chhattisgarh and Jammu and Kashmir have registered higher number of workers per factory unit. The study concludes that there is still high potential in the manufacturing sector of the states/UTs which needs to be exploited through concrete policy actions over the coming years.

1. INTRODUCTION:

The structure of the Indian economy has experienced a remarkable change after the introduction of the New Economic Policy of 1991. It is being transformed from an agriculture-based to a manufacturing-based economy. However, in the recent years, it has been observed that the economy has been moved to become a services-based economy wherein a large proportion of growth has been realised due to the performance of the services sector. It, yet, does not mean that the importance of the manufacturing sector can be overlooked. Nevertheless, balanced regional development has always been one of the major objectives of the national policy in India. However, economic liberalisation reduced the role of the central government in curbing regional imbalances through controls and regulations and enhanced inter-state competition. One of the main components of the economic reform packages has been deregulation and relicensing in the manufacturing sector.

The impact of economic reforms in India on the performance of the manufacturing sector of the states has become an important area of research. These impacts have been under scrutiny both at the economy level as well as at more disaggregated levels such as at sectoral and regional levels. The question of whether and whom the economic reforms have benefitted, is being repeatedly raised in various academic fora. The contribution of reforms to the sustainable and persistent growth of the manufacturing sector in various states/Union Territories (UTs), however, remains questionable. Thus, it would be appro-

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priate to probe how far the reforms have contributed to the better performance of the Indian manufacturing sector.

The objective of this paper is to assess and analyse the growth of the organised manufacturing sector in India at the state/UTs level at an aggregated as well as at a disaggregated industrial level. The industry-specific analysis would give a better picture of the industrial composition and concentration in the manufacturing sector in various states. It would throw light on the performance of the manufacturing sector of these states/UTs which will enable us to make the inter-state comparison of the sector in India.

The literature on an inter-state analysis of the Indian manufacturing sector mostly consists of studies dealing with Total Factor Productivity (TFP) of an industry and of the states for different time periods. However, the objective of this paper is to assess the performance of industries within the manufacturing sector of the states in the country. Even so, there are a few studies which have dealt with different aspects of the manufacturing sector. Burange [2002] analysed the performance of 16 states with respect to employment and output in the organised manufacturing sector of India from 1980-81 to 1997-98. He found wide regional variations in the growth rate of employment within the sector. During the 1970s and 1980s industrially underdeveloped states recorded higher growth rates in employment than industrially developed states. However, the acceleration of growth was quite high in industrially developed than underdeveloped states. These results were confirmed by Kumar and Managi [2009] who encountered widespread regional variations in productivity. Although on an average, the annual rate of productivity growth improved from 1993-94 to 2004-05 some states actually experienced a slowdown during the liberalisation era. Maharashtra, Tamil Nadu, Gujarat, Karnataka and Andhra Pradesh were more reform oriented than other states. In fact, Bihar and Uttar Pradesh lagged in immediate implementation of the economic reforms leading to regional variations. Venkataramaiah and Burange [2003] addressed the effect of economic liberalisation on industry in the context of the organised manufacturing sector of Andhra Pradesh by analysing growth, composition and performance of the factory sector in pre- and post-liberalisation period. The state registered low share in the national manufacturing sector. The growth rates of output, value added and employment of Andhra Pradesh from 1980-81 to 1997-98 at the two digit industry level revealed that the growth rate of output was high but employment had a low growth rate. The study concluded that the liberalisation had a positive effect on the growth parameters of the manufacturing sector at national as well as at the state level. Though Andhra Pradesh grew it was not its full potential level. On similar grounds, Trivedi [2004] computed the share and the growth rate of states in the Indian manufacturing sector on the basis of employment, value of output and value added, covering 10 major states in India. This study also confirmed inter-state differences in productivity levels and the growth rates of states in the manufacturing sector. Gujarat, Karnataka, Maharashtra and Tamil Nadu enjoyed higher growth rates with respect to output and employment whereas Bihar, Uttar Pradesh and West Bengal were amongst the worst performing states after reforms.

An assessment of the contribution of the industry to the inter-state variation in the growth rates over 1980-81 to 2006-07 has been attempted by Papola *et al.* [2011]. They reiterated differences in the industrial structure and productivity among states, covering the organised as well as the unorganised sector. Most of the states experienced a shift from agriculture to the other sectors. Especially Gujarat, Rajasthan and Odisha underwent a major shift in favour of the manufacturing sector during the period of the study. This study also indicated a well diversified

production structure of Gujarat, Maharashtra, Madhya Pradesh, Punjab and Uttar Pradesh whereas Maharashtra, Haryana, Delhi, Chandigarh had a wide industrial base. Kumar and Kavita [2012] estimated the industrial growth rate of the Indian manufacturing sector in the major industrial states of southern India since 1984-85 to 2004-05 *viz.,* Andhra Pradesh, Karnataka, Kerala and Tamil Nadu. They observed noticeable change during the reform period in the sector of these states. Also, the manufacturing sector of India experienced a substantial fall in the share of employment, gross value added and capital stock during the post-reform period compared to the pre-reform period.

There has now been a gap of a few years in the existing literature as the data for recent years have been published by Central Statistical Office (CSO). Thus, it would be worthwhile to assess the performance of the states and UTs. The paper is organised as follows. The data sources, coverage and methodology have been dealt with in Section *Two*. Section *Three* delves into the performance of the manufacturing sector of the states/UTs at an aggregated and disaggregated level. Major findings are drawn in Section *Four* and the last Section concludes the paper.

2. DATA COVERAGE AND METHODOLOGY:

In this study, the performance of the Indian manufacturing sector has been examined from 1998-99 to 2011-12 at the state level. The overall performance has been analyzed using five variables *viz.,* number of factories, number of workers, value of output, gross value added and (fixed) capital across industries at the two-digit level of industrial classification level. The classification of industries in the manufacturing sector has been given in detail with their industrial codes in Table 1 based on the National Industrial Classification 2004 (NIC-2004). The data for the above mentioned variables for all states/UTs have been compiled from the Annual Survey of Industries (ASI) for the factory sector at two-digit industry division for the sector. As the data reported in the ASI covers only the organised manufacturing sector and, therefore, the study has been confined to the organised manufacturing sector of India. The data from 1998-99 to 2007-08 is based on the NIC 2004 classification. However, from the year 2008-09 to 2011-12 the industrial classification has been changed to NIC-2008. Therefore, the necessary adjustments, based on the concordance between NIC-2004 and NIC-2008 given in ASI, have been made in the data for the years from 2008-09 to 2011-12 to make it compatible with the ASI data with NIC-2004 classification from 1998-99 to 2007-08. The concordance tables are available on the ASI website.

The states/UTs were chosen on the basis of their manufacturing industrial base, which encompasses 23 Indian states/UTs *viz.,* Andhra Pradesh, Assam, Bihar, Chhattisgarh, Delhi, Goa, Gujarat, Haryana, Himachal Pradesh, Jharkhand, Jammu and Kashmir, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Odisha, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh, Uttarakhand, West Bengal and the Other States/UTs. The Other States/UTs include Andaman and Nicobar Island, Chandigarh, Dadra and Nagar Haveli, Daman and Diu, Manipur, Meghalaya, Nagaland, Puducherry and Tripura. These states/UTs had a small number of industries located in the region and, therefore, were merged under the heading of the Other States/UTs. The data for India was the aggregation of the data of all states/UTs at the two-digit industrial classification level. The ASI does not publish data for Arunachal Pradesh, Lakshadweep and Mizoram, therefore, these have not been included in the study.

Table 1. Classification of Industries Included in the Manufacturing Sector

Industry Code	NIC-04 Description	WPI Items (Deflators)
(1)	(2)	(3)
15	Food products and beverages	Food Products Wine Industries Malt Liquor Soft drinks and carbonated Water
16	Tobacco products	Bidi, Cigarettes, Tobacco and Zarda
17	Textiles	Textiles
18	Wearing apparel; dressing and dyeing of fur	Textiles
19	Luggage, handbags, saddlery, harness & footwear; tanning and dressing of leather products	Leather and Leather Products
20	Wood and products of wood & cork except furniture; articles of straw & plating materials	Wood & Wood Products
21	Paper and paper products	Paper & Pulp Manufacture of Board
22	Publishing, printing & reproduction of recorded media	Printing & Publishing of Newspapers, Periodicals etc.
23	Coke, refined petroleum products & nuclear fuel	Coal mining, mineral oils
24	Chemicals and chemical products	Chemicals & Chemical Products
25	Rubber and plastics products	Rubber and plastics products
26	Other non-metallic mineral products	Non-Metallic Mineral Products
27	Basic metals	Basic metal and alloy, non-ferrous metals
28	Fabricated metal products, except machinery & equipment	Metal Products
29	Machinery and equipment n.e.c.	Non-Electrical Machinery & Parts
30	Office, accounting & computing machinery	Computer and Computer based systems
31	Electrical machinery & apparatus n.e.c.	Electrical Machinery
32	Radio, TV and communication equipment & apparatus	Telephone instruments, Electronic Equipments, TV sets, Picture Tubes
33	Medical, precision & optical instruments, watches and clocks	Non-Electrical Machinery & Parts
34	Motor vehicles, trailers & semi-trailers	Truck chassis (diesel) Car chassis assembled Bus chassis (diesel) Body manufactured for trucks, vans etc. Body manufactured for Buses Trekker Jeeps Motorcycles Scooters Mopeds Auto-Rickshaws
35	Other transport equipment	Locomotives Railway Wagon and parts Broad Gauge Passenger Carriage Broad Gauge Other Coaching Vehicles Broad gauge diesel locomotives Bicycles Springs Crank Shafts Other automobile spare parts 2/3 Wheeler Parts/Components Motor Cycle Parts Automobile Cables
36	Furniture; manufacturing n.e.c.	Manufactured Products n.e.c.

Nevertheless, the data for Sikkim has been published only for recent years, thus, again it has been excluded from the study.

The data for number of factories, number of workers and value of output are given in the ASI. Gross value added is the sum of the net value added and depreciation. For the measurement of capital, the method suggested by Goldar [1986], a variant of perpetual inventory accumulation method, has been applied despite its limitations and criticism as there is no universally accepted formula for estimating capital stock [Ahluwalia, 1991]. Here we use the gross fixed capital stock as a measure of capital input. In ASI, fixed capital is the depreciated book value of the fixed assets owned by factory as on the closing day of the accounting year. While computing the time series of capital assets the discard of asset must be taken into account to avoid over-estimation of capital assets. Therefore, Goldar [1986] has assumed 2 percent rate of discard to correct the capital series for discarded assets.

To construct the time series of gross fixed capital stock, we first need to estimate the replacement value of the fixed capital in the benchmark, (i.e., the initial year, namely, 1998-99). For this purpose, we assume;

1. Balanced age distribution of finished equipment is uniform from age zero to age t years. This means in the production process the proportion of various capital equipments in the factory remain uniform over the period.
2. During the life of t years, each item of equipment is of constant efficiency and at the end of its life it becomes value-less.
3. Risk and uncertainty are absent.

Further, ignoring considerations about the rate of interest, the value of an item of finished equipment would be proportional to its unexpired life and hence, it is assumed that the value of finished equipment of balanced age composition, (i.e., the age distribution of finished equipment is uniform from age zero to age t years. It means, in particular, that the age distribution would be uniform prior to the benchmark year 1998-99 and from the year 1998-99 to year 2011-12 in the present study) would be exactly half the value of equipment when it was new. The relationship between the book value and replacement value of fixed capital was examined by Mahalanobis [1955]. He suggested, under the above assumptions, that the average useful life of capital assets still left at any point of time is half of the total life of the capital asset. On the basis of this, he argued that as a first approximation the current value (book value) should be half of the replacement value. He estimated replacement value of the capital stock for various industries and noted that the ratio of replacement value to book value varied from 2 to 4 for different industries in the manufacturing sector of India. Hashim and Dadi [1973] estimated the ratio of replacement value to book value for the year 1946 to be 8.7 which was criticized to be over-estimated. Banerji [1975] computed the ratio of replacement value to book value to be 2 while Goldar [1986] found it to be 2.4. However, in the study, Goldar [1986] has assumed the ratio of replacement value to book value to be two percent. Hence, we have taken twice the book value of the benchmark year (the initial year of the sample period, i.e., 1998-99) in this study as a rough estimate of the replacement value of fixed capital in the benchmark year. Goldar [1986] has followed this method of obtaining estimate of fixed capital for the benchmark year. We are aware that while doing so, we are ignoring not only the changes over time in economic life of different equipments but also the effects of the change over time in the prices of capital goods in general as also of different rates of change of prices over time of different types of equipments. However, it is worth mentioning that taking double the book value as a measure of replacement value of fixed assets for the benchmark year 1998-99 is somewhat arbitrary. In this context, Goldar [1986]

pointed out that, 'even if it is assumed that fixed assets comprising that stock have a balanced age distribution, the fact that life of machines exceeds what would be inferred from the depreciation practices of firms and that price of capital goods were rising over time imply that the ratio of replacement value to book value should significantly exceed two'. Despite this limitation, we followed this method because gross/net ratios (the ratios of gross value to the net value of fixed capital asset at purchase price) computed by Hashim and Dadi [1973] are not available for state level data and moreover, data series cannot be extended before the year 1998-99. Given our objective of making inter-state comparisons, we chose to use the above mentioned restrictive assumptions rather than applying the gross/net ratios at national level for estimation at the state levels. Therefore, doubling the book value of fixed capital stock for the benchmark year provides a close approximation of an estimate of the replacement value of the fixed capital for the benchmark year (for the present study benchmark year is the initial year of the sample period, i.e., 1998-99) for the state level data [Burange, 2003].

$$K_0 = 2\,(B_0) \quad \text{For year 0 = 1998-99} \qquad \ldots (1)$$

where,

K = Replacement value of fixed capital in the benchmark (initial) year

B = Book value of fixed capital at constant 1993-94 prices

After obtaining the estimate of fixed capital for the benchmark year, the values of the fixed capital those for the subsequent years from 1999-2000 are computed by using equation (2) [Kumar, 2001, Pp. 117-118].

Using the WPI series we have estimated the constant prices series of fixed capital. As the WPI index is not in concurrence with the two-digit industrial division, the study has used proxies for a few industries and adjusted the data as per the NIC-2004 classification for the construction of WPI series. Column 3 of Table 1 gives the details of items used for the construction of WPI. Capital has been deflated by using the weighted average of WPI items pertaining to construction materials of buildings, furniture, fixtures, machinery and equipment and transport equipments which are in accordance with the concept of capital as per ASI. While constructing the WPI for capital, we used the respective weights of these items given in the WPI index with base 1993-94, published by the Office of the Economic Advisor. Then using the following equation we have estimated capital at constant prices with the base year 1993-94.

$$K_t = K_{t-1} + I_t - dK_{t-1} \qquad \ldots (2)$$

where,

K_t = gross fixed capital at constant prices of the year t,

K_{t-1} = gross fixed capital of the previous year at constant prices,

I_t = gross real investment in fixed capital at constant prices of the year t,

d = annual rate of discard of capital

Following Goldar [1986] we have considered a two per cent annual rate of discard of capital. The depreciation accounts for the provision made over the lifespan of the capital in order to facilitate the replacement of capital in future whereas the discard of capital asset means it is no longer used in the production process. Therefore, it is necessary to consider discard of capital which is over and above the depreciation. Such rate of discard of capital has been assumed to be two percent per annum. By assuming so, we consider that the average age of the finished equipment is 50 years. It should, however, be noted that the ASI reports the book value of the fixed assets net of cumulative depreciation. Hence, no separate adjustment for depreciation need be made and only the rate of discard needs to be used. Gross real investment I is computed by using the following formula;

$$I_t - (B_t - B_{t-1} + D_t) / P_t \quad \text{... (3)}$$

where,

B_t = Book value of fixed capital in the year t

D_t = Depreciation in the year t

P_t = Price index of construction materials of buildings, furniture, fixtures, machinery and equipment and transport equipments (1993-94=100).

The performance of all states/UTs has been assessed through computing the Annual Compound Growth Rate (ACGR) for all industries comprising the manufacturing sector in all states/UTs using the semi-log method. The ACGR was computed for the value of output, gross value added and capital, at constant prices. The estimates of each of the variables for the manufacturing sector as a whole are obtained by the aggregation of each variable at constant prices across industries. Further, using the location quotient (defined in sub-section 3.3), the Hirschman-Herfindahl Index (HHI) (defined in sub-section 3.4) and Lary's index (defined in sub-section 3.5), localisation, the industrial structure and industrial concentration in the manufacturing sector of the states/UTs have been examined.

3. INTER-STATE ANALYSIS OF THE MANUFACTURING SECTOR:

This section deals with the analysis of the shares of the states, the growth rates, concentration of industries, localisation of industries and the factor intensities of the manufacturing sector for all states/UTs at aggregate and the industry level.

3.1 Share

The share of the number of workers of the manufacturing sector for states as percentage of total number of workers in India's manufacturing sector has been computed from 1998-99 to 2011-12. In the year 1998-99, the shares in employment of Tamil Nadu, Maharashtra, Andhra Pradesh, Gujarat and West Bengal were higher in the manufacturing sector of India compared to those in other states. Over the decade, however, the shares of these states have deteriorated except that for Tamil Nadu and also those of the states like Himachal Pradesh, Odisha, Punjab and Rajasthan with very small percentages. However, Tamil Nadu continued to remain at the top in the year 2011-12 (Table 2, Figure 1). This increase in the share of Tamil Nadu can be attributed to industries such as the manufacture of textiles (17), wearing apparel, dressing and dyeing of fur (18), luggage, handbags, saddlery, harness and footwear, tanning and dressing of leather products (19), publishing, printing and reproduction of recorded media (22), office, accounting and computing machinery (30) and motor vehicles, trailers and semi-trailers (34). Similarly, in Himachal Pradesh, paper and paper products (21), chemicals and chemical products (24), office, accounting and computing machinery (30), electrical machinery and apparatus n.e.c. (31), radio, TV and communication equipment and apparatus (32) and medical, precision and optical instruments, watches and clocks (33), in Odisha, coke, refined petroleum products and nuclear fuel (23), basic metals (27) and furniture, manufacturing n.e.c. (36), in Punjab, textiles (17), wearing apparel; dressing and dyeing of fur (18), paper and paper products (21), other non-metallic mineral products (26), medical, precision and optical instruments, watches and clocks (33) and other transport equipment (35) whereas in Rajasthan, tobacco products (16), wood and products of wood and cork except furniture, articles of straw and plating materials (20),

Table 2. The Share of Workers of States/UTs in the Organised Manufacturing Sector of India

State/UT	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
Andhra Pradesh	11.10	12.14	12.31	12.38	13.89	11.74	11.59	11.25	10.34	10.28	10.13	10.04	10.17	10.39
Assam	1.51	1.56	1.54	1.60	1.54	1.60	1.57	1.57	1.49	1.40	1.46	1.40	1.45	1.47
Bihar	0.80	0.88	0.80	0.86	0.72	0.77	0.78	0.80	0.70	0.76	0.70	0.80	0.92	1.05
Chhattisgarh	1.18	1.30	1.10	1.10	1.05	1.20	1.20	1.21	1.35	1.45	1.46	1.26	1.37	1.33
Delhi	1.33	1.35	1.33	1.31	1.38	1.29	1.22	1.21	1.11	1.06	0.97	0.87	0.73	0.68
Goa	0.30	0.34	0.35	0.35	0.41	0.42	0.43	0.42	0.40	0.47	0.47	0.42	0.36	0.43
Gujarat	9.43	9.55	8.93	8.70	8.43	8.70	9.01	9.12	9.37	9.61	9.80	9.64	9.95	10.16
Haryana	4.43	3.49	3.59	3.57	3.69	3.94	4.15	4.38	4.32	4.99	4.40	5.20	4.40	4.30
Himachal Pradesh	0.41	0.51	0.50	0.46	0.42	0.46	0.52	0.61	0.68	0.89	0.97	1.10	1.24	1.13
Jammu and Kashmir	0.29	0.32	0.30	0.33	0.32	0.37	0.38	0.46	0.48	0.51	0.52	0.49	0.45	0.52
Jharkhand	2.48	2.63	2.22	2.05	2.00	1.84	1.82	1.62	1.47	1.46	1.43	1.14	1.27	1.24
Karnataka	6.49	5.87	5.82	6.16	6.04	6.40	6.56	7.01	7.02	6.93	6.81	6.39	6.18	6.77
Kerala	3.71	4.22	4.38	4.42	3.76	4.56	4.24	4.13	3.82	3.78	3.79	3.46	3.32	3.18
Madhya Pradesh	3.15	2.90	2.91	2.46	2.36	2.44	2.39	2.22	2.16	2.25	2.21	2.15	2.31	2.22
Maharashtra	12.67	13.38	13.20	13.52	13.37	12.65	12.28	12.27	12.69	11.51	11.63	11.49	12.06	12.45
Odisha	1.53	1.63	1.65	1.53	1.53	1.65	1.80	1.57	1.62	1.80	2.03	2.09	2.33	2.18
Punjab	4.02	4.29	4.59	4.63	4.57	4.37	4.75	4.95	5.12	5.36	4.97	5.04	4.98	4.69
Rajasthan	2.76	2.84	2.88	3.02	3.13	3.18	3.19	3.23	3.08	3.44	3.18	3.37	3.43	3.46
Tamil Nadu	14.40	14.29	15.21	15.20	15.02	15.71	16.01	15.83	17.35	15.84	16.79	17.07	16.30	15.44
Uttar Pradesh	7.21	6.89	6.57	6.47	6.66	7.20	6.88	7.04	6.76	7.22	6.56	6.48	6.37	6.47
Uttarakhand	0.58	0.44	0.47	0.47	0.46	0.45	0.54	0.76	0.92	1.21	2.02	2.11	2.44	2.69
West Bengal	8.76	7.44	7.49	7.28	6.96	6.74	6.34	5.89	5.16	5.17	5.16	5.11	5.21	5.17
Other States/UTs	1.46	1.74	1.85	2.14	2.29	2.32	2.35	2.45	2.59	2.61	2.54	2.88	2.76	2.58
India	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
All India (No. of Workers in Lakh)	61.84	60.72	59.57	57.82	59.83	59.11	63.92	69.13	76.26	79.51	84.70	88.45	95.41	100.38

Figure 1. Percentage Share of Number of Workers of States/UTs in the Organised Manufacturing Sector of India

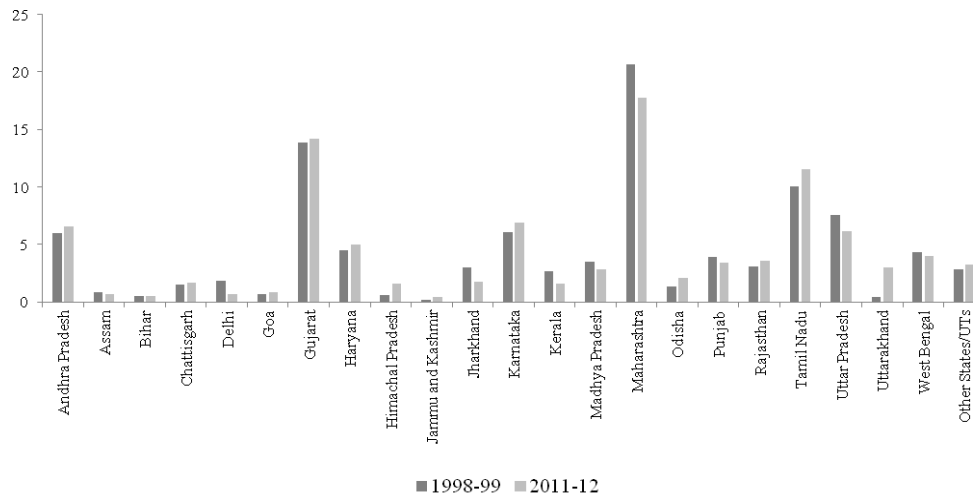

Figure 2: Percentage Share of Value of Output of States/UTs in the Organised Manufacturing Sector of India

chemicals and chemical products (24), fabricated metal products, except machinery and equipment (28), electrical machinery and apparatus n.e.c. (31) and medical, precision and optical instruments, watches and clocks (33) contributed to increase the share of the manufacturing sector over the period. Maharashtra experienced downfall in its share by 0.22 percentage points. It could be attributed to the depletion in the shares of office, accounting and computing machinery (30), other transport equipment (35) and furniture, manufacturing n.e.c. (36). Such decline in the share has been experienced due to the fact that the shares of these industries in Uttarakhand, and Himachal Pradesh have increased over the period whereas the share of office, accounting and computing machinery (30) has increased to a large extent in Gujarat. Therefore, it can be inferred that these states have eaten up the share of Maharashtra with respect to employment. On the other hand, shares of wood and products of wood and cork except furniture, articles of straw and plating materials (20), basic metals (27), fabricated metal products, except machinery and equipment (28) and motor vehicles, trailers and semi-trailers (34) increased over the period. Gujarat maintained its share due to increase in the share of textiles (17), wood and products of wood and cork except furniture, articles of straw and plating materials (20), paper and paper products (21), coke, refined petroleum products and nuclear fuel (23), machinery and equipment n.e.c. (29) and furniture, manufacturing n.e.c. (36). The fall in the share was significant for Andhra Pradesh due to the sharp decline in the share of tobacco products (16), which was earlier the frontrunner amongst the contributing industries to the sector within the state. Delhi, Goa, Jammu

and Kashmir and Bihar continued to experience the lowest share for all the years. However, Odisha, Punjab, Rajasthan, Uttarakhand and Other States/UTs depicted improvement in terms of the share in employment in the Indian manufacturing sector over the period of 14 years. On the contrary, West Bengal, Uttar Pradesh, Madhya Pradesh, Kerala and Jharkhand showcased drastic fall in their shares. Uttarakhand exhibited a sharp increase in its share, i.e., from 0.58 percent to 2.69 percent as the share of many industries increased leading to a rise in the overall share of the state. The policies and/or circumstances which account for this substantial increase have been explained below in the Section 4 on major findings. West Bengal exhibited sharpest decline in the share as many industries experienced falling shares of number of workers within the state such as textiles (17), wood and products of wood and cork except furniture, articles of straw and plating materials (20), rubber and plastic products (25), basic metals (27), electrical machinery and apparatus n.e.c. (31), radio, TV and communication equipment and apparatus (32), motor vehicles, trailers and semi-trailers (34) and other transport equipment (35) (See Section 4 below for explanations as to why). If we consider four major states, Andhra Pradesh, Gujarat, Maharashtra and Tamil Nadu, then their total share in employment are about 47.60 in 1998-99 which marginally increased to 48.44 percent in 2011-12.[1] It is mainly because of increase in the share of Gujarat and Tamil Nadu whereas the other two states registered marginal decrease in the share of employment in the organised manufacturing sector in India. It has been observed that office, accounting and computing machinery (30) shows fluctuations in the shares in some of major states such as Andhra Pradesh, Gujarat, Karnataka, Maharashtra, and Tamil Nadu. Such fluctuations in the shares of employment could be due to the technology changes in the computing machinery which have been taking place in a very short span of time.

With respect to value of output, the highest share in the Indian manufacturing sector was recorded by Maharashtra followed by Gujarat and Tamil Nadu (Table 3, Figure 2). Collectively these three states accounted for a 44.33 percent share in 1998-99 in India which stepped down to 43.57 percent in the year 2011-12. Though Maharashtra had the largest share in 1998-99 it declined over the period (See Section 4 below for explanations as to why) whereas Gujarat and Tamil Nadu continued to maintain their position. Maharashtra, however, still maintained its topmost position in the share of value of output of the manufacturing sector in India. Publishing, printing and reproduction of recorded media (22), rubber and plastic products (25), basic metals (27), office, accounting and computing machinery (30), medical, precision and optical instruments, watches and clocks (33), motor vehicles, trailers and semi-trailers (34) and other transport equipment (35) contributed for sustaining its largest share whereas the share declined for paper and paper products (21), coke, refined petroleum products and nuclear fuel (23), chemicals and chemical products (24) and motor vehicles, trailers and semi-trailers (34). In Gujarat, wood and products of wood and cork except furniture, articles of straw and plating materials (20), paper and paper products (21), coke, refined petroleum products and nuclear fuel (23), fabricated metal products, except machinery and equipment (28) and machinery and equipment n.e.c. (29), whereas in Tamil Nadu, wearing apparel, dressing and dyeing of fur (18), publishing, printing and reproduction of recorded media (22), fabricated metal products, except machinery and equipment (28), machinery and equipment n.e.c.

Table 3. The Share of Output of States/UTs in the Organised Manufacturing Sector of India

(Percent)

State/UT	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
Andhra Pradesh	5.95	6.23	6.30	6.41	7.00	6.17	5.73	5.96	6.27	6.37	6.43	5.35	6.79	6.60
Assam	0.85	0.80	0.83	0.72	0.89	0.98	0.98	0.95	0.88	0.79	0.76	0.67	0.69	0.70
Bihar	0.50	0.63	0.63	0.56	0.55	0.52	0.50	0.57	0.51	0.51	0.52	0.49	0.52	0.51
Chhattisgarh	1.54	1.49	1.36	1.36	1.34	1.56	1.49	1.36	1.53	1.72	1.73	1.52	1.79	1.68
Delhi	1.82	1.87	1.65	1.64	1.65	1.37	1.17	1.24	1.06	1.08	0.89	0.89	0.95	0.69
Goa	0.71	0.82	0.93	0.93	0.82	0.98	1.02	0.93	0.88	0.78	1.09	0.86	0.79	0.83
Gujarat	13.86	12.65	13.27	13.95	14.22	14.23	13.56	13.85	13.19	13.96	14.22	14.19	14.49	14.22
Haryana	4.46	5.24	5.11	5.11	5.04	5.40	5.08	5.10	4.83	5.12	4.91	5.77	5.24	5.02
Himachal Pradesh	0.61	0.66	0.79	0.73	0.62	0.75	0.65	1.12	1.10	1.26	1.55	1.53	1.75	1.61
Jammu and Kashmir	0.16	0.17	0.15	0.16	0.14	0.14	0.22	0.36	0.47	0.56	0.48	0.36	0.42	0.40
Jharkhand	2.98	2.51	2.02	1.91	2.16	2.04	1.99	1.84	1.65	1.88	1.40	1.58	2.01	1.78
Karnataka	6.09	4.78	5.09	5.69	5.64	6.29	6.27	6.82	6.55	6.55	6.20	6.14	6.13	6.91
Kerala	2.65	2.49	2.69	2.36	2.12	2.17	1.92	2.04	1.82	1.68	1.80	4.06	1.54	1.55
Madhya Pradesh	3.53	4.27	3.73	3.88	3.28	3.33	2.99	2.69	2.83	2.89	2.81	2.22	2.62	2.82
Maharashtra	20.69	20.59	19.71	18.55	19.12	18.36	22.02	19.47	19.91	18.71	18.37	16.85	17.12	17.77
Odisha	1.38	1.29	1.45	1.41	1.33	1.42	1.29	1.34	1.35	1.51	1.81	1.53	2.07	2.05
Punjab	3.93	4.30	3.87	4.05	3.85	3.48	3.31	3.25	3.37	3.71	3.40	3.38	3.47	3.40
Rajasthan	3.07	3.47	3.36	3.42	3.13	3.06	2.84	3.10	3.03	3.08	3.18	3.29	3.39	3.54
Tamil Nadu	10.08	10.83	11.28	10.03	9.96	10.54	10.09	10.59	11.68	10.32	10.20	11.76	10.96	11.58
Uttar Pradesh	7.60	6.92	7.49	7.68	8.23	8.39	7.86	7.68	7.72	7.95	6.81	6.91	6.82	6.14
Uttarakhand	0.41	0.37	0.56	0.57	0.56	0.56	0.66	0.86	0.97	1.32	3.49	2.69	2.61	2.96
West Bengal	4.31	3.98	4.21	4.49	4.21	3.95	3.98	3.82	3.87	3.83	3.95	3.98	4.40	3.99
Other States/UTs	2.82	3.64	3.52	4.39	4.14	4.31	4.38	5.06	4.53	4.42	4.00	3.98	3.43	3.25
India	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
All India (Output Rs. Crore)	574839	635561	627579	635678	724448	772365	935240	1024450	1229048	1358946	1589817	1696025	1881235	2127443

Figure 2. Percentage Share of Value of Output of States/UTs in the Organised Manufacturing Sector of India

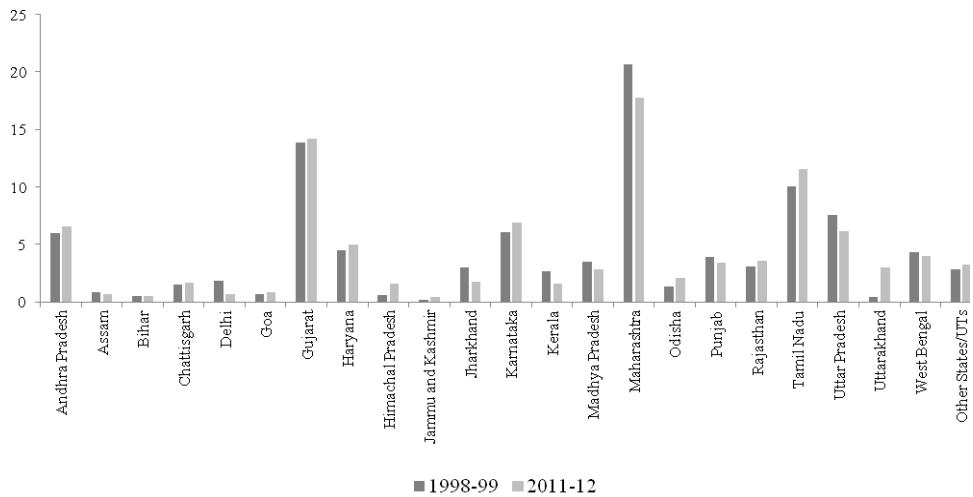

Figure 2: Percentage Share of Value of Output of States/UTs in the Organised Manufacturing Sector of India

(29), office, accounting and computing machinery (30) and motor vehicles, trailers and semi-trailers (34) led to the gain in the shares. Assam, Bihar, Jammu and Kashmir and Delhi recorded lower shares. From 1998-99 to 2011-12, the manufacturing sector of Haryana, Himachal Pradesh, Jammu and Kashmir, Uttarakhand and the Other States/UTs improved their shares with Uttarakhand registering the highest rise in the share. The shares of Delhi, Jharkhand, Madhya Pradesh, Punjab and Uttar Pradesh declined over the period 1998-99 to 2011-12. West Bengal sustained its share in the value of output against a sharp decline in labour share pointing to the shift in the technology for the production process. The manufacture of office, accounting and computing machinery (30) indicated high fluctuations in the shares value of output also, for some major states such as Andhra Pradesh, Karnataka, Maharashtra and Tamil Nadu may be because the industry in these particular states has taken time to adapt to the constant technological up-gradation occurring in the industry. Furthermore, wood and products of wood and cork except furniture, articles of straw and plating materials (20) in Gujarat, wearing apparel, dressing and dyeing of fur (18) in Karnataka and motor vehicles, trailers and semi-trailers (34) along with other transport equipments (35) in Maharashtra depicted high fluctuations in the shares with respect to value of output over the period from 1998-99 to 2011-12.

Even with respect to gross value added and capital, Maharashtra, Gujarat and Tamil Nadu continued to enjoy higher shares in the manufacturing sector (Table 4, Table 5). Considering both these variables, chemicals and chemical products (24), rubber and plastic products (25),

Table 4. The Share of Gross Value Added of States/UTs in Organised Manufacturing Sector of India

(Percent)

State/UT	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
Andhra Pradesh	5.58	5.75	6.09	6.89	6.53	6.50	6.11	5.72	6.69	6.46	7.18	5.79	6.55	7.13
Assam	0.92	0.92	0.76	0.61	1.23	1.29	1.08	0.84	0.75	0.62	0.58	0.65	0.74	0.72
Bihar	0.41	0.55	0.41	0.36	0.39	0.27	0.30	0.19	0.15	0.23	0.35	0.30	0.42	0.37
Chhattisgarh	2.15	1.66	1.73	1.68	1.99	2.34	2.65	1.82	2.42	2.44	2.15	1.86	1.97	1.61
Delhi	1.58	1.74	1.36	1.44	1.42	1.01	1.01	0.92	0.86	0.85	0.72	0.72	0.70	0.56
Goa	0.80	0.82	0.98	1.05	1.02	1.12	1.16	1.12	0.94	0.87	1.05	0.88	0.89	1.40
Gujarat	12.78	13.09	12.35	12.52	13.15	13.60	13.17	13.69	11.76	12.49	11.94	14.09	12.39	10.90
Haryana	3.84	4.41	4.25	4.76	4.80	5.10	5.09	4.92	4.45	4.43	4.50	5.93	4.02	4.21
Himachal Pradesh	0.65	0.78	0.94	0.95	0.90	0.81	0.92	1.81	1.86	2.03	2.59	2.10	2.53	2.49
Jammu and Kashmir	0.10	0.14	0.10	0.12	0.11	0.09	0.23	0.31	0.43	0.53	0.70	0.42	0.43	0.51
Jharkhand	5.09	4.47	2.79	2.40	3.69	3.54	5.10	3.06	2.17	3.27	1.87	1.96	2.64	1.83
Karnataka	6.80	5.31	5.88	6.63	6.83	7.00	7.65	7.08	7.72	7.56	6.95	6.09	6.09	11.92
Kerala	2.68	2.12	2.33	2.17	1.91	1.80	1.49	1.48	1.10	1.22	1.40	1.17	1.23	1.13
Madhya Pradesh	3.21	3.57	3.91	3.81	2.96	2.64	2.45	2.31	2.89	2.84	2.89	2.37	2.64	2.36
Maharashtra	20.71	21.61	20.60	19.09	18.92	19.40	19.30	21.84	21.58	20.95	19.40	18.97	19.74	17.58
Odisha	1.66	1.78	1.75	1.53	1.66	1.74	2.10	1.81	1.92	2.37	2.41	2.23	2.68	2.36
Punjab	3.38	3.67	3.06	3.71	3.31	2.76	2.47	2.42	2.87	3.31	2.60	2.70	3.20	4.16
Rajasthan	2.69	3.74	3.75	3.60	3.09	2.88	2.88	2.90	3.53	2.93	3.42	3.83	2.89	4.55
Tamil Nadu	9.63	9.82	11.59	10.15	9.45	10.19	9.50	10.14	11.10	9.67	8.99	12.03	11.27	10.31
Uttar Pradesh	7.65	6.75	7.25	7.58	7.71	7.37	6.64	6.25	6.55	6.01	5.14	5.97	6.96	4.85
Uttarakhand	0.39	0.36	0.64	0.57	0.76	0.75	0.80	1.11	1.26	1.77	6.88	3.29	3.95	3.81
West Bengal	4.54	3.81	4.04	4.30	4.17	3.86	3.94	3.07	2.89	3.01	2.73	3.06	3.09	2.62
Other States/UTs	2.76	3.13	3.44	4.08	4.00	3.94	3.96	5.19	4.11	4.14	3.56	3.60	2.98	2.62
India	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
All India (GVA Rs. Crore)	129342	136550	123545	123173	139108	151218	174689	201071	239791	271054	305952	322304	338785	377855

Table 5. The Share of Capital of States/UTs in the Organised Manufacturing Sector of India

(Percent)

State/UT	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
Andhra Pradesh	6.76	6.87	6.80	7.09	7.35	7.11	7.09	6.69	7.23	7.72	7.41	6.98	7.83	11.10
Assam	0.67	0.74	1.39	0.94	1.37	1.48	1.45	1.31	1.20	1.11	0.98	0.86	0.81	0.86
Bihar	0.39	0.46	0.49	0.57	0.79	0.75	0.74	0.57	0.50	0.44	0.37	0.41	0.38	0.42
Chhattisgarh	1.70	2.10	1.58	2.72	1.55	1.78	2.25	2.44	2.61	2.55	2.60	2.46	2.14	2.51
Delhi	0.62	0.71	0.65	0.64	0.73	0.60	0.61	0.57	0.51	0.47	0.39	0.36	0.38	0.33
Goa	0.52	0.61	0.69	0.70	0.77	0.79	0.82	0.67	0.61	0.57	0.58	0.63	0.47	0.53
Gujarat	16.25	15.55	16.78	19.03	17.60	17.39	16.40	18.33	17.39	16.52	16.17	18.25	17.42	16.37
Haryana	3.08	3.58	3.68	3.50	3.38	3.49	3.49	3.32	3.44	3.80	4.03	3.45	3.77	3.39
Himachal Pradesh	0.71	0.76	0.82	0.91	0.78	0.79	0.79	1.04	0.87	1.27	1.30	1.25	1.60	1.44
Jammu and Kashmir	0.08	0.09	0.10	0.10	0.10	0.10	0.17	0.21	0.26	0.32	0.26	0.25	0.25	0.26
Jharkhand	3.76	3.11	3.49	3.24	3.03	2.89	2.74	2.68	2.56	2.41	2.64	2.26	3.38	3.16
Karnataka	8.87	6.58	6.38	6.83	6.98	7.12	6.87	7.12	6.47	6.64	6.93	6.79	6.51	6.51
Kerala	1.75	1.61	1.73	1.71	1.55	1.52	1.56	1.49	1.30	1.28	1.24	1.14	1.14	0.97
Madhya Pradesh	4.30	4.05	3.38	3.05	2.98	2.97	2.78	2.55	2.61	2.62	2.49	2.17	2.87	2.79
Maharashtra	15.48	18.20	17.78	16.86	18.46	18.34	19.37	17.60	17.92	16.19	16.66	15.08	14.89	14.19
Odisha	2.70	2.26	2.69	2.55	2.26	3.13	2.89	3.52	3.73	4.63	4.89	6.41	6.59	7.04
Punjab	2.52	2.99	2.51	2.36	2.88	2.37	2.50	2.62	3.01	3.08	3.05	2.48	2.71	2.40
Rajasthan	2.94	4.56	3.31	3.21	2.96	2.92	2.88	2.70	2.68	2.73	2.89	2.74	2.90	2.65
Tamil Nadu	9.25	9.49	9.63	8.49	9.51	9.78	9.81	10.11	10.47	9.89	9.73	10.63	9.91	9.45
Uttar Pradesh	12.67	9.33	8.94	7.50	7.06	7.08	6.95	6.89	7.10	7.94	6.79	5.94	5.51	5.11
Uttarakhand	0.45	0.37	0.57	0.57	0.56	0.58	0.68	0.80	1.14	1.43	2.20	2.47	2.33	2.32
West Bengal	2.95	4.31	4.34	5.34	5.14	4.78	4.74	4.32	3.99	3.96	4.06	4.58	3.98	4.01
Other States/UTs	1.58	1.67	2.27	2.09	2.21	2.24	2.42	2.45	2.40	2.43	2.34	2.41	2.23	2.19
India	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
All India (Capital Rs. Crore)	752062	784032	744931	757083	783686	795652	800648	900521	1014957	1125249	1261654	1587907	1781303	1967907

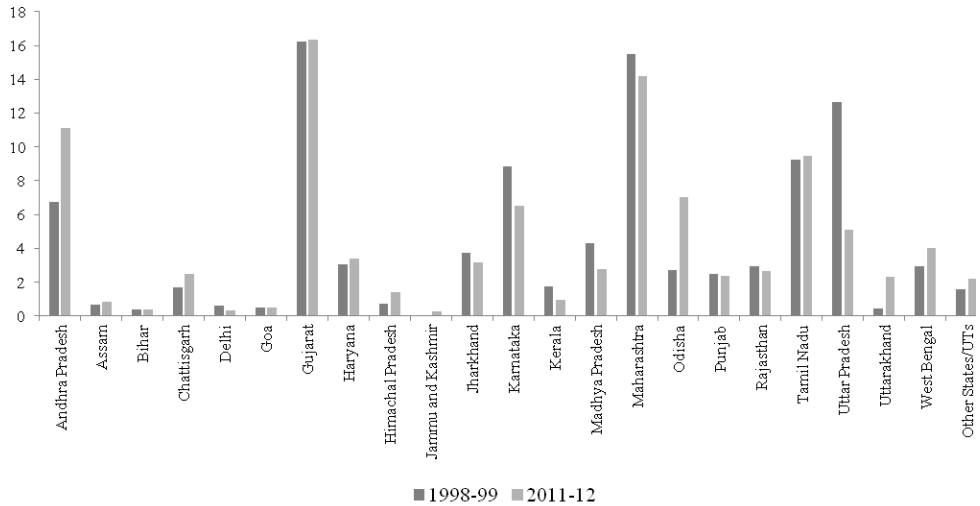

Figure 4: Percentage Share of Capital of States/UTs in the Organised Manufacturing Sector

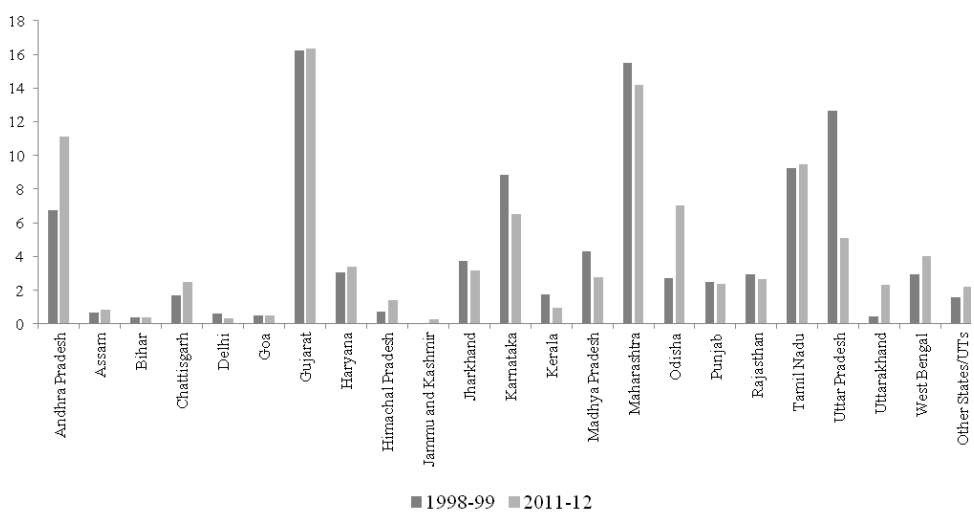

Figure 4: Percentage Share of Capital of States/UTs in the Organised Manufacturing Sector

machinery and equipment n.e.c. (29), other transport equipment (35) and furniture, manufacturing n.e.c. (36) had large shares in these three states. In addition, coke, refined petroleum products and nuclear fuel (23), chemicals and chemical products (24) and furniture, manufacturing n.e.c. (36) had large share in Gujarat. Textiles (17), wearing apparel, dressing and dyeing of fur (18), luggage, handbags, saddlery, harness and footwear, tanning and dressing of leather products (19), office, accounting and computing machinery (30) and motor vehicles, trailers and semi-trailers (34) helped Tamil Nadu to maintain its higher share in the manufacturing sector. Assam, Bihar, Goa and Jammu and Kashmir had lower shares compared to the remaining states/UTs in the sector (Table 4, Figure 3). Considering the shares with respect to gross value added again office, accounting and computing machinery (30) indicated high fluctuations in major states. However, wood and products of wood and cork except furniture, articles of straw and plating materials (20) shows fluctuations in the shares particularly in Gujarat.

In the case of capital, again Maharashtra, Gujarat and Tamil Nadu together accounted for about 40 plus percent of the total capital in 1998-99 in the manufacturing sector of India. Over the period, these states together maintained their share with increasing share of Tamil Nadu but other two states could maintain their shares more or less the same in 2011-12. However, Andhra Pradesh, Odisha, Uttarakhand, Haryana and West Bengal showed increase in capital over the period. The states like Uttar Pradesh, Madhya Pradesh, Kerala registered decrease in the share of capital over the period. This decrease in capital stock is more pronounced in Uttar Pradesh during 1998-99 to 2011-12 (Table 5, Figure 4). In Andhra Pradesh and Gujarat wood and cork except furniture, articles of straw and plating materials (20) exhibited fluctuations in the shares of Capital whereas office, accounting and computing machinery (30) depicted the same in Andhra Pradesh and Karnataka.

3.2 Growth Rates:

In this study, ACGR has been estimated using semi-log method from 1998-99 to 2011-12 for the manufacturing sector as well as for all the industries in India and in all the states with respect to number of factories, number of workers, value of output, gross value added and capital. In the resultant tables, the statistically insignificant growth rates have been marked with asterisk for convenience, as these are fewer in number.

3.2.1 Factories:

Table 6 reports the ACGR of number of factories for all states/UTs from 1998-99 to 2011-12 at the aggregate and at industry level. Results show that Himachal Pradesh, Uttarakhand and Jammu and Kashmir dominated all remaining states/UTs in the growth rate of number of factories (Table 7). It implies that these states saw setting up of many factories over the period. It probably reflects a shift towards a greater concentration on large scale production and possibly technological up-gradation. The high growth rate of factories is registered by paper and paper products (21), chemicals and chemical products (24), office, accounting and computing machinery (30), electrical machinery and apparatus n.e.c. (31) and motor vehicles, trailers and semi-trailers (34) in Himachal Pradesh whereas, in Uttarakhand, chemicals and chemical products (24), rubber and plastic products (25), basic metals (27), fabricated metal products except machinery and equipment (28) and electrical machinery and apparatus n.e.c. (31) showcased the same. In spite of the existence of a very few industries, Jammu and Kashmir experienced the emergence of many factory units in chemicals and chemical products (24) with the growth rate of 20.49 percent. Delhi, Goa and West Bengal had

Table 6. ACGR of Factories in the Organised Manufacturing Sector during 1998-99 to 2011-12

State/Industry Code	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	Manu-factu-ring
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
Andhra Pradesh	3.35	-1.00*	3.17	9.54	2.49*	4.62	8.59	5.91	5.45	5.37	7.40	6.82	6.33	5.97	1.67*	26.49	7.17	-7.74	-1.50*	0.92*	-0.42*	4.53	4.63
Assam	2.52	N.A.	4.62	N.A.	N.A.	-0.46*	22.44	0.28*	15.31	10.47	17.92	11.04	4.01	3.07	-8.33	N.A.	8.16	N.A.	N.A.	1.47*	N.A.	N.A.	5.32
Bihar	6.41	-4.34	-2.06*	N.A.	-2.71*	-0.73*	-0.14*	-4.54*	8.33	-1.09*	4.14*	9.11	1.23*	2.81*	-8.02	N.A.	1.57*	N.A.	N.A.	N.A.	2.72*	1.45*	4.83
Chhattisgarh	4.79	4.76	-2.94	N.A.	N.A.	0.77*	3.73	4.67	7.28	4.66	6.57	4.70	8.84	6.11	5.25	N.A.	2.75*	N.A.	N.A.	N.A.	-0.24*	8.21	5.42
Delhi	0.61*	1.32*	0.03*	-0.55*	1.78*	-1.53*	2.27	2.52	N.A.	-1.53*	-1.19*	-5.45	-0.74*	0.77*	-3.27	12.28	0.22*	-5.00	-4.75	-2.18	-5.65	0.46*	-0.63*
Goa	2.73	N.A.	-5.99	N.A.	N.A.	N.A.	1.36*	4.23	2.92*	1.16	0.26*	-1.34*	3.48	0.67*	1.28*	10.85	6.77	-16.78	-5.67	-2.99	6.65	3.49*	0.97
Gujarat	3.03	-0.62*	1.09*	8.36	-6.92	5.55	5.79	0.32*	4.26	1.20*	2.67	2.25*	2.97	4.75	1.55	N.A.	2.84	-10.73	-5.00	3.84	-10.29	7.05	2.31
Haryana	-0.36*	3.76	3.31	12.84	6.71	5.62	0.99*	6.93	6.78*	2.10	1.59*	2.39	-1.66*	1.53*	-1.17*	2.89*	5.12	-4.25	-1.00*	5.76	0.35*	7.95	2.40
Himachal Pradesh	7.49	-1.93*	6.07	N.A.	19.91	5.57	20.11	11.17	N.A.	22.41	10.17	8.57	13.62	10.13	4.59	23.27	30.51	7.62	9.47	20.07	N.A.	N.A.	14.29
Jammu and Kashmir	3.71	N.A.	-3.05	N.A.	N.A.	4.11	12.72	9.62	N.A.	20.49	12.50	8.52	12.19	10.62	-10.13	N.A.	7.89	N.A.	N.A.	N.A.	N.A.	4.53	7.93
Jharkhand	5.06	-5.25	-2.67*	N.A.	N.A.	-5.16	2.62*	2.75*	2.86	3.24	-2.18*	7.65	5.90	2.00*	-1.24*	N.A.	5.72*	N.A.	N.A.	0.89*	N.A.	N.A.	4.05
Karnataka	3.23	-0.03*	-2.34*	0.91*	-1.26*	0.94*	4.01	3.99	6.82	3.71	4.04	2.51	5.79	6.66	3.07	20.59	3.68	-12.74	-3.93	5.62	0.00*	9.90	3.12
Kerala	3.51	28.09	0.53*	0.20*	4.05	-1.45*	3.23	-0.33*	3.89	2.20	2.60	0.24*	2.34	0.27*	-3.65	N.A.	-1.80	N.A.	-3.30*	9.42	0.46*	3.86	2.52
Madhya Pradesh	2.65	0.67*	-1.20*	13.42	0.15*	0.73*	4.28	1.35*	5.27	3.79	3.66	-0.98*	1.77*	1.83*	2.71	N.A.	0.68*	-6.94	-1.59*	1.46*	8.24	6.77	1.80
Maharashtra	1.95	-0.23*	1.71*	2.78*	-0.88*	2.53	1.79	0.86*	4.33	2.17	2.18	-0.34*	2.35	4.75	0.74*	10.51	3.72	-11.55	-3.75	4.78	0.44*	5.49	2.26
Odisha	5.71	6.33	-5.61	N.A.	N.A.	-5.08	3.24	-3.66	5.56	-1.35*	0.16*	5.62	10.17	0.23*	-4.13	N.A.	-0.79*	N.A.	N.A.	-0.94*	N.A.	-5.75	3.46
Punjab	5.60	N.A.	-2.24	42.48	-2.85*	5.11	6.20	0.82*	1.32*	3.70	3.13	31.67	5.27	1.51	1.06*	N.A.	5.08	-6.02	-11.40	2.34*	3.04	3.16	5.20
Rajasthan	3.37	16.84	0.68*	6.66	3.65	8.66	6.78	-0.75*	-0.75*	2.99	6.32	4.99	4.35	5.94	1.56*	N.A.	6.98	-4.85	-4.63	4.43	1.37*	9.72	4.01
Tamil Nadu	2.45	-2.59*	3.48	12.87	3.74	2.13	7.07	2.52	6.88	1.67	6.13	5.91	3.53*	9.00	3.23	23.33	4.61	-11.41	-0.21*	8.35	-1.16*	6.15	4.44
Uttar Pradesh	-0.37*	-5.09	2.83	11.57	7.21	3.42	2.67	2.50*	-1.55*	0.12*	2.75	5.72	1.13*	5.57	0.58*	12.84	3.59	-4.00	-5.25	2.71*	-0.62*	2.59*	2.21
Uttarakhand	1.27*	N.A.	15.54	N.A.	N.A.	N.A.	14.62	N.A.	N.A.	24.00	25.58	5.84	18.64	18.63	N.A.	N.A.	21.52	9.04	8.66	N.A.	N.A.	14.60	13.64
West Bengal	2.76	5.96	1.34*	9.09	6.61	-1.01*	2.42	-1.74	0.69*	0.08*	2.40	1.79	1.76*	0.85*	-1.71	N.A.	1.89*	-4.81	-7.74	-3.17*	0.60*	2.34*	1.68
Other States/UTs	1.66	7.41	2.68	4.62*	0.82*	-3.98	1.91*	-0.39*	16.00	4.01	5.96	7.31	5.71	2.88	-2.74	1.86*	4.16	-12.17	-6.81	6.56	-1.32*	6.05	3.70
India	2.91	2.79	1.89	8.02	3.63	1.42	4.82	1.90	4.07	2.79	4.25	5.57	3.74	4.71	1.08*	15.07	4.34	-7.38	-3.24	4.95	0.53*	5.40	3.44

* Statistically insignificant at 5 percent level of significance. We have considered the data of all the available years of the 14 year period on the ASI website. Regarding the lack of significance of the test results for the cases marked

Note: Please refer **Table1** for description of the industry

the lowest growth rate among all states/UTs in the Indian manufacturing sector as many industries in these states registered negative growth rates indicating shutting down or shifting of factories. Gujarat, Haryana, Karnataka, Kerala, Madhya Pradesh, Maharashtra and Uttar Pradesh exhibited the ACGR below the national average. In these states, radio, TV and communication equipment and apparatus (32), medical, precision and optical instruments, watches and clocks (33) and other transport equipment (35) demonstrated negative growth rates which could have led to low growth rate of the manufacturing sector. In fact, even the national manufacturing sector has showed negative growth rate in these industries. Thus, it could be inferred that number of factories in these industries declined due to shifting of industrial units from one state to another or shutting down of factories in the country as a whole.

Table 7. Ranking of the States According to Growth Rate of No. of Factories in the Organized Manufacturing Sector of India during the Period from 1998-99 to 2011-12

State	Manufacturing Sector CAGR (%)	Ranks
(1)	(2)	(3)
Himachal Pradesh	14.29	1
Uttarakhand	13.64	2
Jammu and Kashmir	7.93	3
Chhattisgarh	5.42	4
Assam	5.32	5
Punjab	5.20	6
Bihar	4.83	7
Andhra Pradesh	4.63	8
Tamil Nadu	4.44	9
Jharkhand	4.05	10
Rajasthan	4.01	11
Other States/UTs	3.70	12
Odisha	3.46	13
India	**3.44**	National Average
Karnataka	3.12	14
Kerala	2.52	15
Haryana	2.40	16
Gujarat	2.31	17
Maharashtra	2.26	18
Uttar Pradesh	2.21	19
Madhya Pradesh	1.80	20
West Bengal	1.68	21
Goa	0.97	22
Delhi	-0.63	23

3.2.2 Employment:

The ACGR of employment (number of workers) for all states/UTs for the manufacturing sector from 1998-99 to 2011-12 at an aggregated and disaggregated level of industrial classification are estimated (Table 8). Uttarakhand ranked at the top registering the highest employment growth rate over the period followed by Himachal Pradesh and Jammu and Kashmir (Table 9). In Uttarakhand, the manufacture of fabricated metal products except machinery and equipment (28) recorded the highest growth rate, thus, contributing to the growth of manufacturing sector in the state. Chemicals and chemical products (24), rubber and plastic products (25), basic metals (27) and electrical machinery and apparatus n.e.c. (31) were the best performing industries in these three topmost states. However, showcasing higher ACGR is due to very narrow industrial base of

Table 8. ACGR of Workers in the Organised Manufacturing Sector during 1998-99 to 2011-12

(Percent)

State/Industry Code	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	Manu-factu-ring
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
Andhra Pradesh	3.22	-1.93	5.03	20.59	17.08	0.69*	5.79	4.88	13.16	8.22	9.92	5.49*	4.17	9.10	2.67	31.73	8.97	-4.17*	-3.41*	2.46	1.62	8.60	2.62
Assam	0.74*	N.A.	-4.85	N.A.	N.A.	17.79	2.40	2.71	4.14	11.93	17.90	12.79	7.27	5.14*	-7.85	N.A.	4.22*	N.A.	N.A.	0.66*	N.A.	N.A.	3.64
Bihar	3.73	-1.14*	-2.18*	N.A.	-6.49	-1.85*	9.06	-11.88	0.00*	-6.94	-1.05*	9.36	3.31*	0.89*	2.06*	N.A.	-2.04*	N.A.	N.A.	N.A.	-5.80	9.27	5.03
Chhattisgarh	4.90	22.60	-7.16	N.A.	N.A.	-1.46*	0.30*	10.20	27.14	3.06*	2.76*	0.51*	6.64	15.77	9.76	N.A.	3.99*	N.A.	N.A.	N.A.	11.43	14.63	6.13
Delhi	2.47	-2.75*	1.24*	1.49*	1.68*	-10.97*	0.53*	-0.39*	N.A.	-5.15	-4.44	-8.80	-3.81*	-0.18*	-4.30	30.81	0.20*	-7.94	-7.39	-1.95*	-9.81	-0.49*	-0.73*
Goa	5.97	N.A.	-2.73	N.A.	N.A.	N.A.	3.38*	6.00	2.32*	8.54	7.02	3.86	5.06	8.53	5.36	15.68	18.25	-11.36	-3.45*	8.52	7.09	7.73	6.63
Gujarat	3.07	-1.56*	3.67	7.01	-1.51*	8.45	5.52	2.05*	18.32	2.21	7.00	8.41	9.68	9.24	5.26	N.A.	6.61	1.09*	1.17*	6.13	1.19*	14.75	5.32
Haryana	0.38*	1.95*	5.52	19.52	8.41	11.27	0.26*	4.22	5.16*	5.83	2.47*	-2.58	4.79	6.16	1.75*	0.98*	6.90	4.91*	-7.45*	14.40	5.40*	16.11	6.47
Himachal Pradesh	11.96	-5.30*	2.46	N.A.	22.55	23.88	15.56	22.33	N.A.	38.51	16.28	3.54*	20.71	7.69	8.13	35.74	44.22	0.37*	2.94*	24.73	N.A.	N.A.	14.13
Jammu and Kashmir	3.82	N.A.	0.92*	N.A.	N.A.	2.36*	17.02	15.53	N.A.	35.12	21.77	7.77	13.78	15.65	-9.27	N.A.	13.45	N.A.	N.A.	N.A.	N.A.	5.89	9.69
Jharkhand	5.08	-12.33	-8.18	N.A.	N.A.	-0.82*	0.73*	9.51	-2.09	-4.20	-2.76*	1.89	-3.40	3.07*	0.32*	N.A.	-4.53*	N.A.	N.A.	1.33*	N.A.	N.A.	-1.77
Karnataka	3.59	-0.98*	-4.46	8.54	0.44*	5.02	1.96	3.69	10.83	4.54	6.31	0.85*	7.98	8.60	6.20	28.62	5.04	-12.42	-3.84	6.42	6.24	16.42	5.30
Kerala	2.40	22.86	-2.70	11.03	9.23	-0.95*	-1.87*	-2.86*	5.24*	-2.14	2.96	-0.31*	2.42*	2.76*	2.04*	N.A.	-0.77*	N.A.	-4.99	15.04	3.83	4.05*	2.53
Madhya Pradesh	4.46	-2.50*	-4.25	17.32	4.33	3.45*	-0.38*	9.07	8.37	3.71	8.38	1.39*	6.22	5.42	6.11	N.A.	2.03*	-18.98	-0.91*	6.70	6.87	5.92	1.89*
Maharashtra	2.29	-4.38*	-0.99*	8.03	4.53	6.41	0.37*	2.97	0.47*	1.93	5.67	0.97*	7.40	8.36	3.56	13.31	7.15	-4.24	-3.04	10.92	5.08	4.77	3.43
Odisha	4.12	15.22	-10.59	N.A.	N.A.	-1.19*	-2.10*	0.68*	16.30	-0.03*	0.36*	5.69	13.53	-0.77*	-5.12	N.A.	4.94	N.A.	N.A.	0.95*	N.A.	-3.76*	7.51
Punjab	1.59	N.A.	3.58	38.92	-2.21	4.86	4.56	2.27*	2.61*	3.08	0.48*	40.55	5.71	6.90	5.39	N.A.	5.36	-12.06	1.05*	3.50	3.08	6.21	5.89
Rajasthan	6.97	8.34	2.52	17.73	11.88	22.45	8.10	1.31*	-4.58*	5.72	5.16	7.49	5.91	11.30	2.29*	N.A.	14.17	-0.60*	2.72*	17.26	-2.35*	7.35	6.10
Tamil Nadu	2.09	-4.17	3.06	9.72	6.84	4.75	5.89	3.55	4.79*	-0.84	10.23	5.75	6.25	12.06	6.77	44.08	8.05	1.49*	-1.15*	13.06	1.81*	8.55	5.51
Uttar Pradesh	0.08*	0.29*	-2.75	20.22	12.85	5.91	2.67	6.06	8.92	0.22*	3.29*	9.01	0.23*	12.33	2.03*	26.50	4.91	-2.31*	-7.02*	7.39	-0.78*	1.83*	3.96
Uttarakhand	8.54	N.A.	20.27	N.A.	N.A.	N.A.	9.57	N.A.	N.A.	42.14	32.95	6.19*	31.12	43.18	N.A.	N.A.	28.58	11.00*	9.18	N.A.	N.A.	29.49	21.79
West Bengal	2.78	2.94*	-1.84	14.23	10.30	3.31	0.57*	-1.29*	2.75	-2.30	2.19*	0.49*	2.01*	5.29	-5.55*	N.A.	1.37*	-8.77	-8.47	-9.72	-1.97*	8.98	0.17*
Other States/UTs	3.59	12.60	8.32	14.24	-3.43	-4.22*	5.62	-3.13*	10.13	6.73	9.96	14.50	11.23	7.01	1.24*	12.53	16.54	-9.76	-0.47*	13.89	-7.32	16.03	8.84
India	2.43	-0.98	1.40	10.89	8.09	4.29	3.64	2.94	5.51	3.28	6.78	6.64	5.52	8.92	3.79	21.39	7.46	-2.92*	-2.06*	10.10	2.67*	8.70	4.44

* Statistically insignificant at 5 percent level of significance.
Note: Please refer **Table** 1 for description of the industry

the manufacturing sector in these states. West Bengal, Jharkhand, Delhi and Madhya Pradesh were amongst the poorest performing states/UTs in terms of employment growth. In fact, Jharkhand and Delhi demonstrated negative growth rate implying jobless growth. In these states, many industries registered negative employment growth rates. In West Bengal, eight out of 22 industries showed negative ACGR such as textiles (17), chemicals and chemical products (24), machinery and equipment n.e.c. (29), motor vehicles, trailers and semi-trailers (34), other transport equipment (35), etc. while these industries had positive growth rates in the manufacturing sector of India. The growth rates of Andhra Pradesh, Assam, Bihar, Kerala, Maharashtra and Uttar Pradesh were below the national average. Maharashtra, the leading state for two decades, experienced a fall in the growth rate of employment due to negative growth rates registered by radio, TV and communication equipment and apparatus (32) and medical, precision and optical instruments, watches and clocks (33). It could be because Maharashtra, being an industrially developed state, has attracted capital over the years. Therefore, industries within the state seem to reply more on capital due to better access to technology and mechanisation of the production process. This has reduced the reliance on the labour which has been indicated by the low employment growth rate in Maharashtra. On the contrary, in West Bengal, slowdown in the industrial sector, shutting down of many factories and emergence of strong trade unions might have resulted in the low growth rate of employment.

Table 9. Ranking of the States According to Growth Rate of No. of Workers in the Organized Manufacturing Sector of India during the Period from 1998-99 to 2011-12

State	Manufacturing Sector CAGR (%)	Ranks
(1)	(2)	(3)
Uttarakhand	21.79	1
Himachal Pradesh	14.13	2
Jammu and Kashmir	9.69	3
Other States/UTs	8.84	4
Odisha	7.51	5
Goa	6.63	6
Haryana	6.47	7
Chhattisgarh	6.13	8
Rajasthan	6.10	9
Punjab	5.89	10
Tamil Nadu	5.51	11
Gujarat	5.32	12
Karnataka	5.30	13
Bihar	5.03	14
India	4.44	National Average
Uttar Pradesh	3.96	15
Assam	3.64	16
Maharashtra	3.43	17
Andhra Pradesh	2.62	18
Kerala	2.53	19
Madhya Pradesh	1.89	20
West Bengal	0.17	21
Delhi	-0.73	22
Jharkhand	-1.77	23

3.2.3 Value of Output:

Though the share of the value of output was higher for Maharashtra, Gujarat and Tamil Nadu compared to the remaining states/UTs, the growth rates of the same for Uttarakhand, Jammu and Kashmir and Himachal Pradesh were among the highest among all states/UTs (Table 10, Table 11). In all these three states, paper and paper products (21), chemical and chemical products (24), rubber and plastic products (25), basic metals (27), fabricated metal products except machinery and equipment (28) and electrical machinery and apparatus n.e.c. (31) commonly showcased higher improvement in terms of the ACGR of the value of output compared to other industries in the sector. In Uttarakhand, 9 out of 12 industries in the manufacturing sector showed a growth rate more than 20 percent from 1998-99 to 2011-12. The higher growth rates in these industries could be attributed to the narrow base in the initial years and the incentives such as excise duty and income tax exemption to new industrial units offered by the government. Andhra Pradesh, Assam, Bihar, Kerala, Punjab, Rajasthan, Uttar Pradesh and West Bengal had growth rate below the national average. In fact, Maharashtra with highest share, also registered the growth rate below the national average. Delhi, Jharkhand and Madhya Pradesh were at the bottom as per the ACGR of the value of output.

3.2.4 Gross Value Added:

As seen in Table 12, even with respect to Gross Value added, the manufacturing sector of Uttarakhand, Jammu and Kashmir and Himachal Pradesh indicated the highest growth rate compared to all the remaining states/UTs (Table 13). Again it is due to narrow base of the manufacturing sector of these states and incentives such as excise duty and tax exemptions offered by the state also attracted more investment and accentuated establishment of new industrial units. Chemical and chemical products (24), rubber and plastic products (25), other non-metallic mineral products (26), fabricated metal products, except machinery and equipment (28) and electrical machinery and apparatus n.e.c. (31) contributed to the high performance of these states. Delhi and Jharkhand were accompanied by Kerala and Bihar to form a poor performing bracket of the states. Many industries in these states had very low growth rates such as food products and beverages (15), textiles (17), publishing, printing and reproduction of recorded media (22), basic metals (27), etc., however, statistically insignificant. Assam, Gujarat, Madhya Pradesh, Maharashtra, Punjab, Rajasthan, Uttar Pradesh and West Bengal continued to underperform with regard to the growth rate of the Indian manufacturing sector compared to the ACGR of national manufacturing sector. For example, in West Bengal, tobacco products (16), publishing, printing and reproduction of recorded media (22), radio, TV and communication equipment and apparatus (32), medical, precision and optical instruments, watches and clocks (33) and motor vehicles, trailers and semi-trailers (34) exhibited negative growth rate in spite of the positive growth rate of these industries in Indian manufacturing sector.

Table 10. ACGR of Value of Output in the Organised Manufacturing Sector during 1998-99 to 2011-12 (At Constant 1993-94 Prices)

(Percent)

State/Industry Code	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	Manufacturing
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
Andhra Pradesh	8.91	4.08	9.03	24.50	9.22	8.95	9.92	6.60	11.08	13.92	14.84	12.90	11.45	18.94	8.97	31.95	12.04	12.49	16.71	8.44	11.47	27.28	11.52
Assam	3.56	N.A.	1.68*	N.A.	N.A.	33.40	1.58*	20.07	13.02	29.74	26.39	16.03	21.94	7.03*	1.47*	N.A.	8.69	N.A.	N.A.	10.79	N.A.	N.A.	9.76
Bihar	7.54	7.24	3.59*	N.A.	-6.55	1.10*	20.08	-4.96*	12.85	4.54*	5.78*	9.68	9.44	4.62*	9.50*	N.A.	16.40	N.A.	N.A.	N.A.	-9.10	20.82	10.01
Chhattisgarh	7.08	10.83	-1.32*	N.A.	N.A.	3.81*	5.65	27.82	31.99	6.21	10.98*	6.12	15.06	27.85	15.76	N.A.	13.19	N.A.	N.A.	N.A.	12.09	17.08	13.07
Delhi	9.30	2.40*	5.49*	-1.61*	5.07	2.01*	1.08*	3.26*	N.A.	4.25*	4.74*	-6.36	1.35*	3.57*	1.83*	25.71	6.31	-0.66*	-6.92	0.59*	-10.95	6.98	3.63
Goa	8.06	N.A.	10.18	N.A.	N.A.	N.A.	12.78	11.53	2.91*	12.41	12.51	11.35	13.38	6.12	10.15	1.99*	18.06	-1.23*	4.10*	15.59	19.15	14.53	11.68
Gujarat	10.79	-0.30*	6.82	8.55	2.77*	21.09	10.83	6.76	22.70	7.20	8.40	13.30	14.79	20.95	14.27	N.A.	12.34	6.56	3.71*	19.17	8.63	32.32	11.91
Haryana	11.25	5.69*	9.51	17.45	10.40	21.15	4.28*	17.23	5.25*	10.73	5.89	6.33	8.42	9.30	8.54	2.25*	12.27	-3.13*	-5.32*	15.49	14.71	18.14	11.86
Himachal Pradesh	10.72	-10.62	8.44	N.A.	38.17	41.22	29.73	30.74	N.A.	36.58	18.99	8.77	32.82	15.25	19.76	N.A.	49.95	3.35*	19.22	29.07	N.A.	N.A.	21.52
Jammu & Kashmir	7.22	N.A.	9.08	N.A.	N.A.	9.51	29.47	46.74	N.A.	57.75	46.48	13.77	22.58	17.01	19.92	N.A.	37.88	N.A.	N.A.	N.A.	N.A.	7.91	23.99
Jharkhand	10.16	-5.41*	0.64*	N.A.	N.A.	10.41	5.70*	20.57	2.77*	3.60*	5.02*	8.78	5.47	17.96	18.20	N.A.	-7.05*	N.A.	N.A.	16.00	N.A.	N.A.	7.76
Karnataka	12.07	-1.49*	1.87*	9.32	7.53	9.46	8.06	14.08	17.36	11.94	11.94	8.68	19.95	9.38	14.08	17.95	11.42	-1.80*	4.00*	15.10	15.92	46.47	13.24
Kerala	4.79	1.08*	2.01*	18.92	6.44*	9.57	1.23*	2.49*	8.04	2.54*	12.61*	7.33	6.90	5.54	3.71	N.A.	2.84*	N.A.	8.13	22.87	1223	28.22	8.44
Madhya Pradesh	8.85	-3.63*	2.59	40.69	3.86	12.08	4.12	10.60	8.81	6.16	9.14	5.96	10.06	6.26	17.05	N.A.	6.98	-16.35	-0.17*	13.15	1.70*	14.86	7.38
Maharashtra	6.74	0.03*	6.37	10.80	8.95	15.63	4.88	9.53	9.62	7.24	12.25	8.13	16.06	13.34	10.08	15.95	14.17	6.75	4.92	16.81	11.34	7.70	10.03
Odisha	7.03	6.18	3.31	N.A.	N.A.	3.40	7.26	20.68	13.54	15.27	6.41	10.51	17.66	8.29	-0.88*	N.A.	16.51	N.A.	N.A.	12.35*	N.A.	3.56*	14.63
Punjab	6.07	N.A.	10.43	44.57	4.01*	10.35	13.83	12.73	13.29	11.13	6.35	29.04	10.68	9.49	10.13	N.A.	14.14	-7.90	-2.72*	12.31	6.51	7.32	9.66
Rajasthan	11.12	13.79	6.48	10.90	14.96	30.86	16.17	4.25*	-1.61*	10.00	11.45	9.56	11.68	18.77	7.79	N.A.	24.87	25.11	8.84	31.26	9.39	10.76	11.58
Tamil Nadu	8.12	4.48*	5.47	14.40	7.73	17.33	9.33	9.89	9.95	4.82	12.16	9.91	14.10	16.33	15.30	60.11	14.18	7.42	6.58	21.99	5.23	27.32	12.08
Uttar Pradesh	8.99	7.68	3.86	13.47	16.16	7.56	11.63	10.07	32.29	5.77	8.42	10.39	8.85	8.83	11.82	15.01	12.10	13.28	-3.38*	14.71	1.50*	5.13	10.16
Uttarakhand	15.46	N.A.	59.37	N.A.	N.A.	N.A.	16.40	N.A.	N.A.	54.20	25.90	17.50	39.36	68.87	N.A.	N.A.	30.82	33.23	30.60	N.A.	N.A.	45.97	32.84
West Bengal	12.10	0.70*	3.47	17.35	11.80	19.04	9.24	-2.44*	0.84	14.63	11.71	10.56	15.92	7.06	7.89	N.A.	7.47	-8.19	-3.51*	-8.86	9.57	14.48	10.90
Other States/UTs	8.10	10.65	14.33	19.22	-3.11*	9.38	7.98	2.32*	10.15	10.21	11.44	17.46	14.77	10.46	5.20	7.39*	15.76	0.32*	-5.62*	20.34	-5.65*	13.22	11.87
India	8.79	3.17	7.01	11.56	9.73	15.48	9.03	8.41	14.33	9.30	11.26	10.16	13.42	13.70	12.02	17.63	13.46	8.49	4.78	17.57	10.95	17.83	11.36

* Statistically insignificant at 5 percent level of significance.
Note: Please refer **Table** 1 for description of the industry

Table 11. Ranking of the States According to Growth Rate of Value of Output (Base = 1993-94) in the Organized Manufacturing Sector of India during the Period from 1998-99 to 2011-12

State	Manufacturing Sector CAGR (%)	Ranks
(1)	(2)	(3)
Uttarakhand	32.84	1
Jammu and Kashmir	23.99	2
Himachal Pradesh	21.52	3
Odisha	14.63	4
Karnataka	13.24	5
Chhattisgarh	13.07	6
Tamil Nadu	12.08	7
Gujarat	11.91	8
Other States/UTs	11.87	9
Haryana	11.86	10
Goa	11.68	11
Rajasthan	11.58	12
Andhra Pradesh	11.52	13
India	11.36	National Average
West Bengal	10.90	14
Uttar Pradesh	10.16	15
Maharashtra	10.03	16
Bihar	10.01	17
Assam	9.76	18
Punjab	9.66	19
Kerala	8.44	20
Jharkhand	7.76	21
Madhya Pradesh	7.38	22
Delhi	3.63	23

3.2.5 Capital:

The ascent of Uttarakhand and Jammu and Kashmir was reinstated by the growth rate experienced by these states in terms of capital with Odisha ranking the third highest by the growth rate of capital (Table 14, Table 15). The scenario of the growth rate of capital is not very different from the one indicated by the other three variables. At the disaggregated industrial level, industries with high growth rates with respect to other variables continued to showcase high growth rate even with respect to capital in these states. Uttarakhand had six industries out of 12 with the ACGR of capital of more than 50 percent such as textiles (17), luggage, handbags, saddlery, harness and footwear, tanning and dressing of leather products (19), wood and products of wood and cork except furniture, articles of straw and plating materials (20), machinery and equipment n.e.c. (29), motor vehicles, trailers and semi-trailers (34) and furniture, manufacturing n.e.c. (36). Even in Jammu and Kashmir, eight industries had very high growth rates such as paper and paper products (21), publishing, printing and reproduction of recorded media (22), chemical and chemical products (24), rubber and plastic products (25), other non-metallic mineral products (26), basic metals (27), fabricated metal products except machinery and equipment (28) and electrical machinery and apparatus n.e.c. (31). In the case of Odisha coke, refined petroleum products and nuclear fuel (23), basic metals

Table 12. ACGR of Gross Value Added in the Organised Manufacturing Sector during 1998-99 to 2011-12 (At Constant 1993-94 Prices)

(Percent)

State/Industry Code	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	Manufacturing
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
Andhra Pradesh	8.61	0.21*	9.20	28.47	5.03	3.92*	N.A.	0.02*	7.93*	13.17	16.79	13.86	12.17	11.32	8.45	37.65	8.08	N.A.	21.25	9.17	10.55	22.07	11.18
Assam	3.18*	N.A.	2.33*	N.A.	N.A.	28.75	N.A.	24.25	1.54*	36.95	28.72	15.97	19.20	4.00*	-2.37*	N.A.	5.40*	N.A.	N.A.	15.98	N.A.	N.A.	7.12
Bihar	1.75*	9.54	6.86	N.A.	5.50	4.53*	25.71	-10.55*	N.A.	N.A.	14.98*	15.16	N.A.	N.A.	13.21*	N.A.	N.A.	N.A.	N.A.	N.A.	-18.82	12.14*	7.11
Chhattisgarh	11.35	12.87	-3.77*	N.A.	N.A.	3.79*	14.93	17.89	N.A.	2.99*	N.A.	10.59	10.58	25.40	15.20	N.A.	13.25*	N.A.	N.A.	N.A.	14.20	16.61	10.41
Delhi	8.70	N.A.	1.80*	-2.94	1.59	-0.96*	-1.01*	1.15*	N.A.	4.45*	2.82*	-6.45	3.56*	0.69*	2.34*	N.A.	3.17*	-1.66*	-7.01*	2.54*	-12.60	1.33*	1.44*
Goa	7.67	N.A.	12.05	N.A.	N.A.	N.A.	11.06	6.69	2.51*	11.44	12.90	16.37	12.64*	5.15	9.28	N.A.	10.40	-2.01*	11.00	17.48	9.68	15.97	11.57
Gujarat	10.67	-2.28*	5.88	5.47	5.81	19.25	10.35	8.20*	17.58	5.88	12.50	12.02	11.83	19.86	12.99	N.A.	10.60	4.30*	6.44*	21.73	24.61	21.14	9.51
Haryana	9.67	6.88	10.24	17.41	2.36*	18.04	6.96	10.68	-2.36*	13.13	5.49	5.40	1.19*	11.47	6.28	1.53*	12.26	-2.33*	-7.87*	13.77	13.53	24.93	10.57
Himachal Pradesh	21.76	-12.41	2.72*	N.A.	4.12*	N.A.	24.99	21.34*	N.A.	41.71	33.98	7.17	N.A.	N.A.	19.00	N.A.	41.81	2.24*	19.82	20.72	N.A.	N.A.	23.40
Jammu & Kashmir	9.87	N.A.	7.26	N.A.	N.A.	8.01	N.A.	N.A.	N.A.	69.55	46.22	11.59	31.40	17.51	0.40*	N.A.	45.86	N.A.	N.A.	N.A.	N.A.	4.69*	28.32
Jharkhand	11.26	-10.82	2.27*	N.A.	N.A.	N.A.	4.72*	N.A.	14.63	4.58*	2.38*	11.38	0.82*	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	13.03	N.A.	N.A.	3.84*
Karnataka	10.76	-7.71*	-0.30*	10.91	4.90	N.A.	6.74	14.92	15.88	12.23	N.A.	10.61	25.20	8.75	13.50	18.54	8.39	-4.17*	4.25*	11.89	9.43	23.58	12.59
Kerala	1.40*	13.55	-4.65*	18.57	6.45	6.47	1.10*	4.47*	N.A.	2.69*	6.66	6.26	-1.30*	6.64*	1.90*	N.A.	4.12*	N.A.	7.03	24.45	11.73	N.A.	3.02
Madhya Pradesh	11.20	-5.22*	0.04*	36.93	2.47	12.59	2.07*	N.A.	N.A.	7.75	8.19	7.86	0.98*	2.98*	17.03	N.A.	7.14	-17.05	1.54*	12.87	-9.69*	9.78	6.81
Maharashtra	3.46	1.82*	3.93	12.38	3.33	13.61	5.64	8.41	16.96	5.71	12.01	9.71	15.47	12.84	9.66	21.12	13.54	8.22	5.26	10.99	9.83	5.28	9.43
Odisha	16.79	13.91	-3.09*	N.A.	N.A.	6.80	9.63	19.22	23.32	N.A.	N.A.	12.81	14.48	4.07*	-8.07*	N.A.	12.29	N.A.	N.A.	N.A.	N.A.	3.86*	14.13
Punjab	2.26*	N.A.	9.98	46.48	2.25	7.51	11.46	N.A.	9.44*	11.11	4.72	40.19	10.10	8.07	7.49	N.A.	9.27	-14.76	0.84*	9.62	5.01	4.71*	9.54
Rajasthan	13.46	8.93	4.72	7.65	1.79*	N.A.	18.14	N.A.	N.A.	4.73*	7.97	13.55	13.08	17.55	8.95	N.A.	17.94	11.12	8.66	33.02	N.A.	9.17	11.12
Tamil Nadu	6.00	9.83*	5.28	11.83	1.64	N.A.	6.38	9.69	1.32*	1.10*	9.16	9.62	13.67	17.80	15.99	51.22	13.45	6.80*	3.52*	17.51	8.64	20.98	10.67
Uttar Pradesh	4.23	10.22	0.69*	13.40	1.27*	1.25*	8.19	10.50	N.A.	3.93	5.95	12.55	2.44*	8.32	9.88	15.55*	9.80	7.46*	-0.64*	12.60	-2.80*	4.52*	7.31
Uttarakhand	24.20	N.A.	N.A.	N.A.	N.A.	N.A.	14.40	N.A.	N.A.	60.47	21.21	21.95	N.A.	60.81	N.A.	N.A.	24.16	33.52	N.A.	N.A.	N.A.	34.64	35.50
West Bengal	11.60	-5.90*	0.20*	18.41	1.98*	19.85	8.56	-3.77*	9.39*	7.22	6.82	9.39	8.66	6.74	5.98	N.A.	6.89	-9.02*	-0.95*	-15.16	5.26	11.48	5.86
Other States/UTs	8.72	11.27*	13.33	17.44	1.59*	8.21	8.65	0.45*	0.81*	7.09	7.26	18.72	12.32*	6.65	5.94	12.88	12.96	3.90*	-5.18*	23.07	-5.99*	12.03	9.83
India	8.71	4.86	6.72	12.21	11.98	13.46	8.60	9.32	14.73	9.64	11.43	12.71	12.21	15.03	13.20	19.12	12.34	8.63	7.31	16.86	12.62	11.87	11.38

* Statistically insignificant at 5 percent level of significance.
Note: Please refer **Table** 1 for description of the industry.

Table 13. Ranking of the States According to Growth Rate of Gross Value Added (Base = 1993-94) in the Organized Manufacturing Sector of India during the Period from 1998-99 to 2011-12

State	Manufacturing Sector CAGR (%)	Ranks
(1)	(2)	(3)
Uttarakhand	35.50	1
Jammu and Kashmir	28.32	2
Himachal Pradesh	23.40	3
Odisha	14.13	4
Karnataka	12.59	5
Goa	11.57	6
India	11.38	National Average
Andhra Pradesh	11.18	7
Rajasthan	11.12	8
Tamil Nadu	10.67	9
Haryana	10.57	10
Chhattisgarh	10.41	11
Other States/UTs	9.83	12
Punjab	9.54	13
Gujarat	9.51	14
Maharashtra	9.43	15
Uttar Pradesh	7.31	16
Assam	7.12	17
Bihar	7.11	18
Madhya Pradesh	6.81	19
West Bengal	5.86	20
Jharkhand	3.84	21
Kerala	3.02	22
Delhi	1.44	23

(27) and motor vehicles, trailers and semi-trailers (34) industries are the major contributors to the growth of capital stock of the state's manufacturing sector. It has been observed that many industries in Himachal Pradesh indicated double digit growth rates. Almost nine industries showed the growth rate of capital greater than 20 percent, such as luggage, handbags, saddlery, harness and footwear, tanning and dressing of leather products (19), wood and products of wood and cork except furniture, articles of straw and plating materials (20), paper and paper products (21), publishing, printing and reproduction of recorded media (22), coke, refined petroleum products and nuclear fuel (23), chemical and chemical products (24), electrical machinery and apparatus n.e.c. (31), motor vehicles, trailers and semi-trailers (34) and other transport equipment (35). The ACGR of Assam, Bihar, Goa, Gujarat, Jharkhand, Karnataka, Maharashtra, Rajasthan and West Bengal were low while Delhi, Kerala, Madhya Pradesh and Uttar Pradesh reached the bottom in the group of all states/UTs. The manufacture of radio, TV and communication equipment and apparatus (32) and medical, precision and optical instruments, watches and clocks (33) has indicated negative and statistically significant growth rates in Kerala, Madhya Pradesh and Punjab while the latter has negative growth in some other states as well.

Table 14. ACGR of Capital in the Organised Manufacturing Sector during 1998-99 to 2011-12
(At Constant 1993-94 Prices)

(Percent)

State/Industry Code	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	**Manufacturing**
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	**(24)**
Andhra Pradesh	8.65	3.30*	9.15	2.56*	18.34	7.53	9.10	4.86	12.45	10.09	4.74	12.75	12.86	3.26*	10.22	11.17	13.34	9.72	6.25	2.13*	4.37	11.84	**9.97**
Assam	4.18	-4.09*	1.39*	-14.17	N.A.	18.85	1.99*	0.41*	10.82	4.27*	17.23	24.47	19.03	14.28	17.25	20.90*	13.21	N.A.	N.A.	6.78	N.A.	N.A.	**7.51**
Bihar	6.79	1.71*	6.14	-2.00*	-6.69	-2.73*	11.59	-3.50*	8.93	-3.08*	-7.04	-1.01*	-0.44*	6.73*	16.73	N.A.	5.42*	N.A.	N.A.	N.A.	-3.93*	2.86*	**5.53**
Chhattisgarh	5.75*	1.03*	-7.14	N.A.	N.A.	3.44*	2.62	3.66	27.66	7.19	8.09*	1.65*	13.22	4.35*	14.25	7.68*	15.62	N.A.	N.A.	N.A.	16.37	16.65	**10.93**
Delhi	6.71	-4.69*	3.27*	-0.43*	-3.11*	-2.69*	4.12	3.59*	-8.07*	7.32	5.38	-2.82*	2.49*	2.85*	0.54*	1.94*	7.24	-4.83	-10.56	-2.35*	-9.84	-1.03*	**1.78**
Goa	5.43	N.A.	0.06*	N.A.	N.A.	N.A.	12.71	11.07	2.78*	9.92	6.40	0.52*	2.89	-1.91*	6.42	3.75	8.53	-1.35*	-2.88*	-0.20*	11.93	6.64*	**6.23**
Gujarat	7.76	-0.09*	5.47	-4.87*	1.16*	17.91	9.66	4.78*	27.23	6.54	-2.81*	9.91	9.59	6.59	13.07	2.66*	11.36	6.00	0.98*	9.20	22.26	28.45	**8.07**
Haryana	12.84	-0.20*	9.71	13.02	7.59	5.39	1.82*	5.95	13.96	8.74	5.16	4.85	7.54	6.03	5.58	-3.74*	10.69	-3.15*	-9.47	11.39	8.25	7.54	**8.54**
Himachal Pradesh	12.88	-0.57*	2.79*	-8.02*	28.59	40.94	31.54	22.91	25.18	28.08	18.97	11.63	10.18	18.27	11.86	16.09	43.16	6.09*	-0.47*	27.49	39.87	N.A.	**14.44**
Jammu and Kashmir	5.82	N.A.	10.19	-0.88*	N.A.	13.34	44.70	45.24	N.A.	41.85	48.50	25.35	29.59	22.27	9.19	4.37	32.04	12.94	N.A.	N.A.	N.A.	10.28	**20.29**
Jharkhand	9.50	-3.58*	1.34*	N.A.	N.A.	6.00*	4.20*	29.92	3.38*	1.66*	-8.11*	10.46	6.95	-2.59*	19.35	7.74*	-3.02*	N.A.	N.A.	11.57	-4.49*	-6.88*	**5.96**
Karnataka	N.A.	2.97*	3.64	7.42	4.18*	6.51	9.61	11.47	3.97*	2.66	9.18	5.38*	9.07	2.03*	9.11	6.36	10.16	3.26*	3.17*	8.70	7.21	16.75	**6.96**
Kerala	4.28	-10.67*	2.69*	-0.02*	7.73*	4.19	-1.82*	-0.19*	8.97	0.22*	-0.61*	3.68	6.55	3.81	4.47	20.07	6.47*	-9.94	-8.66	-0.27*	6.22	6.61	**3.48**
Madhya Pradesh	9.21	-3.33*	1.42*	-7.86*	16.11	5.96	4.36*	4.78	32.58	2.40*	0.19*	4.33	1.21*	-1.29	8.60	4.57*	4.27	-17.15	-20.56	8.20	2.24*	7.59	**4.19**
Maharashtra	5.32	-0.48*	4.83	-1.32*	6.13*	10.14	2.14*	4.07	10.11	5.79	2.81	5.23	11.89	9.15	7.70	1.94	10.22	2.37*	-1.09*	11.58	5.46	7.15	**6.55**
Odisha	7.29	-2.46*	1.71*	-8.99*	N.A.	-1.13*	1.25*	-9.65*	19.66	5.79	2.78*	9.11	23.45	10.84*	-6.23	N.A.	10.17	N.A.	N.A.	15.65*	N.A.	1.20*	**18.06**
Punjab	6.57	N.A.	9.48	6.03*	14.45	2.72*	13.00	2.88*	0.57*	10.84	3.46*	13.53	14.39	11.37	11.43	0.80*	5.12	-13.04	-15.88	10.36	7.26	4.05*	**8.15**
Rajasthan	8.30	-0.15*	6.14	0.70*	11.15	19.78	17.23	11.13	0.08*	1.12*	0.81*	6.77	2.13*	10.06	9.62	3.55*	19.07	8.34	1.51*	25.15	16.20	10.59	**5.66**
Tamil Nadu	7.01	-4.70*	8.59	6.69	7.78	3.43*	9.31	5.17	10.07	2.59	3.35	12.19	8.40	8.54	13.54	9.23	12.36	4.27*	3.81	15.98	8.95	12.04	**8.62**
Uttar Pradesh	9.25	0.76*	1.36*	0.83*	10.26	8.54	9.42	7.31	5.46*	-1.27*	-1.14*	5.04*	1.15*	-1.69*	7.89	11.16	9.51	1.66*	-10.29	-0.66*	-6.30	-0.90*	**2.94***
Uttarakhand	16.07	N.A.	55.39	39.50	56.56	74.84	14.66	2.52*	N.A.	46.38	29.30	23.12	31.91	40.42	52.98	N.A.	30.17	24.32	14.29	74.39	N.A.	65.76	**26.11**
West Bengal	11.71	4.82*	1.73*	-3.27*	12.53	11.74	10.12	-5.08*	11.22	10.41	5.86*	9.38	11.83	1.97*	4.32*	4.64*	5.38*	-8.17*	-12.23	-5.36	4.00	3.98	**7.83**
Other States/UTs	5.90	2.58*	16.46	6.67*	2.12*	3.29*	6.76	-1.38*	7.38	6.74	6.48	9.18	14.27	7.74	3.51	2.97	17.24	5.19*	-10.13	2.04*	-3.06*	11.65	**10.14**
India	8.01	0.73*	6.83	2.89*	8.57	9.29	7.76	4.81	12.66	5.98	2.43	7.81	11.20	6.31	9.99	5.72	11.55	2.86	-1.67*	11.26	7.39	10.33	**7.90**

* Statistically insignificant at 5 percent level of significance.
Note: Please refer **Table** 1 for description of the industry.

Table 15. Ranking of the States According to Growth Rate of Capital (Base = 1993-94) in the Organized Manufacturing Sector of India during the Period from 1998-99 to 2011-12

State	Manufacturing Sector CAGR (%)	Ranks
(1)	(2)	(3)
Uttarakhand	26.11	1
Jammu and Kashmir	20.29	2
Odisha	18.06	3
Himachal Pradesh	14.44	4
Chhattisgarh	10.93	5
Other States/UTs	10.14	6
Andhra Pradesh	9.97	7
Tamil Nadu	8.62	8
Haryana	8.54	9
Punjab	8.15	10
Gujarat	8.07	11
India	7.90	National Average
West Bengal	7.83	12
Assam	7.51	13
Karnataka	6.96	14
Maharashtra	6.55	15
Goa	6.23	16
Jharkhand	5.96	17
Rajasthan	5.66	18
Bihar	5.53	19
Madhya Pradesh	4.19	20
Kerala	3.48	21
Uttar Pradesh	2.94	22
Delhi	1.78	23

Comparing the growth rates of capital and employment, it has been revealed that the growth rates of office, accounting and computing machinery (30) in employment and capital are high in Andhra Pradesh, Karnataka and Tamil Nadu. It then suggests that labour and capital are complementary in these states, possibly both increasing with gross value added. In contrast, low growth rate of employment and high growth rate of capital is registered by this industry in Maharashtra indicating the substitution of capital for labour within the state. On similar grounds, in coke, refined petroleum products and nuclear fuel (23) capital and labour are complementary to each other in Andhra Pradesh whereas basic metals (27) and in Andhra Pradesh and West Bengal and radio, TV and communication equipment and apparatus (32) as well as medical, precision and optical instruments, watches and clocks (33) in Andhra Pradesh and Karnataka indicated substitution of capital for labour.

3.3 Industrial Location:

The location quotient [Florence, 1948] is used to measure the localisation of industry in any defined geographical area. The ratio of the percentage share of a given industry in terms of total workers employed in the manufacturing sector of a given state to the percentage share of that particular industry at the national level to the total number of workers in the national manufacturing sector is called the 'Location Quotient'. According to the formula, it measures the size of the industry in terms of number of workers. Since value of output and gross value added are influenced by prices and measurement of capital is affected by the above-mentioned difficulties, number of workers is possibly the best measure of the size of industries. The location quotient is

applicable when identifying areas of industrial specialization relative to the nation. It is a popular and widely used economic analysis technique. Symbolically,

$$\text{Location Quotient} = \frac{(ES_i/ES_m) \times 100}{(EN_i/EN_m) \times 100} \quad \ldots (4)$$

where,

ES_i = Employment in the ith industry of the state

ES_m = Employment in the manufacturing sector of the state

EN_i = Employment in the ith industry in the national manufacturing sector

EN_m = Employment in the national manufacturing sector

If the location quotient of a given state with respect to a particular industry is more than unity it means that the state has a larger share in the distribution of employment in that industry compared to the average share of employment in that industry for the nation a whole. Location quotient can be more than one. It can be more than one for more than one industry in a state as well. It shows the relative importance of such industries in the manufacturing sector of that particular state, compared to India's manufacturing sector. On the other hand, if the location quotient of a particular industry is less than unity in a given state then it implies that the state has a smaller share in the distribution of that industry in the country, compared to that industry's share in the country as a whole. Comparing the location indices of an industry in any particular state over time reflects the changes in the relative importance of the state with respect to that industry. In other words, the location quotient explains the localisation of the particular industry in a given state. It also suggests that more industrialised states would have a wider industrial base in terms of having a larger number of industries with the value of location quotients higher than one.

Location quotients have been estimated from 1998-99 to 2011-12 for all states/UTs based on number of workers. Table 16 represents codes of the industries located; dislocated, (i.e., moved out of the state in recent years or might have been closed or its relative importance in the state's manufacturing sector in relation to the national manufacturing sector must have gone down) or newly localised in any state/UTs from 1998-99 to 2011-12 (See *Annexure A* for Location Quotients of the state for all the industries for all the years of the study). In the table, industries maintaining the location quotient greater than one for all the years are categorised as localised industries. Industries with location quotients less than one for later years have been categorised as dislocated industries whereas industries with location quotient greater than one in subsequent years are called as the newly localised. It was found that Delhi, Goa and Maharashtra had more localised industries for all the years.

Delhi's industrial structure comprised mostly leather products, publishing printing and reproduction of recorded media, metal and machinery whereas in Goa petroleum products, chemicals, metals, instruments and automobile-related industries were located. Industries localised in Maharashtra were those related to paper, metal, chemicals, rubber and plastic products, machinery, instruments and automobiles. Recently, Andhra Pradesh, Haryana, Jammu and Kashmir, Kerala, Uttar Pradesh and Uttarakhand displayed higher localisation of industries related to chemicals, electronic machinery and automobiles whereas large numbers of industries were dislocated from Haryana, Gujarat, Himachal Pradesh, Kerala, Uttar Pradesh and Jammu and Kashmir.

Table 16. Industry Location Quotients of the States/UTs Based on Number of Workers

States/UTs	Localised Industries*	Dislocated Industries*	Newly Localised*
(1)	(2)	(3)	(4)
Andhra Pradesh	15, 16	---	21, 24, 26, 31
Assam	15, 21, 23, 26	---	---
Bihar	20, 23, 26	19, 22	---
Chhattisgarh	27	20, 26	23, 28
Delhi	18, 19, 22, 28, 31, 32, 33	34, 35	---
Goa	24, 25, 27, 30, 32, 33, 34, 36	---	15, 22, 23,31
Gujarat	17, 24, 26, 29, 36	25, 30, 31	20, 23
Haryana	18,19, 29, 34, 35	26, 28, 30, 31, 33	20, 32
Himachal Pradesh	21, 32, 33	17, 26, 28, 29	24, 31
Jammu and Kashmir	17, 20, 27, 36	15, 26, 29	21, 24, 25
Jharkhand	23, 26, 27, 34	---	---
Karnataka	18, 21, 22, 31, 33	25, 28	30
Kerala	15, 20, 25	22, 26, 32	16, 23, 30
Madhya Pradesh	17, 21, 24, 25, 26, 31, 34	32	16
Maharashtra	22, 24, 25, 28, 29, 30, 31, 32, 34,35, 36	21, 23	27
Odisha	21, 26, 27	20, 25	16, 23
Punjab	15, 17, 28, 29, 35	25, 34	18, 26
Rajasthan	17, 26, 33, 36	25, 27	20
Tamil Nadu	17, 18, 19, 22, 34	24*f*	28, 30
Uttar Pradesh	15, 19, 22, 30, 31, 32	25, 36	18, 26, 28
Uttarakhand	20, 21, 25, 31, 32, 33	15, 26	24, 30, 34, 35
West Bengal	17, 20, 23, 27	---	19
Other States/UTs	20, 21, 24, 25, 26, 30, 31, 36	22, 29, 33	17

* Please refer Table 1 for description of the industry.

These states rather experienced localisation of industries related to textiles, metals, electronic, chemical and petroleum products in the recent years. The states like Andhra Pradesh, Goa and Uttarakhand showcased that more industries are newly localised. In Andhra Pradesh, paper and paper products, chemical and chemical products, other non-metallic mineral products and electrical machinery are mainly localised during the period 1998-99 to 2011-12. Industries such as food products, publishing, printing and reproduction of recorded media and electrical machinery are newly localised during the period from 1998-99 to 2011-12 in Goa. In Uttarakhand, chemicals and chemical products, office accounting and computing machinery such as computers and computer based systems, motor vehicles and trailers, automobiles and other transport equipments are newly localised over the period. However, industries such as food products and beverages and other non-metallic products are dislocated from Uttarakhand over the period of 1998-99 to 2011-12. In Haryana and Himachal Pradesh, many industries related to non metallic mineral products, metal products, electrical machinery and instruments were dislocated. In Maharashtra, paper and petroleum related industries indicated dislocation while in Gujarat rubber and plastic products and electrical and computing machinery industries got dislocated. Thus, it could be inferred that states experienced a change in their industrial structure over these years.

3.4 Concentration of Industries in the state:

In this section, we study the concentration of industries in the manufacturing sector of in all states/UTs at the two-digit level of classification of industries. For this purpose, the Hirschman-Herfindahl Index (HHI) has been constructed for

the manufacturing sector. Instead of considering the concentration of firms in individual industries as the Hirschman-Herfindahl Index normally does, here, we have considered concentration of industries in the manufacturing sector. This would indicate the concentration of industries within the manufacturing sector of each state and India. It would reveal whether one industry or a few large industries are dominant in the manufacturing sector of the state implying the concentration of manufacturing sector within some industries or, in the opposite case, whether all industries are equal in size within the sector. HHI is the measure of the size of the industries in relation to the manufacturing sector and indicates the degree of competition among industries to garner more resources such as labour, land, capital etc. for the production. It is calculated by squaring the percentage share of each industry in the manufacturing sector of the state and then summing the resultant numbers across industries and then dividing the resultant by 100.

$$HHI = \frac{\sum_{i=1}^{n} P_i^2}{100} \qquad \ldots(5)$$

where,

P_i = Percentage share of particular variable of ith industry in that of the manufacturing sector of the state.

A higher value of HHI implies that industry is enjoying a high degree of monopoly position, *i.e.*, the sector has very few large industries, whereas a lower value suggests competition among the industries. If all 22 industries are equal in size in the manufacturing sector of the state then HHI will be about 4.55 percent.[2] But if it is more than this then distribution of industries in the manufacturing sector of the state is unequal and may be a few industries are dominant one. It means that the HHI is closer to 4.55 then that manufacturing sector is less concentrated but if HHI is very high compared to 4.55 then that manufacturing sector has small number of industries which means the industrial base is narrow in that state. The highest value of HHI is 100 which imply that there is only one industry in the state. Any decrease in the value of the index implies that there is a rise in the competition among industries in the state. The HHI, as defined here, indicates whether the manufacturing sector of the state is concentrated within a few industries or it has a broad base of different industries. The HHI has been constructed using the data for number of workers, value of output, gross value added and capital for all industries in the manufacturing sector of all states/UTs over the period from 1998-99 to 2011-12. Generally, the size of the industry is measured in terms of employment but with rising capital intensity we preferred to use other additional variables such as value of output, gross value added and capital as well in spite of certain limitations of these variables (Table 17). Maharashtra, Tamil Nadu and Uttar Pradesh manifested the least level of concentration of industries implying a broad industrial base in the manufacturing sector for all the years. On the contrary, Assam, Bihar, Chhattisgarh, Jharkhand and Odisha exhibited a high degree of concentration with respect to all variables. From 1998-99 to 2011-12, Uttarakhand experienced drastic depletion in the concentration of industries considering all variables in the sector. Along with it, Assam, Gujarat, Uttar Pradesh, Punjab and Rajasthan also moved towards a broad industrial base. Andhra Pradesh, Bihar, Chhattisgarh, Goa, Haryana, Jammu and Kashmir and Jharkhand exhibited differential results where the concentration of industries was increasing with respect to value of output and capital whereas decreasing with respect to number of workers and gross value added. It is due to wide fluctuations of the growth rates of value of output and capital compared to number of workers and gross value added which also shows up in large fluctuations in the shares of the concerned industries in these states. This may be due to rising capital intensity in some of the industries such as paper, chemical, basic metals, automobile industries in these states. Delhi and Himachal Pradesh did not indicate major shifts in their industrial concentration over

Table 17. HHI of the Organised Manufacturing Sector with respect to No. of Workers (NW), Value of Output (VO) and Gross Value Added (GVA) and Capital

States/UTs	VARIABLE	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Andhra Pradesh	NW	26.86	26.29	24.79	21.99	20.24	23.39	20.72	18.45	17.62	16.02	16.30	15.27	13.31	13.76
	VO	14.19	14.25	12.56	13.41	18.63	13.03	13.74	11.92	13.40	11.12	12.35	10.96	12.91	13.21
	GVA	10.95	11.53	9.46	11.09	10.17	10.09	10.96	9.60	10.87	10.51	14.59	11.49	10.68	13.60
	Capital	10.50	9.86	9.55	9.40	10.15	9.33	9.80	9.16	9.22	9.07	9.85	10.09	9.71	23.08
Assam	NW	51.36	51.18	51.14	45.01	43.69	41.75	39.53	38.70	36.72	33.98	33.92	35.89	34.94	33.32
	VO	38.93	40.36	39.26	35.71	30.45	32.42	33.53	36.32	32.97	34.41	31.40	30.54	26.06	23.36
	GVA	37.66	36.53	32.40	29.70	26.88	32.48	24.20	25.20	20.66	20.18	24.42	21.94	22.62	18.57
	Capital	20.55	22.61	27.09	19.64	25.14	26.32	25.30	24.38	22.35	20.40	18.07	21.36	18.12	32.42
Bihar	NW	20.46	19.51	21.12	23.26	22.26	25.51	29.29	31.65	33.00	34.49	32.13	35.30	43.31	42.52
	VO	22.71	31.52	29.14	30.69	34.93	37.76	48.33	46.57	46.95	47.83	50.63	36.25	36.37	34.22
	GVA	30.31	22.61	20.72	21.11	20.24	17.45	20.40	32.41	33.78	24.01	20.78	16.01	24.51	18.26
	Capital	16.32	15.20	18.58	20.55	28.76	27.54	30.61	25.82	24.52	23.81	21.92	20.05	20.13	33.15
Chhattisgarh	NW	33.97	33.84	35.14	35.48	33.79	32.17	28.27	30.02	33.58	39.16	32.69	38.57	33.68	37.11
	VO	45.34	38.61	48.15	46.70	51.03	54.60	53.12	58.14	60.71	59.21	50.71	57.90	60.22	62.07
	GVA	70.01	53.83	57.11	72.67	75.41	76.49	78.19	73.27	71.15	66.97	58.36	60.89	69.18	69.49
	Capital	33.48	32.74	32.32	29.92	32.89	32.90	36.35	40.24	39.98	38.51	38.43	41.48	38.69	65.17
Delhi	NW	9.18	9.43	10.80	12.99	14.44	15.43	16.23	15.61	14.95	13.72	16.11	13.05	14.75	13.03
	VO	13.65	14.76	13.82	14.11	15.86	13.35	12.39	13.59	11.05	12.32	13.96	12.61	15.81	18.19
	GVA	17.90	16.99	17.02	14.52	13.85	13.41	11.69	14.51	11.38	13.20	14.30	12.85	13.75	15.73
	Capital	8.60	9.63	8.35	8.82	9.20	8.56	8.31	8.05	7.58	7.72	7.99	8.79	10.83	14.87
Goa	NW	10.29	10.84	12.72	12.22	12.67	12.54	14.75	12.00	12.18	12.60	12.20	14.08	12.50	16.33
	VO	17.19	19.45	18.47	19.11	19.28	18.82	19.80	18.33	18.55	17.25	27.10	17.05	20.55	24.61
	GVA	18.18	20.07	17.40	23.55	25.32	20.81	25.96	18.63	20.25	19.34	32.54	21.40	20.58	25.51
	Capital	9.47	10.22	10.29	10.46	10.93	11.99	13.49	11.33	12.43	11.90	12.62	12.34	10.96	25.54
Gujarat	NW	13.18	14.37	14.96	13.10	12.81	12.85	12.35	11.53	11.25	10.98	10.57	10.85	11.39	10.96
	VO	18.57	18.72	19.93	17.15	15.93	16.97	15.42	14.36	13.43	13.08	15.45	13.43	14.80	14.84
	GVA	33.20	25.58	25.64	19.88	18.62	20.77	18.56	18.87	16.77	15.07	19.69	13.16	16.86	17.12
	Capital	15.00	15.14	16.19	17.26	16.22	15.66	14.23	15.22	14.06	12.70	12.31	15.02	13.27	18.33
Haryana	NW	17.90	8.59	8.73	8.36	8.49	8.68	9.77	10.41	9.95	11.27	10.67	10.70	11.51	10.83
	VO	11.08	11.25	10.44	11.12	10.46	12.70	13.91	13.75	13.03	13.90	14.85	14.65	16.21	14.55
	GVA	11.40	9.99	9.54	10.93	10.67	13.10	13.26	14.03	14.09	13.96	13.42	14.34	10.84	12.68
	Capital	7.30	7.92	8.18	7.89	7.27	7.56	7.85	8.00	7.71	8.98	9.70	9.07	9.34	12.03

(Contd.)

Table 17. *(Contd.)*

States/UTs	VARIABLE	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Himachal Pradesh	NW	17.03	19.45	20.18	19.57	17.50	16.88	14.13	12.61	13.39	13.51	13.00	13.25	14.16	12.49
	VO	12.48	12.79	13.84	14.08	14.51	14.67	11.70	14.74	14.98	15.88	21.72	12.52	17.65	18.78
	GVA	14.78	18.25	19.39	16.26	16.50	15.40	13.76	25.39	25.50	27.65	39.22	19.50	27.60	39.11
	Capital	11.23	10.72	10.89	11.96	10.12	10.15	9.19	11.54	10.80	11.01	14.11	10.34	10.19	17.06
Jammu and Kashmir	NW	20.43	20.51	19.57	15.42	15.27	18.18	12.02	12.55	12.87	13.30	12.71	12.99	14.32	17.77
	VO	26.46	23.25	20.76	17.44	17.15	16.71	13.27	19.77	22.15	24.32	37.87	18.56	26.69	24.61
	GVA	23.52	22.35	18.30	14.85	14.24	14.37	19.96	21.26	26.83	32.65	59.41	30.94	37.13	39.69
	Capital	15.75	16.72	15.35	13.98	14.05	14.19	11.48	11.22	11.80	11.83	11.14	10.51	12.47	19.50
Jharkhand	NW	29.55	32.62	29.18	26.93	28.63	29.68	27.93	30.99	31.77	31.94	28.24	24.20	24.21	21.42
	VO	49.61	47.26	46.16	43.22	45.32	41.08	40.91	39.88	37.08	38.36	33.16	33.14	40.59	33.16
	GVA	68.18	67.82	74.11	51.51	67.74	57.82	48.76	59.80	47.17	62.68	50.75	32.34	63.07	28.84
	Capital	35.58	32.95	34.11	34.01	33.31	33.53	32.92	33.13	33.59	31.22	28.50	32.65	31.30	57.70
Karnataka	NW	10.79	11.40	12.29	12.85	13.67	15.18	15.55	16.77	17.21	16.48	16.84	16.04	14.15	17.75
	VO	7.49	7.67	7.28	7.33	7.59	7.09	6.89	7.57	7.24	7.25	7.51	7.64	8.76	12.81
	GVA	8.09	7.39	6.78	7.01	7.30	6.97	7.25	8.03	8.88	8.00	7.65	7.52	8.72	36.46
	Capital	12.81	8.85	8.41	8.19	8.15	7.76	7.49	7.65	7.54	8.55	9.03	11.12	8.58	14.19
Kerala	NW	26.75	29.07	31.10	29.78	27.08	30.69	29.67	29.53	28.00	29.67	27.60	27.77	26.57	30.60
	VO	13.89	15.16	15.42	14.21	15.40	15.51	15.86	14.36	14.35	16.18	14.05	40.07	14.44	16.42
	GVA	10.35	12.85	11.80	11.03	11.12	11.08	10.96	9.97	12.13	9.10	10.89	17.53	11.08	12.58
	Capital	10.88	11.69	11.63	10.62	11.50	10.78	11.06	10.89	10.73	12.22	10.04	12.45	11.87	17.39
Madhya Pradesh	NW	19.66	11.34	11.10	10.38	10.71	9.83	9.37	8.88	9.44	9.03	9.30	8.19	8.75	9.07
	VO	12.80	13.06	14.07	15.49	14.19	14.99	12.95	12.35	15.18	16.65	15.79	11.92	13.58	16.50
	GVA	11.94	11.42	13.12	12.03	12.27	11.61	12.33	12.82	13.68	14.53	14.22	12.72	11.76	13.04
	Capital	10.34	9.10	9.18	9.33	9.58	9.68	9.65	9.33	9.91	9.57	10.15	9.90	9.80	13.42
Maharashtra	NW	8.94	8.37	8.88	8.79	8.69	8.16	7.70	7.84	7.44	7.94	7.59	7.66	7.75	7.84
	VO	10.02	8.30	9.06	8.94	8.64	8.13	10.31	8.26	7.75	7.77	8.61	7.34	8.34	9.04
	GVA	13.26	9.60	9.75	9.13	8.63	8.75	8.27	9.88	8.56	8.75	9.93	7.44	8.42	10.24
	Capital	7.42	6.78	7.47	7.65	7.50	7.86	7.36	7.65	7.20	7.13	7.28	6.97	7.33	9.57
Odisha	NW	16.13	17.86	19.39	20.64	19.46	19.29	19.34	23.00	25.13	30.73	36.44	39.47	41.91	39.89
	VO	27.66	28.96	26.92	27.52	30.60	32.45	35.02	32.85	37.06	38.83	31.63	38.79	50.34	50.55
	GVA	53.48	51.92	45.71	38.05	50.85	54.43	66.63	59.29	69.61	56.33	46.67	40.08	58.30	57.17
	Capital	25.88	24.96	19.37	21.60	26.58	24.99	26.55	28.27	30.89	34.69	35.56	41.03	42.52	80.34

(Contd.)

Table 17. *(Concld.)*

States/UTs	VARIABLE	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Punjab	NW	15.65	14.21	14.73	15.00	13.95	13.92	14.15	12.54	12.94	13.10	11.43	11.19	11.35	11.45
	VO	15.87	15.30	14.94	13.55	12.27	12.82	13.13	12.95	13.39	15.30	12.85	11.42	13.00	13.08
	GVA	14.64	15.10	16.21	15.00	13.62	14.80	13.37	13.54	16.10	21.32	14.15	10.17	17.94	26.55
	Capital	11.93	12.42	10.17	10.48	9.05	10.37	9.96	9.67	10.70	10.96	10.81	9.97	11.01	15.30
Rajasthan	NW	16.93	19.10	16.64	17.04	16.75	17.04	15.94	14.76	14.85	13.78	14.05	13.07	12.83	11.83
	VO	12.88	15.73	13.96	13.39	13.23	12.56	12.12	11.96	11.61	11.64	10.82	9.94	10.78	11.02
	GVA	11.72	17.73	14.81	14.85	13.24	12.02	13.44	12.55	13.46	14.34	16.58	11.24	12.18	14.61
	Capital	10.45	16.77	11.47	10.80	10.74	10.52	10.39	9.97	10.81	10.46	9.73	9.08	10.17	12.41
Tamil Nadu	NW	12.75	13.50	13.45	13.09	13.38	14.32	13.96	13.99	17.53	12.22	11.75	10.87	10.36	9.91
	VO	10.71	11.36	10.52	10.30	10.69	10.50	10.62	10.31	12.03	10.20	8.87	8.95	9.36	10.15
	GVA	9.99	10.58	9.95	9.34	10.65	10.20	10.80	10.91	11.97	9.91	9.12	9.32	9.91	9.83
	Capital	7.39	7.51	6.94	6.72	6.79	7.08	7.21	7.51	8.67	7.07	6.76	6.69	6.77	9.43
Uttar Pradesh	NW	12.51	12.96	12.24	12.32	12.17	11.74	11.01	10.45	9.78	10.05	9.51	9.26	8.63	8.60
	VO	10.26	10.48	10.62	10.96	10.50	10.43	10.90	11.34	9.38	9.85	8.96	8.76	9.93	10.73
	GVA	9.95	9.50	9.04	9.10	9.16	8.53	8.08	8.94	8.48	7.16	8.21	7.01	8.87	7.61
	Capital	10.72	8.12	8.55	9.00	9.34	9.08	9.08	9.57	11.14	11.36	10.95	11.37	11.54	14.03
Uttarakhand	NW	18.94	17.49	13.65	12.91	15.23	15.49	12.93	11.23	11.62	10.56	11.16	9.89	9.52	10.04
	VO	22.56	18.53	14.28	14.99	15.77	15.64	13.14	11.68	12.12	8.89	16.95	8.93	8.71	10.04
	GVA	19.30	17.99	15.70	12.83	14.74	15.43	16.71	13.07	16.63	10.30	23.84	10.26	10.72	10.65
	Capital	13.93	14.27	11.11	11.51	11.84	11.91	10.81	9.60	8.56	6.85	7.37	7.16	7.12	9.51
West Bengal	NW	18.45	19.38	22.86	20.67	21.90	21.66	22.68	21.18	19.26	22.10	17.48	16.10	15.90	15.29
	VO	8.78	10.79	10.87	12.91	11.72	11.18	12.50	12.20	12.43	12.25	13.34	12.30	15.84	16.09
	GVA	10.15	13.07	12.22	13.34	12.66	12.89	13.57	11.01	11.03	13.62	12.12	12.26	10.02	14.29
	Capital	7.17	9.70	10.09	12.18	11.61	11.24	11.02	11.16	11.95	11.89	12.45	12.25	10.16	17.47
Other States/UTs	NW	8.92	9.07	9.94	11.56	10.62	10.38	10.54	10.19	10.51	10.57	10.48	10.92	11.26	11.27
	VO	10.49	11.90	13.65	12.02	12.03	11.87	13.37	12.74	13.26	13.04	12.59	13.10	13.63	14.24
	GVA	10.64	11.27	12.43	13.06	14.42	11.72	13.02	17.65	11.59	13.83	11.09	12.18	11.18	11.30
	Capital	8.86	7.82	11.42	9.75	9.35	8.93	9.03	8.69	9.76	9.90	10.29	10.63	11.70	18.82
India	NW	9.37	9.51	9.62	9.44	9.19	9.23	8.96	8.69	8.71	8.21	8.00	7.78	7.63	7.63
	VO	9.17	9.03	9.12	8.79	8.64	8.32	8.19	7.85	7.89	7.80	8.30	7.05	8.59	9.12
	GVA	9.59	9.31	8.77	8.25	8.17	8.11	8.50	7.68	7.72	7.75	8.57	7.06	8.10	10.02

Note: NW = Number of Workers, VO = Value of Output and GVA = Gross Value Added.

the period though indicating increasing trend for some variables such as value of output. Odisha and Other States/UTs are the only states which registered increase in the HH index implying diminution in the industrial base of these states as very few industries are localised in Odisha such as paper products, non-metallic mineral products and basic metals. On the contrary, the industries related to wood products and rubber and plastic products were dislocated from the state that has resulted in high concentration of industries in the manufacturing sector of the state. In Odisha, the major and rapidly growing industries are basic metals, chemicals, paper and paper products, non-metallic mineral products. Therefore, the focus of the policy was on these growing industries which hampered wood and rubber industry within the state. In addition, from the industrial scenario of Odisha, it is clear that a few industries such as wearing apparel, dressing and dyeing of fur (18), luggage, handbags, saddlery, harness and footwear, tanning and dressing of leather products (19), office accounting and computing machinery (30), motor vehicles, trailers and semi-trailers (34) and furniture, manufacturing n.e.c. (36) either do not exist or have disappeared from the state over the years, which has resulted in high concentration of industries in the state.

3.5 Factor Intensities:

According to Lary [1968] the ratio of value added to the number of workers is a composite index of the amount of human and physical capital embodied per worker in the production of a good. It comprises wage and non-wage components reflected in the human and physical capital respectively. These components of the value added per worker can be considered to reflect the flows of services of labour (human capital) and capital (physical capital) into the manufacturing processes. Thus, the wage component of the value added per worker can be used as a proxy for human capital and non-wage component (profit, rent and interest all considered as reward to capital) as a proxy for physical capital. The use of this measure contrasts with the usual reliance on the stock of capital as a measure of capital intensity. The value added per employee index for factor intensity simply implies that labour productivity is a composite index of the contributions of capital and labour [Burange, 1999]. Lary's method is based upon two assumptions:

1. The inter-industry differences in wages are assumed to reflect differences in their requirements of skilled labour.
2. The inter-industry differences in the non-wage component of value added per employee are assumed to reflect differences in respect of capital invested. It is expected that the share of the wages is less (or more) in the value added compared to combined share of other components, i.e., rent, profit and interest, depending on capital (or labour) intensive nature of industry.

Though affected by various market imperfections, there are two advantages of value added per employee as a criterion of capital intensity:

1. Being a flow rather than a stock it appropriately applies to the notion of factor inputs into production and, therefore, it is more relevant to the theory of the production function.
2. It bypasses the difficulty of measuring the stock of capital.

Therefore, the value added per employee can be used as a reasonably good measure of the factor intensity of different industries. Industries can be classified into labour intensive and capital intensive depending on whether the ratio is lower or higher than the national average of that industry. The higher value indicates a higher capital intensity of the industry whereas lower value shows labour intensity for the industry.

Following this criterion, value added per employee has been computed as the ratio of gross value added to the number of workers, considering non-wage part of the value added as a proxy for physical capital, for the manufacturing sector of all states/UTs for the years 1998-99 to 2011-12 (Table 18). Depreciation is included in the numerator and gross value added has been used on the argument that perhaps, though imperfect, depreciation is a proxy for replacement and is meant to capture replacement of capital goods by those imbibing better technology. There are some industries in some states where the net value added is observed to be negative resulting sometimes into negative gross value added as well for some years. For such industries Lary index has been ignored for these states (Annexure B).

As shown in Table 18, Goa, Haryana, Himachal Pradesh, Karnataka, Maharashtra, Rajasthan, Uttar Pradesh and Other States/UTs demonstrated use of capital-intensive techniques in the year 1998-99 in a larger number of industries. These states were joined by Uttarakhand in the year 2004-05, in which many industries adopted capital-intensive techniques and continued to do so by these states in the year 2011-12 except Uttar Pradesh and Other States/UTs. Maharashtra had the highest number of industries employing capital intensive technology. Almost 18 out of 22 industries have indicated use of capital intensive technique in 1998-99, 2004-05 and 2011-12. Considering all states, the results are quite mixed. Every industry has appeared to be the capital intensive in some or the other state. It, therefore, implies that there are no labour intensive industries as such when results of all states are considered. It then suggests that the policies should focus on generating more employment opportunities in manufacturing sector as a whole as the manufacturing sector is considered to be promising sector for absorbing excess labour from other sectors. On the other hand, Assam, Bihar, Chhattisgarh, Jharkhand and Jammu and Kashmir indicated use of labour-intensive techniques over the years. The index, therefore, suggests that in these states gross value added per worker is low in most of industries. The reason for such outcome could be that in these states the mechanisation of the production process is low compared to other developed states, which has been reflected in the low labour productivity in most of the industries of these states. On the contrary, industrially developed states such as Maharashtra have employed more capital per worker in the production process probably due to higher mechanisation of industries and access to better technology in such states. However, it also needs to be observed that Andhra Pradesh and Tamil Nadu are employing labour intensive technology in their production process in spite of these states being industrially developed states. Uttarakhand experienced a plunge in labour-intensive industries from 2004-05 onwards and a surge in capital-intensive industries. Assam, Himachal Pradesh, Karnataka, Maharashtra, Rajasthan, and Tamil Nadu showed an increasing trend in capital-intensive industries whereas industries in Chhattisgarh, Delhi, Jammu and Kashmir, Kerala, Madhya Pradesh, Odisha and Punjab employed labour-intensive techniques for the production process. Nevertheless, coke, refined petroleum products and nuclear fuel (23) depicted use of labour intensive technology in 20 states out of 23 states (capital intensive technique in Gujarat, Maharashtra and Uttar Pradesh). Similarly, the manufacture of wood and products of wood and cork except furniture, articles of straw and plating materials (20) indicated use of labour intensive technology in only 15 states in the year 2011-12. It has also been observed that food products and beverages (15), tobacco products (16), textiles (17) and wearing apparel, dressing and dyeing of fur (18) indicated use of capital intensive technology in most of the states whereas labour intensive technology in a

Table 18. Capital Intensive Industries based on Lary's Index (Industrial Codes)

States/UTs	1998-99	2004-05	2011-12
(1)	(2)	(3)	(4)
Andhra Pradesh	19, 21, 22, 23, 26, 31, 35	15, 20, 23, 27, 31, 32	21, 26, 31, 36
Assam	20, 21	16, 21, 24, 32	16, 20, 22, 36
Bihar	15, 16, 22	16, 21	16, 18, 21
Chhattisgarh	16, 17, 20, 26, 27, 36	17, 20, 26, 27	17, 20, 26
Delhi	15, 16, 17, 18, 19, 20, 21, 22, 36	15, 16, 17, 18, 19, 20, 21, 22, 24, 36	15, 16, 17, 18, 19, 20
Goa	15, 17, 18, 22, 24, 25, 28, 29, 30, 31, 35	15, 17, 22, 23, 24, 25, 26, 28, 29, 30, 31, 33	15, 17, 22, 24, 25, 26, 27, 28, 33, 36
Gujarat	16, 17, 18, 19, 20, 23, 24, 30, 32	15, 16, 17, 18, 19, 23, 24, 26, 27, 28, 32	15, 16, 19, 20, 22, 23, 24
Haryana	15, 16, 18, 19, 20, 21, 25, 27, 29, 32, 34	15, 16, 17, 18, 19, 20, 21, 25, 27, 30, 32, 34, 35, 36	15, 16, 17, 18, 19, 21, 25, 29, 30, 31
Himachal Pradesh	16, 17, 19, 20, 22, 24, 25, 26, 29, 30, 31	15, 16, 17, 18, 19, 20, 22, 24, 25, 26, 31, 32, 35, 36	15, 16, 17, 18, 19, 21, 22, 24, 25, 26, 30, 31, 35
Jammu and Kashmir	--	18, 19, 24, 25	18, 25, 31
Jharkhand	15, 27, 31, 35	15, 27, 25, 29, 34	15, 30, 31, 34
Karnataka	15, 16, 17, 20, 23, 26, 28, 29, 31, 33, 35	15, 16, 17, 19, 21, 23, 24, 26, 27, 28, 29, 30, 31, 33	15, 16, 17, 19, 21, 22, 26, 27, 29, 31, 33, 36
Kerala	19, 21, 22, 23, 29, 32, 35	22	19, 22, 25, 30, 35
Madhya Pradesh	15, 19, 20, 23, 24, 25, 26, 28, 35	15, 17, 18, 19, 20, 22, 24, 25, 26, 28, 31	15, 17, 18, 19, 26, 31
Maharashtra	15, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 28, 29, 32, 33, 34, 35, 36	15, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 28, 29, 31, 32, 33, 34, 35, 36	15, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 28, 29, 31, 32, 33, 35, 36
Odisha	18, 25, 26, 27	20, 22, 27, 36	15, 21, 22, 26
Punjab	15, 16, 17, 19, 20, 21, 29, 32, 35, 36	17, 19	17, 18, 19, 21, 22, 24
Rajasthan	15, 16, 17, 18, 19, 24, 25, 28, 29, 30, 35	15, 16, 17, 18, 19, 20, 25, 26, 29, 30, 34	15, 18, 19, 20, 22, 24, 25, 26, 28, 32, 34, 35
Tamil Nadu	16, 17, 21, 23, 25, 26, 33, 35	16, 26, 35	16, 26, 28, 30, 33, 34, 36
Uttar Pradesh	15, 16, 17, 18, 21, 24, 27, 30, 32, 34, 35, 36	15, 16, 18, 20, 25, 26, 30, 32, 34	16, 19, 23, 25, 32, 34
Uttarakhand	25, 31, 36	15, 17, 18, 19, 21, 24, 25, 29, 31, 32, 36	15, 17, 18, 19, 20, 21, 22, 26, 27, 29, 33, 35, 36
West Bengal	16, 19, 22, 32	16, 18, 19, 20, 22, 24, 26, 30, 36	16, 18, 26, 30
Other States/UTs	15, 16, 17, 18, 21, 23, 25, 28, 29, 30, 31, 33, 35, 36	15, 16, 17, 18, 19, 20, 22, 24, 27, 28, 30, 31, 36	15, 16, 17, 18, 20, 29, 30, 31, 32

Notes: (1) **Please** see Annexure B for state-wise **Lary**'s Index for all industries for all the years of the study.
(2) **Please** refer **Table** 1 for description of the industry.

few states. The manufacture of food products and beverages (15) is capital intensive in 13 states, while tobacco products (16) and wearing apparel, dressing and dyeing of fur (18) are capital intensive in 11 out of 23 states in the manufacturing sector. In general, skill requirement of labour increased over the period and mechanisation also has increased with the availability of improved capital goods with improvement in technology in large number of industries. While this has increased capital intensity in many industries in the country, it has probably helped to minimize trade union problems in the industries due to weakening of the bargaining power of trade unions and more capitalisation of industries.

When Lary's index for the manufacturing sector of all states was compared to that of the Indian manufacturing sector it is revealed that Chhattisgarh, Goa, Gujarat, Himachal Pradesh, Jharkhand, Madhya Pradesh, Maharashtra, Odisha and Other States/UTs were more capital-intensive than the national manufacturing sector for all the years (Table 19). In Uttarakhand, the factor intensity of the manufacturing sector shifted to capital-intensive techniques only from 2000-01 onwards, from its inception in November 2000. Jharkhand and Goa had higher values of the index among all the states. Thus, the sector within these states was more capital-intensive. In the case of Jharkhand, this fact has been observed by the negative growth rate of employment in the manufacturing sector of the state whereby due to increase in capital intensity employment growth has decreased in industries. The manufacture of food products and beverages (15), basic metals (27), electrical machinery and apparatus n.e.c. (31) and motor vehicles, trailers and semi-trailers (34) were responsible for the highest capital intensity of Jharkhand. In all these states, the manufacture of chemicals and chemical products (24), rubber and plastic products (25), other non-metallic mineral products (26), basic metals (27) and electrical machinery and apparatus n.e.c. (31) are capital-intensive over the years compared to India. Maharashtra has 18 industries using capital-intensive techniques. These are food, textiles, paper products, petroleum products, chemicals, rubber and plastic products, machinery and automobiles. This has been clearly depicted in the growth rate of employment which is below the national average. It is mainly due to the adoption of more capital-intensive production techniques in the manufacturing sector. In the case of Tamil Nadu, capital-intensity of the manufacturing sector is lower than the national average and due to that the employment growth in Tamil Nadu is higher compared to other states like Maharashtra, Gujarat and Karnataka. Over the years, Tamil Nadu has failed to attract capital investment and FDI in the manufacturing sector of the state. The cost of labour is low in the state and, therefore, industries have relied on employing more labour to increase output rather than increasing capital input. This is reflected in the high degree of labour intensive nature of industries in the manufacturing sector of Tamil Nadu [CMIE, 2014; Menon, 2009].

3.6 Workers per Factory Unit Scenario:

To assess the size of the factory unit in the industry we estimated the number of workers per factory unit in each industry for all states/UTs for all the years and for the national manufacturing sector also. It gives the idea about the size of the factory in the industry. The number of workers per factory unit is the ratio of number of workers and number of factories for each industry in the manufacturing sector (Table 20). Bihar, Delhi, Gujarat, Maharashtra, Punjab, Rajasthan and Other States/UTs registered the number of workers per factory unit below the national average. Although Gujarat and Maharashtra are below the national average, the number of workers per factory unit increased over the years because of a decline in the number of factories within these states. In Gujarat, the number of workers per factory unit has increased in textiles

Table 19. Lary's Index of the Manufacturing Sector of States/UTs

State/UTs	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
Andhra Pradesh	1.05	1.07	1.03	1.18	1.09	1.42	1.44	1.48	2.04	2.14	2.56	2.10	2.29	2.58
Assam	1.26	1.32	1.03	0.81	1.86	2.04	1.89	1.56	1.58	1.52	1.43	1.71	1.82	1.84
Bihar	1.05	1.41	1.08	0.89	1.28	0.93	1.04	0.71	0.66	1.02	1.77	1.37	1.61	1.34
Chhattisgarh	3.80	2.86	3.28	3.26	4.40	4.99	6.02	4.39	5.60	5.72	5.34	5.35	5.10	4.57
Delhi	2.48	2.89	2.12	2.35	2.39	2.01	2.26	2.19	2.40	2.68	2.68	2.97	3.42	3.11
Goa	5.60	5.38	5.73	6.30	5.83	6.86	7.34	7.76	7.17	6.39	8.14	7.58	8.76	12.35
Gujarat	2.84	3.08	2.87	3.06	3.63	4.00	3.99	4.36	3.95	4.43	4.40	5.33	4.42	4.04
Haryana	1.81	2.84	2.45	2.84	3.02	3.31	3.35	3.28	3.24	3.03	3.69	4.15	3.24	3.69
Himachal Pradesh	3.34	3.42	3.91	4.44	4.96	4.47	4.83	8.65	8.66	7.76	9.68	6.95	7.27	8.26
Jammu and Kashmir	0.74	0.97	0.79	0.80	0.81	0.66	1.64	1.97	2.79	3.53	4.87	3.12	3.34	3.69
Jharkhand	4.30	3.82	2.60	2.49	4.28	4.91	7.68	5.47	4.65	7.64	4.71	6.25	7.34	5.56
Karnataka	2.19	2.04	2.10	2.29	2.63	2.80	3.19	2.94	3.46	3.72	3.68	3.47	3.50	6.62
Kerala	1.51	1.14	1.10	1.04	1.18	1.01	0.96	1.04	0.91	1.10	1.34	1.23	1.31	1.34
Madhya Pradesh	2.14	2.77	2.78	3.29	2.92	2.76	2.80	3.03	4.21	4.31	4.72	4.00	4.06	4.00
Maharashtra	3.42	3.63	3.24	3.01	3.29	3.92	4.30	5.17	5.35	6.21	6.03	6.02	5.81	5.31
Odisha	2.27	2.45	2.20	2.13	2.53	2.71	3.17	3.35	3.74	4.48	4.29	3.88	4.09	4.08
Punjab	1.76	1.93	1.38	1.71	1.69	1.61	1.42	1.42	1.76	2.11	1.89	1.96	2.29	3.33
Rajasthan	2.04	2.97	2.70	2.54	2.30	2.32	2.47	2.61	3.60	2.90	3.88	4.14	3.00	4.96
Tamil Nadu	1.40	1.55	1.58	1.42	1.46	1.66	1.62	1.86	2.01	2.08	1.93	2.57	2.46	2.51
Uttar Pradesh	2.22	2.20	2.29	2.49	2.69	2.62	2.64	2.58	3.05	2.84	2.83	3.36	3.88	2.82
Uttarakhand	1.40	1.85	2.78	2.62	3.86	4.21	4.06	4.25	4.33	4.98	12.31	5.67	5.75	5.33
West Bengal	1.08	1.15	1.12	1.26	1.39	1.47	1.70	1.52	1.76	1.99	1.91	2.18	2.11	1.90
Other States/UTs	3.97	4.05	3.86	4.06	4.06	4.35	4.61	6.16	5.00	5.42	5.05	4.56	3.83	3.82
All India	2.09	2.25	2.07	2.13	2.33	2.56	2.73	2.91	3.14	3.41	3.61	3.64	3.55	3.76

Table 20. Number of Workers per factory Unit in the Manufacturing Sector

State/UTs	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
Andhra Pradesh	55.67	61.11	56.64	54.83	61.73	50.77	51.99	53.89	54.54	53.55	55.85	57.03	40.25	41.07
Assam	67.95	59.50	65.92	67.41	62.20	62.76	60.76	60.74	60.70	62.26	58.97	57.99	51.96	51.39
Bihar	35.67	38.19	34.89	37.46	33.68	33.93	32.34	36.43	36.53	37.50	37.82	40.21	34.33	35.19
Chhattisgarh	59.98	58.85	52.91	51.10	51.71	56.23	58.78	57.75	60.15	64.19	67.22	58.69	57.62	56.31
Delhi	23.82	23.96	23.68	23.42	25.49	25.27	26.11	26.93	27.81	27.98	29.65	29.39	19.45	19.59
Goa	44.23	44.31	40.70	41.11	45.22	46.01	55.01	55.36	63.28	73.55	79.11	76.32	62.43	78.09
Gujarat	39.51	41.88	40.33	38.40	40.44	42.81	45.23	47.98	53.23	54.39	60.43	58.97	47.99	49.51
Haryana	74.79	50.68	49.67	47.86	51.56	56.14	62.94	72.18	77.13	87.52	86.23	101.74	72.45	72.08
Himachal Pradesh	60.04	61.87	59.28	53.26	50.25	52.58	52.14	53.74	62.40	62.57	65.52	64.89	54.49	47.03
Jammu and Kashmir	54.48	51.68	51.17	57.03	57.60	65.11	58.46	63.05	60.84	62.40	69.84	70.86	56.02	62.82
Jharkhand	110.65	117.50	94.51	89.63	89.79	79.79	76.20	74.06	74.55	76.75	69.77	53.83	52.36	53.37
Karnataka	57.77	54.82	53.47	54.60	55.42	57.90	59.35	67.12	74.13	70.83	74.36	72.46	59.97	64.96
Kerala	50.22	54.21	55.22	54.75	49.38	50.73	51.01	52.50	54.72	56.61	58.36	55.08	49.16	49.33
Madhya Pradesh	70.17	62.93	61.74	54.55	54.86	56.12	58.08	59.63	61.55	65.75	64.15	63.50	61.83	60.20
Maharashtra	42.96	45.59	45.15	46.79	48.28	45.40	44.20	48.37	55.59	53.45	51.99	56.32	44.72	48.10
Odisha	64.33	64.39	61.04	53.77	56.99	60.14	68.76	61.07	67.60	82.17	93.76	94.38	92.29	85.30
Punjab	37.05	39.21	39.84	38.19	40.56	39.22	41.42	42.49	43.64	43.32	43.49	44.76	38.39	38.75
Rajasthan	37.35	35.82	35.34	34.56	36.06	36.22	36.84	38.68	40.52	44.76	44.21	45.80	41.86	42.99
Tamil Nadu	46.38	45.47	46.56	49.33	49.04	48.79	51.71	54.58	59.29	63.51	58.16	59.75	44.84	44.57
Uttar Pradesh	45.84	43.86	44.17	44.66	48.46	50.82	50.59	50.97	52.95	58.90	56.49	57.73	48.73	51.13
Uttarakhand	53.49	44.86	40.06	40.25	40.39	42.04	47.90	62.08	63.55	67.40	93.25	81.99	87.05	97.64
West Bengal	98.03	74.84	77.46	72.14	73.02	71.70	71.21	71.99	71.29	74.30	76.11	71.76	65.16	66.50
Other States/UTs	31.85	33.67	32.39	34.36	38.10	37.61	36.86	42.07	48.71	51.77	53.36	62.85	51.31	50.19
All India	49.88	49.06	48.23	47.86	49.68	48.75	49.93	52.59	56.24	58.02	58.63	59.73	48.35	49.58

(17), coke, refined petroleum products and nuclear fuel (23), radio, TV and communication equipment and apparatus (32), other transport equipment (35), furniture; manufacturing n.e.c. (36) whereas in Maharashtra tobacco products (16), radio, TV and communication equipment and apparatus (32), motor vehicles, trailers and semi-trailers (34) and other transport equipment (35) showed similar trend (Annexure C). The results indicate that the number of workers per factory unit has declined for Andhra Pradesh, Jharkhand, Kerala, Tamil Nadu and West Bengal which exhibited lower number of workers per unit due to more increase in the factory units than workers except for West Bengal where employment has decreased and factories have increased especially in textiles (17), basic metals (27), machinery and equipment n.e.c. (29), radio, TV and communication equipment and apparatus (32), motor vehicles, trailers and semi-trailers (34) and other transport equipment (35). It implies that the average size of factory unit in the industries in the manufacturing sector of these states has decreased. Similarly, Chhattisgarh, Jammu and Kashmir, Madhya Pradesh, Odisha and Other States/UTs experienced increase in the average of number of workers per factory unit. It explains that the average size of the factory unit is increasing in the industries of the manufacturing sector of these states. Uttarakhand demonstrated rising average number of workers especially for the later years in the manufacture of textiles (17), chemicals and chemical products (24), rubber and plastics products (25), basic metals (27), electrical machinery and apparatus n.e.c. (31), motor vehicles, trailers and semi-trailers (34) and other transport equipment (35). From the overall results, it could be envisaged that the increase in average number of workers per factory unit must not necessarily be from new factories. However, it may be due to expansion of existing industries. For example, in Gujarat, other transport equipment (35) recorded negative growth rate with respect to number of factories; however, it has registered positive ACGR in employment. Similar is the case with the manufacture of radio, TV and communication equipment and apparatus (32) in Maharashtra and textiles (17) in Odisha. In addition, food products and beverages (15) and basic metals (27) have indicated high ratio of workers per factory unit in Kerala and West Bengal, respectively, whereas in all remaining states including India, this ratio is low for these industries. Similarly, tobacco products (16) indicated very high workers per factory unit in Andhra Pradesh, Uttar Pradesh, Odisha, Jharkhand and Maharashtra. In contrast, it was small in Bihar, Gujarat, Haryana, West Bengal, Tamil Nadu, Karnataka and Madhya Pradesh. On the similar grounds, textiles (17) and other transport equipment (35) showcased high ratio in Andhra Pradesh, Bihar and West Bengal while it was low for Gujarat, Haryana and Maharashtra. The ratio of number of workers per factory unit was high for paper and paper products (21) and coke, refined petroleum products and nuclear fuel (23) in Assam but was low in Andhra Pradesh, Maharashtra, Madhya Pradesh, Tamil Nadu and West Bengal. However, it is interesting to observe that paper and paper products (21) indicated use of capital intensive technology despite the ratio being high in Assam whereas these two industries rightly indicated capital intensive technology in Andhra Pradesh, Maharashtra where the ratio was low but showcased used of labour intensive technology in Madhya Pradesh, Tamil Nadu and West Bengal, the states with low ratio of workers per factory unit. The manufacture of wearing apparel, dressing and dyeing of fur (18) also depicted high ratio in Karnataka, Tamil Nadu, Other States/UTs and India. This industry depicted use of capital intensive technique in Other States/UTs though has shown high ratio of workers per factory unit. Nevertheless, it was employing labour intensive technology in Karnataka and Tamil Nadu which has been ascertained by the high ratio of workers per factory unit. Therefore, it suggests that some states used high labour for production in a particular industry than the other states. It has also

been observed that the industries with high ratio of workers per factory unit in the above mentioned states are employing labour intensive technologies. For example, in Kerala and West Bengal food products and beverages (15) and basic metals (27) have used labour intensive technology for production process which is correctly depicted in the high ratio. On the contrary, the industries which show low ratio of workers per factory unit are using capital intensive technology.

At the disaggregated level of two-digit industrial classification, it is found that a few industries within the organised manufacturing sector of the states indicated higher number of workers per factory unit than the national average (Annexure C), especially, industries like textiles (17), wearing apparel, dressing and dyeing of fur (18), coke, refined petroleum products and nuclear fuel (23), basic metals (27), radio, TV and communication equipment and apparatus (32), motor vehicles, trailers and semi-trailers (34) and other transport equipment (35). The nature of these industries is capital intensive according to Lary index (Table 18). However, the employment growth rate is positive for such industries in the organised manufacturing sector of some of the states. For instance, in Gujarat, coke, refined petroleum products and nuclear fuel (23), which depict greater number of workers per factory unit than the national average, is capital intensive in nature and the growth rate of employment is 18.32 percent higher than the national average of this industry (Table 8). Similar scenario has been observed for Odisha, Tamil Nadu, Uttar Pradesh and West Bengal. In Odisha, basic metals (27) indicated high number of workers per factory unit. However, basic metals (27) is using capital intensive technique as per Lary index but the growth rate of employment of this industry is 13.53 percent in Odisha. Same is the case of motor vehicles, trailers and semi-trailers (34) in Tamil Nadu and Uttar Pradesh in the year 2011-12, which recorded employment growth rate of 13.06 and 7.39 percent respectively, have used capital intensive techniques. This industry has recorded positive growth rate in the number of factories and, therefore, the positive growth rate of employment in the manufacture of motor vehicles, trailers and semi-trailers (34) must have been derived from setting up of new factories within the manufacturing sector of these two states. It, thus, does not imply that the size of the factories in these industries is large but one may think that there is change in the number of working shifts in the factories from single working shift to double shifts or from two to three shifts where the factory is the same but number of workers is more. This is very common at the beginning of the new industries, especially in the case of sunrise industries which are rapidly expanding new industries.

4. MAJOR FINDINGS:

a) Tamil Nadu had the largest share in the manufacturing sector of India in terms of number of workers followed by Maharashtra and Andhra Pradesh. The share of Maharashtra and Andhra Pradesh declined from 1998-99 to 2011-12 whereas Tamil Nadu registered a rise in the share. This increase could be attributed to the successful implementation of the industrial policy of Tamil Nadu from 2007 which aimed at generating 2 million jobs by 2011 (Govt. of Tamil Nadu, 2007). To improve infrastructure facilities, Public Private Partnerships (PPPs) and Special Economic Zones (SEZs) were encouraged by the government of Tamil Nadu which created positive business and regulatory environment under this industrial policy. Tamil Nadu government implemented important policies to facilitate increased investment in industries such as Tamil Nadu Automobile and Auto Components Industrial Policy and Tamil Nadu Land Acquisition Policy for Industries in 2012. These efforts resulted in increased investment proposals for Tamil Nadu.

Infrastructure projects such as the LNG import terminal at Ennore and the petroleum, chemicals and petrochemicals investment region have been set up to attract foreign investment in the state. Formation and development of industrial corridors such as Chennai-Bengaluru, Chennai-Madhurai-Tuticorin-Tirunelveli and Coimbatore-Salem corridor helped in the promotion of industries and building the confidence among the investors in the state [ASSOCHAM, 2012]. Also, strong steps were undertaken to build industrial infrastructure. On the contrary, Maharashtra and Andhra Pradesh experienced a downfall in the employment rate over this period. These states have not attempted any major changes in the labour legislation or other labour market reforms over the period. Though Tamil Nadu also has not taken any concrete measures regarding reforms in labour laws it has still been successful in maintaining high share in employment due to proactive measures undertaken by the state government. Tamil Nadu's industrial policy focused on generating new employment opportunities and the state has set up many industrial hubs which resulted in the rise in employment within the state. Similarly, improvement in the efficiency and technological improvement in the business units resulted in 'jobless growth' in the organised manufacturing sector especially in Maharashtra (Govt. of India, 2005a). A rise in the employment in the informal sector has ensued decline in the employment of the organised manufacturing sector as suggested by Papola et al. (2011) in their study.

b) The highest share in the value of output at constant prices (1993-94=100) was enjoyed by Maharashtra while Gujarat and Tamil Nadu attained the second and third positions respectively. However, Maharashtra registered a fall in the share of the value of output by 2.92 percentage points from 1998-99 to 2011-12. On the other hand, the share of Gujarat and Tamil Nadu increased by 0.36 and 1.50 percentage points, respectively. Thus, in the coming years, Gujarat or Tamil Nadu may overtake Maharashtra in the share of value of output. A few other upcoming states like Uttarakhand and Himachal Pradesh showcased an impressive rise in the share of the value of output, but their shares are relatively too small.

c) An enhanced performance of Tamil Nadu in share and growth rates of the manufacturing sector is due to the industrial policy adopted by the state in 2007. Through this policy the government of Tamil Nadu focused on stimulating industrial development, attracting investment and facilitating new manufacturing capacity and enabling global manufacturing competence and competitiveness of local industry. The policy also aimed at developing an efficient and dependable industrial infrastructure, sanctioned 10,000 acres of land for industrial parks especially in the backward regions of the state, establishing nano-technology parks, various incentives such as power tariff subsidy, exemption from electricity tax to all new industrial units and concentration on specific industry categories such as leather and electronic machinery industries by allotting special economic zones (SEZs) to these industries in the state (Govt. of Tamil Nadu, 2007).

d) While the policy of Tamil Nadu focused on developing internal facilities for the manufacturing sector, Gujarat focused on making it an attractive investment destination globally as well. A comprehensive policy was formulated with the aim of generating technically competent manpower, facilitating investment through global channels, creating adequate provisions for upgrading

and improving the infrastructure and ensuring balanced regional development. Also special efforts envisaged to track the latest technology and innovation and ushering in next generation of investment and talent were made. Special measures were undertaken to promote and develop textiles and apparels and the gems and jewellery sectors which has been reflected in the high growth rate of the textile industry and the gems and jewellery sectors in Gujarat over the period [(Govt. of Gujarat, 2009a].

e) We observe that, over the period, performance of small states has improved as far as the growth rate in the manufacturing sector is concerned. The growth rates with respect to factories, employment, value of output, gross value added and capital were consistently higher for Uttarakhand, Himachal Pradesh and Jammu and Kashmir. The narrow industrial base of these states has enabled the State Governments to concentrate more on the growth of selected industries and attain the desired levels of growth in these industries. Various measures were undertaken by these states to stimulate industrial growth and to attract new ventures in the state. The central government granted a special concessional package for Uttarakhand and Himachal Pradesh. Under this package, new initiatives were undertaken to provide incentives as well as an enabling environment for industrial development, improve the availability of capital and increase market access to provide a fillip to private investment in these states. New industrial units were entitled to 100 percent excise duty and income tax exemptions along with a capital subsidy of 15 percent. These measures helped to uplift the existing industries in the manufacturing sector and also establishing new industries in these states (Govt. of Uttarakhand, 2001).

f) From 1998-99 to 2011-12, the small states have changed their industrial structure as they have a wide scope for enlarging their existing industries and also to expand the industrial base. Other industrially developed states such as Tamil Nadu, Gujarat, Maharashtra, Karnataka and Andhra Pradesh varied in the performance and growth in their manufacturing sectors. Despite a broad industrial base Tamil Nadu performed much better over the period in terms of share and growth rates whereas the performance of the manufacturing sector in Maharashtra had clearly deteriorated over the period in terms of share and growth rates. It implies that Maharashtra has failed to tap the benefits of the broad industrial base for the growth of the manufacturing sector.

g) During the last decade, Maharashtra encountered a downfall in the sector due to concentration of industries only in the Mumbai-Pune-Nasik-Aurangabad quadrangle, elevated land prices, political indecisiveness and bureaucratic delays due to the coalition government, scarce power resources, lack of infrastructural facilities and the cut-throat competition from other states in attracting industries. Also, the industries in Maharashtra are relatively more capital-intensive in nature which constrains the expansion of such industries in the state as it failed to attract more capital and investment due to lack of industrial friendly policies. The measures undertaken by the government of Maharashtra for the dispersal of industries to other districts resulted in the dislocation of various industries to some other states. Maharashtra has failed to attract setting up of new automobile firms which entered in the Indian economy over the past a few years. After moving out from West Bengal, Tata motors decided to set up their plant in Gujarat as the government of Gujarat offered various

incentives such as making land available to them. Similarly, Ford motors and Peugeot, a French automobile company, preferred Gujarat over Maharashtra because Maharashtra government could not provide large land tracts to such mega projects (Economic Times, 2011). As the agricultural sector in the state is not predominant, Maharashtra's potential lies in the manufacturing sector and, thus, the state cannot afford to neglect industrial growth in the coming years.

h) The manufacturing sector of West Bengal is lagging behind other states and did not act as an engine of growth for the past three decades. West Bengal has experienced slowdown in its industrial sector. It lost its industrial primacy and faced severe as well as long lasting industrial recession (deindustrialisation) due to decline in public investment. Due to strong emergence of trade unions the state has suffered in the past as stringent agitations and strikes have resulted in shutting down of industries in West Bengal. In 2000 the Tata group also wound up their Nano project from Singur because of strong protest and agitation by the farmers and the then opposition party in the state. This dampened the industrial investment friendliness and confidence among investors of the state [CMIE, 2014]. The state experienced sluggishness in private investment which hampered its manufacturing sector [GOI, 2010]. To accelerate the performance of the state, concerted and earnest efforts towards industrial growth with a focus prioritising on the most promising sectors such as manufacturing and especially on the industries such as textiles, chemicals and automobiles are required. The state is also making efforts to regain its position as a critical hub for multifarious industries such as iron and steel and petroleum sector and adopt cutting edge technology in the manufacturing sector [CII, 2014].

i) Most of the industrially developed states have been inclined towards the use of capital-intensive technologies due to mechanisation of the production process and better access to technology. One of the interesting facts observed is that a few states have recorded high growth rates of value of output and value added despite employing labour-intensive techniques such as Tamil Nadu.

j) There has also been a shift in the factor intensities used in the production process over the period in some of the states such as Andhra Pradesh, Gujarat, Maharashtra, Tamil Nadu, etc. For example, luggage, handbags, saddler, harness and footwear, tanning and dressing of leather products (19) and publishing printing and reproduction of recorded media (22) in Andhra Pradesh, office, accounting and computing machinery (30) in Gujarat and textiles (17), paper and paper products (21), coke, refined petroleum products and nuclear fuel (23) and rubber and plastic products (25) in Tamil Nadu used capital intensive technology in the year 1998-99 which later shifted to labour intensive technique. Similarly, food products and beverages (15) in Gujarat, and electrical machinery and apparatus n.e.c. (31) and radio, TV and communication equipment and apparatus (32) in Maharashtra shifted from labour intensive technology in 1998-99 to capital intensive technologies in the years 2004-05 and 2011-12. While some states used more capital-intensive techniques such as Uttarakhand other states are employing more labour-intensive techniques in the production process such as Andhra Pradesh and Tamil Nadu.

k) The number of workers per factory unit indicated declining trend in many industrially developed states such as Gujarat and Maharashtra because of slowing of employment growth over the period. It has also been observed that in a few of other states such as Andhra Pradesh, Kerala and Tamil Nadu which employed less workers per factory unit even though factories have increased in the manufacturing sector of these states, which may be due to adoption of new techniques and capital intensive technologies. It implies that the size of factories based on employment for industrially developed states has declined whereas it increased for other upcoming states such as Uttarakhand.

5. CONCLUSIONS:

Inter-regional disparity in levels of development and incomes is a major issue of economic, social and political significance in India. A wide disparity across states is a major concern that needs to be addressed through public policy. Industry is expected to play a major role in creating as well as mitigating disparities among different regions and thus, policy mechanisms and instruments were devised to inhibit these disparities. The central government tries to mitigate disparity among states by allocating proportionately larger amount of funds to the relatively poor states under the scheme of inter-governmental transfers [Ghosh, 2014]. The major drawback in the industrial development of the poor states is infrastructure. The central government can play a prominent role in the infrastructure development especially national highways, railways, telecommunication, airports and major ports which are the specific responsibilities of the central government. National Highways Development Project is an example of a central government programme which to some extent has helped to overcome transport bottlenecks affecting the poorer states of India [Ahluwalia, 2000]. A special concern and budget allocation for meeting the needs of the slow growing states can make a major contribution to accelerate growth in the sector and thereby reduce gaps among the states.

The share of value of output and capital of the industrially developed states has remained high though the growth rates are quite low. Some small states are performing better as they have realised the need for the development of the manufacturing sector for overall attainment of growth. The enhanced performance over such a short span is the result of effective and timely implementation of the policy measures. Uttarakhand exhibited substantial improvement in its performance over the period. This achievement could be attributed to the liberal industrial policy and industry promotional incentives adopted by the policy makers in 2003. Jammu and Kashmir and Himachal Pradesh endeavoured to uplift their manufacturing sectors in the recent years, which have paid off in the form of the higher growth rates of all variables such as employment, output and value added in these states over the period. Thus, the regional imbalance in the organised manufacturing sector among states seems to be slowly being mitigated as the small states are improving in terms of share and growth rate of employment, value of output, gross value added and capital as well as new industrial set ups, period after period, and the industrially developed states are unable to maintain their momentum of growth.

The liberalisation era that the country is now witnessing has spurred intense, inter-state competition to attract industrial investments. A thrust on manufacturing is integral to the inclusive agenda of the government as it has the potential to absorb excess workforce and lead the country on the path of sustainable growth. Nevertheless, the share of the manufacturing sector in India's GDP has stagnated at around 15 percent since 1980. Inadequate physical infrastructure, a complex regulatory environment and inadequate availability of skilled manpower have constrained

the growth of manufacturing in some of the states in India such as Uttar Pradesh, West Bengal and Maharashtra. Furthermore, land has emerged as a major constraint for industrial growth in recent years, for example, in Maharashtra. The contribution of the manufacturing sector in India is much below its potential. This calls for the state governments, especially Maharashtra and West Bengal, as well as central government to play an increasingly proactive role so as to facilitate industrial development and lead the country on the path of growth to compete globally.

NOTES

1. The annexure on shares of employment, value added, value of output and capital have been dropped from the paper in order to save space. However, these would be supplied through e-mail by the authors on request from interested readers.

2. If we say that there are 22 industries in the manufacturing sector which have equal share then 100/22= 4.55 will give us the percentage share of each industry. As per the formula [(4.55)2*22] /100 = 4.55 will be HHI if each industry has equal share in the manufacturing sector of the state. In that sense, conclusions can be drawn about whether concentration is high or low. If the value is closer to 4.55 then there is less concentration as each industry has more or less equal share. On the contrary, if it is closer to 100, it means that only one industry has larger share so there is high concentration in the manufacturing sector.

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Annexure A: Location Quotients Based on Number of Workers

Table A1. Location Quotients: Andhra Pradesh

Year (1)	15 (2)	16 (3)	17 (4)	18 (5)	19 (6)	20 (7)	21 (8)	22 (9)	23 (10)	24 (11)	25 (12)	26 (13)	27 (14)	28 (15)	29 (16)	30 (17)	31 (18)	32 (19)	33 (20)	34 (21)	35 (22)	36 (23)
1998-99	1.08	6.78	0.32	0.13	0.14	0.31	0.84	0.59	0.19	0.53	0.56	0.89	0.59	0.45	0.39	0.16	0.78	0.46	0.61	0.26	0.26	0.26
1999-00	1.10	6.26	0.30	0.03	0.08	0.47	0.77	0.55	0.21	0.57	0.51	0.99	0.60	0.42	0.46	0.13	0.67	0.48	0.17	0.43	0.37	0.15
2000-01	1.04	5.90	0.31	0.07	0.14	0.59	0.86	0.72	0.23	0.63	0.57	1.04	0.51	0.74	0.47	0.35	0.92	0.54	0.40	0.27	0.32	0.28
2001-02	1.09	5.06	0.51	0.08	0.09	0.38	0.85	0.71	0.12	0.59	0.56	1.15	0.49	0.63	0.53	0.95	0.82	0.48	0.28	0.30	0.37	0.33
2002-03	0.97	4.40	0.33	0.08	0.10	0.47	0.74	1.05	0.17	0.56	0.49	2.69	0.44	0.40	0.39	0.44	0.76	0.47	0.25	0.28	0.33	0.26
2003-04	1.06	5.60	0.40	0.09	0.08	0.66	0.94	0.87	0.18	0.66	0.64	1.08	0.49	0.49	0.47	0.45	0.81	0.50	0.26	0.34	0.60	0.30
2004-05	1.16	5.53	0.46	0.07	0.11	0.52	1.01	0.86	0.23	0.73	0.67	1.01	0.62	0.57	0.47	0.08	0.85	0.49	0.31	0.32	0.54	0.28
2005-06	1.12	5.60	0.51	0.09	0.06	0.47	1.05	0.90	0.39	0.80	0.75	1.01	0.57	0.80	0.55	0.16	0.95	1.12	0.20	0.28	0.49	0.34
2006-07	1.31	6.12	0.44	0.16	0.08	0.68	1.13	0.91	0.34	0.92	0.83	1.22	0.47	0.56	0.50	0.26	1.01	0.74	0.22	0.26	0.43	0.24
2007-08	1.29	6.31	0.57	0.15	0.23	0.44	1.02	1.04	0.25	0.95	0.74	1.04	0.52	0.67	0.49	0.19	1.05	1.35	0.21	0.19	0.51	0.24
2008-09	1.32	6.25	0.56	0.17	0.26	0.39	1.06	0.92	0.60	1.04	0.85	1.11	0.49	0.65	0.48	0.73	0.82	0.60	0.45	0.24	0.24	0.25
2009-10	1.42	6.41	0.53	0.16	0.26	0.36	1.08	0.70	0.29	1.06	0.78	1.26	0.63	0.63	0.52	0.49	1.09	0.14	0.27	0.17	0.36	0.34
2010-11	1.30	6.44	0.55	0.20	0.34	0.41	1.42	1.04	0.43	1.06	1.08	1.29	0.54	0.67	0.50	0.69	1.16	0.30	0.46	0.17	0.46	0.30
2011-12	1.40	6.25	0.63	0.25	0.34	0.26	1.22	1.08	0.59	1.13	0.78	1.12	0.62	0.50	0.40	1.68	1.10	1.02	0.36	0.16	0.30	0.28

Note: Please refer Table 1 for description of the industry.

Table A2. Location Quotients: Assam

Year (1)	15 (2)	16 (3)	17 (4)	18 (5)	19 (6)	20 (7)	21 (8)	22 (9)	23 (10)	24 (11)	25 (12)	26 (13)	27 (14)	28 (15)	29 (16)	30 (17)	31 (18)	32 (19)	33 (20)	34 (21)	35 (22)	36 (23)
1998-99	4.26	0.00	0.20	0.00	0.00	0.84	1.84	0.50	5.46	0.27	0.15	1.66	0.22	0.09	0.32	0.00	0.05	0.00	0.00	0.04	0.00	0.00
1999-00	4.09	0.00	0.18	0.00	0.00	0.09	1.36	0.45	6.05	0.25	0.06	2.02	0.11	0.19	0.28	0.00	0.06	0.00	0.00	0.03	0.00	0.02
2000-01	4.12	0.11	0.19	0.00	0.00	0.44	1.44	0.48	7.24	0.25	0.12	1.44	0.17	0.19	0.30	0.00	0.23	0.00	0.00	0.05	0.00	0.04
2001-02	3.72	0.05	0.22	0.00	0.00	0.31	1.66	0.42	5.59	0.33	0.08	2.24	0.13	0.17	0.28	0.00	0.22	0.00	0.00	0.04	0.00	0.05
2002-03	3.79	0.15	0.16	0.00	0.00	0.31	1.87	0.43	5.46	0.44	0.09	1.75	0.11	0.28	0.25	0.00	0.20	0.08	0.00	0.03	0.00	0.03
2003-04	3.64	0.10	0.13	0.00	0.00	0.39	1.93	0.42	5.67	0.51	0.20	2.61	0.14	0.19	0.25	0.00	0.19	0.09	0.00	0.02	0.00	0.06
2004-05	3.62	0.11	0.10	0.00	0.00	0.46	1.87	0.56	5.58	0.60	0.39	2.63	0.18	0.09	0.31	0.00	0.20	0.07	0.00	0.03	0.00	0.06
2005-06	3.70	0.13	0.10	0.00	0.00	0.63	1.82	0.48	6.07	0.68	0.36	2.79	0.08	0.14	0.20	0.00	0.17	0.04	0.00	0.02	0.00	0.03
2006-07	3.79	0.14	0.13	0.00	0.00	0.57	1.73	0.39	6.61	0.76	0.28	2.63	0.17	0.25	0.20	0.00	0.21	0.15	0.00	0.02	0.00	0.04
2007-08	3.55	0.18	0.11	0.00	0.00	0.60	1.40	0.42	6.19	0.74	0.34	3.33	0.14	0.13	0.13	0.00	0.23	0.12	0.00	0.03	0.00	0.10
2008-09	3.59	0.14	0.12	0.01	0.00	1.46	2.01	0.67	6.34	0.59	0.31	3.25	0.13	0.13	0.10	0.07	0.09	0.00	0.00	0.02	0.00	0.03
2009-10	3.79	0.20	0.13	0.00	0.00	0.57	1.73	0.55	6.01	0.54	0.17	3.25	0.20	0.20	0.10	0.00	0.07	0.00	0.00	0.02	0.00	0.07
2010-11	3.77	0.13	0.11	0.00	0.00	0.98	1.43	0.60	5.18	0.73	0.22	3.65	0.18	0.06	0.10	0.20	0.12	0.00	0.00	0.01	0.00	0.03
2011-12	3.67	0.31	0.10	0.00	0.00	2.61	1.38	0.35	5.01	0.75	0.47	3.39	0.27	0.13	0.08	0.29	0.05	0.00	0.00	0.02	0.00	0.08

Note: Please refer Table 1 for description of the industry.

Table A3. Location Quotients: Bihar

Year (1)	15 (2)	16 (3)	17 (4)	18 (5)	19 (6)	20 (7)	21 (8)	22 (9)	23 (10)	24 (11)	25 (12)	26 (13)	27 (14)	28 (15)	29 (16)	30 (17)	31 (18)	32 (19)	33 (20)	34 (21)	35 (22)	36 (23)
1998-99	1.03	0.48	0.56	0.00	2.00	6.59	0.30	1.36	5.39	0.65	0.31	6.89	0.62	0.41	0.20	0.00	0.07	0.00	0.00	0.00	0.67	0.02
1999-00	0.97	0.65	0.49	0.00	2.03	6.79	0.35	1.02	3.93	0.61	0.18	6.44	0.64	0.59	0.53	0.00	0.08	0.00	0.00	0.00	0.99	0.04
2000-01	0.98	0.56	0.53	0.00	1.80	5.57	0.15	1.15	5.09	0.62	0.15	6.91	0.51	0.34	0.37	0.00	0.34	0.08	0.00	0.00	1.08	0.08
2001-02	1.05	0.58	0.45	0.00	1.49	4.68	0.42	1.11	4.79	0.51	0.14	6.61	0.42	0.29	0.46	0.00	0.06	0.00	0.00	0.00	1.05	0.06
2002-03	1.09	0.63	0.49	0.00	1.73	5.67	0.82	0.62	6.25	0.31	0.15	4.90	0.52	0.23	0.47	0.00	0.06	0.00	0.20	0.00	0.98	0.05
2003-04	1.12	0.54	0.37	0.00	1.54	4.96	0.72	0.70	4.95	0.26	0.13	7.41	0.69	0.25	0.41	0.00	0.06	0.00	0.00	0.00	0.65	0.03
2004-05	1.03	0.51	0.41	0.00	1.24	3.64	0.69	0.80	5.72	0.25	0.18	7.58	0.48	0.18	0.38	0.00	0.07	0.00	0.00	0.00	0.60	0.02
2005-06	1.07	0.64	0.41	0.00	0.94	4.21	0.73	0.63	3.51	0.19	0.09	7.71	0.55	0.19	0.33	0.00	0.04	0.00	0.00	0.00	0.52	0.02
2006-07	1.20	0.58	0.37	0.00	1.02	3.28	0.69	0.64	4.50	0.26	0.11	7.49	0.43	0.20	0.15	0.00	0.04	0.00	0.00	0.00	0.45	0.02
2007-08	1.11	0.64	0.37	0.00	0.67	3.57	0.48	0.71	4.56	0.23	0.07	7.99	0.43	0.16	0.17	0.00	0.03	0.00	0.00	0.00	0.47	0.03
2008-09	0.86	0.63	0.36	0.00	0.60	3.87	0.48	0.47	4.06	0.14	0.12	7.11	1.39	0.27	0.14	0.00	0.03	0.00	0.00	0.01	0.48	0.09
2009-10	1.07	0.53	0.32	0.00	0.54	3.03	0.52	0.07	3.44	0.50	0.11	7.72	0.67	0.14	0.20	0.00	0.22	0.00	0.00	0.00	0.53	0.10
2010-11	1.00	0.64	0.40	0.00	0.34	3.89	0.60	0.25	2.24	0.18	0.12	8.24	0.39	0.17	0.19	0.00	0.02	0.00	0.00	0.01	0.31	0.02
2011-12	1.31	0.36	0.28	0.00	0.28	2.27	0.45	0.17	1.87	0.10	0.05	8.14	0.19	0.15	1.23	0.00	0.02	0.00	0.00	0.01	0.26	0.05

Note: Please refer Table 1 for description of the industry.

Table A4. Location Quotients: Chhattisgarh

Year (1)	15 (2)	16 (3)	17 (4)	18 (5)	19 (6)	20 (7)	21 (8)	22 (9)	23 (10)	24 (11)	25 (12)	26 (13)	27 (14)	28 (15)	29 (16)	30 (17)	31 (18)	32 (19)	33 (20)	34 (21)	35 (22)	36 (23)
1998-99	1.14	0.12	0.29	0.09	0.03	1.33	0.66	0.09	0.24	0.33	0.09	1.64	7.12	0.67	0.46	0.00	0.08	0.00	0.00	0.00	0.18	0.02
1999-00	0.84	0.06	0.19	0.00	0.00	0.93	0.58	0.10	0.15	0.17	0.45	2.86	6.78	0.64	0.39	0.00	0.27	0.00	0.00	0.00	0.45	0.13
2000-01	0.84	0.11	0.17	0.00	0.08	1.40	1.05	0.45	0.63	0.20	0.39	1.84	7.95	0.57	0.62	0.00	0.51	0.00	0.00	0.00	0.24	0.22
2001-02	0.80	0.15	0.18	0.00	0.06	1.80	0.89	0.48	0.21	0.25	0.46	1.50	8.18	0.70	0.59	0.00	0.41	0.00	0.00	0.00	0.41	0.13
2002-03	0.97	0.16	0.11	0.00	0.52	1.61	0.95	0.46	0.64	0.22	0.46	1.14	8.17	0.88	0.47	0.00	0.36	0.00	0.00	0.00	0.58	0.10
2003-04	1.02	0.47	0.09	0.00	0.06	1.21	0.81	0.45	1.32	0.20	0.46	1.40	7.81	0.90	0.60	0.00	0.37	0.00	0.00	0.00	0.52	0.09
2004-05	1.04	0.76	0.09	0.00	0.04	0.92	0.64	0.47	1.60	0.18	1.20	1.17	7.24	0.85	0.74	0.00	0.50	0.00	0.00	0.00	0.60	0.07
2005-06	0.97	0.80	0.08	0.00	0.02	1.16	0.86	0.34	1.81	0.40	0.18	1.08	7.26	0.93	0.99	0.00	0.38	0.00	0.00	0.00	0.53	0.09
2006-07	1.14	0.76	0.10	0.00	0.01	0.64	0.56	0.26	1.97	0.34	0.10	1.07	7.02	0.69	0.65	0.00	0.38	0.00	0.00	0.00	0.37	0.08
2007-08	0.96	0.83	0.06	0.00	0.01	0.85	0.49	0.35	2.67	0.20	0.10	0.78	7.63	0.64	0.60	0.00	0.12	0.00	0.00	0.00	0.57	0.07
2008-09	1.02	0.73	0.10	0.00	0.01	0.62	0.50	0.36	3.56	0.31	0.34	0.98	6.59	0.93	0.55	0.08	0.17	0.00	0.00	0.05	0.52	0.11
2009-10	0.87	0.72	0.07	0.00	0.01	0.55	0.46	0.40	0.96	0.24	0.29	0.94	7.61	1.08	0.70	0.22	0.21	0.00	0.00	0.00	0.41	0.22
2010-11	1.02	0.81	0.06	0.00	0.01	0.39	0.51	0.29	1.11	0.16	0.12	0.87	6.85	1.19	0.76	0.15	0.19	0.00	0.00	0.00	2.03	0.08
2011-12	1.06	0.77	0.06	0.00	0.01	1.08	0.44	0.35	1.43	0.13	0.17	0.80	7.09	1.26	0.87	0.12	0.09	0.00	0.00	0.00	0.34	0.14

Note: Please refer Table 1 for description of the industry.

Table A5. Location Quotients: Delhi

Year (1)	15 (2)	16 (3)	17 (4)	18 (5)	19 (6)	20 (7)	21 (8)	22 (9)	23 (10)	24 (11)	25 (12)	26 (13)	27 (14)	28 (15)	29 (16)	30 (17)	31 (18)	32 (19)	33 (20)	34 (21)	35 (22)	36 (23)
1998-99	0.33	0.07	0.12	5.65	2.40	0.76	0.49	5.66	0.00	0.52	1.81	0.16	0.51	2.12	1.48	0.15	1.86	3.27	1.37	2.12	1.29	2.18
1999-00	0.35	0.08	0.31	5.48	2.94	0.47	0.70	4.06	0.00	0.72	1.83	0.14	0.52	2.33	1.49	0.43	2.26	2.64	1.67	1.77	1.03	0.94
2000-01	0.35	0.10	0.13	5.52	3.27	0.54	0.67	5.46	0.04	0.45	1.56	0.14	0.46	2.13	1.45	0.32	2.67	2.20	2.16	1.93	1.13	1.40
2001-02	0.40	0.07	0.15	6.54	2.48	0.35	0.55	6.44	0.03	0.47	0.99	0.15	0.27	2.18	0.97	0.31	2.55	2.43	2.35	1.66	1.46	1.70
2002-03	0.38	0.07	0.15	6.95	2.22	0.35	0.43	6.37	0.03	0.49	1.19	0.08	0.25	1.96	1.68	0.36	1.64	2.39	1.56	1.58	1.05	1.78
2003-04	0.40	0.06	0.24	6.38	2.27	0.35	0.61	5.51	0.03	0.46	1.07	0.13	0.30	1.92	1.06	0.34	1.75	2.14	2.06	1.20	1.32	1.41
2004-05	0.28	0.02	0.32	6.02	2.56	0.08	0.57	5.84	0.03	0.41	0.96	0.09	0.30	1.75	1.23	0.80	1.90	2.35	1.94	1.20	1.02	1.21
2005-06	0.36	0.13	0.35	5.23	2.50	0.07	0.38	6.17	0.06	0.43	0.86	0.07	0.32	1.58	1.04	0.49	1.76	2.08	1.66	1.12	0.95	1.23
2006-07	0.35	0.03	0.24	5.29	2.22	0.05	0.46	5.86	0.06	0.52	1.06	0.04	0.27	1.72	1.17	0.78	1.85	2.23	2.34	1.53	0.66	1.50
2007-08	0.40	0.13	0.30	4.77	2.28	0.06	0.71	7.52	0.05	0.44	1.05	0.05	0.23	1.65	1.23	0.48	1.88	1.19	1.83	1.05	0.93	0.97
2008-09	0.50	0.10	0.26	4.50	1.87	0.07	0.88	6.94	0.04	0.41	0.82	0.07	0.40	1.36	0.86	1.07	2.03	3.36	0.93	0.88	1.00	0.99
2009-10	0.51	0.08	0.24	3.58	2.39	0.36	0.93	7.04	0.02	0.31	1.11	0.07	0.22	2.05	1.05	1.15	1.55	1.84	1.67	1.27	0.63	1.01
2010-11	0.59	0.17	0.27	4.26	3.13	0.24	0.71	5.50	0.05	0.29	0.82	0.04	0.26	1.33	1.25	1.03	1.82	2.55	1.79	0.67	0.38	1.07
2011-12	0.85	0.09	0.28	3.75	2.27	0.31	0.55	6.06	0.06	0.46	0.65	0.04	0.30	1.39	0.88	0.92	1.77	3.86	1.96	1.04	0.43	1.11

Note: Please refer Table 1 for description of the industry.

Table A6. Location Quotients: Goa

Year (1)	15 (2)	16 (3)	17 (4)	18 (5)	19 (6)	20 (7)	21 (8)	22 (9)	23 (10)	24 (11)	25 (12)	26 (13)	27 (14)	28 (15)	29 (16)	30 (17)	31 (18)	32 (19)	33 (20)	34 (21)	35 (22)	36 (23)
1998-99	0.99	0.00	0.24	0.30	0.00	0.00	0.82	0.78	2.10	2.26	2.53	0.70	1.71	0.56	0.35	8.41	0.86	3.98	3.99	1.59	0.86	2.82
1999-00	0.72	0.00	0.23	0.23	0.00	0.00	2.02	1.33	1.77	2.64	2.70	0.51	1.30	0.67	0.48	5.84	0.57	5.81	3.99	1.12	1.77	2.12
2000-01	0.98	0.00	0.17	0.16	0.00	0.00	1.03	1.19	1.98	2.94	1.93	0.46	1.41	0.63	0.69	4.58	0.68	4.58	5.03	1.30	1.47	2.36
2001-02	0.91	0.00	0.17	0.00	0.00	0.00	1.25	1.10	1.55	2.94	2.12	0.42	1.56	0.63	0.60	7.09	1.51	3.82	5.64	1.04	1.63	2.28
2002-03	0.90	0.00	0.15	0.00	0.00	0.00	1.53	1.47	1.22	3.14	2.42	0.25	1.70	0.60	0.89	9.59	1.02	3.59	5.62	1.09	0.96	2.01
2003-04	0.74	0.00	0.12	0.00	0.00	0.00	1.45	1.03	1.39	3.29	2.13	0.54	1.77	0.57	0.78	11.18	1.31	3.19	5.56	1.15	1.27	1.59
2004-05	0.76	0.00	0.10	0.00	0.00	0.00	0.91	1.09	0.84	3.83	2.06	0.38	1.62	0.49	0.70	10.95	1.32	3.59	6.61	1.12	1.13	1.23
2005-06	0.77	0.00	0.10	0.00	0.00	0.00	1.13	1.20	1.33	3.19	2.22	0.39	1.84	0.49	0.77	12.08	1.18	2.37	7.56	1.74	1.13	1.44
2006-07	0.87	0.00	0.10	0.00	0.00	0.00	1.61	0.94	1.47	3.45	1.48	0.41	1.43	0.46	0.72	9.14	1.04	3.34	6.99	1.94	1.69	1.09
2007-08	0.65	0.00	0.11	0.00	0.00	0.00	0.72	0.94	1.30	3.82	1.38	0.44	1.17	1.15	0.54	9.20	1.39	1.88	5.93	1.46	2.41	2.26
2008-09	0.92	0.00	0.08	0.00	0.00	0.00	1.32	1.24	0.91	3.45	1.70	0.40	1.28	0.44	0.44	3.21	1.58	8.53	4.87	1.31	1.79	2.44
2009-10	1.03	0.00	0.13	0.00	0.00	0.00	1.00	1.20	0.38	3.83	1.20	0.46	1.29	0.74	0.47	4.02	2.22	0.60	4.86	1.13	0.93	1.53
2010-11	1.24	0.00	0.11	0.00	0.00	0.00	0.78	1.03	1.23	2.94	2.43	0.27	1.55	0.30	0.50	2.27	2.24	1.42	2.34	1.01	1.24	2.15
2011-12	1.04	0.00	0.11	0.00	0.00	0.00	1.04	1.46	1.85	4.04	3.02	0.20	0.86	0.41	0.51	2.98	1.51	0.91	1.88	0.38	2.11	1.32

Note: Please refer Table 1 for description of the industry.

Table A7. Location Quotients: Gujarat

Year (1)	15 (2)	16 (3)	17 (4)	18 (5)	19 (6)	20 (7)	21 (8)	22 (9)	23 (10)	24 (11)	25 (12)	26 (13)	27 (14)	28 (15)	29 (16)	30 (17)	31 (18)	32 (19)	33 (20)	34 (21)	35 (22)	36 (23)
1998-99	0.69	0.12	1.35	0.34	0.15	0.60	0.82	0.57	0.62	2.34	0.98	1.36	0.67	0.95	1.21	1.41	1.00	0.41	1.32	0.82	0.62	1.76
1999-00	0.55	0.08	1.43	0.28	0.04	0.52	0.95	0.67	0.60	2.46	0.88	1.20	0.56	1.37	1.67	0.64	1.15	0.41	0.91	0.18	0.80	1.61
2000-01	0.51	0.10	1.43	0.22	0.10	0.74	1.12	0.58	0.55	2.54	0.99	1.36	0.58	1.12	1.57	0.17	0.77	0.59	1.15	0.22	0.86	1.73
2001-02	0.53	0.08	1.30	0.30	0.04	1.34	1.26	0.44	1.94	2.51	1.14	1.41	0.61	0.86	1.72	0.00	1.13	0.78	0.76	0.29	0.62	1.87
2002-03	0.56	0.13	1.37	0.26	0.05	0.91	1.19	0.42	1.69	2.44	1.17	0.96	0.66	0.90	1.93	0.00	0.93	0.79	0.75	0.40	0.69	2.36
2003-04	0.54	0.07	1.29	0.31	0.04	0.86	1.02	0.47	1.88	2.61	1.01	1.29	0.79	0.95	1.66	0.00	0.97	0.51	0.85	0.34	0.72	2.39
2004-05	0.59	0.11	1.33	0.27	0.04	1.28	1.19	0.44	1.78	2.38	1.02	1.22	0.68	1.07	1.73	0.00	0.88	0.46	0.90	0.31	0.44	2.68
2005-06	0.55	0.09	1.27	0.20	0.04	1.18	1.14	0.54	2.48	2.35	1.04	1.44	0.74	1.14	1.66	0.00	0.84	0.56	1.35	0.32	0.42	2.81
2006-07	0.54	0.10	1.28	0.20	0.03	1.04	1.20	0.55	3.12	2.17	0.84	1.15	0.89	1.06	1.56	0.11	1.05	0.84	1.13	0.37	0.38	3.11
2007-08	0.52	0.08	1.36	0.25	0.03	0.81	0.92	0.46	3.78	2.24	0.90	1.21	0.81	1.09	1.57	0.00	0.93	0.63	1.00	0.25	0.59	2.81
2008-09	0.63	0.08	1.41	0.18	0.03	0.73	1.17	0.64	2.86	2.05	0.85	1.43	0.92	1.05	1.44	0.15	0.96	1.10	2.08	0.23	0.54	2.54
2009-10	0.60	0.09	1.59	0.20	0.06	0.87	1.19	0.44	3.10	2.04	1.06	1.45	0.80	0.88	1.61	0.28	0.80	0.41	1.20	0.22	0.59	2.70
2010-11	0.58	0.09	1.69	0.17	0.02	1.33	1.15	0.40	1.84	2.11	0.96	1.36	0.72	0.88	1.77	0.16	0.79	0.80	0.92	0.17	0.62	2.77
2011-12	0.51	0.08	1.69	0.18	0.02	1.00	1.04	0.43	1.53	1.94	0.94	1.42	0.91	1.09	1.67	0.24	0.81	0.74	1.40	0.23	0.59	3.02

Note: Please refer Table 1 for description of the industry.

Table A8. Location Quotients: Haryana

Year (1)	15 (2)	16 (3)	17 (4)	18 (5)	19 (6)	20 (7)	21 (8)	22 (9)	23 (10)	24 (11)	25 (12)	26 (13)	27 (14)	28 (15)	29 (16)	30 (17)	31 (18)	32 (19)	33 (20)	34 (21)	35 (22)	36 (23)
1998-99	0.57	0.01	0.35	0.55	1.39	0.60	0.58	0.40	0.00	0.27	0.84	0.99	0.46	1.22	1.61	2.02	1.06	0.32	1.29	1.99	10.42	0.47
1999-00	0.92	0.01	0.45	1.18	2.13	0.73	0.83	0.76	0.05	0.35	1.29	1.21	0.50	1.57	2.53	2.86	1.94	0.89	1.68	3.69	2.82	0.60
2000-01	0.89	0.02	0.56	2.00	1.48	0.94	1.06	0.41	0.10	0.38	0.92	1.23	0.52	1.25	2.13	2.15	1.37	0.93	2.11	4.05	2.95	0.29
2001-02	0.81	0.02	0.53	2.27	2.07	1.56	0.93	0.40	0.08	0.36	0.80	1.02	0.72	1.35	2.19	1.66	1.38	0.93	2.63	3.90	2.75	0.34
2002-03	0.87	0.02	0.60	2.16	2.12	1.27	0.90	0.43	0.09	0.33	0.83	0.82	0.49	1.33	2.15	2.71	1.36	0.86	2.50	3.28	4.01	0.37
2003-04	0.74	0.02	0.68	2.24	1.33	1.77	0.93	0.44	0.06	0.38	0.68	0.87	0.53	1.10	1.90	1.14	1.49	0.70	2.83	3.52	3.84	0.69
2004-05	0.74	0.02	0.57	2.80	1.12	1.61	0.70	0.40	0.03	0.33	0.63	0.74	0.47	1.14	2.05	0.86	1.21	0.47	3.15	3.53	3.69	0.32
2005-06	0.71	0.02	0.62	3.02	1.11	1.27	0.73	0.44	0.01	0.27	0.62	0.58	0.57	0.88	1.57	0.68	1.38	0.22	3.51	3.24	4.15	0.26
2006-07	0.59	0.02	0.59	2.86	1.34	1.93	0.56	0.38	0.04	0.32	0.61	0.61	0.41	0.99	1.56	0.27	1.47	0.27	3.07	3.12	4.94	0.33
2007-08	0.54	0.02	0.68	2.87	1.18	1.25	0.28	0.30	0.02	0.33	0.50	0.48	0.62	0.73	1.53	0.79	0.95	0.36	2.67	4.27	4.03	0.27
2008-09	0.69	0.02	0.51	2.04	1.39	1.57	0.64	0.46	0.02	0.36	0.87	0.38	0.35	0.97	1.31	0.46	1.39	0.42	0.61	4.44	4.58	0.81
2009-10	0.46	0.01	0.51	2.27	1.45	1.23	0.50	0.48	0.02	0.45	0.39	0.37	0.30	0.82	1.33	0.30	0.85	8.11	0.56	3.55	4.26	0.78
2010-11	0.59	0.01	0.55	2.06	1.65	1.54	0.56	0.47	0.03	0.35	0.41	0.32	0.36	0.84	1.44	0.34	1.05	1.01	0.51	3.99	4.38	0.88
2011-12	0.46	0.02	0.65	1.96	1.52	1.30	0.47	0.46	0.05	0.30	0.57	0.35	0.51	0.90	1.46	0.18	1.18	1.39	1.30	3.46	5.04	0.74

Note: Please refer Table 1 for description of the industry.

Table A9. Location Quotients: Himachal Pradesh

Year (1)	15 (2)	16 (3)	17 (4)	18 (5)	19 (6)	20 (7)	21 (8)	22 (9)	23 (10)	24 (11)	25 (12)	26 (13)	27 (14)	28 (15)	29 (16)	30 (17)	31 (18)	32 (19)	33 (20)	34 (21)	35 (22)	36 (23)
1998-99	0.50	0.25	1.95	0.18	0.88	0.40	1.20	0.36	0.00	0.45	1.07	2.41	0.50	1.39	1.19	6.92	0.28	3.65	4.17	0.54	0.00	0.00
1999-00	0.49	0.21	2.12	0.00	0.74	0.41	1.19	0.26	0.00	0.27	1.31	2.96	0.44	1.17	0.98	0.63	0.32	5.15	4.19	0.23	0.00	0.00
2000-01	0.51	0.15	2.21	0.00	0.54	0.16	1.55	0.21	0.00	0.76	0.72	1.64	0.20	1.91	1.23	0.72	0.75	4.25	4.78	0.24	0.00	0.07
2001-02	0.57	0.22	2.32	0.00	0.56	0.16	1.64	0.93	0.00	0.57	0.86	1.38	0.36	1.55	1.14	3.78	0.70	3.73	6.22	0.36	0.00	0.06
2002-03	0.62	0.26	2.22	0.22	0.68	0.24	1.80	0.26	0.00	0.81	0.79	1.04	0.32	0.96	1.18	3.63	0.69	4.78	6.56	0.45	0.00	0.19
2003-04	0.56	0.26	2.07	0.36	0.64	0.17	1.41	0.37	0.00	0.91	0.67	1.63	0.25	1.32	1.52	3.39	0.59	4.14	5.83	0.22	0.00	0.20
2004-05	0.49	0.27	1.86	0.24	1.05	0.17	1.56	0.39	0.00	1.32	0.45	1.23	0.23	1.34	1.80	5.08	1.41	4.33	5.82	0.35	0.11	0.14
2005-06	0.62	0.24	1.58	0.08	0.95	0.20	1.60	1.02	0.00	1.99	0.91	1.01	0.38	0.65	1.94	7.01	1.78	3.03	5.02	0.29	0.00	0.08
2006-07	0.41	0.17	1.41	0.00	1.08	0.08	1.37	1.06	0.00	2.81	1.36	0.95	0.44	0.56	1.86	2.99	2.12	2.86	3.98	0.46	0.07	0.04
2007-08	0.64	0.04	1.18	0.19	0.86	0.12	1.00	1.00	0.00	3.49	1.01	0.79	0.52	0.42	1.59	1.93	2.33	1.69	2.36	0.44	0.32	0.40
2008-09	0.48	0.10	1.03	0.11	1.44	0.39	1.41	2.02	0.00	3.58	0.87	0.64	0.61	0.43	0.66	3.67	3.75	2.16	3.11	0.28	0.77	0.68
2009-10	0.40	0.07	1.08	0.02	0.97	0.50	1.69	0.64	0.08	3.44	0.85	0.66	0.57	0.63	0.59	1.72	4.18	4.84	2.76	0.48	0.29	0.41
2010-11	0.56	0.04	0.93	0.20	0.60	1.16	2.01	0.56	0.00	3.93	0.79	0.59	0.55	0.60	0.64	3.33	2.97	1.89	2.50	0.65	0.32	0.46
2011-12	0.61	0.06	0.91	0.19	1.24	1.29	1.99	0.46	0.16	3.42	0.94	0.55	0.51	0.56	0.61	2.71	3.18	2.52	5.75	0.48	0.97	0.48

Note: Please refer Table 1 for description of the industry.

Table A10. Location Quotients: Jammu and Kashmir

Year (1)	15 (2)	16 (3)	17 (4)	18 (5)	19 (6)	20 (7)	21 (8)	22 (9)	23 (10)	24 (11)	25 (12)	26 (13)	27 (14)	28 (15)	29 (16)	30 (17)	31 (18)	32 (19)	33 (20)	34 (21)	35 (22)	36 (23)
1998-99	1.25	0.03	2.05	0.00	0.14	2.31	0.80	0.16	0.00	0.51	0.49	1.19	0.73	1.06	0.80	0.00	0.83	0.71	0.00	0.00	0.00	5.62
1999-00	1.18	0.02	2.13	0.00	0.08	4.21	0.87	0.12	1.76	0.52	0.84	0.84	1.09	0.60	1.19	0.00	0.79	0.00	0.00	0.00	0.00	2.32
2000-01	0.86	0.01	2.09	0.00	0.09	5.64	0.91	0.18	2.38	0.24	0.61	1.12	1.40	0.78	1.05	0.00	0.76	0.96	0.00	0.00	0.00	4.86
2001-02	0.93	0.00	1.75	0.00	0.08	4.53	0.69	0.15	2.65	0.49	0.54	1.13	1.60	0.89	1.34	0.00	0.79	0.93	0.00	0.00	0.00	5.41
2002-03	1.02	0.00	1.81	0.00	0.29	4.38	0.55	0.13	2.63	0.43	0.61	0.85	1.71	0.66	1.15	0.00	0.79	0.84	5.21	0.00	0.00	4.08
2003-04	0.93	0.00	2.05	0.00	0.36	4.17	0.44	0.12	1.66	0.36	0.38	1.00	1.78	0.75	1.11	0.00	0.81	0.64	4.26	0.00	0.00	3.26
2004-05	0.92	0.00	1.39	0.10	0.06	4.34	1.44	0.11	1.34	1.28	0.84	1.15	1.63	1.25	0.55	0.00	1.19	2.89	0.00	0.09	0.00	3.41
2005-06	0.87	0.00	1.24	0.13	0.00	2.92	1.05	0.23	1.06	2.17	1.62	1.03	2.00	0.76	0.64	0.00	0.98	1.79	0.00	0.11	0.00	1.80
2006-07	0.84	0.00	1.06	0.13	0.08	4.39	1.09	0.28	0.93	2.76	0.68	0.94	1.80	1.07	0.75	1.05	0.76	0.46	0.00	0.11	0.00	2.60
2007-08	0.73	0.00	1.06	0.11	0.00	4.23	0.98	0.23	0.45	2.99	1.18	0.76	2.15	0.83	0.47	4.44	0.99	0.36	0.00	0.06	0.00	2.36
2008-09	0.93	0.00	1.04	0.10	0.10	1.67	3.25	0.23	1.83	3.02	0.65	0.49	1.60	1.01	0.14	1.60	1.02	1.62	0.00	0.00	0.36	2.60
2009-10	0.68	0.00	1.30	0.09	0.09	1.89	1.73	0.36	1.23	3.12	1.50	0.65	1.42	1.66	0.19	0.30	0.71	0.35	0.00	0.00	0.27	2.70
2010-11	0.66	0.00	1.30	0.10	0.18	2.01	1.80	0.26	0.03	3.40	1.61	0.71	1.77	0.88	0.10	0.97	0.86	0.00	0.00	0.00	0.19	1.84
2011-12	0.81	0.00	1.25	0.11	0.00	1.51	1.01	0.27	0.00	4.23	1.60	0.88	1.08	0.54	0.18	1.19	0.79	0.46	0.00	0.03	0.27	1.49

Note: Please refer Table 1 for description of the industry.

Table A11. Location Quotients: Jharkhand

Year (1)	15 (2)	16 (3)	17 (4)	18 (5)	19 (6)	20 (7)	21 (8)	22 (9)	23 (10)	24 (11)	25 (12)	26 (13)	27 (14)	28 (15)	29 (16)	30 (17)	31 (18)	32 (19)	33 (20)	34 (21)	35 (22)	36 (23)
1998-99	0.07	0.51	0.04	0.00	0.07	0.28	0.02	0.08	11.60	0.54	0.43	1.95	6.73	0.53	0.62	0.00	0.53	0.00	0.00	3.01	0.04	0.00
1999-00	0.04	0.65	0.05	0.00	0.00	0.22	0.01	0.23	10.60	0.40	0.29	1.54	6.87	0.51	0.65	0.00	0.42	0.00	0.00	2.88	0.07	0.00
2000-01	0.08	0.66	0.04	0.00	0.00	0.33	0.02	0.17	12.61	0.42	0.22	2.27	7.08	0.28	0.82	0.00	0.29	0.00	0.00	2.85	0.06	0.00
2001-02	0.08	0.67	0.05	0.00	0.00	0.39	0.02	0.19	12.41	0.47	0.19	2.13	6.80	0.25	0.82	0.00	0.18	0.00	0.17	3.13	0.05	0.01
2002-03	0.07	1.01	0.04	0.00	0.00	0.19	0.02	0.21	11.05	0.32	0.19	1.56	7.37	0.29	0.89	0.00	0.13	0.10	0.00	2.73	0.04	0.02
2003-04	0.07	0.52	0.04	0.00	0.00	0.33	0.03	0.35	12.06	0.30	0.15	2.15	7.41	0.38	0.77	0.00	0.06	0.10	0.00	2.93	0.10	0.03
2004-05	0.07	0.47	0.04	0.00	0.00	0.24	0.02	0.37	12.08	0.30	0.18	2.56	7.04	0.40	0.89	0.00	0.06	0.00	0.13	2.32	0.11	0.03
2005-06	0.10	0.39	0.03	0.00	0.00	0.19	0.03	0.38	11.79	0.39	0.15	1.89	7.33	0.38	0.73	0.00	0.05	0.00	0.00	2.46	0.08	0.03
2006-07	0.09	0.38	0.04	0.00	0.00	0.22	0.02	0.35	11.51	0.23	0.18	2.28	6.71	0.26	0.69	0.00	0.05	0.00	0.00	2.21	0.07	0.03
2007-08	0.14	0.33	0.04	0.00	0.00	0.19	0.01	0.33	8.44	0.40	0.18	2.22	6.67	0.38	0.87	0.00	0.05	0.00	0.00	1.68	0.12	0.03
2008-09	0.10	0.30	0.03	0.00	0.00	0.27	0.02	0.89	8.94	0.38	0.37	2.29	5.86	0.44	0.90	0.37	0.21	0.00	0.00	1.91	0.00	0.00
2009-10	0.14	0.31	0.02	0.00	0.00	0.45	0.03	0.68	8.25	0.34	0.23	2.39	5.40	0.46	0.93	0.84	0.18	0.00	0.25	2.52	0.03	0.53
2010-11	0.16	0.27	0.04	0.00	0.00	0.40	0.02	0.24	11.66	0.37	0.19	1.99	5.32	0.51	0.99	0.35	0.37	0.00	0.00	2.35	0.04	0.01
2011-12	0.17	0.56	0.03	0.00	0.00	0.27	0.02	0.82	12.05	0.43	0.14	2.23	4.49	0.34	1.04	0.26	0.15	0.00	0.00	3.06	0.07	0.03

Note: Please refer Table 1 for description of the industry.

Table A12. Location Quotients: Karnataka

Year (1)	15 (2)	16 (3)	17 (4)	18 (5)	19 (6)	20 (7)	21 (8)	22 (9)	23 (10)	24 (11)	25 (12)	26 (13)	27 (14)	28 (15)	29 (16)	30 (17)	31 (18)	32 (19)	33 (20)	34 (21)	35 (22)	36 (23)
1998-99	0.73	0.23	0.47	6.45	0.40	0.90	1.35	1.74	0.22	0.57	0.99	1.00	0.52	1.18	1.11	1.49	1.87	2.25	2.78	1.36	0.46	0.28
1999-00	0.97	0.21	0.52	5.78	0.65	1.05	1.28	1.02	0.40	0.54	0.78	0.98	0.52	1.19	1.21	0.72	1.57	1.79	2.92	1.47	0.31	0.20
2000-01	0.91	0.19	0.43	5.75	0.55	1.13	1.28	1.27	0.32	0.56	1.07	0.91	0.54	0.79	0.93	0.83	1.59	3.04	2.28	1.53	0.46	0.50
2001-02	0.94	0.17	0.40	5.94	0.33	0.68	1.43	1.22	0.27	0.60	0.79	0.86	0.67	0.86	1.06	0.83	1.49	2.80	2.60	1.40	0.43	0.48
2002-03	0.96	0.18	0.39	6.24	0.32	0.98	1.13	1.00	0.34	0.55	1.01	0.60	0.62	0.77	1.08	0.86	1.61	2.67	2.65	1.48	0.43	0.47
2003-04	0.85	0.18	0.33	6.02	0.33	0.70	1.30	1.11	0.38	0.52	1.02	0.74	0.51	0.73	1.28	0.74	1.58	2.63	2.07	1.24	0.41	0.53
2004-05	0.85	0.18	0.31	5.63	0.31	0.81	1.21	1.13	0.38	0.49	0.85	0.73	0.63	0.73	1.16	1.41	1.41	2.32	2.22	1.35	0.53	0.55
2005-06	0.87	0.20	0.37	5.33	0.22	1.25	1.24	1.01	0.33	0.57	0.78	0.54	0.59	0.76	1.16	1.25	1.42	1.58	1.65	1.15	0.46	0.50
2006-07	0.78	0.18	0.27	5.77	0.29	1.03	1.13	1.09	0.35	0.59	0.79	0.51	0.64	1.00	1.12	1.01	1.32	2.09	1.54	1.27	0.37	0.49
2007-08	0.82	0.15	0.28	5.44	0.17	0.93	0.78	1.51	0.22	0.48	0.69	0.54	0.61	0.91	1.04	0.54	1.36	3.53	2.80	0.97	0.45	0.51
2008-09	0.86	0.17	0.28	4.53	0.12	0.73	1.15	1.18	0.31	0.60	0.73	0.52	0.66	0.67	1.53	1.54	1.44	1.18	1.65	0.86	0.63	0.78
2009-10	0.97	0.18	0.25	4.15	0.17	1.25	1.05	1.47	0.36	0.57	0.87	0.42	0.59	1.02	1.18	2.01	1.29	0.43	1.86	0.98	0.58	0.75
2010-11	0.99	0.18	0.22	4.06	0.25	0.92	1.01	1.32	0.55	0.60	0.95	0.54	0.61	0.92	1.35	1.82	1.07	1.13	2.60	1.11	0.56	0.68
2011-12	0.88	0.22	0.19	4.79	0.27	0.77	1.08	1.08	0.73	0.60	0.80	0.45	0.69	0.83	1.24	1.69	1.14	0.41	1.91	0.82	0.49	0.49

Note: Please refer Table 1 for description of the industry.

Table A13. Location Quotients: Kerala

Year	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)
1998-99	2.96	0.19	0.56	0.27	0.55	5.48	0.95	1.01	0.85	0.79	1.83	1.28	0.26	0.41	0.17	1.45	0.64	0.97	0.67	0.00	0.39	0.41
1999-00	3.00	0.16	0.62	0.22	0.23	4.95	0.99	1.27	2.69	0.62	1.47	1.03	0.20	0.28	0.16	0.76	0.54	1.45	0.56	0.03	0.36	0.47
2000-01	3.13	0.15	0.59	0.23	0.19	4.40	0.77	1.50	1.18	0.59	1.47	1.01	0.29	0.26	0.22	0.82	0.57	1.41	0.50	0.01	0.54	0.39
2001-02	3.00	0.87	0.53	0.20	0.26	3.56	0.69	1.17	0.97	0.62	1.29	0.80	0.25	0.23	0.18	0.00	0.58	1.33	0.92	0.01	0.52	0.30
2002-03	2.94	0.80	0.56	0.25	0.22	4.98	0.62	1.26	1.09	0.63	1.50	0.75	0.26	0.27	0.20	0.83	0.68	1.81	0.54	0.00	0.58	0.18
2003-04	3.12	1.32	0.45	0.22	0.15	3.81	0.48	1.31	0.90	0.50	1.31	0.75	0.26	0.25	0.15	0.55	0.54	1.30	0.38	0.01	0.46	0.21
2004-05	3.16	1.40	0.46	0.23	0.11	3.24	0.50	1.39	1.10	0.49	1.26	0.76	0.29	0.23	0.20	0.49	0.49	1.88	0.48	0.01	0.48	0.33
2005-06	3.27	1.95	0.39	0.19	0.23	3.57	0.60	0.94	0.97	0.53	1.22	0.65	0.30	0.22	0.15	0.63	0.37	1.71	0.52	0.01	0.53	0.26
2006-07	3.32	2.62	0.31	0.27	0.31	2.95	0.68	1.08	0.95	0.49	1.19	0.66	0.36	0.16	0.17	0.56	0.40	1.99	0.57	0.02	0.62	0.22
2007-08	3.49	2.79	0.33	0.34	0.18	2.89	0.30	1.14	0.92	0.50	1.38	0.55	0.26	0.27	0.15	0.73	0.41	0.85	0.66	0.01	0.80	0.16
2008-09	3.42	2.59	0.41	0.28	0.32	4.25	0.63	0.58	1.17	0.49	1.40	0.55	0.40	0.14	0.21	1.03	0.33	0.31	0.26	0.02	0.67	0.25
2009-10	3.47	3.04	0.44	0.26	0.41	3.63	0.57	0.84	1.91	0.44	1.32	0.60	0.18	0.21	0.12	1.19	0.28	0.22	0.79	0.02	0.63	0.32
2010-11	3.59	2.62	0.59	0.30	0.56	2.88	0.57	0.75	1.78	0.50	1.24	0.73	0.22	0.17	0.14	1.92	0.33	0.00	0.54	0.02	0.60	0.36
2011-12	3.84	2.38	0.49	0.27	0.33	3.67	0.66	0.97	1.45	0.42	1.23	0.63	0.16	0.26	0.30	0.93	0.34	0.47	0.55	0.01	0.46	0.28

Note: Please refer Table 1 for description of the industry.

Table A14. Location Quotients: Madhya Pradesh

Year	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)
1998-99	0.56	0.69	2.20	0.05	0.57	0.65	1.21	0.45	0.40	0.63	1.37	1.62	0.39	0.87	0.38	0.00	2.70	0.93	0.41	0.92	0.15	0.42
1999-00	0.58	0.78	1.39	0.04	0.61	0.99	1.66	0.35	0.43	1.02	1.35	1.52	0.84	0.93	0.55	0.00	3.68	1.13	0.70	1.30	0.34	0.40
2000-01	0.62	1.68	1.23	0.07	0.54	0.68	1.52	0.41	0.38	1.08	1.39	1.48	0.59	0.91	0.48	0.00	2.97	1.00	0.46	1.31	0.38	0.42
2001-02	0.67	0.75	1.24	0.12	0.63	0.63	1.93	0.53	0.39	1.00	1.45	1.79	0.62	0.98	0.54	0.00	3.32	1.17	0.51	1.65	0.44	0.58
2002-03	0.80	0.76	1.30	0.11	0.66	0.60	1.16	0.54	0.69	1.15	1.74	1.19	0.55	0.88	0.57	0.00	3.27	1.33	0.47	1.55	0.50	0.51
2003-04	0.86	0.76	1.09	0.10	0.58	0.76	1.45	0.49	0.49	1.18	1.92	1.48	0.66	0.98	0.59	0.00	3.02	1.38	0.50	1.42	0.60	0.70
2004-05	0.88	1.00	1.03	0.09	0.52	0.86	1.06	0.54	0.59	1.09	1.70	1.37	0.78	0.97	0.63	0.00	3.38	1.73	0.64	1.30	0.97	0.39
2005-06	0.75	1.31	1.00	0.17	0.62	0.71	1.53	0.67	0.44	1.24	2.02	1.31	0.58	1.06	0.68	0.00	3.06	1.45	0.57	1.34	0.50	0.40
2006-07	1.04	0.92	0.96	0.24	0.59	0.67	1.41	0.61	0.56	1.27	1.96	1.25	0.55	1.00	0.67	0.29	3.38	0.50	0.88	1.15	0.63	0.44
2007-08	0.98	0.91	1.04	0.29	0.52	0.79	1.33	0.67	0.48	1.21	1.92	1.40	0.60	0.98	0.69	0.29	2.77	0.35	0.67	1.15	0.86	0.43
2008-09	1.00	0.88	1.15	0.14	0.59	0.52	1.36	0.71	0.51	1.10	2.07	1.41	0.79	0.75	0.83	0.00	2.62	0.76	0.48	1.05	0.58	0.48
2009-10	0.85	1.28	0.97	0.14	0.61	1.24	1.16	1.40	0.70	1.11	2.22	1.13	1.02	1.00	0.95	0.00	2.47	0.37	1.22	1.07	0.38	0.46
2010-11	0.89	1.03	1.16	0.22	0.47	0.83	0.96	0.88	1.09	1.21	2.12	1.40	0.76	0.72	0.69	0.08	2.06	0.53	0.51	1.20	0.81	0.46
2011-12	1.08	0.73	1.12	0.06	0.49	0.93	1.55	1.15	0.69	1.33	2.09	0.94	0.78	0.84	0.73	0.16	2.30	0.04	0.79	1.33	0.51	0.44

Note: Please refer Table 1 for description of the industry.

Table A15. Location Quotients: Maharashtra

Year	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)
1998-99	0.76	0.89	0.96	0.34	0.20	0.34	1.24	1.31	1.20	1.41	1.15	0.54	0.77	1.58	1.56	2.38	1.24	1.02	0.96	1.52	0.60	2.82
1999-00	0.81	0.63	0.94	0.49	0.27	0.59	1.22	1.42	0.95	1.07	1.38	0.54	0.79	1.70	1.58	3.35	1.14	1.63	1.47	1.60	1.45	2.22
2000-01	0.94	0.82	0.88	0.37	0.12	0.57	1.06	1.47	1.10	1.16	1.37	0.53	0.79	1.46	1.61	4.40	1.18	1.29	1.05	1.47	1.19	2.62
2001-02	0.86	1.49	0.82	0.33	0.09	0.53	1.08	1.37	0.98	1.19	1.27	0.46	0.80	1.40	1.44	2.67	1.18	1.00	0.95	1.55	1.20	2.38
2002-03	0.88	1.61	0.80	0.31	0.08	0.67	0.92	1.22	1.31	1.25	1.15	0.35	0.85	1.43	1.47	1.85	1.36	1.13	1.33	1.52	1.17	2.29
2003-04	0.86	1.09	0.77	0.30	0.14	0.63	1.00	1.23	1.06	1.27	1.34	0.47	0.88	1.54	1.66	1.81	1.37	1.36	1.27	1.63	1.30	2.19
2004-05	0.76	0.91	0.74	0.32	0.17	0.63	1.06	1.53	1.03	1.32	1.36	0.41	0.95	1.56	1.68	2.43	1.38	1.28	1.27	1.94	1.33	2.29
2005-06	0.83	0.84	0.79	0.29	0.14	0.49	0.95	1.42	1.08	1.28	1.29	0.39	0.99	1.43	1.63	1.83	1.43	1.35	0.96	2.09	1.40	2.31
2006-07	0.84	0.79	0.66	0.31	0.15	0.69	1.00	1.59	0.95	1.15	1.34	0.36	1.12	1.47	1.51	2.64	1.24	1.46	1.19	2.06	2.24	2.22
2007-08	0.97	0.72	0.73	0.25	0.11	0.76	0.79	1.27	0.70	1.14	1.28	0.37	1.00	1.31	1.82	2.40	1.57	1.18	0.82	2.02	1.46	2.34
2008-09	0.87	0.67	0.81	0.33	0.14	0.50	0.91	1.61	0.50	1.22	1.36	0.38	1.05	1.48	1.66	1.57	1.36	1.24	1.21	1.76	1.67	2.29
2009-10	0.90	0.76	0.84	0.30	0.16	0.75	0.91	1.64	0.64	1.20	1.27	0.28	1.06	1.66	1.64	1.61	1.28	0.91	1.44	1.75	1.45	1.99
2010-11	0.92	0.75	0.80	0.39	0.11	0.57	0.91	1.46	0.81	1.15	1.19	0.29	0.96	1.64	1.76	1.40	1.21	1.30	1.24	1.76	1.31	1.85
2011-12	0.91	0.77	0.75	0.29	0.10	0.81	0.94	1.44	0.94	1.20	1.24	0.34	1.05	1.78	1.59	1.42	1.28	1.17	0.97	1.79	1.22	1.56

Note: Please refer Table 1 for description of the industry.

Table A16. Location Quotients: Odisha

Year	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)
1998-99	0.79	0.18	0.56	0.03	0.00	1.84	3.64	0.36	0.62	0.83	1.31	2.26	4.20	1.50	0.35	0.00	0.36	0.34	0.00	0.01	0.00	0.76
1999-00	0.66	1.10	0.41	0.01	0.00	1.64	2.74	0.24	0.79	1.00	0.85	1.71	4.55	0.76	0.42	0.00	0.27	0.07	0.18	0.08	0.00	0.61
2000-01	0.90	0.18	0.51	0.00	0.00	1.61	2.98	0.20	0.47	0.96	1.41	1.70	5.22	0.51	0.31	0.00	0.32	0.04	0.00	0.06	0.00	0.56
2001-02	1.01	0.19	0.29	0.00	0.00	1.88	2.68	0.20	0.79	0.73	1.36	1.94	5.49	0.69	0.32	0.00	0.39	0.00	0.00	0.05	0.00	0.27
2002-03	1.15	0.55	0.23	0.02	0.00	1.60	2.93	0.19	0.81	0.91	1.08	1.42	5.32	0.55	0.32	0.00	0.34	0.12	0.00	0.03	0.00	0.25
2003-04	0.98	1.00	0.20	0.01	0.00	1.20	2.42	0.19	1.21	0.86	0.97	1.96	5.39	0.57	0.33	0.00	0.30	0.09	0.00	0.03	0.00	0.39
2004-05	0.80	2.61	0.13	0.01	0.00	1.32	1.36	0.22	2.85	0.61	0.83	1.92	5.14	0.46	0.30	0.00	0.22	0.17	0.00	0.01	0.00	0.15
2005-06	1.08	1.17	0.15	0.00	0.00	1.22	2.46	0.18	0.91	0.62	0.72	1.85	5.88	0.49	0.31	0.00	0.19	0.00	0.00	0.02	0.00	0.17
2006-07	0.95	1.29	0.13	0.00	0.00	1.01	2.27	0.17	0.81	0.71	0.80	1.71	5.83	0.30	0.39	0.00	0.30	0.00	0.00	0.01	0.00	0.18
2007-08	0.74	1.27	0.12	0.00	0.00	0.93	1.50	0.13	0.71	0.68	0.67	1.57	6.62	0.31	0.36	0.00	0.24	0.00	0.00	0.01	0.00	0.20
2008-09	0.69	1.29	0.08	0.00	0.00	0.78	1.66	0.15	1.24	0.53	0.37	1.34	7.05	0.29	0.11	0.00	0.24	0.00	0.00	0.01	0.00	0.15
2009-10	0.86	0.66	0.10	0.00	0.00	0.70	1.53	0.17	0.76	0.48	0.49	1.43	7.66	0.17	0.08	0.00	0.18	0.00	0.00	0.01	0.00	0.11
2010-11	0.78	1.17	0.07	0.00	0.00	0.62	1.12	0.14	1.08	0.41	0.45	1.16	7.81	0.28	0.07	0.00	0.15	0.00	0.00	0.01	0.00	0.13
2011-12	0.65	1.34	0.09	0.00	0.00	0.85	0.98	0.15	3.71	0.46	0.49	1.14	7.49	0.23	0.11	0.00	0.20	0.00	0.00	0.02	0.00	0.08

Note: Please refer Table 1 for description of the industry.

Table A17. Location Quotients: Punjab

Year	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)
1998-99	1.71	0.00	1.23	0.40	1.03	0.60	0.82	0.14	0.04	0.40	1.56	0.08	0.70	1.73	1.00	0.00	0.60	0.86	0.31	1.29	2.61	0.53
1999-00	1.48	0.00	1.23	0.05	0.90	0.44	0.84	0.29	0.13	0.41	1.86	0.11	0.96	1.73	1.14	0.00	0.48	1.38	0.41	1.35	4.11	0.95
2000-01	1.44	0.00	1.31	0.02	1.02	0.54	0.81	0.75	0.05	0.44	1.65	0.29	0.92	1.43	1.28	0.00	0.55	0.52	0.25	1.20	4.55	0.64
2001-02	1.52	0.00	1.31	0.14	0.69	0.74	0.81	0.41	0.07	0.38	1.44	0.32	0.92	1.39	1.31	0.42	0.52	1.04	0.34	1.16	4.76	0.68
2002-03	1.54	0.00	1.23	0.12	0.72	0.66	2.43	0.35	0.04	0.42	1.38	0.26	0.90	1.43	1.28	0.00	0.49	0.74	0.50	1.22	4.80	0.54
2003-04	1.44	0.00	1.29	0.15	0.78	0.64	1.33	0.41	0.10	0.37	1.44	0.49	0.80	1.79	1.28	0.00	0.64	0.66	0.24	1.08	4.57	0.59
2004-05	1.54	0.00	1.28	0.05	0.70	0.83	1.20	0.29	0.05	0.40	1.12	1.33	0.81	1.28	1.34	0.00	0.55	0.44	0.23	0.73	4.11	0.44
2005-06	1.29	0.00	1.26	0.13	0.44	0.62	1.11	0.27	0.05	0.34	1.27	1.78	0.82	1.53	1.35	0.00	0.50	0.51	0.32	0.76	4.41	0.49
2006-07	1.36	0.00	1.21	0.13	0.48	0.60	1.06	0.25	0.04	0.35	0.95	2.09	0.75	1.52	1.40	0.00	0.36	0.38	0.45	0.77	2.95	0.64
2007-08	1.32	0.00	1.48	0.10	0.36	0.46	0.92	0.43	0.04	0.42	1.09	1.92	0.80	1.41	1.25	0.00	0.61	0.28	0.41	0.69	2.98	0.34
2008-09	1.28	0.00	1.20	1.11	0.29	0.65	1.04	0.14	0.02	0.41	0.72	2.06	0.78	1.22	0.91	0.12	0.43	0.52	0.38	0.78	3.78	0.35
2009-10	1.25	0.00	1.25	0.97	0.31	0.51	0.84	0.32	0.09	0.40	0.97	2.17	0.79	1.18	1.22	0.23	0.35	0.21	0.35	0.67	3.58	0.37
2010-11	1.37	0.00	1.28	1.31	0.24	0.43	0.83	0.27	0.04	0.28	0.69	1.82	0.81	1.15	1.17	0.11	0.35	0.32	0.38	0.50	3.54	0.53
2011-12	1.11	0.00	1.57	1.04	0.32	0.60	0.91	0.25	0.04	0.33	0.66	2.12	0.69	0.98	1.29	0.20	0.39	0.26	0.41	0.53	3.72	0.57

Note: Please refer Table 1 for description of the industry.

Table A18. Location Quotients: Rajasthan

Year	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)
1998-99	0.50	0.21	1.87	0.30	0.34	0.47	0.31	0.42	0.66	0.66	1.30	2.98	1.15	0.88	0.69	0.81	0.77	0.95	1.06	0.30	0.43	1.94
1999-00	0.45	0.25	2.10	0.46	0.48	0.58	0.29	0.46	0.51	0.59	0.86	2.99	0.89	0.57	0.96	0.36	0.46	1.03	1.25	0.35	0.26	1.97
2000-01	0.42	0.22	1.85	0.36	0.48	0.55	0.38	0.49	0.39	0.84	1.03	2.83	1.00	0.47	1.14	0.32	0.87	0.98	1.54	0.20	0.71	2.60
2001-02	0.48	0.21	1.95	0.46	0.66	0.41	0.33	0.44	0.47	0.65	0.94	2.85	0.90	0.77	0.92	0.26	0.59	1.08	1.31	0.56	0.44	2.09
2002-03	0.49	0.23	1.90	0.37	0.60	0.42	0.34	0.31	0.20	0.80	1.10	2.50	0.85	0.59	0.82	0.36	0.78	0.95	1.25	0.38	0.25	2.69
2003-04	0.42	0.20	1.84	0.23	0.75	0.54	0.34	0.38	0.42	0.76	0.99	3.59	0.85	0.49	0.84	0.30	0.64	1.07	1.31	0.36	0.20	3.08
2004-05	0.45	0.22	1.83	0.45	0.64	0.58	0.37	0.30	0.30	0.91	0.94	3.06	0.76	0.57	0.67	0.24	0.51	1.00	1.55	0.37	0.28	3.34
2005-06	0.47	0.50	1.75	0.60	0.64	0.98	0.49	0.41	0.37	0.76	0.85	3.00	0.82	0.39	0.72	0.27	0.75	0.63	1.56	0.62	0.22	2.44
2006-07	0.50	0.56	1.67	0.60	0.69	0.66	0.43	0.28	0.10	0.77	0.82	2.83	1.10	0.37	0.69	0.00	0.83	0.65	1.70	0.47	0.21	2.01
2007-08	0.50	0.51	1.74	0.99	0.47	0.77	0.48	0.27	0.07	0.74	0.96	2.87	0.78	0.37	0.64	0.00	0.97	0.55	1.61	0.54	0.30	2.30
2008-09	0.57	0.61	1.93	0.47	0.46	2.66	0.47	0.32	0.16	0.76	0.70	2.73	0.91	0.66	0.55	0.37	0.99	0.53	1.93	0.47	0.11	1.65
2009-10	0.63	0.42	1.94	0.50	0.66	2.62	0.51	0.28	0.27	0.75	0.70	2.66	0.91	0.70	0.60	0.20	1.08	1.11	1.86	0.49	0.11	1.69
2010-11	0.63	0.34	1.87	0.57	0.58	2.24	0.25	0.37	0.23	0.68	0.69	2.67	0.93	0.84	0.66	0.53	1.07	2.12	1.45	0.38	0.21	1.77
2011-12	0.66	0.43	1.79	0.50	0.62	2.13	0.50	0.32	0.10	0.79	0.90	2.67	0.74	0.83	0.78	0.36	0.98	1.32	1.73	0.68	0.37	1.45

Note: Please refer Table 1 for description of the industry.

Table A19. Location Quotients: Tamil Nadu

Year	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)
1998-99	0.89	0.10	1.42	2.05	3.47	0.77	0.91	1.03	0.50	1.61	0.66	0.61	0.51	1.11	0.72	0.43	0.46	0.57	0.82	1.47	0.32	0.64
1999-00	0.74	0.07	1.55	2.54	3.22	0.47	0.85	1.63	0.38	1.59	0.65	0.44	0.33	0.95	0.80	0.27	0.41	0.45	1.04	1.32	0.67	0.74
2000-01	0.70	0.06	1.52	2.42	3.08	0.40	0.88	1.24	0.46	1.44	0.63	0.55	0.39	0.98	0.91	0.03	0.51	0.42	0.92	1.40	0.53	0.70
2001-02	0.70	0.08	1.58	2.04	3.31	0.60	0.78	1.40	0.39	1.51	0.64	0.60	0.33	0.95	0.91	0.39	0.56	0.55	0.94	1.34	0.56	0.90
2002-03	0.74	0.08	1.70	1.91	2.80	0.53	0.79	1.36	0.35	1.49	0.76	0.41	0.48	0.99	0.88	0.27	0.53	0.44	0.77	1.66	0.51	0.72
2003-04	0.69	0.03	1.76	1.73	2.68	0.65	0.87	1.33	0.30	1.40	0.70	0.51	0.45	0.90	0.86	0.44	0.46	0.54	0.88	1.60	0.47	0.69
2004-05	0.69	0.05	1.78	1.68	2.69	0.64	0.78	1.21	0.26	1.38	0.77	0.55	0.41	0.96	0.77	0.55	0.61	0.54	0.63	1.48	0.48	0.68
2005-06	0.70	0.04	1.85	1.56	2.61	0.68	0.81	1.36	0.19	1.21	0.78	0.47	0.48	0.94	0.86	0.66	0.45	0.37	0.61	1.56	0.62	0.64
2006-07	0.67	0.04	2.16	1.22	2.38	0.48	0.75	1.12	0.13	1.08	0.75	0.49	0.44	0.85	0.98	0.34	0.43	0.36	0.75	1.47	0.27	0.59
2007-08	0.63	0.05	1.77	1.29	3.15	0.65	1.96	1.32	0.23	1.13	0.85	0.46	0.33	1.17	0.94	0.56	0.28	0.32	0.70	1.50	0.42	0.81
2008-09	0.64	0.05	1.76	1.82	2.71	0.53	0.88	1.23	0.21	1.01	0.89	0.49	0.35	1.26	0.84	1.08	0.38	0.83	0.89	1.67	0.40	0.58
2009-10	0.67	0.05	1.61	1.96	2.36	0.43	0.95	1.30	0.52	0.93	0.86	0.46	0.44	1.08	1.10	1.24	0.35	0.56	0.89	1.63	0.47	0.60
2010-11	0.65	0.04	1.54	1.98	2.59	0.58	0.86	1.26	0.44	0.87	0.72	0.39	0.38	1.38	0.90	1.42	0.58	0.85	0.94	1.79	0.35	0.63
2011-12	0.72	0.05	1.50	1.91	2.56	0.52	0.87	1.19	0.46	0.91	0.81	0.43	0.41	1.16	1.06	1.06	0.61	0.91	0.97	1.71	0.44	0.68

Note: Please refer Table 1 for description of the industry.

Table A20. Location Quotients: Uttar Pradesh

Year	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)
1998-99	1.79	0.30	0.67	0.52	1.68	0.74	1.14	2.20	0.86	0.79	1.53	0.80	0.64	0.85	0.87	1.41	1.35	2.28	1.06	0.86	0.70	1.47
1999-00	1.79	0.30	0.53	0.57	1.90	0.90	1.09	1.02	0.45	0.93	1.30	0.91	0.72	0.63	0.82	1.29	1.48	1.90	0.67	0.89	1.27	2.62
2000-01	1.72	0.35	0.50	0.59	2.78	0.84	0.88	0.84	0.40	0.87	0.85	0.90	0.64	1.76	0.84	1.06	1.49	2.48	1.05	1.03	1.18	1.31
2001-02	1.70	0.30	0.49	0.51	2.57	0.98	1.04	1.35	0.21	0.88	0.90	0.78	0.73	2.23	0.74	3.06	1.29	2.28	1.13	0.87	1.39	0.98
2002-03	1.72	0.28	0.53	0.57	3.75	0.87	0.85	1.33	0.42	0.78	1.00	0.51	0.66	2.69	0.74	4.38	1.20	2.38	0.97	0.68	1.26	0.99
2003-04	1.65	0.30	0.58	0.76	3.82	1.06	1.07	1.33	0.49	0.73	0.76	0.68	0.59	2.36	0.70	4.12	1.22	2.25	1.11	0.75	1.17	0.68
2004-05	1.63	0.42	0.47	0.84	3.90	1.08	1.19	1.47	0.35	0.69	0.72	0.69	0.68	2.30	0.68	4.18	1.17	2.46	1.12	0.80	1.29	0.61
2005-06	1.60	0.32	0.41	1.00	4.36	1.15	0.95	1.43	0.28	0.77	0.76	0.80	0.59	2.10	0.75	4.63	1.11	2.87	1.21	0.77	0.77	0.65
2006-07	1.55	0.33	0.42	0.95	4.44	1.47	0.91	1.60	0.35	0.76	0.85	1.15	0.53	2.03	0.72	4.05	1.14	2.59	1.01	0.74	0.89	0.61
2007-08	1.61	0.26	0.35	1.12	3.37	1.53	0.74	1.34	0.89	0.56	0.91	1.06	0.54	2.21	0.67	4.34	1.02	2.34	1.07	0.72	1.05	0.71
2008-09	1.52	0.29	0.41	1.11	3.81	0.97	0.97	1.51	0.83	0.63	0.78	1.03	0.44	2.05	0.77	3.37	1.01	2.20	0.25	0.87	0.64	0.89
2009-10	1.50	0.41	0.40	1.20	3.58	1.06	0.93	1.48	0.85	0.64	0.75	1.01	0.35	1.85	0.68	2.59	1.41	1.36	0.41	0.74	1.01	0.84
2010-11	1.41	0.27	0.39	1.45	3.66	1.03	1.05	1.92	1.06	0.68	0.93	0.99	0.45	1.42	0.72	2.28	1.22	3.38	1.26	0.59	0.76	0.89
2011-12	1.39	0.55	0.39	1.37	3.46	0.84	1.09	2.60	0.34	0.70	0.89	0.99	0.42	1.66	0.72	2.22	1.03	3.04	0.50	0.73	0.77	0.73

Note: Please refer Table 1 for description of the industry.

Table A21. Location Quotients: Uttarakhand

Year	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)
1998-99	1.96	0.00	0.21	0.23	0.14	0.00	6.32	0.00	0.00	0.27	1.18	1.88	0.04	0.53	0.00	0.00	1.72	13.24	3.44	0.06	0.08	0.36
1999-00	1.69	0.00	0.23	0.00	0.28	2.23	7.93	1.90	0.00	0.63	0.82	3.58	0.06	0.01	0.12	0.00	2.54	2.20	4.58	0.00	0.00	0.48
2000-01	1.60	0.00	0.19	0.07	0.00	1.41	5.91	0.68	0.00	0.47	1.21	1.22	0.71	0.92	3.13	0.00	2.82	1.87	5.95	0.00	0.08	0.64
2001-02	1.48	0.00	0.17	0.08	0.04	3.08	6.02	0.82	0.00	0.58	1.23	1.16	0.69	0.89	3.10	0.00	2.99	2.03	5.54	0.00	0.08	0.63
2002-03	1.83	0.00	0.04	0.08	0.04	2.75	6.08	0.88	0.00	0.66	1.24	0.89	0.70	0.74	3.00	0.00	2.61	1.85	4.54	0.07	0.00	0.64
2003-04	1.83	0.00	0.05	0.07	0.00	2.54	6.22	0.90	0.00	0.64	1.13	1.11	0.62	0.94	3.08	0.00	2.80	1.74	3.72	0.05	0.00	0.53
2004-05	1.60	0.00	0.07	0.36	0.12	2.70	5.87	0.44	0.00	0.89	1.16	0.96	0.81	0.86	2.77	0.00	3.48	2.55	3.34	0.07	0.00	0.48
2005-06	1.23	0.00	0.10	0.08	0.36	2.17	4.78	0.73	0.00	2.03	1.48	1.33	0.42	1.74	2.05	0.00	3.65	1.80	2.69	0.06	0.07	0.30
2006-07	1.08	0.00	0.11	0.13	0.95	2.33	4.77	0.63	0.12	2.70	1.33	0.57	0.31	2.13	1.67	0.00	4.34	2.50	1.87	0.11	0.29	0.26
2007-08	0.91	0.00	0.13	0.06	0.89	3.09	2.54	0.64	0.08	2.68	1.09	0.72	0.44	1.25	2.18	0.46	4.03	2.13	1.62	0.99	0.64	0.18
2008-09	0.72	0.04	0.19	0.04	0.81	1.33	2.22	0.36	0.00	1.96	1.88	0.46	0.38	0.69	4.72	1.57	2.93	3.38	3.01	1.18	1.35	0.55
2009-10	0.69	0.00	0.23	0.04	0.79	1.30	3.24	0.69	0.31	2.52	2.13	0.32	0.37	0.89	1.06	1.82	2.76	2.00	4.45	2.55	1.14	0.78
2010-11	0.64	0.00	0.19	0.09	1.03	1.77	2.17	1.27	0.04	2.14	2.46	0.28	0.32	0.55	0.99	1.46	3.25	3.17	3.27	2.37	2.98	0.66
2011-12	0.62	0.00	0.19	0.04	0.88	1.38	2.39	0.46	0.00	1.99	2.45	0.33	0.26	0.80	0.95	1.20	2.69	3.16	2.84	2.89	2.65	1.09

Note: Please refer Table 1 for description of the industry.

Table A22. Location Quotients: West Bengal

Year	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)
1998-99	0.55	0.15	1.99	0.11	0.81	1.35	0.55	0.76	1.36	0.47	0.38	0.37	1.95	0.72	2.07	0.00	1.09	0.95	1.02	0.56	0.92	0.18
1999-00	0.62	0.33	2.16	0.10	1.12	1.31	0.52	0.97	1.23	0.55	0.53	0.49	1.96	0.79	0.76	0.24	0.91	0.75	1.00	0.48	1.77	0.22
2000-01	0.55	0.31	2.36	0.05	0.80	1.35	0.48	1.00	1.44	0.43	0.46	0.47	2.16	0.76	0.65	0.40	0.95	0.37	0.95	0.52	1.70	0.18
2001-02	0.61	0.44	2.31	0.08	0.87	1.64	0.51	0.77	1.28	0.51	0.49	0.40	2.27	0.71	0.69	0.22	0.94	0.52	0.80	0.46	1.65	0.19
2002-03	0.64	0.39	2.52	0.06	0.84	1.71	0.65	0.82	1.44	0.51	0.48	0.33	2.23	0.66	0.65	0.21	0.92	0.52	0.80	0.38	1.44	0.26
2003-04	0.68	0.51	2.41	0.08	0.89	1.27	0.53	1.09	1.38	0.42	0.44	0.50	2.10	0.70	0.62	0.17	0.96	0.50	0.74	0.40	1.22	0.22
2004-05	0.75	0.40	2.56	0.04	1.00	1.46	0.61	0.91	1.28	0.45	0.45	0.42	2.02	0.69	0.58	0.12	0.82	0.45	0.58	0.35	1.44	0.18
2005-06	0.83	0.73	2.47	0.05	1.04	1.21	0.58	0.82	1.43	0.44	0.53	0.41	2.03	0.63	0.57	0.12	0.74	0.51	0.61	0.06	1.23	0.31
2006-07	0.88	0.61	2.13	0.11	0.91	1.46	0.57	1.20	1.25	0.46	0.41	0.35	2.30	0.96	0.66	0.28	0.78	0.55	0.68	0.06	1.18	0.12
2007-08	0.84	0.54	2.63	0.06	0.70	2.10	0.40	0.81	0.95	0.43	0.51	0.34	2.23	0.52	0.48	0.35	0.73	0.40	0.54	0.20	1.43	0.14
2008-09	0.88	1.02	2.46	0.20	1.25	2.36	0.54	0.86	1.50	0.52	0.43	0.34	2.04	0.61	0.46	0.16	0.79	0.70	0.68	0.13	1.48	0.20
2009-10	0.94	0.57	2.38	0.25	1.98	1.95	0.58	0.74	1.37	0.38	0.40	0.38	2.29	0.81	0.75	0.33	0.85	0.35	0.84	0.10	1.41	0.22
2010-11	0.92	0.68	2.42	0.18	1.56	1.78	0.64	1.12	1.94	0.43	0.38	0.39	2.30	0.91	0.63	0.21	0.83	0.59	0.76	0.10	1.17	0.35
2011-12	0.91	0.46	2.45	0.15	2.47	1.87	0.71	0.76	1.77	0.40	0.56	0.33	2.22	0.90	0.48	0.22	0.90	0.53	0.73	0.12	1.36	0.69

Note: Please refer Table 1 for description of the industry.

Table A23. Location Quotients: Other States/UTs

Year	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)
1998-99	0.33	0.02	0.84	0.78	1.55	7.05	2.33	2.46	0.45	1.45	4.76	1.60	0.54	1.20	1.08	4.58	1.12	0.70	1.24	0.14	0.29	1.66
1999-00	0.33	0.02	0.97	0.65	1.27	5.20	2.49	1.81	0.38	1.32	4.31	1.28	0.54	0.95	1.05	6.75	2.13	1.25	1.05	0.19	0.47	1.53
2000-01	0.30	0.02	1.00	0.44	0.92	4.54	2.88	1.18	0.61	1.38	5.06	1.44	0.58	0.81	1.03	3.33	1.68	1.23	1.70	0.18	0.56	1.54
2001-02	0.25	0.03	0.97	0.25	0.85	1.77	1.75	0.93	0.62	1.36	6.48	1.43	0.62	1.00	1.17	2.92	1.74	0.95	1.24	0.24	0.54	1.75
2002-03	0.25	0.03	1.07	0.51	0.69	1.70	1.79	0.89	0.32	1.73	4.95	1.25	0.53	1.12	1.09	3.97	2.37	0.74	1.42	0.11	0.56	1.74
2003-04	0.24	0.04	0.93	0.38	0.62	1.46	1.82	1.07	0.35	1.50	5.15	1.84	0.70	0.67	1.19	6.37	2.38	0.81	1.42	0.17	0.42	2.05
2004-05	0.22	0.04	0.84	0.34	0.63	1.49	2.25	0.93	0.43	1.45	5.56	1.81	0.74	0.69	1.04	2.90	2.69	0.75	1.60	0.15	0.42	1.78
2005-06	0.23	0.06	0.93	0.34	0.57	1.60	1.63	0.89	0.46	1.42	4.93	1.86	0.82	0.61	0.93	2.82	3.03	0.91	1.88	0.13	0.37	2.06
2006-07	0.24	0.05	0.80	0.55	0.49	1.96	1.96	0.54	0.41	1.54	5.72	1.77	0.64	0.79	0.77	3.84	2.43	0.89	1.28	0.12	0.29	1.91
2007-08	0.24	0.04	1.01	0.44	0.36	1.29	1.65	0.76	0.30	1.36	5.25	1.96	0.70	0.56	0.77	3.05	2.69	0.86	1.53	0.12	0.34	1.58
2008-09	0.25	0.07	1.09	0.43	0.31	1.18	1.67	0.61	0.42	1.21	4.53	1.90	0.69	0.78	0.54	1.09	2.76	1.07	1.77	0.15	0.18	2.27
2009-10	0.18	0.04	1.21	0.40	0.35	1.28	1.69	0.91	0.58	1.44	4.16	1.80	0.57	0.54	0.63	1.42	3.01	0.39	0.94	0.16	0.10	2.09
2010-11	0.22	0.04	1.20	0.50	0.13	0.85	2.18	0.50	0.53	1.54	4.35	1.92	0.61	0.46	0.53	1.28	2.25	0.27	0.88	0.13	0.08	1.89
2011-12	0.24	0.07	1.45	0.51	0.22	1.21	1.83	0.39	0.45	1.07	4.14	1.99	0.63	0.55	0.52	1.19	2.12	0.09	0.72	0.22	0.07	2.36

Note: Please refer Table 1 for description of the industry.

Annexure B: Lary's Index

Table B1. Lary's Index: Andhra Pradesh

Year	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	Mfg. Sect.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
1998-99	0.84	0.14	1.14	0.43	1.50	0.42	1.88	3.10	14.38	4.92	2.00	2.31	2.05	1.02	2.17	7.06	4.97	2.69	0.63	0.39	1.39	0.44	1.05
1999-00	0.84	0.14	1.00	0.37	0.29	0.67	1.69	3.20	4.58	4.60	1.81	1.68	2.80	2.69	1.81	10.37	4.83	4.68	1.09	1.28	0.75	0.56	1.07
2000-01	0.81	0.17	1.00	0.17	0.75	0.46	2.15	1.41	11.34	2.68	1.66	2.15	3.12	1.05	2.48	7.70	3.54	5.25	0.87	1.53	1.49	1.06	1.03
2001-02	1.14	0.12	0.82	0.73	0.46	0.92	1.97	1.50	25.23	4.42	2.56	1.42	3.93	1.18	1.67	3.76	4.64	7.76	1.05	1.26	1.26	0.82	1.18
2002-03	1.06	0.15	1.00	0.73	0.41	0.63	2.50	0.99	35.33	3.72	2.49	0.47	5.71	1.64	1.53	7.65	3.34	11.23	1.22	1.47	1.91	0.78	1.09
2003-04	0.93	0.14	1.05	0.61	0.32	0.54	2.29	2.01	51.32	3.76	2.15	1.58	8.19	1.41	1.64	7.45	6.20	13.58	1.86	2.06	1.36	0.78	1.42
2004-05	1.23	0.14	1.00	0.47	0.53	0.79	2.12	1.86	32.52	3.16	2.72	1.57	7.05	1.42	2.10	11.16	4.01	11.52	2.09	1.39	1.46	0.36	1.44
2005-06	1.34	0.14	1.01	0.57	0.50	1.15	2.37	1.82	15.09	3.42	1.64	1.71	4.75	2.28	1.93	20.27	5.08	7.30	2.82	0.72	1.70	0.94	1.48
2006-07	1.48	0.16	1.09	0.39	0.52	1.03	2.30	3.63	28.48	5.74	2.14	2.49	7.51	2.01	2.86	12.00	5.17	20.07	2.36	1.46	1.55	1.16	2.04
2007-08	1.10	0.15	1.31	0.54	0.42	1.19	2.22	3.02	33.57	4.25	3.91	5.56	7.75	2.27	2.96	10.70	3.42	7.25	3.77	2.32	1.62	1.28	2.14
2008-09	1.25	0.31	1.31	1.19	0.32	0.68	1.02	2.05	4.61	9.83	6.42	3.68	4.96	1.25	2.72	32.86	4.61	11.99	7.88	1.17	5.55	0.52	2.56
2009-10	1.24	0.03	2.82	0.94	0.63	1.38	--	0.69	14.78	4.97	6.59	2.93	5.44	2.00	1.62	21.47	3.96	1.67	18.51	1.83	2.66	2.07	2.10
2010-11	1.57	0.31	1.65	0.79	0.35	0.89	3.29	1.42	10.11	5.49	2.30	2.76	7.14	1.67	6.82	8.01	3.11	--	13.27	2.35	1.60	2.27	2.29
2011-12	1.84	0.29	0.98	0.60	0.31	0.36	3.70	0.93	3.61	7.38	2.81	3.66	6.93	1.51	3.40	4.71	5.09	6.08	5.30	1.89	4.27	4.59	2.58

Note: Please refer Table 1 for description of the industry.

Table B2. Lary's Index: Assam

Year	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	Mfg. Sect.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
1998-99	0.98	--	0.31	--	--	0.52	2.58	1.03	7.13	0.18	0.99	0.90	1.31	0.42	0.64	--	1.61	--	--	0.02	--	--	1.26
1999-00	0.95	--	0.43	--	--	0.60	3.88	0.99	7.95	0.97	1.42	0.39	0.67	1.41	0.38	--	0.96	--	--	0.76	--	0.39	1.32
2000-01	0.70	0.30	0.47	--	--	0.23	3.22	0.80	5.22	1.22	1.03	0.26	1.43	0.68	0.88	--	3.47	--	--	0.51	--	0.46	1.03
2001-02	0.62	5.74	0.40	--	--	0.48	3.33	0.98	2.24	1.75	2.02	0.25	0.91	0.64	0.74	--	2.25	--	--	0.41	--	0.54	0.81
2002-03	0.58	11.95	0.33	--	--	0.30	3.78	0.99	17.56	6.35	1.08	0.41	0.64	0.66	1.48	--	2.71	2.50	--	0.45	--	1.84	1.86
2003-04	0.50	10.05	0.32	--	--	0.27	3.33	1.24	20.23	7.31	1.87	0.30	1.07	1.07	1.75	--	2.87	4.62	--	0.63	--	0.55	2.04
2004-05	0.56	8.54	0.67	--	--	0.22	3.34	1.03	14.45	7.61	2.50	0.57	0.27	0.78	1.46	--	3.01	21.91	--	0.53	--	1.76	1.89
2005-06	0.59	5.73	0.77	--	--	0.27	4.05	1.37	11.27	3.78	2.82	0.39	0.72	0.58	0.75	--	3.29	--	--	0.41	--	0.60	1.56
2006-07	0.62	4.93	0.56	--	--	0.38	3.54	1.55	8.28	5.68	2.82	0.48	4.49	0.62	0.86	--	1.85	2.84	--	0.72	--	0.51	1.58
2007-08	0.66	1.54	0.79	--	--	0.64	4.76	1.49	5.27	7.33	3.14	0.41	2.08	0.70	0.95	--	1.52	3.42	--	0.45	--	0.73	1.52
2008-09	1.10	14.22	1.03	1.62	--	0.91	3.00	1.98	0.74	7.94	2.76	0.35	2.84	1.09	1.06	5.14	2.20	--	--	1.56	--	1.67	1.43
2009-10	1.01	5.43	0.76	1.21	--	0.57	2.47	1.77	5.89	9.72	3.62	0.54	1.73	0.74	1.88	--	3.23	--	--	0.66	--	2.16	1.71
2010-11	0.97	5.84	0.37	0.86	--	0.92	0.41	4.81	13.02	4.89	4.24	0.82	4.32	0.88	1.25	1.42	1.21	--	--	0.92	--	3.65	1.82
2011-12	1.13	5.59	1.19	0.83	--	2.12	-0.48	65.95	6.45	6.04	1.79	0.58	2.17	0.34	1.25	1.38	2.85	--	--	1.19	--	16.68	1.84

Note: Please refer Table 1 for description of the industry.

Table B3. Lary's Index: Bihar

Year	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	Mfg. Sect.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
1998-99	1.47	10.00	0.15	--	0.05	0.26	0.54	2.68	8.61	--	1.98	0.15	0.49	0.59	0.45	--	0.10	--	--	--	1.19	0.44	1.05
1999-00	1.29	5.87	0.25	--	0.96	0.18	0.40	2.68	16.12	0.08	1.06	0.18	1.50	1.44	0.64	--	0.50	--	--	--	2.57	1.48	1.41
2000-01	1.94	4.59	0.25	--	0.64	0.21	0.37	1.74	7.31	0.04	0.98	0.21	--	0.89	2.10	--	0.66	0.38	--	--	1.96	1.54	1.08
2001-02	1.81	3.93	0.36	--	0.61	0.28	0.60	3.89	2.96	0.10	1.20	0.13	0.83	0.29	0.42	--	--	--	--	4.30	1.75	1.14	0.89
2002-03	1.53	4.60	0.31	--	0.66	0.17	4.41	1.49	7.97	1.28	2.79	0.15	1.13	0.42	0.64	--	0.78	--	1.49	--	1.06	1.01	1.28
2003-04	1.33	5.02	0.14	--	1.12	0.19	6.38	1.46	3.49	1.10	0.90	0.13	0.72	0.42	0.64	--	0.63	--	--	--	0.27	1.70	0.93
2004-05	1.10	4.68	0.43	--	0.84	0.18	8.13	0.46	6.87	0.24	2.69	0.16	0.70	0.28	0.48	--	1.11	--	--	--	0.17	0.67	1.04
2005-06	1.72	5.20	0.30	--	0.50	0.15	8.32	0.82	--	0.77	2.77	0.13	0.68	1.05	0.51	--	0.28	--	--	--	0.10	0.92	0.71
2006-07	1.49	5.65	0.60	--	1.50	0.40	7.95	1.80	--	0.84	1.30	0.14	0.98	1.21	1.39	--	0.67	--	--	--	0.22	0.73	0.66
2007-08	1.55	12.98	0.69	--	0.74	0.39	4.37	2.94	0.49	0.91	1.73	0.15	1.75	1.79	1.14	--	0.85	--	--	--	0.34	0.95	1.02
2008-09	2.16	14.78	0.43	--	0.59	0.38	1.04	4.94	12.69	1.83	41.89	0.22	0.44	1.26	1.30	--	0.81	--	--	0.88	0.16	1.11	1.77
2009-10	1.22	14.67	0.73	--	0.61	0.35	2.99	1.30	3.41	1.09	18.22	0.23	5.85	--	1.26	--	5.21	--	--	--	0.19	1.05	1.37
2010-11	0.80	14.85	0.63	--	0.67	0.41	2.06	18.66	32.63	1.27	5.03	0.29	2.24	0.82	1.89	--	1.05	--	--	0.02	0.98	1.20	1.61
2011-12	1.32	23.50	0.36	6.60	0.66	0.46	3.28	0.66	11.51	2.31	2.19	0.43	0.96	0.43	3.56	--	1.37	--	--	1.26	0.45	2.09	1.34

Note: Please refer Table 1 for description of the industry.

Table B4. Lary's Index: Chhattisgarh

Year	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	Mfg. Sect.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
1998-99	0.64	1.02	1.48	0.36	0.53	0.83	0.03	0.48	0.77	3.09	0.56	2.80	5.87	0.68	1.49	--	0.10	--	--	--	0.99	19.32	3.80
1999-00	0.85	0.62	0.25	--	--	0.26	0.81	0.45	0.86	3.16	1.72	3.14	3.79	1.02	1.76	--	1.33	--	--	--	1.53	0.24	2.86
2000-01	0.54	0.77	1.18	--	0.36	0.32	0.53	0.68	0.71	2.19	1.24	5.69	4.27	0.40	0.78	--	2.22	--	--	--	1.02	0.28	3.28
2001-02	0.90	0.41	0.56	--	0.38	0.51	0.52	0.77	1.05	0.78	1.11	2.08	4.88	0.97	1.17	--	1.87	--	--	--	0.84	0.21	3.26
2002-03	0.58	0.71	1.65	--	0.45	0.71	0.69	0.77	5.72	1.19	1.30	2.97	6.96	0.71	1.05	--	0.99	--	--	--	0.89	1.03	4.40
2003-04	0.45	0.37	1.12	--	0.28	0.47	1.05	0.82	3.31	1.31	3.62	3.63	8.22	0.55	0.88	--	1.37	--	--	--	1.08	1.08	4.99
2004-05	0.19	0.29	1.63	--	0.34	0.90	1.40	0.84	2.80	2.03	0.56	5.29	10.86	0.71	1.33	--	1.97	--	--	--	0.71	1.11	6.02
2005-06	0.61	0.25	1.32	--	0.36	0.43	1.42	0.90	2.26	0.54	1.20	3.11	7.31	2.79	1.12	--	1.39	--	--	--	1.31	0.87	4.39
2006-07	0.78	0.26	1.16	--	0.44	0.53	1.75	1.16	1.98	1.32	1.56	6.42	8.64	2.68	1.39	--	1.18	--	--	--	0.94	0.74	5.60
2007-08	1.69	0.24	2.06	--	0.44	0.45	1.51	0.23	1.78	0.88	1.14	11.23	7.69	1.20	1.86	--	2.01	--	--	--	0.94	0.64	5.72
2008-09	1.22	0.24	1.83	--	0.86	0.43	1.31	1.24	4.07	3.42	0.84	8.76	7.43	1.95	1.93	10.22	5.18	--	--	1.13	1.49	0.96	5.34
2009-10	0.92	0.29	0.27	--	0.82	0.62	1.18	1.72	0.48	1.66	1.38	11.71	6.82	2.29	2.16	18.86	1.47	--	--	--	1.06	1.59	5.35
2010-11	1.12	0.37	1.34	--	0.70	0.85	0.96	3.30	--	2.96	--	6.18	7.65	1.18	1.99	5.79	0.71	--	--	--	2.49	0.76	5.10
2011-12	1.29	0.38	1.73	--	0.84	1.61	0.74	0.56	-6.56	2.16	1.52	6.86	6.49	1.02	2.00	1.65	2.20	--	--	--	1.07	2.33	4.57

Note: Please refer Table 1 for description of the industry.

Table B5. Lary's Index: Delhi

Year	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	Mfg. Sect.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
1998-99	5.20	2.30	1.66	4.27	1.27	0.91	2.92	2.70	--	1.99	1.67	0.65	1.06	1.37	1.00	2.43	1.92	3.47	2.19	1.35	0.95	2.02	2.48
1999-00	2.46	2.53	1.60	4.01	2.10	0.57	1.72	1.86	--	9.93	1.08	0.88	1.00	1.01	1.43	1.36	2.06	7.75	1.56	1.67	1.66	1.39	2.89
2000-01	3.48	1.55	2.73	3.01	1.30	0.48	3.51	1.81	0.26	2.27	1.27	0.71	0.81	1.52	1.00	--	1.50	4.37	1.56	1.61	1.64	1.22	2.12
2001-02	3.81	1.39	3.01	2.42	1.33	0.90	1.78	1.61	3.31	4.07	1.10	0.72	0.97	1.65	1.30	7.47	1.98	9.88	3.39	1.19	1.64	1.71	2.35
2002-03	5.06	2.65	3.37	2.16	1.65	0.42	1.02	2.37	2.02	5.15	1.59	0.80	0.83	1.74	1.44	--	2.30	5.99	4.79	1.15	2.33	0.72	2.39
2003-04	3.13	0.48	2.87	1.73	1.41	0.33	1.49	1.84	1.80	4.36	1.16	1.25	1.33	2.10	1.32	--	2.22	4.81	1.96	1.64	2.24	1.30	2.01
2004-05	3.88	0.63	1.79	1.66	1.83	0.96	2.66	3.42	1.97	5.69	1.54	0.75	0.79	1.70	1.45	7.64	2.69	7.41	1.65	1.41	3.52	2.26	2.26
2005-06	3.95	1.62	2.15	2.01	1.36	1.56	3.79	2.34	0.90	6.25	1.89	0.74	0.97	1.73	1.32	10.03	1.56	2.68	4.94	1.39	2.31	1.57	2.19
2006-07	3.40	1.67	3.36	1.72	1.65	1.94	2.10	2.81	1.41	8.54	1.81	1.09	0.89	2.40	1.47	29.85	2.05	6.84	1.33	1.39	1.52	1.69	2.40
2007-08	4.36	0.98	1.89	2.40	1.54	2.29	1.69	2.59	1.44	10.59	2.26	1.18	1.66	2.55	0.88	19.54	2.59	9.82	2.32	1.65	1.44	1.47	2.68
2008-09	3.46	--	2.12	2.29	2.16	0.51	2.03	1.37	4.21	11.75	2.12	0.94	2.14	2.28	1.56	7.02	2.03	13.65	5.01	1.65	1.13	1.60	2.68
2009-10	6.11	2.12	3.45	2.74	1.79	1.82	1.01	1.93	2.81	7.88	3.84	0.92	2.34	1.49	1.84	5.39	1.92	14.27	3.59	2.34	0.83	1.60	2.97
2010-11	10.75	3.30	2.17	2.06	0.72	2.08	2.32	3.99	1.36	15.20	3.26	0.72	1.82	1.19	4.03	5.26	4.20	10.70	0.77	1.83	1.05	1.50	3.42
2011-12	8.71	2.96	1.89	1.64	1.84	2.32	2.16	2.28	2.39	6.24	2.15	1.21	2.18	1.14	3.06	3.87	2.48	8.11	2.77	3.50	1.24	2.26	3.11

Note: Please refer Table 1 for description of the industry.

Table B6. Lary's Index: Goa

Year	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	Mfg. Sect.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
1998-99	5.57	--	4.16	2.04	--	--	1.09	8.36	3.71	10.25	7.66	0.53	2.12	5.03	5.50	64.07	10.20	1.82	1.02	0.86	2.39	1.45	5.60
1999-00	4.54	--	1.97	0.13	--	--	1.69	4.08	3.42	8.38	10.82	3.01	4.23	2.43	5.30	45.39	5.21	1.90	0.84	1.04	1.23	1.54	5.38
2000-01	4.83	--	9.71	--	--	--	0.19	3.43	5.30	7.31	13.61	3.15	2.28	4.28	3.81	54.01	15.01	2.07	2.59	0.53	2.86	2.71	5.73
2001-02	5.35	--	7.70	--	--	--	0.95	3.24	2.77	10.64	5.24	3.21	2.97	3.46	4.49	52.17	7.65	1.92	1.74	0.64	3.21	1.01	6.30
2002-03	4.90	--	10.20	--	--	--	0.76	1.81	4.79	10.12	3.65	4.64	2.46	5.04	2.35	34.24	9.08	1.89	2.15	1.21	4.48	1.31	5.83
2003-04	4.68	--	12.20	--	--	--	1.59	3.48	9.19	10.22	7.99	2.78	4.05	5.51	3.85	30.18	12.48	1.62	4.25	1.44	2.47	2.17	6.86
2004-05	3.58	--	13.87	--	--	--	1.63	2.94	33.54	10.95	8.03	4.58	4.84	5.81	3.88	28.81	6.04	1.92	4.12	1.73	1.54	1.41	7.34
2005-06	5.34	--	19.55	--	--	--	1.76	3.43	1.57	11.00	7.41	3.80	6.68	4.83	5.93	42.25	16.86	2.31	2.70	1.48	1.45	1.13	7.76
2006-07	6.77	--	13.73	--	--	--	2.02	3.53	2.64	10.55	9.71	4.65	7.28	4.35	4.78	32.71	6.78	3.87	2.84	1.43	1.44	1.24	7.17
2007-08	7.84	--	18.74	--	--	--	1.52	2.56	7.13	8.47	8.64	4.58	4.29	1.74	2.99	33.60	9.28	3.01	4.14	1.46	0.82	1.55	6.39
2008-09	3.82	--	23.42	--	--	--	1.64	3.00	14.77	16.52	15.62	4.10	3.02	3.66	5.27	--	4.36	11.97	6.55	1.39	3.05	2.65	8.14
2009-10	5.13	--	17.72	--	--	--	1.89	6.26	1.99	10.49	16.52	5.64	9.20	3.02	8.30	3.50	4.83	26.42	1.56	0.88	4.27	4.85	7.58
2010-11	6.01	--	104.04	--	--	--	1.35	6.20	7.66	14.18	11.81	4.55	0.27	3.84	8.39	11.12	3.94	2.28	9.94	2.21	6.94	4.63	8.76
2011-12	6.57	--	5.57	--	--	--	1.78	4.35	2.32	10.79	15.53	10.71	64.56	2.25	6.02	3.07	3.66	2.25	10.12	3.20	2.17	3.25	12.35

Note: Please refer Table 1 for description of the industry.

Table B7. Lary's Index: Gujarat

Year	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	Mfg. Sect.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
1998-99	0.90	1.13	1.26	1.93	3.49	0.56	1.14	0.85	37.18	7.97	0.69	1.21	2.69	1.05	1.91	12.17	1.62	7.63	1.79	0.19	0.66	0.59	2.84
1999-00	1.43	3.01	1.35	0.97	0.28	0.44	1.67	3.07	30.59	6.56	3.81	1.63	4.24	1.28	1.79	14.78	3.26	13.60	1.01	0.97	1.44	1.10	3.08
2000-01	1.54	1.85	1.47	1.21	0.70	0.77	1.60	2.36	18.95	5.83	2.35	2.09	4.85	1.28	1.87	11.14	3.23	8.39	0.93	0.91	0.64	1.51	2.87
2001-02	1.49	2.08	1.71	1.43	1.14	0.37	1.56	1.65	19.87	5.47	2.96	2.10	2.75	2.04	1.93	--	2.57	12.37	2.10	1.25	1.37	1.00	3.06
2002-03	1.92	1.20	1.59	1.35	1.46	0.56	1.59	4.34	42.97	6.30	2.57	2.46	5.33	2.43	1.62	--	2.54	11.84	2.17	1.09	2.23	1.33	3.63
2003-04	1.69	2.18	1.66	1.26	1.21	1.05	1.95	2.14	39.81	7.23	2.99	2.59	4.04	2.87	1.98	--	2.85	20.37	3.13	1.87	1.90	1.32	4.00
2004-05	1.55	2.31	1.59	1.09	1.17	0.62	2.01	1.32	41.72	7.28	2.52	2.71	6.37	2.63	2.32	--	2.64	22.04	1.27	2.57	3.72	1.67	3.99
2005-06	1.67	1.81	2.18	1.16	1.10	2.22	2.00	3.39	37.63	8.11	2.60	2.74	3.84	3.24	2.14	--	2.86	13.99	2.10	3.62	3.62	1.39	4.36
2006-07	1.79	2.27	1.74	1.76	1.46	0.81	2.01	1.61	21.84	7.98	2.84	2.52	3.98	4.16	3.08	7.64	2.95	6.85	3.80	2.55	3.71	1.56	3.95
2007-08	1.81	2.65	2.16	1.46	1.51	0.80	2.07	4.86	16.48	7.96	3.23	3.44	5.33	5.29	2.94	--	4.40	10.96	1.63	4.23	4.81	1.41	4.43
2008-09	2.09	1.85	1.79	1.45	1.96	1.46	3.24	2.16	18.83	11.03	3.17	2.01	1.81	4.97	3.34	15.24	3.88	17.40	1.31	1.67	11.24	1.23	4.40
2009-10	2.42	1.04	1.97	1.26	1.74	1.73	2.46	1.64	22.59	9.49	3.87	2.64	8.65	6.77	3.85	13.91	4.16	40.56	2.37	4.26	16.34	3.09	5.33
2010-11	1.88	1.15	1.61	1.31	2.42	1.10	2.17	6.89	46.43	8.95	3.31	1.97	6.62	2.76	3.34	4.17	3.17	11.17	3.44	2.14	10.50	1.37	4.42
2011-12	5.30	2.34	1.55	0.78	4.58	1.65	1.97	3.52	31.94	9.12	2.85	2.49	3.19	1.84	4.36	3.50	3.22	10.34	2.60	1.85	3.95	1.70	4.04

Note: Please refer Table 1 for description of the industry.

Table B8. Lary's Index: Haryana

Year	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	Mfg. Sect.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
1998-99	1.36	0.96	1.04	1.63	1.61	0.68	1.65	0.67	8.86	3.92	2.95	0.87	4.54	1.22	3.36	7.88	2.99	14.70	2.18	6.17	0.40	0.81	1.81
1999-00	1.96	1.03	1.48	2.55	1.52	0.47	1.42	1.26	4.34	3.49	2.15	0.97	6.27	1.56	2.92	31.56	2.13	5.58	2.47	4.70	4.20	1.24	2.84
2000-01	1.64	1.22	1.17	1.69	1.21	0.93	1.97	1.99	3.34	2.16	3.09	0.95	4.29	1.52	3.88	6.11	2.06	11.04	3.12	2.57	5.52	0.53	2.45
2001-02	1.34	1.20	1.55	1.35	1.37	0.90	1.56	3.44	34.52	2.39	1.90	1.01	4.55	2.26	3.27	8.14	2.98	7.81	2.92	4.48	9.06	0.99	2.84
2002-03	1.26	1.56	1.71	1.32	1.27	1.00	1.79	3.20	42.08	5.16	2.28	0.94	6.82	2.39	2.32	10.71	3.49	13.11	2.91	5.05	7.27	1.41	3.02
2003-04	1.68	1.07	1.55	1.13	2.29	0.93	2.02	1.68	5.46	3.52	3.08	1.09	7.06	2.58	2.44	21.21	2.64	13.96	2.63	6.62	7.89	0.90	3.31
2004-05	1.41	1.17	1.71	1.18	1.04	1.04	2.46	1.48	1.72	4.21	5.84	1.10	9.39	2.00	2.15	24.80	2.99	10.20	2.72	6.01	8.41	7.59	3.35
2005-06	1.57	1.44	2.47	1.24	1.57	0.92	2.31	1.60	1.62	3.49	2.66	1.25	4.10	2.77	3.56	33.44	3.48	8.79	1.49	6.46	7.70	1.38	3.28
2006-07	2.31	1.75	1.73	1.39	1.59	0.24	2.43	2.07	1.59	5.66	2.88	0.91	5.05	2.57	2.35	6.55	5.27	7.91	1.70	6.50	5.53	0.94	3.24
2007-08	2.48	1.89	1.41	1.41	1.68	0.95	2.98	2.33	2.66	4.67	2.35	1.11	2.95	3.07	4.12	18.08	2.60	3.32	2.40	4.11	7.13	0.84	3.03
2008-09	2.92	1.15	2.75	2.19	1.81	1.35	2.78	2.65	6.16	10.03	1.88	1.74	1.59	3.51	3.85	7.96	3.56	10.32	2.25	4.73	6.90	1.69	3.69
2009-10	2.81	0.88	2.11	1.52	1.97	1.61	3.29	1.99	15.44	5.15	3.85	2.27	5.12	2.97	3.97	11.65	3.41	7.03	2.84	6.12	7.87	2.19	4.15
2010-11	3.92	2.20	1.74	1.13	1.55	1.84	2.51	3.16	5.26	6.32	5.08	2.52	4.81	2.70	5.46	16.78	4.59	2.47	3.38	2.75	5.76	2.83	3.24
2011-12	5.36	2.75	2.10	1.33	2.83	1.31	3.99	3.11	1.91	5.84	3.62	2.42	4.14	1.86	6.39	11.02	5.24	5.53	2.19	4.61	4.14	2.03	3.69

Note: Please refer Table 1 for description of the industry.

Table B9. Lary's Index: Himachal Pradesh

Year	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	Mfg. Sect.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
1998-99	1.05	13.10	2.47	--	1.13	0.52	0.80	3.21	--	9.10	3.69	5.34	1.44	1.67	3.35	26.19	11.67	1.85	1.31	2.66	--	--	3.34
1999-00	1.37	11.72	2.78	--	1.25	0.31	1.69	0.17	--	13.08	0.37	4.87	1.69	3.45	3.22	--	6.52	5.06	1.75	5.67	--	--	3.42
2000-01	3.28	3.44	1.89	--	1.35	0.52	1.30	4.77	--	9.32	2.14	13.32	0.69	1.24	0.83	0.39	3.68	9.02	1.14	5.99	--	0.82	3.91
2001-02	2.35	2.67	2.39	--	1.20	0.49	1.15	2.33	--	19.34	2.93	10.77	--	1.30	2.30	15.76	3.95	13.12	3.22	4.83	--	2.08	4.44
2002-03	2.10	3.36	2.94	24.20	1.42	0.43	1.26	7.04	--	16.34	1.65	12.64	1.43	2.53	1.60	4.22	6.95	7.35	1.78	4.25	--	12.20	4.96
2003-04	2.43	5.36	2.06	4.83	1.33	1.00	1.46	9.53	--	14.17	3.80	9.98	1.17	1.74	2.32	6.79	6.33	10.34	1.92	3.17	--	9.96	4.47
2004-05	2.05	1.02	2.05	3.75	2.75	0.93	0.88	5.45	--	8.50	5.59	9.83	1.49	1.88	2.84	14.97	6.11	21.91	2.90	4.32	14.14	2.18	4.83
2005-06	1.79	1.32	2.80	8.63	2.90	0.38	2.41	10.55	--	25.23	2.56	9.38	8.64	2.56	3.85	61.34	9.47	10.99	5.80	1.04	--	4.76	8.65
2006-07	3.06	4.36	2.99	--	4.33	1.45	5.72	4.62	--	18.62	2.27	10.38	2.28	2.94	2.85	84.28	5.97	32.69	8.34	1.56	1.65	4.32	8.66
2007-08	1.31	2.31	3.29	8.84	4.46	0.59	3.04	4.00	--	14.41	6.14	14.52	5.88	--	3.74	21.20	6.19	20.60	13.40	1.43	10.93	2.54	7.76
2008-09	3.13	4.23	3.14	4.67	4.23	6.91	3.09	2.58	--	21.34	7.10	16.20	3.15	1.52	1.96	13.61	5.09	12.17	7.54	2.12	6.79	3.09	9.68
2009-10	3.93	3.09	2.59	19.59	3.51	1.63	2.28	3.77	1.72	10.30	8.08	16.05	6.56	3.92	6.11	38.73	4.20	4.22	9.23	4.21	8.42	2.87	6.95
2010-11	3.57	4.53	2.46	1.37	1.67	--	1.49	0.12	--	11.64	7.74	16.12	1.84	3.14	17.80	7.81	5.73	3.14	5.92	3.90	6.16	9.83	7.27
2011-12	7.68	1.90	1.78	2.95	2.36	-2.91	2.67	5.15	-3.12	17.92	7.09	4.32	3.33	-3.60	4.13	15.99	5.88	5.08	4.38	4.63	8.57	-1.38	8.26

Note: Please refer Table 1 for description of the industry.

Table B10. Lary's Index: Jammu and Kashmir

Year	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	Mfg. Sect.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
1998-99	1.00	0.17	0.74	--	0.04	0.33	0.63	0.25	--	0.64	0.59	1.04	0.70	0.81	0.39	--	0.49	0.13	--	--	--	0.44	0.74
1999-00	0.89	0.47	0.86	--	0.17	0.34	0.44	0.22	0.43	0.41	0.64	5.09	0.55	0.66	0.72	--	0.72	--	--	--	--	0.68	0.97
2000-01	0.82	0.31	0.73	--	0.18	0.25	0.43	0.30	0.98	1.55	0.41	1.16	0.69	0.57	0.70	--	0.62	1.60	--	--	--	1.17	0.79
2001-02	0.88	--	0.74	--	0.22	0.36	0.50	0.24	0.72	1.30	0.76	1.02	0.48	1.08	0.69	--	1.06	1.30	--	--	--	0.88	0.80
2002-03	0.81	--	0.76	--	0.82	0.52	0.63	0.21	1.61	1.61	0.57	1.06	0.40	0.78	0.81	--	0.73	0.13	1.39	--	--	0.80	0.81
2003-04	0.47	--	0.52	--	0.97	0.49	0.61	0.28	1.31	2.41	0.67	1.46	0.55	0.63	0.86	--	0.89	--	--	--	--	0.75	0.66
2004-05	0.44	--	0.99	1.97	1.31	0.42	0.50	0.29	--	5.74	7.21	1.48	1.45	1.50	1.45	--	1.81	0.44	--	0.63	--	0.51	1.64
2005-06	0.97	--	1.13	1.39	--	0.47	1.47	--	--	4.44	2.55	1.47	2.17	1.29	1.11	--	3.58	1.32	--	1.35	--	0.84	1.97
2006-07	1.16	--	1.33	1.45	2.77	0.34	1.63	--	--	6.14	2.14	1.84	3.23	1.33	0.90	20.25	10.35	3.09	--	1.60	--	0.40	2.79
2007-08	1.43	--	1.20	1.59	--	0.31	1.30	--	--	8.12	2.75	2.16	3.86	1.07	1.53	6.73	7.53	2.34	--	1.58	--	0.34	3.53
2008-09	1.01	--	1.10	1.60	1.70	0.52	1.14	1.38	0.15	15.91	2.41	4.07	1.16	1.15	0.86	2.80	5.93	0.38	--	--	0.25	1.11	4.87
2009-10	1.22	--	1.61	1.61	1.98	0.94	2.26	1.13	--	6.82	3.77	3.69	1.40	0.59	1.97	11.85	10.09	--	--	--	1.02	0.61	3.12
2010-11	1.31	--	1.55	1.40	0.62	0.57	--	1.78	0.99	7.29	4.93	1.63	2.20	0.67	2.03	1.35	4.79	--	--	--	1.23	0.56	3.34
2011-12	2.26	--	1.19	1.84	--	0.60	0.67	1.17	--	6.49	3.32	1.42	3.42	1.01	1.95	0.92	8.13	0.62	--	1.13	1.82	0.75	3.69

Note: Please refer Table 1 for description of the industry.

Table B11. Lary's Index: Jharkhand

Year	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	Mfg. Sect.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
1998-99	1.50	0.17	0.52	--	0.49	0.37	0.80	2.04	1.15	3.17	1.00	0.76	6.95	1.42	1.34	--	5.63	--	--	2.24	2.40	--	4.30
1999-00	1.37	0.80	0.50	--	--	0.21	1.24	0.71	0.88	2.81	0.70	1.16	5.77	2.22	1.63	--	3.73	--	--	2.04	1.88	0.32	3.82
2000-01	2.03	0.12	0.62	--	--	0.44	0.96	2.14	0.20	1.15	0.87	0.46	4.46	1.09	1.66	--	5.31	--	--	0.82	1.48	0.24	2.60
2001-02	2.32	0.14	0.63	--	--	0.59	0.67	1.66	0.74	2.18	2.14	1.07	3.72	1.29	1.52	--	0.29	--	2.83	2.85	1.06	0.40	2.49
2002-03	2.25	0.39	0.18	--	--	0.35	0.51	1.21	0.73	2.00	1.33	1.07	7.12	2.40	3.97	--	--	5.97	--	2.76	0.90	0.31	4.28
2003-04	1.62	0.14	0.54	--	--	0.51	0.55	0.75	0.42	3.75	3.51	1.22	7.30	2.54	5.64	--	4.25	7.09	--	6.12	0.69	0.79	4.91
2004-05	1.96	0.14	0.65	--	--	0.53	0.55	1.13	2.11	3.01	1.44	1.88	10.62	2.80	3.36	--	1.17	--	2.77	19.14	0.96	0.25	7.68
2005-06	3.59	0.28	0.86	--	--	0.79	0.64	1.16	2.49	2.71	1.21	1.35	8.11	3.05	5.81	--	1.70	--	--	4.17	2.20	0.73	5.47
2006-07	2.47	0.34	0.83	--	--	1.30	1.57	2.03	1.92	8.43	1.13	1.08	5.96	3.17	6.56	--	2.07	--	--	7.65	2.16	0.29	4.65
2007-08	4.05	0.20	0.52	--	--	0.76	1.41	0.74	2.44	2.93	5.73	1.27	11.40	4.47	6.94	--	1.94	--	--	8.00	1.46	0.33	7.64
2008-09	2.52	0.39	2.05	--	--	0.70	0.37	2.21	2.19	5.61	1.34	0.93	6.88	4.80	7.59	24.83	2.19	--	--	2.91	--	0.60	4.71
2009-10	1.13	1.04	5.65	0.92	--	--	1.07	0.17	2.50	5.18	2.80	5.01	7.60	5.85	8.24	12.84	2.43	--	12.05	8.05	0.43	1.44	6.25
2010-11	2.49	0.57	1.20	--	--	0.82	1.99	2.48	2.24	4.47	1.83	2.33	13.45	14.03	--	--	0.96	--	--	4.28	0.63	0.42	7.34
2011-12	6.62	0.06	0.73	--	1.11	0.66	1.42	-0.67	5.57	7.06	1.16	1.95	6.73	-0.16	5.91	7.59	4.68	--	--	7.89	1.89	1.33	5.56

Note: Please refer Table 1 for description of the industry.

Table B12. Lary's Index: Karnataka

Year	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	Mfg. Sect.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
1998-99	1.49	6.67	1.33	0.62	0.77	0.57	1.41	1.33	52.11	2.46	2.33	1.72	3.29	2.65	2.41	11.10	7.78	4.39	2.62	2.01	1.95	0.78	2.19
1999-00	1.56	11.79	1.08	0.73	0.67	1.68	1.65	1.23	3.29	3.38	2.47	2.60	3.24	2.12	2.61	7.34	4.01	4.43	1.97	2.66	1.75	1.71	2.04
2000-01	1.69	9.85	1.46	0.64	0.93	1.13	2.19	1.59	10.91	3.68	1.42	2.01	3.95	2.50	2.84	33.21	3.53	3.67	3.03	2.77	2.49	3.55	2.10
2001-02	1.75	11.58	1.61	0.72	0.10	0.72	2.04	0.85	15.87	3.19	2.22	2.08	4.37	1.50	4.06	44.41	3.33	5.50	3.86	2.82	3.38	2.97	2.29
2002-03	1.82	12.27	1.86	0.76	1.43	0.77	2.53	1.37	14.34	5.61	2.29	1.86	7.41	2.21	3.81	37.66	3.64	6.34	2.53	3.63	5.70	1.96	2.63
2003-04	1.84	11.22	1.71	0.63	0.97	1.42	1.99	1.64	21.71	4.94	2.99	2.11	9.76	2.11	4.11	53.21	3.35	7.61	6.16	5.65	6.84	0.80	2.80
2004-05	1.96	12.39	1.95	0.76	1.19	0.69	2.33	1.91	43.95	9.85	2.06	3.30	9.06	2.37	3.37	30.95	4.46	8.32	9.63	4.31	3.26	0.69	3.19
2005-06	2.32	11.51	2.09	0.59	1.10	1.18	2.16	1.96	19.60	5.13	2.28	2.19	11.67	1.47	3.79	49.33	5.45	13.95	2.31	2.82	9.23	1.46	2.94
2006-07	4.13	13.80	2.42	0.91	2.26	1.14	2.29	2.60	23.34	4.65	--	4.14	11.72	3.35	5.21	55.97	6.52	9.78	3.04	4.03	3.89	0.56	3.46
2007-08	2.34	15.62	2.51	1.09	0.89	2.35	2.63	4.28	35.50	5.29	4.75	4.16	10.92	3.54	4.76	3.73	5.59	11.64	4.93	5.15	3.39	6.24	3.72
2008-09	2.94	16.47	2.02	0.89	3.76	1.15	2.39	0.77	41.91	9.33	5.29	5.77	7.89	2.92	4.42	20.05	6.29	4.29	3.37	4.44	4.23	3.80	3.68
2009-10	2.50	0.69	2.88	0.82	2.93	--	2.47	4.93	29.58	5.62	0.39	6.13	9.61	4.71	6.40	9.60	6.33	35.32	7.88	4.63	4.16	2.95	3.47
2010-11	3.47	10.02	1.25	0.72	1.44	1.21	3.76	3.41	20.29	8.92	2.34	3.42	10.36	1.43	5.24	6.84	6.52	11.93	8.19	4.37	2.69	1.58	3.50
2011-12	3.41	2.96	2.36	0.82	1.51	1.13	2.82	5.73	11.67	5.92	2.62	5.96	69.62	1.37	6.40	5.69	5.26	7.59	7.45	4.08	3.06	4.45	6.62

Note: Please refer Table 1 for description of the industry.

Table B13. Lary's Index: Kerala

Year	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	Mfg. Sect.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
1998-99	0.54	0.15	1.05	0.40	3.92	0.35	2.07	6.62	25.40	3.95	2.31	0.76	2.64	1.52	3.16	1.23	2.20	8.03	1.64	0.70	3.27	0.82	1.51
1999-00	0.41	0.31	0.77	0.63	0.89	0.32	1.20	2.18	3.96	5.01	1.80	0.74	3.18	0.77	1.91	2.11	1.13	5.93	2.90	0.55	4.07	0.93	1.14
2000-01	0.41	0.27	0.97	0.40	5.72	0.24	1.43	1.82	7.12	3.69	3.30	0.78	3.05	0.61	1.41	1.69	1.15	4.48	1.30	0.42	2.40	0.46	1.10
2001-02	0.40	0.09	0.98	0.56	4.33	0.37	1.46	1.92	11.00	2.84	3.05	0.79	2.28	0.82	1.58	--	2.11	6.63	1.93	0.30	1.73	0.57	1.04
2002-03	0.44	0.13	0.99	0.69	1.02	0.56	1.44	2.61	17.76	3.02	3.14	0.66	1.83	0.89	2.31	3.19	1.23	5.38	2.26	0.48	2.72	0.45	1.18
2003-04	0.32	0.16	0.84	0.50	3.25	0.41	1.97	2.26	22.43	2.84	2.54	0.85	1.01	1.62	1.75	4.50	1.20	7.31	1.94	1.27	3.05	0.81	1.01
2004-05	0.29	0.11	0.96	0.64	0.69	0.31	2.10	2.18	16.57	3.11	2.49	1.01	0.67	1.14	1.59	6.07	1.36	4.72	2.51	0.42	1.92	0.65	0.96
2005-06	0.33	0.10	1.28	1.07	3.15	0.51	2.62	3.44	5.68	3.34	3.04	1.32	1.28	0.98	2.17	6.23	1.62	7.72	3.23	0.34	3.15	1.12	1.04
2006-07	0.37	0.08	1.26	0.90	1.99	0.40	2.45	3.27	--	3.55	2.47	1.30	1.08	1.12	1.75	6.00	1.83	7.42	3.30	0.50	2.74	1.63	0.91
2007-08	0.34	0.07	1.05	0.81	1.17	0.48	1.78	6.04	14.69	2.98	2.10	1.03	1.98	2.84	1.98	7.38	1.89	11.41	2.14	0.70	4.22	1.87	1.10
2008-09	0.42	0.08	0.06	0.95	1.95	0.65	2.78	3.92	11.63	4.77	4.18	1.19	1.31	0.97	2.55	20.43	3.84	4.65	7.88	0.88	6.52	1.69	1.34
2009-10	0.41	0.07	1.15	1.16	1.82	0.58	1.54	5.09	8.15	5.19	4.50	1.46	2.22	2.13	2.56	14.80	3.21	7.64	6.60	1.23	7.94	--	1.23
2010-11	0.29	0.10	1.29	0.79	1.80	0.76	2.53	7.50	5.00	8.11	3.13	1.26	1.97	1.09	2.62	3.68	2.07	--	7.44	1.16	7.59	1.69	1.31
2011-12	0.52	0.10	1.22	0.94	1.48	0.87	1.82	6.40	2.19	8.04	3.93	1.76	1.67	1.13	1.22	8.31	1.92	9.41	6.42	1.69	4.49	1.58	1.34

Note: Please refer Table 1 for description of the industry.

Table B14. Lary's Index: Madhya Pradesh

Year	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	Mfg. Sect.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
1998-99	3.03	0.36	0.91	0.23	3.30	1.00	0.68	1.02	19.02	5.80	2.73	3.75	1.84	3.73	0.95	--	3.65	2.61	1.35	1.77	3.23	0.63	2.14
1999-00	2.86	0.38	1.94	0.86	2.23	0.30	0.87	1.32	3.12	4.18	5.52	4.48	2.50	1.80	1.88	--	3.63	5.16	1.12	2.55	4.44	0.63	2.77
2000-01	1.90	0.88	2.70	0.77	1.18	0.56	1.30	1.40	2.12	4.81	3.93	5.37	3.89	0.98	1.60	--	3.61	3.44	1.24	1.76	3.30	0.71	2.78
2001-02	3.93	0.47	2.38	0.82	1.69	0.67	0.80	1.41	6.29	5.12	4.23	5.31	3.94	1.13	3.16	--	4.31	7.29	1.70	2.13	3.74	0.86	3.29
2002-03	2.23	0.29	2.94	1.12	2.23	0.68	1.75	0.99	2.94	4.53	3.94	3.89	1.66	2.17	3.62	--	3.53	5.83	2.47	2.50	2.36	0.89	2.92
2003-04	1.92	0.36	2.74	1.07	1.97	0.92	1.14	1.72	--	4.39	3.55	3.74	2.21	2.30	2.73	--	4.58	5.27	1.91	2.45	1.33	0.52	2.76
2004-05	1.49	0.28	2.96	1.13	2.43	1.14	1.17	2.14	--	5.40	3.62	4.67	1.48	2.18	2.60	--	4.06	3.30	1.76	3.13	0.97	0.63	2.80
2005-06	2.62	0.23	3.88	0.94	2.02	1.35	1.63	1.28	3.24	4.58	2.65	5.00	1.65	1.71	2.96	--	4.91	1.86	2.44	2.23	1.30	0.79	3.03
2006-07	6.02	0.33	3.92	2.42	2.83	1.11	1.68	1.37	--	5.19	2.99	8.11	1.44	3.55	3.88	18.11	4.86	6.29	1.65	3.79	0.09	0.58	4.21
2007-08	5.23	0.21	3.88	1.27	3.17	0.97	1.40	1.06	--	6.85	2.35	10.43	2.25	1.53	3.99	10.50	5.28	5.31	2.33	2.82	2.56	0.44	4.31
2008-09	3.51	0.24	3.24	2.58	1.84	1.67	2.65	0.26	3.14	12.29	7.63	8.76	1.19	2.08	3.02	--	5.47	3.10	2.29	2.76	0.81	1.06	4.72
2009-10	4.09	0.21	2.33	4.97	2.77	1.47	0.80	1.46	1.44	6.72	4.07	10.21	0.33	1.62	4.57	--	6.90	15.41	1.44	3.51	0.90	0.91	4.00
2010-11	4.60	0.57	3.00	3.63	0.95	1.39	0.99	--	--	7.32	3.96	5.66	3.58	1.14	5.36	4.97	6.34	9.81	1.64	3.91	0.73	1.63	4.06
2011-12	5.97	0.43	2.21	1.79	1.46	1.37	1.02	1.81	-2.76	5.66	3.14	7.48	2.37	1.29	5.24	5.29	5.88	2.02	1.81	4.21	0.40	0.93	4.00

Note: Please refer Table 1 for description of the industry.

Table B15. Lary's Index: Maharashtra

Year	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	Mfg. Sect.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
1998-99	2.42	0.29	1.47	2.48	2.20	1.03	1.96	3.11	16.09	8.76	2.92	1.80	2.57	2.78	3.78	3.72	3.39	6.80	4.35	4.32	4.12	2.55	3.42
1999-00	2.66	0.41	1.48	2.45	1.23	0.56	1.37	2.98	20.72	8.18	3.28	2.19	2.50	2.18	4.83	2.44	3.53	7.55	5.33	4.69	6.67	5.33	3.63
2000-01	2.16	0.29	1.73	1.68	0.58	1.09	1.94	2.61	31.79	6.50	2.58	2.93	1.83	2.31	4.88	5.81	4.16	8.42	3.96	3.75	3.28	2.53	3.24
2001-02	2.28	0.21	1.42	1.48	1.39	1.06	2.25	2.87	26.49	5.86	3.14	2.86	1.78	2.81	4.35	6.97	3.71	5.82	4.94	3.27	5.78	4.03	3.01
2002-03	2.15	0.22	1.51	2.02	2.07	1.30	2.45	2.55	35.94	5.57	4.06	2.84	2.79	3.10	3.60	2.34	4.65	12.48	3.52	3.86	6.24	2.45	3.29
2003-04	1.87	0.26	1.65	1.43	1.51	1.11	2.58	3.31	54.30	6.61	3.48	3.89	4.47	3.59	4.19	4.05	4.71	10.79	4.26	4.94	6.26	2.93	3.92
2004-05	1.98	0.29	1.60	1.43	1.12	1.28	2.65	3.31	51.23	6.35	4.58	3.44	5.57	3.53	4.46	6.47	5.29	11.71	4.27	5.18	9.35	2.77	4.30
2005-06	2.31	0.29	1.72	1.94	1.56	1.05	3.06	4.65	71.41	7.47	3.46	3.69	3.45	4.29	4.82	5.52	5.41	13.31	5.95	11.29	8.09	2.90	5.17
2006-07	3.05	0.33	2.57	2.04	1.90	1.05	2.43	3.79	102.90	6.77	3.53	3.94	5.12	4.32	5.39	2.32	6.89	15.11	4.80	6.69	6.40	3.41	5.35
2007-08	2.60	0.48	2.22	2.81	2.07	1.61	3.21	4.93	137.58	8.31	4.37	6.55	8.07	4.67	5.30	7.53	5.75	22.09	9.81	7.28	8.64	3.48	6.21
2008-09	2.33	0.39	2.31	3.75	3.20	1.48	2.74	4.26	194.66	12.70	4.05	5.99	3.05	5.10	5.49	11.77	6.87	53.27	6.71	5.51	5.09	2.16	6.03
2009-10	2.50	0.41	2.87	4.67	2.18	1.39	3.70	3.98	114.71	8.64	6.33	7.47	4.34	3.56	7.32	21.39	7.43	25.32	13.23	4.43	9.44	3.66	6.02
2010-11	2.79	0.36	2.23	2.59	2.45	1.70	3.41	6.85	95.08	10.23	8.67	4.33	5.63	3.79	7.36	4.47	7.40	21.29	7.14	3.91	8.86	3.95	5.81
2011-12	2.53	1.13	2.38	2.24	2.45	2.66	2.83	4.14	63.80	11.83	4.57	4.67	4.47	3.13	10.55	5.17	5.57	21.30	14.16	2.38	6.95	3.56	5.31

Note: Please refer Table 1 for description of the industry.

Table B16. Lary's Index: Odisha

Year	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	Mfg. Sect.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
1998-99	0.47	0.37	0.17	4.68	--	0.21	0.57	0.20	0.46	--	3.46	2.33	5.10	0.49	0.72	--	2.67	0.62	--	0.68	--	1.22	2.27
1999-00	0.64	0.08	0.20	--	--	0.43	1.40	0.62	1.36	0.66	3.78	2.81	4.83	1.04	1.28	--	0.98	1.69	1.62	0.20	--	0.64	2.45
2000-01	0.68	0.22	0.22	--	--	1.19	1.70	1.12	3.02	1.17	2.16	2.03	3.94	1.14	1.82	--	1.55	1.24	--	0.83	--	0.64	2.20
2001-02	0.49	0.19	0.31	--	--	0.73	2.13	0.92	2.48	4.91	1.97	1.06	3.29	0.84	1.51	--	1.75	--	--	0.00	--	1.55	2.13
2002-03	0.63	0.14	0.39	0.84	--	0.74	1.91	1.79	1.42	0.95	3.49	1.47	4.99	0.81	1.90	--	2.51	3.57	--	0.45	--	2.56	2.53
2003-04	0.67	0.11	0.38	0.57	--	0.97	2.42	1.37	1.28	0.87	3.44	1.45	5.42	0.66	2.11	--	2.44	5.57	--	0.92	--	1.39	2.71
2004-05	0.48	0.11	0.86	0.30	--	0.85	1.59	2.15	0.52	1.53	2.87	1.46	7.43	0.72	2.58	--	1.67	3.84	--	0.60	--	2.27	3.17
2005-06	0.72	0.10	0.64	--	--	0.98	2.81	2.05	2.63	0.80	3.44	1.96	6.16	0.80	2.31	--	4.84	--	--	0.48	--	5.43	3.35
2006-07	0.75	0.10	0.66	--	--	1.76	2.64	1.84	1.46	--	2.31	1.98	6.87	0.93	2.15	--	3.30	--	--	0.36	--	2.53	3.74
2007-08	0.75	0.13	0.73	--	--	1.28	3.08	0.99	1.73	6.34	8.68	2.55	6.36	0.88	2.21	--	4.28	--	--	0.65	--	2.05	4.48
2008-09	1.57	0.12	0.86	--	--	1.38	3.51	0.85	0.93	14.66	0.83	4.44	4.88	1.49	1.07	--	6.19	--	--	--	--	1.89	4.29
2009-10	1.02	0.19	0.26	--	--	1.17	3.69	3.28	1.79	7.53	2.69	9.25	3.70	1.94	1.48	--	1.89	--	--	56.92	--	3.54	3.88
2010-11	1.94	0.17	0.36	--	--	0.75	4.96	5.51	2.41	9.52	2.58	2.52	4.91	0.78	0.20	--	3.92	--	--	2.77	--	3.67	4.09
2011-12	3.64	0.19	0.67	0.77	--	0.98	3.60	6.88	4.22	4.80	-0.62	2.98	4.96	1.50	1.49	--	2.74	--	--	2.54	--	0.99	4.08

Note: Please refer Table 1 for description of the industry.

Table B17. Lary's Index: Punjab

Year	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	Mfg. Sect.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
1998-99	1.77	0.91	1.35	0.71	1.11	0.60	2.01	0.95	0.50	4.48	0.94	0.45	1.34	1.43	3.23	--	1.51	5.19	0.78	1.51	1.55	3.57	1.76
1999-00	1.48	--	2.38	0.80	1.74	0.53	1.16	0.49	0.43	7.89	1.34	0.45	1.43	1.41	2.27	--	1.48	4.61	0.83	1.31	1.10	1.35	1.93
2000-01	1.45	--	1.46	1.65	0.88	0.63	1.62	--	0.73	3.99	0.86	0.86	0.74	1.12	2.01	--	2.09	2.79	1.02	1.36	0.68	0.71	1.38
2001-02	1.76	--	1.46	0.52	0.76	0.51	1.34	--	0.36	4.38	1.00	1.03	1.83	1.38	2.12	3.38	1.99	2.40	1.30	1.57	2.00	1.22	1.71
2002-03	1.46	--	1.68	0.50	1.12	0.67	2.89	--	0.31	6.77	1.11	1.15	1.08	1.30	1.55	--	1.95	3.21	1.26	1.54	1.11	0.93	1.69
2003-04	1.73	--	1.57	0.78	1.01	0.58	1.76	--	0.34	5.60	0.91	1.28	1.27	1.39	1.72	--	1.64	2.02	1.11	1.63	1.22	1.05	1.61
2004-05	1.10	--	1.63	0.74	1.04	0.63	2.01	0.46	0.35	4.18	0.93	0.76	1.63	1.58	1.65	--	1.18	1.70	0.81	2.09	1.14	1.08	1.42
2005-06	1.23	--	1.86	1.02	0.97	0.52	2.61	1.02	0.37	3.49	1.00	0.71	1.20	1.27	1.44	--	1.67	3.59	0.67	1.78	1.23	1.05	1.42
2006-07	2.35	--	2.13	1.06	1.07	0.66	2.48	1.79	2.99	4.47	1.37	0.71	1.12	1.31	2.03	--	1.62	4.23	0.97	1.66	1.23	1.09	1.76
2007-08	4.04	--	2.20	2.14	1.02	0.67	2.20	6.21	0.69	3.65	1.29	0.39	1.23	1.42	1.52	--	1.62	3.88	0.94	2.14	1.36	1.06	2.11
2008-09	2.88	--	2.07	1.36	1.81	0.54	3.19	0.84	0.40	4.48	1.32	0.61	1.34	1.72	2.12	2.51	1.91	4.41	0.80	2.27	1.39	1.54	1.89
2009-10	1.01	--	2.46	1.52	3.02	0.86	3.60	--	0.32	5.75	1.75	0.72	3.79	2.11	2.86	4.80	3.25	3.80	0.92	2.54	1.64	1.39	1.96
2010-11	1.40	--	5.12	1.06	1.20	0.92	3.19	0.88	2.70	8.76	1.54	0.72	1.84	1.45	3.14	1.55	2.50	1.60	1.16	2.77	1.64	1.37	2.29
2011-12	1.44	--	2.77	1.16	1.56	0.69	2.89	6.38	0.74	58.82	1.59	0.73	1.72	1.16	3.76	2.01	2.73	1.84	0.90	2.82	1.29	1.13	3.33

Note: Please refer Table 1 for description of the industry.

Table B18. Lary's Index: Rajasthan

Year	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	Mfg. Sect.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
1998-99	1.70	0.46	1.33	3.57	1.16	0.18	1.16	2.00	3.16	6.54	3.02	1.11	2.15	4.74	2.30	13.65	1.03	3.25	2.17	1.81	6.22	1.49	2.04
1999-00	1.64	0.26	1.34	1.62	0.67	0.61	0.73	4.92	10.41	10.24	7.16	5.34	2.51	1.16	1.85	17.04	2.19	4.79	2.63	5.21	1.32	1.07	2.97
2000-01	1.80	0.40	1.38	3.74	1.15	0.65	1.16	1.52	0.80	8.56	5.31	3.28	3.21	4.29	1.87	7.80	1.98	6.85	2.62	2.26	--	1.18	2.70
2001-02	1.64	0.19	1.58	1.68	1.01	0.56	1.42	1.42	4.96	5.63	4.17	3.74	1.44	3.02	2.34	27.69	3.03	11.32	2.62	2.72	3.20	1.67	2.54
2002-03	2.32	0.21	1.44	3.60	1.23	3.61	1.21	0.38	3.67	4.42	4.47	2.54	1.79	1.33	2.25	14.52	1.94	12.12	2.65	2.38	3.51	1.67	2.30
2003-04	2.57	0.30	1.30	2.16	1.02	1.60	0.43	1.82	7.80	5.21	4.09	2.24	3.06	1.73	2.40	18.17	2.49	7.47	3.51	7.45	4.37	1.22	2.32
2004-05	2.23	0.70	1.50	1.10	0.94	2.63	1.22	0.33	1.99	4.63	4.71	2.98	3.34	1.42	3.41	21.17	1.68	6.67	2.79	6.48	2.74	1.30	2.47
2005-06	2.95	0.35	1.68	1.38	0.95	1.63	1.08	4.35	4.47	3.72	5.01	3.08	3.82	2.20	2.38	11.81	4.25	14.88	2.37	4.36	3.23	1.30	2.61
2006-07	4.19	0.34	2.28	1.52	0.84	--	0.56	--	--	5.25	5.46	4.30	4.07	2.18	3.52	--	6.07	63.60	3.65	4.70	3.35	1.74	3.60
2007-08	1.69	0.35	2.32	0.49	0.97	--	0.86	3.47	--	3.38	4.47	3.75	5.14	3.09	5.51	--	2.85	17.06	2.64	4.62	5.34	1.49	2.90
2008-09	4.12	0.16	1.59	1.20	1.27	--	4.55	6.44	--	9.84	7.18	6.32	2.64	5.34	1.66	22.18	4.73	57.98	4.04	4.40	--	1.51	3.88
2009-10	3.61	0.26	1.77	1.38	1.36	0.47	4.56	5.46	--	7.76	5.61	4.62	3.48	15.06	6.89	31.99	1.50	36.96	6.23	4.05	2.93	1.72	4.14
2010-11	1.66	0.34	1.62	0.92	1.38	0.97	2.35	5.81	--	3.34	8.17	3.47	5.55	3.05	3.65	3.45	1.52	3.18	5.57	13.48	17.81	1.58	3.00
2011-12	4.92	0.55	1.45	1.38	1.95	2.56	2.16	5.67	1.36	10.81	4.55	4.78	4.59	2.90	3.83	3.86	2.74	14.71	3.57	30.51	5.22	1.52	4.96

Note: Please refer Table 1 for description of the industry.

Table B19. Lary's Index: Tamil Nadu

Year	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	Mfg. Sect.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
1998-99	0.95	0.61	1.20	0.71	0.53	0.30	1.67	1.25	17.86	1.29	2.60	1.96	1.77	1.43	1.86	4.89	2.03	1.93	5.59	2.38	2.92	0.82	1.40
1999-00	0.87	0.23	1.13	0.69	0.92	0.54	1.97	0.75	9.17	1.93	2.28	3.12	2.18	2.32	2.59	10.00	2.76	4.08	2.49	3.47	1.96	0.72	1.55
2000-01	1.12	0.34	1.22	0.79	0.56	0.28	4.31	1.17	8.60	1.34	2.20	2.73	1.48	2.32	2.03	4.56	3.13	5.16	4.14	4.28	2.75	0.65	1.58
2001-02	1.02	0.38	1.03	0.67	0.62	0.70	1.70	1.29	7.62	1.27	2.61	2.10	2.00	2.30	2.30	3.02	3.39	1.95	5.37	3.69	2.72	0.78	1.42
2002-03	0.90	0.43	1.20	0.77	0.67	0.59	2.06	0.96	6.43	1.03	1.60	2.26	1.81	2.10	2.42	5.05	3.09	2.45	4.14	3.80	4.67	0.82	1.46
2003-04	0.94	0.78	1.14	0.66	0.68	0.87	1.99	1.32	13.90	1.15	2.17	3.04	1.63	2.49	2.90	19.08	3.20	1.13	3.73	4.71	9.69	0.82	1.66
2004-05	0.91	0.93	1.24	0.72	0.61	0.38	1.97	1.13	18.42	1.18	1.98	2.39	2.03	1.95	2.86	8.93	3.45	2.90	2.63	4.45	6.00	0.95	1.62
2005-06	1.23	0.61	1.40	0.79	0.62	1.23	2.49	1.41	12.38	1.39	1.86	2.49	2.25	2.42	4.52	8.38	3.65	4.72	2.62	4.70	5.10	1.57	1.86
2006-07	1.22	0.61	1.44	0.85	0.86	0.64	2.37	1.36	32.28	1.01	2.06	2.76	2.32	3.70	2.73	11.52	9.75	3.43	3.34	4.73	14.79	1.23	2.01
2007-08	1.50	0.31	1.52	0.86	0.76	0.80	1.00	1.12	27.59	1.00	1.87	3.86	3.10	3.22	5.10	9.24	2.66	19.40	3.91	4.18	3.01	1.68	2.08
2008-09	1.48	0.82	1.25	0.97	0.56	1.35	2.44	1.21	12.44	1.59	1.54	2.90	1.72	3.18	4.12	10.87	3.33	3.85	4.52	3.96	4.01	1.23	1.93
2009-10	1.32	0.44	1.64	0.85	1.25	0.97	2.42	1.71	4.07	1.30	1.86	3.59	2.54	4.86	6.88	18.05	5.44	5.87	6.26	4.89	3.43	2.30	2.57
2010-11	1.24	19.83	1.61	0.82	0.52	--	2.59	3.52	6.30	1.72	2.37	3.56	4.96	2.73	4.43	4.48	3.98	2.67	6.94	5.25	13.76	2.18	2.46
2011-12	1.45	1.16	1.17	0.82	0.66	1.17	2.38	1.86	4.73	2.62	2.56	3.56	5.20	2.76	4.96	9.08	4.62	3.51	10.21	5.43	4.12	3.08	2.51

Note: Please refer Table 1 for description of the industry.

Table B20. Lary's Index: Uttar Pradesh

Year	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	Mfg. Sect.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
1998-99	1.29	3.18	1.16	2.11	0.87	0.31	1.82	1.71	--	6.27	2.10	0.76	4.48	1.56	2.16	22.46	2.45	5.09	1.07	3.48	2.56	2.13	2.22
1999-00	1.06	3.98	1.23	2.91	0.73	2.11	1.55	2.43	3.83	5.03	2.55	0.90	4.19	1.65	2.27	0.88	2.55	5.03	1.68	5.98	2.83	1.09	2.20
2000-01	1.49	3.61	1.32	1.35	0.75	1.06	1.53	1.77	15.41	3.91	2.93	1.26	5.24	1.53	1.49	70.71	1.32	6.08	1.77	3.27	2.99	1.27	2.29
2001-02	1.38	4.60	1.15	1.77	1.11	1.05	1.38	1.65	0.91	4.79	2.57	1.25	5.60	1.25	1.64	39.12	2.02	8.70	3.09	4.25	1.63	2.41	2.49
2002-03	1.23	5.40	1.41	1.79	0.93	0.92	1.70	1.73	2.22	5.58	2.78	1.33	5.54	1.03	1.75	58.81	2.66	10.34	2.98	4.35	2.06	1.33	2.69
2003-04	1.16	5.30	1.05	1.00	0.78	0.62	2.07	2.77	3.88	5.06	3.27	1.37	6.02	1.12	2.16	47.13	2.48	11.69	2.29	4.62	2.57	1.50	2.62
2004-05	1.48	4.28	1.29	1.15	0.77	0.89	1.76	1.91	0.67	5.10	2.99	4.79	4.69	0.96	2.01	25.96	3.09	9.82	2.84	5.25	1.76	1.17	2.64
2005-06	1.74	5.65	1.29	1.23	0.79	0.83	2.27	1.49	1.72	4.87	3.16	0.97	4.74	0.99	2.18	23.15	3.15	11.20	2.19	4.63	2.31	1.31	2.58
2006-07	2.17	6.72	1.42	1.22	0.91	1.10	1.82	1.92	33.14	5.27	2.65	1.57	7.04	1.20	2.16	44.65	5.09	3.41	2.44	6.18	3.61	1.52	3.05
2007-08	1.66	8.50	1.65	1.20	0.90	0.68	2.91	1.99	25.31	5.98	2.90	1.38	5.35	1.23	3.30	29.47	3.48	5.41	2.69	5.92	1.25	1.78	2.84
2008-09	1.76	7.64	1.77	1.23	1.16	0.77	2.61	1.40	17.28	8.95	2.75	1.31	5.15	1.20	3.21	13.54	3.40	7.50	5.97	3.03	1.60	1.55	2.83
2009-10	1.52	14.63	2.96	1.18	1.23	0.31	2.97	3.47	13.09	6.43	3.12	1.42	4.13	1.36	4.15	14.54	3.95	22.49	3.89	8.54	1.12	1.76	3.36
2010-11	2.99	14.67	1.52	1.09	0.84	0.28	2.96	4.38	14.93	7.69	3.72	1.48	7.85	0.80	4.33	5.27	3.06	42.08	2.35	10.41	3.17	2.88	3.88
2011-12	1.48	6.47	1.32	0.93	1.18	1.00	2.43	3.16	29.78	7.66	3.54	1.48	6.81	0.82	4.46	1.46	2.79	17.48	3.47	5.91	2.48	2.09	2.82

Note: Please refer Table 1 for description of the industry.

Table B21. Lary's Index: Uttarakhand

Year	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	Mfg. Sect.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
1998-99	0.87	--	--	1.01	0.13	--	0.99	--	--	1.46	11.26	0.99	--	0.99	--	--	5.77	0.39	0.73	0.79	0.31	3.04	1.40
1999-00	1.44	--	0.05	--	1.39	0.24	2.12	0.01	--	0.50	12.52	0.72	2.11	1.14	0.61	--	5.36	3.94	0.17	--	--	1.81	1.85
2000-01	1.68	--	0.11	1.30	--	0.64	3.03	3.08	--	3.91	6.32	0.31	1.55	0.72	5.35	--	4.22	4.66	2.64	--	0.57	1.73	2.78
2001-02	1.62	--	0.54	1.63	1.42	0.54	2.75	3.32	--	3.64	8.33	0.40	1.66	0.57	3.62	--	3.86	6.32	2.66	--	0.58	2.38	2.62
2002-03	1.55	--	1.20	1.79	1.58	0.70	3.56	3.29	--	5.15	11.21	0.81	2.24	0.57	8.00	--	6.17	10.75	4.70	0.49	--	1.90	3.86
2003-04	1.57	--	1.92	1.83	--	0.57	4.00	4.21	--	7.93	12.82	0.99	2.79	0.92	8.78	--	5.98	14.19	--	0.52	--	1.35	4.21
2004-05	1.43	--	4.62	1.27	5.17	0.68	3.52	1.16	--	6.44	5.96	1.26	2.62	0.91	10.34	--	4.33	13.49	0.52	1.11	--	1.96	4.06
2005-06	1.67	--	5.86	2.57	3.95	0.96	4.22	1.62	--	5.78	2.88	0.82	3.82	1.62	8.88	--	4.47	12.08	20.34	3.57	--	1.52	4.25
2006-07	1.35	--	5.90	2.09	3.61	1.10	3.07	2.24	0.02	6.98	3.86	1.65	4.01	2.00	8.29	--	3.02	15.28	12.54	4.53	0.15	1.35	4.33
2007-08	3.16	--	6.42	3.33	3.49	2.34	6.10	3.44	0.15	5.22	8.89	2.51	6.03	3.02	6.46	257.63	3.17	10.87	12.65	1.68	3.98	2.29	4.98
2008-09	3.12	1.56	2.01	2.78	1.83	6.24	3.19	3.14	--	12.47	4.97	2.02	5.76	3.70	14.09	24.95	4.34	293.32	9.84	3.43	4.28	1.75	12.31
2009-10	3.24	--	2.50	1.26	2.02	5.10	2.24	2.08	--	5.04	4.05	2.12	5.94	3.91	11.62	22.51	4.70	17.25	10.85	7.59	12.74	2.79	5.67
2010-11	12.45	--	3.37	0.97	5.78	4.18	3.35	2.49	1.09	5.88	4.89	2.08	15.57	2.73	11.85	4.42	3.32	4.97	9.25	3.53	5.91	4.42	5.75
2011-12	5.39	--	2.49	1.37	2.44	4.95	2.97	4.72	--	5.63	2.69	3.35	15.70	1.32	11.26	2.82	3.34	10.31	9.80	4.43	13.59	4.51	5.33

Note: Please refer Table 1 for description of the industry.

Table B22. Lary's Index: West Bengal

Year	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	Mfg. Sect.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
1998-99	0.78	3.01	0.58	0.89	1.93	0.31	0.47	3.26	5.18	2.16	1.12	1.35	0.86	1.39	0.41	--	2.40	10.87	1.48	0.67	1.09	1.70	1.08
1999-00	0.72	1.38	0.71	0.99	0.89	0.23	0.76	2.96	2.10	1.89	1.00	1.48	1.63	1.32	1.39	1.70	3.39	3.08	1.41	0.67	1.14	0.43	1.15
2000-01	0.64	2.21	0.62	3.36	1.39	0.42	0.78	3.73	0.64	3.24	1.23	1.15	1.35	1.47	1.40	8.62	3.28	3.62	2.84	0.67	0.95	2.10	1.12
2001-02	0.69	1.35	0.70	1.74	1.46	0.56	0.97	2.13	2.08	4.32	1.25	1.42	1.73	1.87	1.39	12.71	2.55	2.86	2.32	0.70	1.01	2.29	1.26
2002-03	0.65	1.97	0.72	2.29	1.56	0.52	0.89	2.26	4.58	5.54	2.46	1.81	1.77	1.72	1.56	21.01	2.81	1.30	2.12	0.65	1.33	1.73	1.39
2003-04	0.57	1.79	0.67	1.59	1.37	0.80	1.20	2.01	5.44	6.72	1.35	2.16	2.34	1.88	1.76	26.51	2.57	2.04	1.65	0.40	1.58	1.81	1.47
2004-05	0.82	1.82	0.63	1.72	1.15	0.76	1.21	2.28	5.88	8.84	1.52	3.74	2.95	2.01	1.69	28.06	3.30	2.37	1.70	0.27	1.86	2.26	1.70
2005-06	0.76	1.27	0.70	2.42	2.19	1.12	1.37	2.91	4.30	7.09	2.18	2.39	1.80	2.06	1.56	20.29	3.72	3.38	4.35	0.99	1.96	1.56	1.52
2006-07	0.91	2.62	0.71	1.72	1.92	1.51	1.34	2.58	6.36	7.28	2.03	1.61	2.14	2.17	2.08	64.37	4.12	4.49	3.45	1.17	1.94	1.08	1.76
2007-08	1.12	0.58	0.90	2.71	2.13	1.19	1.27	4.03	6.79	8.15	1.98	3.29	2.94	2.17	2.43	66.40	3.94	5.10	5.02	0.31	2.41	1.33	1.99
2008-09	1.40	0.29	0.81	1.37	1.92	0.95	0.97	1.58	7.60	7.38	1.34	3.70	2.59	2.02	2.48	8.09	4.84	4.31	2.27	0.23	2.32	1.70	1.91
2009-10	1.57	0.56	0.83	2.42	1.52	2.03	1.20	1.31	4.55	5.95	2.12	3.58	3.27	4.42	2.33	15.78	4.73	1.92	4.82	0.63	2.32	2.34	2.18
2010-11	2.11	0.80	0.74	2.30	1.47	2.03	1.89	3.95	4.73	11.34	1.84	3.05	1.47	1.19	5.36	7.48	6.31	2.55	3.61	0.59	2.39	2.37	2.11
2011-12	1.50	1.83	0.77	1.95	1.03	1.40	2.00	1.88	2.53	5.20	2.02	3.41	3.26	0.97	3.05	7.05	3.89	6.90	4.18	0.15	1.82	1.24	1.90

Note: Please refer Table 1 for description of the industry.

Table B23. Lary's Index: Other States/UTs

Year	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	Mfg. Sect.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
1998-99	2.39	11.30	4.04	2.06	0.86	0.34	2.19	2.01	74.53	4.86	3.65	0.85	1.97	3.25	3.98	25.35	19.41	4.96	6.55	1.27	1.84	2.42	3.97
1999-00	1.86	0.94	2.11	1.13	0.38	0.30	1.52	2.31	12.53	6.46	3.01	0.76	10.80	2.23	5.20	19.94	12.14	10.46	8.74	1.65	2.42	2.46	4.05
2000-01	2.97	31.16	3.16	0.96	0.59	0.28	1.81	2.21	13.47	7.61	3.08	1.06	2.43	2.52	4.60	67.24	4.60	5.92	2.24	2.22	3.54	3.44	3.86
2001-02	3.38	5.65	2.02	1.28	0.72	1.18	1.94	1.41	11.75	8.00	3.34	0.87	2.42	2.41	5.07	78.56	9.45	2.90	3.28	2.14	3.91	3.19	4.06
2002-03	3.46	1.82	2.65	2.33	0.89	0.89	2.21	1.30	25.32	8.06	3.24	0.84	2.27	1.47	3.22	63.60	7.10	6.46	2.48	0.65	4.38	3.18	4.06
2003-04	3.73	2.39	2.88	1.95	0.87	0.92	1.99	2.15	22.49	7.95	2.70	0.88	7.69	3.46	3.53	42.48	7.71	3.84	2.94	3.32	4.26	2.94	4.35
2004-05	4.25	2.66	2.46	4.05	1.00	0.91	2.11	2.26	10.52	9.42	2.43	0.78	15.98	2.87	2.95	68.77	5.89	4.66	2.06	3.61	4.02	2.65	4.61
2005-06	4.73	2.62	3.93	3.83	0.81	0.93	3.10	2.52	12.21	7.41	2.85	1.09	1.41	3.90	2.96	369.57	10.53	4.78	6.69	3.53	3.86	2.17	6.16
2006-07	3.29	4.24	4.73	6.00	0.88	0.66	2.78	4.32	9.46	6.92	2.63	1.47	2.18	2.49	5.41	88.50	12.13	10.00	2.51	3.40	4.55	2.35	5.00
2007-08	2.69	4.67	4.28	1.40	0.91	0.84	1.66	3.64	14.90	6.48	2.53	1.47	3.08	4.87	3.81	143.71	16.43	10.00	9.78	2.99	4.16	1.70	5.42
2008-09	5.37	3.69	5.16	1.79	1.00	0.89	2.47	4.87	2.32	8.48	3.09	1.18	9.32	3.20	7.74	77.40	6.99	7.13	2.27	4.52	2.15	1.73	5.05
2009-10	3.47	4.51	4.29	1.08	2.52	2.81	2.70	2.40	10.13	5.85	3.32	1.18	1.64	3.08	9.30	61.31	6.50	7.45	2.67	4.54	3.46	2.25	4.56
2010-11	2.64	9.05	4.33	1.96	1.08	1.55	2.63	2.87	14.38	5.99	2.30	1.23	3.97	2.08	4.90	26.00	5.59	100.88	1.61	3.07	4.67	2.74	3.83
2011-12	7.59	3.21	3.73	2.46	0.65	1.61	2.49	1.64	12.97	7.74	2.08	1.10	5.91	1.52	8.49	13.15	7.24	35.99	3.02	2.54	2.46	1.65	3.82

Note: Please refer Table 1 for description of the industry.

Table B24. Lary's Index: All India

Year	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	Mfg. Sect.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
1998-99	1.24	0.44	1.15	1.16	1.02	0.43	1.55	2.23	10.41	5.17	2.36	1.53	3.42	1.88	2.22	11.65	3.78	4.98	2.60	2.69	1.32	1.72	2.09
1999-00	1.24	0.51	1.26	1.25	1.02	0.57	1.55	2.08	7.74	4.98	2.81	2.12	3.54	1.84	2.76	9.61	3.57	5.85	2.65	3.40	2.86	2.34	2.25
2000-01	1.26	0.51	1.30	1.07	0.81	0.56	2.15	1.88	8.74	4.20	2.51	2.13	3.07	1.75	2.80	16.29	3.12	5.83	2.66	2.84	2.18	1.76	2.07
2001-02	1.33	0.44	1.24	1.01	0.91	0.65	1.78	1.77	9.61	4.24	2.77	1.91	3.03	1.92	2.75	20.67	3.46	6.62	3.45	3.09	3.22	2.25	2.13
2002-03	1.29	0.52	1.36	1.12	0.95	0.73	2.18	1.75	17.58	4.54	2.84	1.38	4.26	1.97	2.52	29.16	3.56	8.30	2.88	3.38	3.56	1.70	2.33
2003-04	1.17	0.52	1.30	0.88	0.94	0.76	2.13	2.08	20.13	4.95	2.83	2.00	5.01	2.24	2.94	28.40	3.89	8.76	3.37	4.59	4.12	1.73	2.56
2004-05	1.19	0.53	1.34	0.96	0.84	0.73	2.15	2.09	19.43	5.16	2.94	2.27	6.35	2.11	2.95	21.08	3.86	8.67	3.71	5.08	4.37	1.85	2.73
2005-06	1.42	0.55	1.61	0.98	0.94	1.06	2.53	2.50	21.92	5.47	2.63	1.98	4.65	2.43	3.34	46.08	4.81	9.68	3.44	6.02	4.54	1.84	2.91
2006-07	1.88	0.64	1.73	1.17	1.13	0.69	2.36	2.56	23.14	5.66	2.52	2.40	5.15	2.91	3.53	31.40	5.81	10.77	3.40	5.16	4.66	2.00	3.14
2007-08	1.79	0.61	1.84	1.22	1.03	0.96	2.08	3.17	22.91	5.83	3.19	3.15	6.18	3.02	4.07	29.57	5.09	11.35	4.55	4.86	4.41	2.18	3.41
2008-09	1.83	0.73	1.67	1.30	1.11	0.83	2.52	2.19	21.32	9.46	3.79	3.00	4.11	3.15	4.95	16.75	4.95	35.18	4.36	4.08	4.46	1.72	3.61
2009-10	1.66	0.60	2.02	1.23	1.46	1.12	2.27	2.67	19.25	6.42	3.89	3.21	4.86	3.84	5.42	18.62	5.08	13.73	7.35	5.16	5.88	2.37	3.64
2010-11	2.13	0.92	1.95	1.04	0.99	0.99	2.78	4.15	23.20	7.29	3.99	2.39	5.79	2.45	5.20	6.13	4.61	16.41	6.30	4.36	5.56	2.44	3.55
2011-12	2.34	0.80	1.60	1.00	1.14	1.54	2.57	3.39	16.40	8.76	3.24	2.69	8.05	1.99	6.04	5.75	4.64	11.35	6.74	4.86	4.42	2.44	3.76

ote: Please refer Table 1 for description of the industry.

Annexure C: Number of Workers Per Bactory Unit

Table C1. Number of Workers Per Factory Unit: Andhra Pradesh

Year	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	Mfg. Sect.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
1998-99	23.21	622.89	92.33	83.54	24.59	10.50	46.61	33.98	23.62	41.53	24.08	16.46	84.12	15.93	36.84	33.50	65.44	63.74	100.91	58.74	114.58	22.42	55.67
1999-00	26.02	694.98	101.03	32.36	26.06	19.51	59.64	26.52	33.17	56.63	23.01	21.32	106.19	17.86	37.27	33.00	63.01	53.76	42.39	82.36	99.84	20.83	61.11
2000-01	22.93	705.74	106.12	99.43	28.67	18.13	46.91	29.43	28.81	53.90	23.90	20.34	65.86	36.73	33.62	26.50	68.74	81.20	54.63	49.29	167.16	31.46	56.64
2001-02	23.89	698.69	142.48	72.59	18.85	13.05	51.92	29.02	22.34	46.17	22.62	23.57	76.23	26.81	33.42	340.00	56.80	76.98	61.76	62.61	139.71	28.84	54.83
2002-03	22.62	710.54	120.61	101.23	17.36	16.16	37.11	48.81	31.55	50.94	22.24	80.53	61.66	20.37	27.97	98.83	65.76	68.63	68.10	67.73	169.14	58.05	61.73
2003-04	20.49	830.74	122.22	90.83	15.35	16.37	40.07	29.14	20.36	50.71	23.79	19.02	70.13	20.34	27.53	125.60	55.15	49.36	64.55	79.25	290.75	44.08	50.77
2004-05	22.09	726.31	150.34	88.60	21.41	13.74	48.06	27.37	31.59	52.76	26.70	19.76	73.35	28.45	31.25	35.50	71.16	83.79	67.36	74.19	169.42	41.98	51.99
2005-06	21.73	679.93	155.36	107.50	15.98	18.16	39.89	27.27	39.86	61.73	30.75	21.74	71.19	39.23	32.69	51.40	81.55	144.37	56.53	90.24	281.07	68.25	53.89
2006-07	25.11	649.67	164.61	132.15	16.24	19.18	45.36	27.18	41.38	62.40	28.61	26.30	72.21	35.90	33.39	47.40	80.88	86.59	46.27	83.61	139.29	47.62	54.54
2007-08	25.58	614.45	162.00	137.51	59.29	14.66	53.03	28.47	50.11	63.46	27.38	19.09	72.76	36.78	37.54	56.00	84.67	212.45	47.15	76.33	273.61	41.80	53.55
2008-09	26.15	751.12	146.54	200.30	128.05	13.73	39.69	29.23	115.72	70.40	36.09	23.08	84.51	37.65	48.22	73.97	61.18	48.10	68.91	103.16	95.75	40.67	55.85
2009-10	28.61	856.54	140.61	197.82	94.37	12.99	40.99	28.50	53.73	79.32	39.89	24.07	81.20	36.86	46.80	81.02	104.88	68.84	50.38	81.51	192.06	52.76	57.03
2010-11	18.88	501.92	103.19	159.01	82.53	9.52	37.50	26.68	38.23	52.94	28.36	19.64	50.96	26.01	33.68	83.94	67.32	125.00	55.29	52.89	211.85	36.14	40.25
2011-12	21.68	557.37	114.16	181.48	96.33	6.06	30.17	30.63	46.27	59.03	21.66	16.43	58.42	18.20	31.49	99.99	65.33	92.93	51.08	72.84	130.18	33.40	41.07

Note: Please refer Table 1 for description of the industry.

Table C2. Number of Workers Per Factory Unit: Assam

Year	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	Mfg. Sect.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
1998-99	80.48	--	196.94	--	--	8.10	525.00	22.77	314.62	74.38	26.00	36.63	25.40	8.48	45.30	--	12.25	--	--	41.00	--	--	67.95
1999-00	74.18	--	180.88	--	--	0.38	415.71	22.83	295.06	84.96	11.33	38.32	21.74	18.97	24.74	--	14.27	--	--	37.00	--	7.00	59.50
2000-01	74.40	78.10	161.20	--	--	3.69	517.33	26.10	348.73	85.96	21.13	40.56	20.25	19.58	32.05	--	38.00	--	--	38.00	--	7.86	65.92
2001-02	74.84	67.00	155.43	--	--	3.82	1171.33	22.05	383.42	73.35	14.61	54.38	16.06	15.22	34.69	--	38.07	--	--	36.33	--	7.55	67.41
2002-03	70.69	106.70	110.13	--	--	3.76	355.91	22.13	256.47	65.75	11.58	48.12	13.21	23.18	28.28	--	32.60	28.67	--	34.00	--	7.14	62.20
2003-04	69.08	79.89	98.41	--	--	7.33	303.00	21.77	294.29	69.66	20.36	48.07	20.60	16.87	39.26	--	30.33	23.75	--	26.67	--	15.86	62.76
2004-05	66.67	84.33	51.84	--	--	6.37	224.28	24.92	248.90	75.51	32.67	50.09	28.98	9.67	46.03	--	36.00	12.67	--	35.00	--	11.17	60.76
2005-06	67.41	55.44	68.74	--	--	8.83	141.21	25.12	168.08	86.36	22.74	52.31	12.24	18.88	45.77	--	34.93	8.17	--	34.00	--	8.50	60.74
2006-07	70.78	55.88	76.63	--	--	7.67	133.59	21.67	130.40	86.32	15.50	48.89	23.27	36.86	33.38	--	34.50	41.50	--	26.33	--	11.67	60.70
2007-08	66.61	57.76	53.62	--	--	8.09	151.41	22.74	137.87	94.48	18.33	63.29	24.08	20.31	33.41	--	31.28	40.75	--	43.33	--	20.17	62.26
2008-09	63.91	45.42	88.52	9.00	--	17.22	113.68	33.40	153.76	74.72	21.11	54.18	23.82	21.03	44.62	18.25	21.22	--	--	29.33	--	7.15	58.97
2009-10	66.34	62.83	79.92	8.25	--	7.39	108.55	31.41	142.05	79.40	13.94	49.27	34.21	27.84	22.33	--	15.50	--	--	29.75	--	9.89	57.99
2010-11	60.45	35.29	65.10	7.00	--	11.44	81.54	35.96	112.07	83.26	12.28	47.31	23.76	9.19	46.14	62.25	21.43	--	--	30.33	--	7.92	51.96
2011-12	62.07	91.67	50.86	7.50	--	32.15	72.09	25.00	96.97	102.76	24.23	41.35	32.24	17.27	35.06	28.46	5.98	--	--	44.60	--	12.95	51.39

Note: Please refer Table 1 for description of the industry.

Table C3. Number of Workers Per Factory Unit: Bihar

Year	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	Mfg. Sect.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
1998-99	43.18	15.75	188.56	--	269.50	10.58	13.17	24.29	97.18	34.55	17.32	38.20	43.64	13.02	10.94	--	25.75	--	--	--	301.50	1.70	35.67
1999-00	43.41	16.49	162.69	--	111.25	15.38	13.68	15.84	87.90	41.40	21.80	42.92	45.58	28.47	22.13	--	11.30	--	--	--	199.00	6.17	38.19
2000-01	40.94	15.68	178.85	--	184.78	10.07	8.60	17.67	60.28	51.55	13.81	39.24	27.35	14.51	13.27	--	36.83	15.67	--	--	199.17	8.14	34.89
2001-02	48.52	20.54	156.20	--	175.56	8.91	21.86	14.80	66.44	40.93	15.69	45.43	23.77	11.07	22.72	--	7.45	--	--	0.50	190.50	8.00	37.46
2002-03	41.02	18.91	151.70	--	184.13	11.09	34.48	7.93	67.85	23.63	13.93	37.75	28.35	8.72	18.22	--	6.89	--	20.00	--	130.14	8.00	33.68
2003-04	50.40	19.11	134.18	--	200.00	9.93	36.05	10.56	63.24	20.10	12.47	35.23	45.83	9.67	18.20	--	8.11	--	--	--	110.33	4.80	33.93
2004-05	44.24	20.23	161.48	--	152.25	9.02	29.64	14.70	57.80	20.41	15.70	31.98	29.49	10.24	17.76	--	8.73	--	--	--	166.75	5.00	32.34
2005-06	51.99	24.76	198.21	--	157.57	11.91	38.52	14.86	42.74	16.96	10.88	37.10	37.16	13.70	17.19	--	8.57	--	--	--	160.25	5.60	36.43
2006-07	49.60	26.84	209.69	--	211.80	7.65	38.16	14.29	43.18	22.96	13.00	38.88	32.89	13.47	9.50	--	8.86	--	--	--	152.25	5.20	36.53
2007-08	55.39	21.47	175.40	--	159.83	11.55	38.40	16.72	55.30	21.20	14.80	38.26	34.12	15.41	10.87	--	7.63	--	--	--	190.00	6.60	37.50
2008-09	43.45	31.23	144.33	--	152.67	11.74	27.13	15.83	53.18	13.00	15.28	35.28	125.15	16.37	28.07	--	11.00	--	--	5.00	86.00	16.25	37.82
2009-10	45.73	23.83	157.00	--	104.56	11.04	38.05	4.73	47.82	58.19	13.20	40.75	51.00	12.87	48.46	--	49.42	--	--	--	54.29	24.00	40.21
2010-11	22.58	25.31	161.04	--	113.57	12.25	31.17	7.50	30.28	17.90	13.26	43.14	43.35	11.07	29.22	--	6.22	--	--	7.75	84.43	8.75	34.33
2011-12	26.66	17.91	174.52	3.33	110.00	7.13	42.32	4.67	23.31	14.49	4.58	44.31	24.36	9.58	170.14	--	7.50	--	--	8.75	91.29	5.75	35.19

Note: Please refer Table 1 for description of the industry.

Table C4. Number of Workers Per Factory Unit: Chhattisgarh

Year	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	Mfg. Sect.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
1998-99	24.90	25.28	149.27	50.40	5.00	14.63	60.88	16.60	9.40	32.49	13.93	103.24	162.63	28.16	45.80	--	8.00	--	--	--	31.07	4.20	59.98
1999-00	16.62	11.69	193.79	--	--	11.02	33.71	15.67	6.80	22.96	30.26	186.07	226.10	20.45	41.86	--	53.36	--	--	--	30.88	17.70	58.85
2000-01	18.80	23.95	144.00	--	13.71	9.41	66.96	27.92	15.33	25.21	33.29	83.60	140.09	19.69	53.60	--	39.30	--	--	--	30.67	12.29	52.91
2001-02	15.07	22.85	126.75	--	11.71	12.72	64.65	30.33	8.43	31.47	56.83	94.37	167.38	21.96	59.31	--	32.19	--	--	--	37.33	9.13	51.10
2002-03	18.85	21.39	87.69	--	59.82	11.76	50.37	34.27	21.69	25.60	41.57	85.30	161.82	25.93	43.23	--	27.32	--	--	--	57.21	13.00	51.71
2003-04	23.73	54.04	89.46	--	12.57	9.68	49.11	35.00	51.18	19.90	50.74	79.03	153.72	30.48	48.51	--	30.55	--	--	--	48.59	12.30	56.23
2004-05	23.64	77.68	88.08	--	8.57	7.89	39.52	36.00	45.96	19.86	117.79	75.27	159.63	34.42	69.71	--	46.36	--	--	--	63.63	12.30	58.78
2005-06	22.03	110.92	96.33	--	5.71	11.56	55.23	35.10	54.81	45.47	31.12	74.52	116.68	45.73	86.36	--	34.07	--	--	--	66.40	20.00	57.75
2006-07	23.91	83.77	127.21	--	6.00	7.20	45.96	31.70	52.74	45.03	17.57	89.83	133.57	35.22	60.49	--	44.80	--	--	--	60.44	19.89	60.15
2007-08	22.41	107.59	82.93	--	6.00	10.40	46.84	35.62	95.54	24.07	14.73	67.51	148.98	43.37	56.03	--	15.25	--	--	--	79.00	19.78	64.19
2008-09	23.95	101.80	145.83	--	3.86	9.81	45.93	41.27	160.90	40.37	43.95	103.36	144.87	56.05	53.08	12.33	20.14	--	--	100.00	72.67	26.92	67.22
2009-10	17.40	86.69	85.08	--	6.20	8.23	34.90	35.54	48.04	24.65	31.05	76.97	143.36	55.66	59.70	27.50	44.60	--	--	--	83.00	17.74	58.69
2010-11	17.68	85.53	82.92	--	7.20	5.84	41.85	31.69	48.00	18.57	16.07	74.45	137.47	60.52	87.56	56.00	43.41	--	--	--	232.68	10.13	57.62
2011-12	18.95	100.05	80.77	--	5.50	15.73	30.03	40.08	35.29	16.02	16.92	57.54	141.17	54.12	88.77	45.67	20.05	--	--	--	79.31	16.07	56.31

Note: Please refer Table 1 for description of the industry.

Table C5. Number of Workers Per Factory Unit: Delhi

Year	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	Mfg. Sect.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
1998-99	38.42	28.47	14.59	32.03	25.99	20.94	17.49	28.86	0.00	26.30	18.30	18.73	12.71	20.04	19.56	1.88	17.06	33.31	18.94	23.83	36.98	24.64	23.82
1999-00	39.65	37.23	29.04	30.07	31.28	23.09	20.22	23.47	--	35.39	18.72	19.03	12.29	23.13	17.20	4.36	24.09	21.81	23.31	24.09	18.20	16.81	23.96
2000-01	38.74	34.28	14.95	38.73	36.59	33.88	17.68	26.91	5.50	23.38	13.92	16.41	10.77	21.76	17.25	8.00	20.93	19.28	21.00	24.85	18.89	18.33	23.68
2001-02	41.27	22.44	17.97	37.69	24.29	22.75	17.31	22.75	6.67	21.83	16.09	19.29	8.34	19.70	10.63	5.11	24.77	18.06	18.90	23.96	22.33	24.40	23.42
2002-03	47.90	22.55	18.04	48.78	22.63	30.50	14.55	27.25	6.67	26.92	14.54	14.50	10.55	19.91	15.22	8.00	16.59	18.52	19.41	21.86	22.84	31.65	25.49
2003-04	45.54	19.18	23.49	48.15	24.32	29.00	18.93	23.75	6.67	24.38	13.40	17.29	9.57	19.28	13.13	8.83	17.56	19.92	22.78	19.26	23.38	25.16	25.27
2004-05	34.49	12.00	29.65	55.84	23.84	6.00	14.09	21.63	7.00	19.74	15.17	15.75	8.46	23.02	14.39	8.81	21.24	18.94	23.93	21.97	20.14	25.73	26.11
2005-06	46.92	38.50	27.53	57.50	25.71	8.75	12.90	23.37	11.75	20.76	13.44	15.12	8.56	20.26	14.11	20.75	21.80	21.28	22.51	20.22	25.37	30.08	26.93
2006-07	46.25	12.64	22.94	54.42	21.56	8.33	14.96	21.83	7.67	25.82	14.93	10.87	9.74	24.54	16.39	14.18	21.17	25.44	27.88	33.42	23.23	31.63	27.81
2007-08	43.60	31.06	30.05	53.71	28.37	6.40	21.93	25.49	8.60	19.78	17.77	10.33	11.49	24.92	15.42	12.57	26.51	15.44	24.75	23.73	21.17	24.79	27.98
2008-09	52.46	24.29	28.88	61.68	28.98	9.00	23.88	25.65	9.00	23.86	13.91	14.10	12.78	22.34	16.50	21.78	24.62	18.72	14.14	23.28	27.66	21.42	29.65
2009-10	47.16	22.08	23.75	54.49	37.49	11.31	17.93	24.87	6.67	20.82	19.60	20.30	9.07	27.21	17.50	31.56	23.68	26.02	15.10	32.61	21.02	22.87	29.39
2010-11	40.19	20.58	16.36	35.38	30.36	7.79	14.37	14.16	4.14	12.18	9.28	11.24	5.92	14.95	14.39	16.61	17.90	10.04	13.44	15.24	11.94	18.63	19.45
2011-12	55.72	12.95	16.91	32.19	21.62	12.80	9.68	16.61	5.33	19.98	8.01	10.76	6.75	14.61	11.55	15.82	16.02	17.16	14.47	27.54	9.12	15.35	19.59

Note: Please refer Table 1 for description of the industry.

Table C6. Number of Workers Per Factory Unit: Goa

Year	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	Mfg. Sect.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
1998-99	57.11	--	32.64	30.43	--	--	14.82	26.14	103.67	44.65	37.18	28.38	64.57	19.47	27.36	64.00	30.47	44.93	48.50	64.87	95.83	76.70	44.23
1999-00	42.48	--	32.00	32.33	--	--	36.50	31.09	107.00	54.79	39.98	25.24	64.58	19.67	25.53	52.75	20.38	48.93	52.75	59.92	103.00	52.93	44.31
2000-01	50.83	--	29.59	54.67	--	--	20.36	28.27	109.67	55.05	32.05	21.19	48.88	18.85	24.32	36.20	22.76	47.00	30.96	50.65	119.33	30.83	40.70
2001-02	43.23	--	29.33	--	--	--	19.50	27.10	94.00	57.87	28.51	21.46	52.98	17.60	23.63	58.00	47.94	43.50	47.00	47.86	120.67	38.70	41.11
2002-03	46.14	--	28.36	--	--	--	23.91	30.27	63.50	69.68	58.15	19.19	55.80	15.42	29.12	75.00	34.00	39.12	42.55	72.17	72.57	41.60	45.22
2003-04	40.97	--	26.70	--	--	--	23.66	25.17	63.60	64.94	37.40	33.96	57.75	19.35	31.59	69.38	41.25	57.40	42.91	78.69	87.88	44.65	46.01
2004-05	43.18	--	31.80	--	--	--	18.72	27.75	43.20	86.93	47.30	38.89	52.81	21.58	34.73	98.29	56.59	71.27	56.57	111.82	99.29	56.15	55.01
2005-06	46.97	--	31.07	--	--	--	19.88	31.00	60.83	75.12	44.45	38.20	62.87	22.30	30.97	117.67	62.00	59.69	72.38	182.91	91.50	59.13	55.36
2006-07	53.99	--	28.30	--	--	--	32.45	43.88	84.00	87.39	41.54	42.27	62.61	25.46	30.89	135.20	62.07	100.90	81.68	282.56	136.00	48.88	63.28
2007-08	47.95	--	36.50	--	--	--	20.11	35.82	104.20	109.66	68.12	51.05	69.96	69.81	28.88	124.17	79.20	72.83	90.76	309.13	150.58	75.96	73.55
2008-09	63.94	--	36.00	--	--	--	40.11	33.00	95.00	114.88	75.14	49.25	81.45	33.92	34.38	111.56	61.55	315.20	86.78	217.09	96.40	92.96	79.11
2009-10	66.95	--	47.00	--	--	--	33.39	25.72	50.67	112.68	46.68	60.57	85.00	62.45	33.35	112.25	82.29	77.33	104.00	192.00	70.10	68.89	76.32
2010-11	65.48	--	34.86	--	--	--	19.07	27.57	94.75	77.85	64.09	27.92	65.21	23.96	46.94	49.29	92.61	76.33	34.75	185.09	62.87	61.68	62.43
2011-12	72.28	--	58.50	--	--	--	24.42	41.00	119.80	130.21	103.15	31.76	52.19	36.72	43.38	67.38	70.62	48.00	30.67	91.36	188.36	76.17	78.09

Note: Please refer Table 1 for description of the industry.

Table C7. Number of Workers Per Factory Unit: Gujarat

Year	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	Mfg. Sect.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
1998-99	47.69	19.29	73.25	69.37	28.08	9.56	32.08	19.71	42.94	51.05	25.19	25.63	24.95	17.21	22.01	63.50	34.93	82.69	31.25	134.75	50.30	77.53	39.51
1999-00	43.60	18.72	76.78	56.73	26.00	8.18	30.29	20.38	47.83	62.15	21.61	25.70	25.70	29.60	26.82	72.11	37.21	34.22	39.37	40.05	49.67	73.50	41.88
2000-01	39.34	15.95	80.08	54.11	37.37	10.89	42.93	16.68	31.75	56.21	22.28	27.04	27.16	24.02	21.73	28.50	32.77	84.42	32.30	44.73	54.25	61.28	40.33
2001-02	39.39	21.91	65.67	53.86	29.85	18.90	40.35	14.55	105.96	53.23	22.85	32.40	20.85	19.69	23.79	--	31.26	63.96	23.08	38.25	29.97	79.34	38.40
2002-03	40.44	22.93	69.39	80.15	44.64	11.70	36.91	16.61	118.73	55.55	24.72	31.40	23.85	18.94	27.01	--	28.51	54.69	26.01	51.28	57.33	105.48	40.44
2003-04	39.80	19.70	78.93	82.55	48.56	10.89	36.44	15.12	157.35	60.52	27.50	32.67	27.79	19.88	23.15	--	33.60	57.20	36.87	59.49	65.17	114.22	42.81
2004-05	43.18	24.58	78.64	90.72	36.29	15.40	34.80	14.34	154.69	61.08	28.53	32.84	31.13	27.62	27.48	--	35.34	62.15	29.02	60.50	35.18	120.07	45.23
2005-06	42.32	21.32	83.88	61.54	38.64	12.88	37.00	22.85	230.77	59.27	33.08	41.04	35.36	31.31	27.55	--	39.66	82.67	52.22	64.35	43.81	139.20	47.98
2006-07	43.87	22.74	94.67	78.09	59.38	15.80	38.30	21.86	341.76	58.65	29.56	39.31	47.05	38.12	28.88	59.00	50.93	140.41	56.58	85.91	52.84	187.45	53.23
2007-08	42.28	14.70	102.35	64.30	62.88	14.90	38.91	23.57	440.65	61.78	29.71	42.76	42.50	37.59	31.71	--	52.87	117.63	61.02	74.20	58.29	188.62	54.39
2008-09	50.73	17.31	108.38	66.84	45.60	11.59	39.16	29.97	427.46	65.92	36.44	59.38	55.13	41.64	32.81	21.31	51.67	286.47	75.61	88.32	150.84	183.68	60.43
2009-10	51.27	22.66	115.39	75.77	74.94	12.62	38.66	21.97	308.71	66.24	45.63	55.20	46.41	30.27	33.53	37.24	46.56	116.19	55.40	73.39	212.50	148.48	58.97
2010-11	38.36	16.86	81.70	43.94	42.83	17.38	34.32	14.78	117.40	58.64	32.49	43.97	37.45	26.50	34.94	17.20	44.52	236.00	47.87	51.05	160.76	130.65	47.99
2011-12	37.66	15.62	81.74	44.34	54.50	13.01	27.85	20.40	80.53	58.58	32.45	46.37	47.54	30.63	34.45	34.17	45.01	265.00	54.46	84.42	210.80	131.91	49.51

Note: Please refer Table 1 for description of the industry.

Table C8. Number of Workers Per Factory Unit: Haryana

Year	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	Mfg. Sect.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
1998-99	46.32	25.44	49.51	91.08	103.50	6.87	42.23	77.56	3.00	31.80	53.69	40.34	31.20	26.17	59.81	42.69	81.47	55.00	67.95	87.30	1176.57	100.00	74.79
1999-00	53.08	18.08	44.60	80.31	141.35	5.25	42.02	99.65	14.29	27.99	45.76	40.92	26.01	23.65	66.59	75.50	82.82	95.96	49.65	100.46	115.68	54.74	50.68
2000-01	56.48	27.08	47.17	110.27	88.29	7.02	57.44	73.40	8.63	26.12	32.03	45.45	22.98	18.22	49.21	95.67	69.71	63.61	57.38	113.10	171.00	33.07	49.67
2001-02	53.24	20.41	44.49	125.93	94.10	8.36	51.40	62.19	11.77	29.28	26.03	42.85	29.01	20.09	51.39	75.89	71.93	88.79	66.62	73.13	116.02	34.67	47.86
2002-03	57.25	18.38	42.48	133.82	137.51	9.37	66.07	61.30	15.27	22.31	37.68	40.87	26.62	22.53	45.48	108.00	80.07	79.96	76.66	89.45	135.75	33.43	51.56
2003-04	54.45	23.13	57.20	170.02	93.67	9.76	54.35	63.95	13.67	29.84	30.38	36.71	33.18	22.80	46.61	66.63	72.30	65.78	75.41	111.66	181.14	92.12	56.14
2004-05	57.74	19.35	56.26	201.11	90.25	8.54	49.83	58.55	10.43	32.04	40.50	33.06	30.30	31.13	57.44	73.71	67.81	50.04	89.15	130.40	218.38	64.14	62.94
2005-06	60.13	24.64	63.52	265.63	95.08	9.56	50.01	57.21	7.00	30.54	47.08	34.71	40.37	29.67	56.47	59.00	90.25	44.47	102.08	124.61	239.85	73.04	72.18
2006-07	60.66	22.68	68.83	211.85	81.85	14.21	37.88	56.96	13.25	32.92	35.70	37.93	43.87	39.72	60.65	51.50	126.97	47.39	116.52	147.47	318.80	67.22	77.13
2007-08	63.23	23.16	84.77	244.46	108.30	12.13	53.00	47.14	8.63	36.89	37.78	28.71	68.85	31.05	65.20	75.89	92.60	73.79	124.27	270.73	395.00	80.59	87.52
2008-09	74.68	23.44	62.89	202.52	138.20	13.15	62.41	64.44	4.50	45.06	79.70	29.09	51.13	33.90	73.35	98.07	96.73	51.86	28.21	193.76	339.80	101.40	86.23
2009-10	66.40	15.50	63.89	247.87	169.30	12.48	63.99	71.16	6.33	62.26	45.04	31.03	43.52	43.01	73.22	93.77	90.57	1540.40	23.89	199.54	480.20	138.36	101.74
2010-11	52.84	14.76	47.58	138.32	114.19	12.06	38.25	59.39	7.88	34.83	31.45	22.35	40.02	32.29	76.39	66.63	78.34	165.00	14.98	188.13	348.04	124.64	72.45
2011-12	42.02	20.12	48.20	140.44	125.86	9.11	35.16	55.70	7.80	32.65	40.93	21.48	60.36	31.19	75.66	26.92	88.62	140.19	38.48	196.44	409.49	100.94	72.08

Note: Please refer Table 1 for description of the industry.

Table C9. Number of Workers Per Factory Unit: Himachal Pradesh

Year	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	Mfg. Sect.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
1998-99	37.45	48.44	274.70	36.00	60.67	6.10	59.09	9.58	--	15.44	18.80	133.35	34.00	58.89	47.61	27.13	17.17	109.00	59.71	35.15	--	--	60.04
1999-00	37.99	61.13	265.86	--	62.00	10.50	46.33	10.00	--	13.85	20.91	209.04	21.82	32.58	35.57	8.50	20.85	64.72	70.93	80.67	--	--	61.87
2000-01	35.27	69.20	309.82	--	51.33	4.14	46.87	11.00	--	29.57	13.20	76.81	21.15	57.75	31.56	10.00	20.55	73.05	90.27	44.00	--	10.33	59.28
2001-02	33.95	41.91	266.30	--	51.83	4.00	51.84	29.40	--	24.07	12.11	90.42	19.73	52.19	39.57	22.11	21.09	54.65	82.15	17.41	--	8.67	53.26
2002-03	31.09	50.40	261.19	53.20	49.14	5.57	54.47	8.40	--	25.85	15.30	69.63	16.84	27.48	30.43	21.29	18.40	114.17	82.00	37.30	--	14.00	50.25
2003-04	29.64	61.22	239.54	107.20	43.88	4.29	44.45	9.31	--	26.37	12.23	87.81	16.79	44.62	46.15	31.00	21.42	95.08	81.79	21.10	--	18.00	52.58
2004-05	27.77	63.40	281.57	70.14	57.33	4.86	31.08	12.00	--	36.57	10.82	82.30	19.00	60.71	42.42	32.00	34.36	67.52	59.95	35.38	27.67	14.71	52.14
2005-06	37.60	66.30	218.70	58.75	60.36	6.63	32.78	40.77	--	48.46	21.56	69.14	30.59	40.64	46.53	37.06	39.36	51.43	58.40	37.46	--	13.80	53.74
2006-07	33.78	52.11	235.68	--	67.50	3.43	35.72	46.29	--	56.92	36.71	106.52	40.56	34.87	68.80	36.10	52.31	48.45	62.61	46.76	19.20	15.00	62.40
2007-08	59.86	43.67	210.44	124.57	55.73	7.13	31.66	36.68	--	67.47	40.67	84.80	36.90	30.82	52.60	30.00	53.73	46.94	37.97	62.48	66.43	44.36	62.57
2008-09	50.20	68.67	211.27	146.80	134.91	11.59	36.71	48.00	--	64.19	30.58	109.86	51.06	49.12	69.84	62.76	63.72	25.91	43.29	63.53	76.59	150.89	65.52
2009-10	48.38	51.33	240.53	50.00	72.53	28.55	38.90	23.00	27.00	67.46	25.60	75.56	51.76	49.18	55.98	51.31	64.19	194.20	45.95	66.08	42.92	47.74	64.89
2010-11	53.49	22.44	179.80	91.75	46.73	52.24	36.40	31.26	--	69.44	22.61	77.88	43.92	28.78	52.04	43.72	47.41	22.11	28.11	56.91	30.70	50.84	54.49
2011-12	55.89	34.25	170.73	113.13	66.64	58.80	33.14	17.06	35.00	56.24	22.60	47.79	29.36	36.01	40.28	30.40	37.77	29.98	49.00	45.72	53.19	32.24	47.03

Note: Please refer Table 1 for description of the industry.

Table C10. Number of Workers Per Factory Unit: Jammu and Kashmir

Year	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	Mfg. Sect.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
1998-99	42.91	11.67	173.82	--	8.20	19.31	44.29	7.40	--	27.07	25.82	67.78	47.57	40.60	39.50	--	14.33	42.40	--	--	--	67.86	54.48
1999-00	39.41	9.33	156.17	--	5.20	31.71	47.63	5.00	42.57	36.80	34.00	64.20	57.14	15.19	56.50	--	13.13	--	--	--	--	39.84	51.68
2000-01	33.60	4.67	195.09	--	10.00	41.93	47.38	7.80	55.50	16.50	21.38	61.00	56.71	16.35	36.38	--	12.89	41.20	--	--	--	80.06	51.17
2001-02	36.26	0.00	222.69	--	10.67	36.63	37.50	7.00	74.67	34.21	19.89	69.60	72.66	23.20	45.15	--	21.89	49.25	--	--	--	99.76	57.03
2002-03	40.01	0.00	230.92	--	37.33	33.25	29.88	6.20	72.17	32.18	20.32	75.61	70.42	17.64	39.44	--	18.81	45.25	229.33	--	--	89.07	57.60
2003-04	39.38	--	257.33	--	52.33	38.73	27.38	6.20	66.60	29.77	17.29	77.53	86.97	21.52	46.26	--	21.19	37.75	221.33	--	--	91.13	65.11
2004-05	39.34	--	226.12	50.67	9.67	38.94	68.09	4.83	50.67	57.58	26.74	73.68	69.92	34.76	41.00	--	29.08	125.50	--	30.00	--	55.44	58.46
2005-06	44.67	--	250.38	69.25	--	35.88	51.62	11.13	53.17	62.76	58.45	70.06	86.21	26.82	37.08	--	28.00	107.50	--	44.67	--	48.52	63.05
2006-07	42.26	--	268.24	62.60	18.33	51.95	52.67	15.25	34.44	63.02	24.00	68.89	73.01	40.07	42.19	30.00	24.03	40.00	--	40.75	--	94.17	60.84
2007-08	38.68	--	340.40	60.60	--	57.05	55.16	10.90	22.22	70.23	30.91	59.86	81.81	38.60	32.34	132.67	29.74	45.75	--	29.00	--	91.61	62.40
2008-09	57.76	--	267.92	57.17	27.00	22.45	146.52	8.42	213.25	74.12	23.25	50.13	74.00	53.18	58.40	139.50	29.86	83.25	--	--	27.08	110.64	69.84
2009-10	41.95	--	267.86	85.25	32.67	28.00	63.96	12.31	47.83	85.63	92.37	57.22	56.69	69.47	59.50	28.75	30.39	52.00	--	--	25.78	115.78	70.86
2010-11	28.44	--	279.69	85.75	34.17	23.38	63.80	9.46	4.00	69.79	60.58	53.80	83.85	27.10	51.00	73.60	19.25	--	--	--	15.91	65.68	56.02
2011-12	38.62	--	266.17	87.00	--	18.15	34.73	11.00	--	113.45	62.63	86.80	53.81	18.16	41.36	174.67	22.94	10.64	--	30.33	16.68	50.81	62.82

Note: Please refer Table 1 for description of the industry.

Table C11. Number of Workers Per Factory Unit: Jharkhand

Year	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	Mfg. Sect.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
1998-99	16.63	117.89	278.50	--	23.57	4.47	4.92	8.50	70.78	76.05	36.10	53.18	447.98	28.83	119.04	--	164.79	--	--	113.81	32.57	--	110.65
1999-00	12.45	109.61	150.00	--	--	3.76	6.80	21.14	66.82	90.78	26.79	40.81	667.59	34.76	102.22	--	143.54	--	--	126.87	41.50	2.25	117.50
2000-01	20.55	145.43	126.14	--	--	4.42	7.83	11.44	54.59	69.64	21.98	44.59	414.41	21.35	105.81	--	93.91	--	--	92.50	37.60	2.25	94.51
2001-02	16.03	144.43	123.78	--	--	7.35	6.00	12.14	56.39	72.70	21.25	45.75	345.20	18.54	77.41	--	57.40	--	45.00	101.49	29.50	4.00	89.63
2002-03	17.71	239.62	90.38	--	--	3.50	5.44	20.56	44.95	54.43	18.71	42.91	343.49	16.99	97.53	--	46.11	46.67	--	102.24	26.25	7.40	89.79
2003-04	14.36	140.94	80.00	--	--	5.07	9.63	22.90	49.24	38.46	16.47	35.38	320.21	22.70	74.70	--	21.75	39.00	--	120.11	36.00	10.57	79.79
2004-05	12.81	123.52	76.67	--	--	4.91	7.86	21.77	54.71	39.52	17.07	39.17	281.14	29.30	72.61	--	21.38	--	32.67	101.30	42.14	12.17	76.20
2005-06	17.90	74.39	105.83	--	--	4.03	8.25	24.05	54.56	41.65	14.66	27.93	279.16	25.65	76.80	--	20.63	--	--	126.57	30.14	11.71	74.06
2006-07	16.31	75.84	167.20	--	--	4.97	5.86	21.36	52.74	26.24	23.00	34.07	295.02	24.53	85.23	--	21.13	--	--	81.37	25.38	13.00	74.55
2007-08	20.39	62.73	109.00	--	--	4.50	6.00	17.36	41.62	44.90	19.14	40.20	282.92	38.67	59.45	--	16.64	--	--	90.41	31.00	13.20	76.75
2008-09	12.13	76.29	129.00	--	--	8.16	7.57	26.61	44.79	38.31	36.44	35.21	247.33	29.79	104.66	44.88	38.18	--	--	108.56	--	3.00	69.77
2009-10	16.80	41.24	43.20	4.00	--	8.88	6.33	33.67	33.88	23.12	21.71	25.54	181.60	26.58	114.44	251.33	63.64	--	17.40	94.53	16.25	409.00	53.83
2010-11	14.75	50.70	64.11	--	--	8.59	4.83	11.56	38.70	33.73	18.27	22.49	152.33	27.82	166.11	92.50	53.15	--	--	109.64	11.11	3.00	52.36
2011-12	17.37	101.45	117.00	--	1.67	5.74	3.77	44.00	31.97	45.39	28.46	23.09	145.96	24.13	128.56	91.33	26.26	--	--	160.38	21.89	4.94	53.37

Note: Please refer Table 1 for description of the industry.

Table C12. Number of Workers Per Factory Unit: Karnataka

Year	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	Mfg. Sect.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
1998-99	38.51	66.26	71.68	177.21	42.34	9.87	72.69	48.62	31.45	46.92	37.34	42.64	55.46	30.55	40.42	16.75	62.36	74.80	48.89	73.41	82.47	24.51	57.77
1999-00	48.35	53.50	82.88	154.10	48.78	15.24	51.15	22.97	73.65	40.69	32.21	41.54	56.10	33.01	32.77	29.73	39.90	51.22	53.78	94.83	45.89	21.05	54.82
2000-01	40.89	59.89	102.97	169.93	54.97	12.15	53.83	32.53	41.81	41.99	33.38	40.83	46.98	25.95	25.67	33.44	38.59	58.38	47.61	82.81	37.60	28.11	53.47
2001-02	44.70	66.07	84.97	167.16	53.57	8.87	55.67	32.86	42.85	41.14	30.48	43.03	67.73	20.87	28.68	34.82	42.18	51.02	49.69	85.42	37.66	38.34	54.60
2002-03	44.14	74.94	73.36	176.14	46.94	12.55	54.06	29.76	53.90	39.42	34.59	40.74	59.35	20.02	33.77	25.35	40.23	58.53	51.78	73.44	46.08	29.53	55.42
2003-04	41.44	69.67	80.23	214.99	43.47	11.54	60.74	25.45	46.55	37.19	39.02	36.03	48.83	22.21	34.59	22.64	42.72	62.04	42.57	87.38	50.43	39.51	57.90
2004-05	42.10	57.00	73.55	231.34	63.54	11.92	52.34	25.69	46.13	38.59	31.72	43.27	59.28	22.60	31.61	43.45	45.34	58.33	44.49	85.78	58.08	39.54	59.35
2005-06	44.76	74.19	94.03	289.73	43.88	19.54	54.90	29.69	42.25	46.55	32.47	37.46	57.18	32.46	35.98	111.09	49.14	53.59	45.07	84.11	77.14	50.18	67.12
2006-07	44.61	63.92	96.42	339.26	61.04	18.02	52.71	32.96	40.76	54.99	38.15	41.54	73.62	40.19	40.87	70.33	58.25	64.83	47.66	84.10	64.41	45.23	74.13
2007-08	41.89	52.68	86.12	330.68	41.75	18.63	55.68	38.99	51.46	38.98	30.80	40.98	63.59	37.44	34.91	59.18	64.15	116.30	86.71	85.33	80.24	63.56	70.83
2008-09	45.89	54.00	89.06	373.58	61.17	14.33	53.41	34.63	65.72	51.13	38.64	43.49	74.31	32.10	52.27	43.01	59.61	109.83	56.28	65.32	101.41	66.10	74.36
2009-10	50.50	54.66	86.69	415.39	54.30	24.60	52.70	35.20	62.94	42.52	50.34	31.80	65.81	39.93	39.78	57.81	54.53	76.39	48.69	96.11	76.09	56.36	72.46
2010-11	41.87	46.88	55.66	277.28	65.13	16.08	41.72	29.14	66.91	41.15	45.14	36.12	57.18	28.42	42.86	37.45	45.74	62.34	51.67	103.63	96.05	40.81	59.97
2011-12	41.75	71.95	45.25	335.32	56.20	13.33	45.47	27.83	78.44	48.97	41.43	31.26	74.80	25.55	46.12	41.53	44.31	30.33	38.52	88.28	98.52	34.36	64.96

Note: Please refer Table 1 for description of the industry.

Table C13. Number of Workers Per Factory Unit: Kerala

Year	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	Mfg. Sect.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
1998-99	128.48	48.61	63.63	78.90	27.33	9.90	65.65	22.11	120.54	62.64	34.48	18.05	48.60	20.51	24.29	82.00	43.24	70.56	109.64	11.00	160.60	13.82	50.22
1999-00	141.24	47.37	69.18	55.40	11.76	11.15	69.28	30.04	463.85	63.16	30.94	16.38	40.38	17.10	21.66	112.33	43.55	93.06	68.81	10.14	130.69	23.32	54.21
2000-01	142.59	50.08	73.57	71.85	10.42	9.59	54.52	38.28	185.85	64.94	30.02	16.21	57.93	15.49	26.73	133.00	40.72	103.77	61.27	9.56	233.14	16.43	55.22
2001-02	134.74	268.08	63.43	63.61	14.20	9.09	47.56	28.05	157.21	53.65	30.58	13.87	52.33	13.53	22.31	--	42.26	89.98	89.82	8.11	205.86	12.15	54.75
2002-03	112.53	218.00	51.56	71.42	15.27	10.87	42.78	27.56	111.32	56.11	27.03	15.40	46.37	14.60	22.26	101.67	43.35	102.38	47.17	7.40	202.57	10.54	49.38
2003-04	141.94	34.12	50.43	113.83	11.72	10.60	32.52	31.46	173.00	52.56	29.02	13.81	55.09	15.79	20.27	74.75	43.19	96.15	40.61	8.62	185.47	15.03	50.73
2004-05	133.52	33.81	52.21	124.48	7.92	9.03	33.78	31.67	174.44	49.48	29.22	15.25	53.54	17.14	28.08	101.33	40.40	140.90	44.79	8.29	195.00	17.75	51.01
2005-06	132.39	45.19	46.70	144.27	13.15	11.17	38.22	25.70	186.86	54.53	27.83	13.77	64.03	18.60	21.86	60.67	37.56	119.93	39.31	7.00	241.86	13.81	52.50
2006-07	123.79	55.89	40.58	152.52	15.53	10.15	38.88	27.39	156.31	53.55	29.47	16.00	74.32	24.73	22.21	63.83	40.41	138.38	29.92	17.55	304.20	12.11	54.72
2007-08	131.39	55.51	41.41	205.42	17.53	11.03	28.40	31.50	187.25	52.72	30.33	14.04	58.05	32.77	24.85	80.50	43.56	91.23	44.77	12.53	140.23	9.19	56.61
2008-09	130.06	52.83	56.04	161.93	28.63	15.54	37.66	16.04	189.95	39.28	39.05	15.33	87.12	15.01	47.06	137.95	46.11	58.25	42.75	13.67	368.92	17.35	58.36
2009-10	123.78	53.14	44.10	286.13	27.09	12.21	38.42	22.00	313.70	41.83	35.02	15.62	45.43	21.69	45.17	161.55	40.46	88.13	75.00	12.52	216.39	18.01	55.08
2010-11	110.65	43.27	52.07	252.79	32.28	8.51	34.07	17.40	264.53	35.22	31.09	16.60	44.27	17.89	29.35	144.49	43.78	--	45.31	24.93	277.80	18.12	49.16
2011-12	118.26	41.42	45.38	113.23	19.23	9.32	32.58	28.13	159.59	36.51	29.21	14.41	35.11	22.95	62.19	78.75	60.54	243.67	120.40	13.05	209.06	15.92	49.33

Note: Please refer Table 1 for description of the industry.

Table C14. Number of Workers Per Factory Unit: Madhya Pradesh

Year	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	Mfg. Sect.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
1998-99	34.90	54.07	392.11	88.25	23.97	16.48	55.44	25.74	32.58	41.42	65.57	46.64	33.51	27.22	33.38	--	87.79	136.00	52.58	63.45	70.60	43.29	70.17
1999-00	38.32	39.26	197.20	61.20	27.59	27.00	69.11	15.12	31.33	68.66	59.94	41.63	62.93	36.45	40.71	--	87.87	213.36	56.00	71.64	135.90	47.72	62.93
2000-01	34.77	69.32	199.81	59.20	27.72	23.16	74.48	16.49	23.36	66.69	49.52	47.26	51.09	43.13	28.60	--	76.92	192.18	43.00	57.54	167.56	56.95	61.74
2001-02	33.95	32.95	169.36	64.15	37.80	18.03	92.26	20.91	18.22	47.32	52.13	53.16	55.07	32.79	27.54	--	72.20	185.50	31.60	66.46	150.22	50.44	54.55
2002-03	37.54	31.14	166.90	70.18	31.54	14.97	40.77	19.68	27.13	53.11	63.28	53.31	35.61	32.51	30.65	--	89.41	178.25	30.87	86.36	110.93	72.65	54.86
2003-04	41.72	33.99	179.49	67.50	36.41	23.70	58.98	16.80	30.05	53.98	61.03	49.77	43.20	34.53	29.55	--	78.89	198.55	32.50	90.91	108.83	50.54	56.12
2004-05	42.74	38.99	158.85	73.27	36.00	22.94	44.22	20.22	35.17	48.87	61.86	54.73	53.44	38.97	32.45	--	87.94	258.91	37.29	105.63	165.65	41.10	58.08
2005-06	35.55	46.72	187.11	118.80	40.88	17.53	46.42	25.32	31.90	59.86	76.51	55.83	51.47	41.93	35.91	--	96.03	278.11	37.69	85.00	77.77	51.72	59.63
2006-07	46.06	30.89	182.19	148.35	41.98	15.95	45.91	25.78	35.91	53.32	81.04	62.69	57.82	57.84	35.17	37.00	94.24	78.60	60.06	90.92	87.50	49.88	61.55
2007-08	48.64	29.32	182.83	141.00	40.47	24.37	66.97	27.28	31.23	62.22	83.95	69.09	58.50	56.68	37.11	37.33	99.80	52.40	42.15	94.40	156.00	66.44	65.75
2008-09	46.57	31.94	160.43	83.04	48.91	19.39	41.48	24.62	36.07	55.65	81.04	79.66	68.58	52.21	46.58	--	99.12	95.86	45.50	84.03	148.13	33.80	64.15
2009-10	41.69	42.55	164.38	177.15	59.88	33.30	35.96	74.35	41.20	45.73	107.68	58.95	93.55	44.04	50.35	--	88.14	66.00	24.09	106.26	68.81	51.33	63.50
2010-11	36.99	35.14	181.60	113.24	31.27	26.47	35.80	28.20	52.32	52.61	90.36	67.57	71.06	43.04	39.84	18.33	93.15	109.60	38.40	115.82	111.54	40.79	61.83
2011-12	44.30	28.56	156.85	42.88	40.18	29.52	43.30	50.30	24.98	55.80	83.69	41.92	61.28	43.55	48.04	27.91	93.36	11.00	86.86	139.34	97.52	50.77	60.20

Note: Please refer Table 1 for description of the industry.

Table C15. Number of Workers Per Factory Unit: Maharashtra

Year	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	Mfg. Sect.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
1998-99	45.51	352.32	92.50	14.90	15.29	10.31	29.33	15.97	87.30	48.19	25.18	23.21	46.04	24.72	35.87	23.04	34.43	53.23	22.49	61.21	59.18	44.56	42.96
1999-00	48.60	292.52	93.35	27.35	26.22	15.00	34.97	18.58	51.17	45.47	30.63	26.86	49.59	27.84	36.03	55.03	32.26	59.43	33.21	62.64	85.75	51.41	45.59
2000-01	59.01	555.31	89.93	21.16	14.68	15.76	29.88	18.44	78.57	45.73	25.12	27.82	44.10	24.90	32.71	91.11	31.70	57.31	26.71	55.69	85.68	52.29	45.15
2001-02	56.36	934.09	84.42	22.58	14.77	14.73	29.61	23.13	66.75	46.52	27.84	25.64	41.35	22.29	34.73	118.97	28.35	43.49	26.36	57.23	67.11	45.04	46.79
2002-03	55.90	866.68	85.11	20.54	13.07	16.99	24.44	18.93	59.60	45.71	27.51	31.13	44.42	26.84	33.00	61.54	37.03	54.19	31.30	55.76	78.14	52.21	48.28
2003-04	52.09	556.42	80.33	21.94	20.66	15.20	25.17	17.16	64.88	45.13	30.45	28.91	49.38	24.81	33.26	66.66	35.18	60.95	28.33	66.04	82.92	48.30	45.40
2004-05	44.36	491.11	71.83	26.43	23.54	13.52	24.96	18.97	56.37	42.51	32.38	28.52	56.77	25.72	34.53	92.17	36.61	62.11	28.06	76.28	92.23	44.96	44.20
2005-06	51.53	425.08	80.91	29.91	25.53	13.23	24.10	20.71	57.56	45.40	32.00	31.23	62.87	29.13	34.87	74.29	42.58	71.58	28.76	87.02	111.58	49.21	48.37
2006-07	57.23	482.71	82.11	36.13	22.38	24.40	30.48	25.73	73.42	46.31	35.39	33.88	78.12	34.08	40.20	106.79	47.81	80.46	37.51	105.88	216.49	59.01	55.59
2007-08	56.60	413.62	77.94	28.73	26.96	20.16	30.48	24.24	49.97	45.16	32.48	31.93	74.23	34.75	49.04	96.24	49.75	74.41	28.54	103.78	103.21	66.88	53.45
2008-09	54.38	350.49	78.08	36.68	33.61	17.59	29.15	23.13	56.93	45.73	43.16	34.06	78.21	32.55	46.27	58.19	42.31	102.23	27.44	93.56	122.88	49.78	51.99
2009-10	57.84	311.89	81.50	46.22	44.39	25.09	26.84	27.23	48.57	51.77	48.03	29.95	80.12	37.45	43.16	84.20	50.36	191.72	43.88	103.85	119.49	52.25	56.32
2010-11	49.10	276.69	60.21	31.91	24.70	14.59	22.45	18.14	38.69	38.67	31.85	25.18	59.58	33.89	44.71	59.82	39.74	99.84	28.16	98.43	97.16	38.67	44.72
2011-12	50.44	293.41	59.42	26.03	22.79	21.42	25.01	21.07	46.71	46.90	36.10	29.94	73.31	35.08	45.64	61.49	43.33	124.19	22.52	106.73	105.46	36.47	48.10

Note: Please refer Table 1 for description of the industry.

Table C16. Number of Workers Per Factory Unit: Odisha

Year	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	Mfg. Sect.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
1998-99	32.75	31.71	136.54	25.50	--	5.25	295.44	29.13	31.20	57.93	87.56	53.42	269.41	51.24	47.57	--	23.98	89.00	--	6.80	--	23.95	64.33
1999-00	27.62	183.43	112.55	17.67	--	5.69	245.44	26.36	24.50	83.87	51.00	42.76	269.47	33.71	37.65	--	17.02	20.25	46.33	30.78	--	20.38	64.39
2000-01	31.57	27.18	166.78	--	--	5.77	228.37	20.25	14.68	79.83	63.00	41.33	238.24	19.26	36.49	--	17.00	16.33	--	25.00	--	30.22	61.04
2001-02	32.81	27.86	94.08	--	--	8.59	163.70	18.08	25.88	58.22	80.40	36.01	202.98	19.43	28.37	--	20.36	--	--	19.00	--	9.93	53.77
2002-03	36.70	90.07	74.15	30.67	--	7.92	202.60	19.08	22.96	71.72	77.62	33.58	217.11	16.86	38.26	--	18.34	30.75	--	14.86	--	13.66	56.99
2003-04	33.98	107.07	81.07	24.00	--	5.93	175.71	19.64	33.12	68.34	67.52	37.23	214.04	24.85	37.87	--	18.41	30.67	--	16.00	--	29.40	60.14
2004-05	28.41	385.45	60.39	23.67	--	8.55	106.31	21.38	102.80	61.20	64.51	43.23	231.95	25.19	34.00	--	15.34	68.67	--	10.33	--	15.04	68.76
2005-06	31.09	125.97	76.97	--	--	7.05	157.53	18.31	36.00	56.71	67.15	38.77	216.94	25.61	37.26	--	14.19	--	--	13.20	--	20.58	61.07
2006-07	29.13	137.66	75.58	--	--	7.90	191.38	19.08	29.26	74.30	64.47	43.13	219.49	19.37	52.23	--	24.69	--	--	15.20	--	22.59	67.60
2007-08	27.07	139.48	71.63	--	--	7.97	176.75	18.25	36.63	96.26	85.46	52.23	267.94	33.32	58.77	--	25.48	--	--	11.17	--	28.64	82.17
2008-09	27.99	138.49	61.39	--	--	10.58	180.68	31.63	87.15	91.83	81.19	48.16	321.91	30.71	29.67	--	30.93	--	--	16.00	--	24.72	93.76
2009-10	33.79	81.70	68.72	--	--	11.75	160.44	39.25	36.78	77.41	68.21	53.56	330.83	16.35	23.68	--	35.28	--	--	18.00	--	28.31	94.38
2010-11	28.73	124.76	91.22	--	--	7.26	124.63	33.40	50.86	65.64	69.37	39.51	359.67	35.73	28.52	--	32.49	--	--	22.80	--	22.31	92.29
2011-12	22.47	124.78	57.61	14.00	--	9.02	98.93	54.00	128.25	79.91	66.13	34.36	346.26	24.42	43.08	--	39.48	--	--	25.91	--	23.00	85.30

Note: Please refer Table 1 for description of the industry.

Table C17. Number of Workers Per Factory Unit: Punjab

Year	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	Mfg. Sect.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
1998-99	45.18	6.67	47.21	243.88	23.09	10.00	36.78	8.92	6.00	44.47	69.79	15.83	29.10	17.96	17.96	--	41.43	252.36	32.16	48.50	41.30	22.95	37.05
1999-00	46.32	--	51.94	24.61	22.70	7.52	35.04	13.45	26.55	58.30	78.20	18.39	42.21	19.31	16.29	--	37.01	151.54	47.59	60.28	42.51	57.79	39.21
2000-01	45.52	--	59.94	22.33	25.94	8.75	39.57	39.35	10.45	59.11	78.04	22.24	30.92	17.36	19.65	--	47.45	133.54	23.70	62.54	50.45	25.58	39.84
2001-02	50.19	--	58.11	99.11	25.18	11.88	30.69	22.88	10.31	46.55	51.51	23.33	31.63	16.55	17.98	74.00	26.82	91.09	26.50	65.86	39.80	37.79	38.19
2002-03	50.22	--	58.43	315.00	18.17	9.55	85.05	22.87	8.08	52.28	71.69	25.60	29.98	17.67	18.58	--	36.68	108.81	35.41	51.17	48.55	37.41	40.56
2003-04	44.58	--	63.52	99.19	18.40	9.84	43.54	20.39	17.71	47.12	66.44	26.10	28.85	20.49	18.50	--	46.65	88.76	32.21	48.18	54.60	41.99	39.22
2004-05	47.42	--	71.96	81.27	21.79	10.01	47.83	17.05	12.82	49.19	57.08	38.77	31.92	20.69	23.66	--	38.50	72.05	26.53	49.48	42.36	40.49	41.42
2005-06	40.91	--	68.26	72.24	22.19	11.63	37.95	20.27	11.79	46.07	66.66	39.43	40.14	26.16	25.05	--	51.36	75.23	39.42	71.51	48.06	45.97	42.49
2006-07	39.26	--	91.81	78.90	26.88	8.45	37.18	18.98	10.31	52.04	54.05	36.13	33.13	29.92	31.16	--	39.09	109.23	94.62	57.83	61.01	63.73	43.64
2007-08	40.25	--	83.30	101.89	32.46	8.30	38.62	24.26	13.54	50.91	58.71	34.95	43.22	32.28	24.28	--	73.46	77.68	94.92	69.82	38.53	34.02	43.32
2008-09	36.03	--	90.14	64.92	19.97	9.18	40.67	12.14	9.00	61.60	52.88	39.31	34.09	34.32	24.03	39.40	42.04	84.83	94.14	61.57	50.67	38.47	43.49
2009-10	34.99	--	107.65	61.78	36.57	9.52	38.00	24.95	28.25	62.45	75.86	41.45	35.89	30.36	27.00	310.33	30.48	94.60	131.25	68.93	47.71	48.86	44.76
2010-11	31.87	--	85.08	59.35	16.38	8.36	30.10	18.72	9.94	36.91	47.63	33.58	36.27	27.80	24.70	31.93	36.50	89.88	104.50	65.75	37.84	42.11	38.39
2011-12	26.02	--	99.67	48.67	25.01	9.86	30.67	21.00	10.86	43.65	47.94	37.68	27.42	26.39	30.05	47.12	38.21	54.73	131.80	53.53	44.50	49.21	38.75

Note: Please refer Table 1 for description of the industry.

Table C18. Number of Workers Per Factory Unit: Rajasthan

Year	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	Mfg. Sect.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
1998-99	32.78	69.25	51.56	30.61	23.88	7.76	17.30	19.09	56.69	35.53	44.82	22.44	39.83	39.80	40.21	42.75	40.37	126.76	36.49	34.73	140.00	70.38	37.35
1999-00	27.79	96.33	53.75	48.82	39.94	9.69	15.88	24.32	33.57	35.14	31.11	23.13	33.36	24.06	37.81	36.00	21.72	99.81	65.92	47.49	36.00	50.80	35.82
2000-01	24.34	120.00	52.32	33.82	39.68	8.59	18.43	21.81	29.17	45.57	31.86	21.39	35.28	22.83	42.53	34.00	28.38	102.40	61.40	25.00	147.00	49.80	35.34
2001-02	28.81	90.76	50.49	39.31	61.28	6.51	20.37	15.56	22.53	30.30	28.92	23.01	37.87	29.56	35.94	30.67	23.48	116.44	53.14	52.10	93.00	39.85	34.56
2002-03	29.80	100.48	52.41	31.86	58.53	13.43	14.43	19.33	14.36	39.79	32.57	26.03	31.25	20.69	40.70	36.67	28.07	105.58	56.00	57.24	35.97	55.83	36.06
2003-04	27.51	101.03	53.59	28.99	63.93	10.32	16.72	20.17	34.81	35.87	29.44	27.64	31.07	26.74	31.50	37.67	20.64	122.06	57.35	46.54	38.73	59.10	36.22
2004-05	30.08	116.26	53.47	53.03	56.26	11.03	16.31	14.04	36.13	46.41	32.16	24.99	28.22	29.69	30.82	37.00	19.08	121.89	76.11	59.02	45.11	58.54	36.84
2005-06	30.53	57.18	53.53	90.20	57.13	18.48	23.15	25.91	39.50	43.66	28.68	26.47	34.66	24.81	31.99	40.67	34.93	93.00	77.65	107.80	55.30	52.51	38.68
2006-07	33.48	51.02	59.49	93.16	72.34	15.00	18.07	15.43	16.92	40.82	27.50	27.31	47.30	22.86	36.76	--	41.22	103.86	96.72	96.06	51.88	46.19	40.52
2007-08	39.09	59.51	65.06	190.37	77.35	19.45	26.47	20.31	11.50	43.40	36.36	27.51	42.81	32.09	41.42	--	48.55	93.75	69.04	109.89	66.04	51.10	44.76
2008-09	36.68	76.04	67.52	113.78	82.97	42.10	21.56	20.79	64.00	50.78	26.47	28.46	47.95	41.02	39.04	39.00	51.39	66.40	141.13	112.58	25.28	42.41	44.21
2009-10	43.39	44.94	69.57	84.70	84.74	29.20	22.65	22.86	48.11	48.31	29.04	29.90	42.64	43.88	43.23	76.71	56.31	342.80	118.25	104.25	33.42	49.67	45.80
2010-11	39.52	30.95	58.90	75.56	77.45	30.83	11.21	28.72	24.14	43.51	27.17	28.59	40.18	54.80	39.65	69.18	58.75	323.90	108.93	99.85	49.35	42.51	41.86
2011-12	40.77	42.22	56.61	73.75	86.55	22.89	22.80	28.09	9.71	50.84	37.68	29.50	35.01	52.78	44.88	47.64	45.60	140.31	98.38	165.20	119.00	40.83	42.99

Note: Please refer Table 1 for description of the industry.

Table C19. Number of Workers Per Factory Unit: Tamil Nadu

Year	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	Mfg. Sect.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
1998-99	35.19	23.20	53.13	96.70	48.21	13.53	37.10	16.17	114.32	64.48	25.27	35.91	53.56	42.25	32.37	42.55	36.60	48.25	67.51	82.70	48.28	51.44	46.38
1999-00	30.58	18.26	53.15	99.45	50.19	9.83	38.26	23.71	108.00	63.56	32.45	27.69	36.44	32.00	33.36	25.56	26.12	34.91	75.74	81.97	75.41	43.49	45.47
2000-01	30.09	16.04	51.89	111.06	56.58	8.86	35.54	20.41	60.05	61.39	29.20	34.19	37.51	37.29	37.51	5.89	41.72	35.98	77.56	86.01	58.41	46.57	46.56
2001-02	32.24	26.69	58.61	109.84	64.11	13.21	36.33	22.33	62.53	60.74	28.19	38.64	37.35	35.66	41.04	22.23	44.64	45.19	56.00	85.03	79.19	74.53	49.33
2002-03	33.14	24.54	57.40	100.23	54.51	11.26	40.32	22.77	67.50	60.49	28.77	37.97	56.33	35.80	37.54	40.10	48.05	52.18	50.71	85.84	70.54	70.82	49.04
2003-04	31.51	14.65	56.57	124.08	55.08	15.69	35.81	22.83	56.83	57.17	32.05	35.88	50.09	34.00	35.94	45.33	35.95	69.38	48.92	95.66	71.48	56.97	48.79
2004-05	31.31	25.54	60.03	126.34	63.56	15.25	34.05	21.46	41.17	62.41	35.94	39.07	52.01	39.67	34.95	79.94	50.35	68.79	47.86	101.85	82.38	57.35	51.71
2005-06	31.93	24.21	65.00	130.37	63.56	18.39	37.29	27.27	42.53	54.33	37.93	37.14	65.05	44.91	40.64	60.17	49.68	53.55	55.26	114.48	105.92	67.15	54.58
2006-07	34.84	22.08	74.05	117.10	70.51	13.09	39.13	22.38	36.50	60.04	38.62	46.11	75.39	41.25	55.29	117.33	47.21	49.57	63.20	116.21	66.05	75.22	59.29
2007-08	32.66	23.49	83.22	125.66	80.39	14.01	105.11	21.98	41.31	61.85	38.18	41.76	86.02	51.73	67.79	172.67	41.22	53.77	74.57	111.24	89.71	104.75	63.51
2008-09	33.64	20.66	65.45	95.05	95.35	14.96	33.51	22.79	38.59	55.84	45.25	44.40	47.06	55.97	49.39	92.55	43.14	163.41	46.94	128.93	99.80	57.66	58.16
2009-10	36.36	20.11	61.81	90.56	75.98	14.86	37.47	27.03	98.86	54.95	53.55	37.94	63.16	50.33	60.13	138.09	45.40	335.38	64.46	133.31	102.03	76.17	59.75
2010-11	26.37	12.84	41.40	61.01	61.20	15.92	25.49	20.76	100.74	41.54	34.82	27.04	46.19	52.32	38.62	104.90	54.44	162.95	54.84	127.39	60.96	52.92	44.84
2011-12	29.64	16.09	38.51	62.60	61.27	13.53	24.05	20.95	74.49	43.11	39.08	27.44	50.74	38.42	43.28	72.67	58.38	177.15	63.94	127.64	89.04	62.05	44.57

Note: Please refer Table 1 for description of the industry.

Table C20. Number of Workers Per Factory Unit: Uttar Pradesh

Year	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	Mfg. Sect.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
1998-99	64.69	22.58	94.42	49.54	58.34	9.66	28.49	41.54	28.23	37.59	34.85	25.20	37.35	22.75	33.59	55.57	49.73	85.42	47.35	100.54	51.73	29.54	45.84
1999-00	60.93	24.27	66.08	46.06	57.72	14.62	29.83	20.61	18.37	43.04	34.39	29.08	42.63	17.07	29.95	55.18	43.13	58.07	43.20	68.82	56.96	52.27	43.86
2000-01	60.93	24.76	60.08	60.94	82.11	13.67	26.44	25.71	12.17	38.32	20.30	33.15	29.48	38.19	25.50	32.38	52.79	84.83	48.73	76.13	66.69	51.26	44.17
2001-02	62.19	21.45	66.53	49.27	82.42	18.17	26.86	33.16	11.26	37.53	22.22	32.51	41.61	40.53	25.41	134.18	34.56	103.93	43.67	68.81	68.96	37.94	44.66
2002-03	69.49	21.43	68.79	59.04	88.02	15.33	24.71	34.52	15.71	35.67	27.48	30.30	38.35	57.85	23.19	189.00	39.54	102.19	55.65	82.84	70.21	40.60	48.46
2003-04	71.22	25.23	73.93	77.29	96.39	17.38	34.85	35.14	24.06	35.41	23.04	32.97	39.89	54.01	24.32	196.67	38.79	91.23	58.74	90.84	65.63	32.93	50.82
2004-05	69.15	31.01	54.92	83.54	99.56	18.60	32.71	34.27	22.84	36.20	23.72	36.27	44.16	56.95	24.05	348.83	40.16	100.59	57.32	69.96	59.79	34.05	50.59
2005-06	69.68	25.87	46.16	83.32	115.99	16.93	26.67	37.38	13.24	41.35	24.97	36.62	43.41	53.10	25.62	302.80	44.47	123.36	53.92	87.02	56.72	32.01	50.97
2006-07	73.93	24.39	55.20	86.31	119.14	23.69	24.47	40.17	20.01	41.87	25.87	41.22	42.26	60.02	27.41	489.00	49.34	91.73	45.66	93.13	66.14	33.63	52.95
2007-08	80.45	19.58	47.19	126.36	110.78	26.22	27.98	49.41	76.43	41.29	29.72	41.00	47.26	75.20	28.91	453.92	51.05	143.99	49.78	140.57	91.16	34.16	58.90
2008-09	71.65	20.67	54.77	116.42	131.07	16.89	33.09	32.39	99.57	38.38	26.68	42.10	43.83	61.42	34.75	221.46	40.62	88.23	23.04	170.25	48.39	41.58	56.49
2009-10	78.19	28.33	46.79	139.04	123.49	17.55	28.37	35.91	93.27	38.64	30.53	41.22	27.78	56.92	33.90	275.71	64.30	114.99	33.50	123.14	70.25	39.40	57.73
2010-11	56.25	44.22	38.11	95.77	112.57	16.24	25.88	39.94	62.55	35.04	29.02	36.04	31.62	42.38	30.51	154.13	53.28	86.51	65.65	97.83	51.26	41.34	48.73
2011-12	59.12	92.06	35.34	94.03	100.87	13.58	28.70	52.84	15.42	40.89	31.03	38.95	32.50	49.63	33.64	128.91	44.13	85.74	34.94	124.69	56.45	33.87	51.13

Note: Please refer Table 1 for description of the industry.

Table C21. Number of Workers Per Factory Unit: Uttarakhand

Year	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	Mfg. Sect.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
1998-99	35.64	--	344.25	29.55	7.27	--	99.12	--	--	18.00	37.42	85.33	9.27	27.41	--	--	57.29	245.00	69.64	6.09	9.00	15.83	53.49
1999-00	28.52	--	96.73	--	9.38	16.25	175.59	44.64	--	23.66	28.96	105.83	6.94	1.00	19.50	--	74.24	38.06	231.75	--	--	23.67	44.86
2000-01	23.70	--	74.92	32.33	--	11.90	108.56	26.44	--	21.23	42.80	36.42	50.25	33.93	257.63	--	52.22	45.64	78.20	--	12.50	19.14	40.06
2001-02	23.85	--	72.45	32.33	7.00	22.60	108.76	33.25	--	26.33	44.50	38.13	43.03	30.37	240.94	--	48.09	50.58	69.43	--	12.00	18.67	40.25
2002-03	28.51	--	20.67	33.00	6.67	18.54	108.26	38.88	--	27.57	43.27	35.45	36.66	29.88	231.19	--	47.08	52.27	57.60	15.25	--	21.64	40.39
2003-04	29.94	--	31.88	21.60	--	18.50	114.71	48.67	--	30.29	45.33	33.47	32.60	35.38	231.56	--	46.10	64.63	55.85	13.25	--	18.73	42.04
2004-05	33.22	--	32.00	151.20	21.00	21.08	114.21	27.50	--	36.59	45.77	36.61	46.93	51.18	184.46	--	57.20	58.88	49.47	33.33	--	23.67	47.90
2005-06	38.38	--	48.61	57.00	99.25	24.38	112.22	52.78	--	78.99	52.62	78.31	29.26	87.52	159.65	--	84.20	46.70	57.76	41.67	27.33	33.90	62.08
2006-07	40.89	--	78.18	53.09	86.73	34.45	93.04	43.58	19.00	75.50	44.18	47.33	30.18	151.31	123.42	--	89.48	69.67	36.88	20.63	36.36	24.29	63.55
2007-08	45.02	--	91.86	41.78	107.89	72.63	84.61	30.35	28.67	72.82	29.47	64.15	50.01	96.23	151.53	16.17	76.55	103.28	55.10	68.31	125.50	31.33	67.40
2008-09	58.39	39.88	235.95	62.44	124.54	66.57	68.83	42.07	--	74.77	64.35	71.28	53.68	73.91	555.01	82.15	103.66	66.10	91.30	82.39	105.02	77.90	93.25
2009-10	54.53	--	145.74	47.93	145.84	47.48	86.58	49.30	210.33	86.76	67.47	52.24	50.35	80.08	151.33	67.62	86.90	89.98	91.84	127.80	130.39	56.93	81.99
2010-11	55.95	--	151.37	119.57	91.58	78.65	72.67	69.39	8.70	78.11	78.40	51.67	50.26	60.85	118.46	59.64	112.03	85.98	96.85	149.91	250.00	57.06	87.05
2011-12	60.91	--	142.49	72.00	111.02	57.41	74.60	47.62	--	88.11	81.69	67.77	47.71	91.88	184.74	125.32	93.90	95.52	146.78	175.57	305.48	93.71	97.64

Note: Please refer Table 1 for description of the industry.

Table C22. Number of Workers Per Factory Unit: West Bengal

Year	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	Mfg. Sect.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
1998-99	44.74	43.44	658.56	59.89	32.44	20.62	46.33	24.68	84.26	49.54	24.97	49.13	136.77	28.36	123.67	--	54.37	207.29	101.60	143.34	177.99	29.02	98.03
1999-00	44.72	27.44	546.03	45.00	38.81	16.32	50.03	26.71	71.31	51.75	26.00	61.80	98.09	25.71	30.02	47.75	41.73	94.86	55.13	113.30	140.08	20.96	74.84
2000-01	38.61	24.90	607.21	33.44	30.46	16.65	49.88	26.70	60.36	49.13	23.99	57.96	116.70	24.30	24.97	37.33	47.28	61.00	60.49	135.04	130.93	17.81	77.46
2001-02	39.67	33.14	558.57	42.63	34.30	22.68	32.10	23.60	59.68	47.08	24.08	52.69	113.69	25.20	23.39	26.71	39.77	65.19	49.59	112.15	116.57	14.47	72.14
2002-03	39.49	26.27	559.79	41.47	37.27	22.53	44.45	22.76	68.92	48.32	20.56	61.73	114.21	23.99	23.26	23.83	38.23	74.52	46.08	138.79	99.43	22.45	73.02
2003-04	41.54	33.86	528.70	52.49	33.87	17.44	37.02	30.56	70.71	38.10	21.33	60.90	104.88	25.33	23.24	23.33	35.10	65.82	39.41	103.61	100.90	25.18	71.70
2004-05	43.63	22.98	585.90	31.47	39.80	18.19	39.61	21.60	54.09	40.23	22.65	55.63	97.66	25.82	22.21	19.17	36.72	62.00	32.53	107.69	107.09	21.49	71.21
2005-06	45.49	35.51	568.52	31.08	42.99	17.37	34.48	24.67	68.85	39.53	24.63	53.08	106.64	29.53	23.87	16.50	34.01	60.41	39.25	24.60	95.89	30.49	71.99
2006-07	44.58	26.39	499.91	71.45	33.55	17.79	35.18	35.70	75.47	40.37	20.56	45.52	118.77	45.10	27.70	37.00	35.26	109.79	39.83	22.73	106.29	20.56	71.29
2007-08	40.07	26.94	575.36	48.00	29.69	31.90	36.99	25.74	62.26	39.89	22.52	47.29	128.20	26.83	22.10	52.50	39.19	63.06	35.36	128.97	113.29	26.98	74.30
2008-09	45.23	45.68	584.75	109.97	46.59	36.69	40.13	26.94	136.86	48.91	23.90	52.59	118.65	31.20	25.26	39.43	37.09	42.21	70.71	98.04	102.35	22.53	76.11
2009-10	43.75	25.76	464.46	95.78	54.19	30.19	39.18	21.37	67.56	39.42	25.90	54.07	121.25	35.34	33.26	187.29	49.12	118.21	65.10	60.60	118.86	26.13	71.76
2010-11	40.46	21.55	376.79	65.79	40.53	26.54	34.66	32.19	99.92	35.35	19.45	52.09	113.78	47.49	29.20	154.17	43.05	55.12	61.62	49.16	94.56	36.59	65.16
2011-12	40.82	16.19	349.02	55.66	63.62	27.29	38.47	24.53	76.66	35.76	27.37	45.20	115.27	43.41	24.02	140.14	44.48	56.25	59.68	76.62	108.88	93.96	66.50

Note: Please refer Table 1 for description of the industry.

Table C23. Number of Workers Per Factory Unit: Other States/UTs

Year	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	Mfg. Sect.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
1998-99	26.43	20.80	59.20	135.90	120.05	31.23	25.04	36.39	80.75	38.32	20.66	38.90	25.36	21.54	33.09	24.24	18.60	33.42	25.85	41.30	50.11	31.41	31.85
1999-00	30.43	28.00	64.66	167.00	84.12	30.50	24.61	33.52	58.67	38.77	23.32	37.77	25.93	19.73	27.76	44.25	29.62	43.03	23.50	42.13	42.38	35.30	33.67
2000-01	28.50	26.14	60.28	152.87	55.66	28.00	26.40	20.71	43.83	34.42	24.84	39.98	24.35	20.19	26.64	20.15	25.56	56.76	21.82	70.78	52.85	31.11	32.39
2001-02	25.70	23.23	61.57	58.60	45.76	15.88	17.19	21.28	29.48	35.01	32.39	50.62	28.65	25.66	34.98	22.53	27.17	48.22	27.11	36.84	58.04	39.30	34.36
2002-03	28.05	23.58	71.39	49.25	64.83	17.20	20.82	23.76	63.33	43.42	27.03	56.69	26.19	32.56	41.52	27.59	39.26	48.13	23.58	34.47	69.63	50.49	38.10
2003-04	24.82	26.25	69.31	114.48	62.56	15.00	23.39	27.27	29.27	40.72	27.90	55.76	31.29	18.86	42.47	60.66	36.83	47.04	28.08	45.00	56.65	57.98	37.61
2004-05	25.74	31.07	61.18	83.89	74.36	16.36	26.09	20.61	15.59	39.19	28.96	59.89	31.54	17.16	37.01	35.36	44.02	43.61	31.18	58.80	60.48	50.00	36.86
2005-06	25.58	31.25	74.54	109.83	67.80	23.01	24.81	23.51	24.80	40.45	29.16	68.15	35.70	23.55	40.31	38.44	61.76	49.63	40.07	35.29	59.00	69.23	42.07
2006-07	31.35	33.19	76.72	210.76	59.28	33.25	32.64	21.91	36.50	53.69	37.11	73.93	38.48	32.71	42.78	61.24	50.73	60.04	40.25	57.76	58.56	68.91	48.71
2007-08	33.34	27.80	103.62	223.44	58.70	23.74	36.56	24.37	39.65	50.13	34.75	77.18	42.53	30.33	47.43	60.09	84.26	74.90	45.63	80.21	56.52	58.09	51.77
2008-09	33.97	42.26	103.33	254.45	70.58	21.92	29.62	22.18	30.77	42.66	37.15	78.15	41.56	35.78	52.98	62.03	83.24	98.55	70.82	65.22	41.63	89.61	53.36
2009-10	31.07	39.91	118.54	341.00	82.07	27.01	39.32	30.88	54.55	58.93	43.31	81.07	43.29	35.51	52.57	107.47	113.49	92.09	34.21	97.30	22.14	89.52	62.85
2010-11	31.91	33.77	96.12	256.18	27.15	20.73	35.06	19.15	30.61	55.18	32.48	78.89	42.35	27.55	46.19	78.42	66.17	36.56	44.56	72.75	20.09	84.39	51.31
2011-12	35.25	44.41	108.65	254.80	44.44	24.44	27.46	16.78	20.98	38.52	30.63	80.68	42.73	32.20	41.20	65.20	63.05	38.00	46.07	111.53	24.71	95.80	50.19

Note: Please refer Table 1 for description of the industry.

Table C24. Number of Workers Per Factory Unit: All India

Year	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	Mfg. Sect.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
1998-99	42.93	183.55	84.03	76.22	41.48	11.44	40.41	23.86	64.26	49.18	30.12	29.04	65.31	24.89	37.04	30.06	44.14	74.42	43.52	72.27	106.95	40.88	49.88
1999-00	43.49	170.04	79.60	73.93	45.02	11.95	41.32	22.81	63.86	53.39	30.62	30.40	67.81	25.64	31.82	47.65	40.36	56.43	46.60	72.56	66.33	45.68	49.06
2000-01	42.51	168.73	80.74	83.80	48.21	11.60	40.80	23.31	51.60	50.95	27.60	29.74	59.63	26.58	29.60	51.31	40.89	61.62	42.29	69.57	71.30	42.59	48.23
2001-02	42.96	187.08	79.99	83.06	52.19	12.47	38.98	24.02	58.38	48.19	28.36	31.80	59.41	24.80	30.19	63.68	37.18	58.15	41.14	66.42	59.90	43.09	47.86
2002-03	42.36	181.40	78.41	86.35	50.22	12.78	39.07	25.26	54.88	49.25	28.91	43.29	60.53	26.55	30.22	60.38	40.59	62.94	42.46	68.27	70.25	51.71	49.68
2003-04	42.17	147.92	78.77	102.72	50.72	12.53	38.23	23.51	60.27	48.64	30.08	30.53	61.37	26.44	29.72	67.35	38.99	65.09	42.36	77.31	77.48	52.15	48.75
2004-05	41.64	140.66	79.54	114.12	55.30	12.45	36.72	22.50	60.96	49.86	31.66	31.96	64.02	29.95	31.77	75.70	43.02	68.99	42.07	82.50	71.81	51.34	49.93
2005-06	42.47	133.91	82.55	128.50	60.12	14.09	36.98	25.88	63.51	51.02	33.08	33.72	67.52	34.00	33.17	81.92	49.11	75.84	48.84	89.96	82.16	57.28	52.59
2006-07	44.37	130.61	87.57	134.83	61.95	15.20	38.97	26.44	71.73	53.62	33.92	36.25	75.70	38.63	37.83	97.07	53.33	76.45	52.57	97.00	109.43	65.27	56.24
2007-08	44.95	125.08	96.61	144.83	70.60	16.38	50.96	27.12	82.04	54.67	33.71	34.85	80.72	41.09	39.93	104.21	57.20	94.53	57.85	110.28	86.62	68.85	58.02
2008-09	45.11	131.10	89.28	118.07	83.08	16.75	39.41	26.11	95.01	55.48	39.82	38.40	80.41	40.65	45.68	73.01	52.81	80.05	50.36	107.40	94.29	61.07	58.63
2009-10	46.10	127.96	88.27	121.04	77.52	16.97	39.32	28.72	81.88	57.78	45.01	37.14	78.15	40.08	42.78	95.16	60.42	203.88	50.57	114.63	98.70	64.71	59.73
2010-11	36.24	112.56	66.52	80.73	61.82	15.02	32.08	23.18	59.79	47.44	33.81	32.34	68.28	35.25	38.89	67.59	52.30	82.96	44.69	108.81	84.73	52.93	48.35
2011-12	37.76	123.22	65.76	86.45	64.65	14.14	30.94	26.08	50.33	51.28	34.88	31.60	70.68	33.45	41.39	65.09	50.75	83.76	45.59	117.24	95.87	55.39	49.58

Note: Please refer Table 1 for description of the industry.

HINDU-MUSLIM RURAL HOUSEHOLD COMPARISONS

Gautam Pingle

This paper attempts to compare the relative economic status of rural Hindu households with that of rural Muslim households over the decade 1994-2004. It relies for base line estimates on the rural surveys conducted in 1994 by the National Council for Applied Economic Research. It also uses the National Sample Survey Organisation's 61st Round's 2004 rural data as extracted and published in the Sachar Report. It further examines data on Hindu-Muslim income differentials identified as a result of the independent surveys of 42 Minority Concentration Districts (MCDs).

The findings do not substantiate the idea of fixed and firm Muslim household income/expenditure differences over time compared to the Hindu majority. On the other hand, they indicate that a relatively faster Muslim progress over the decade 1994-2004 has led to closing of the initial gap. This is especially heartening as it relates to the period of liberalisation and the transition to a market economy, which has disrupted many traditional patterns of rural livelihoods especially of artisans.

INTRODUCTION

The status of minorities in India is always important. Yet keeping track of their progress is no easy task.[1] The "High Level Committee Report on Social, Economic and Educational Status of the Muslim Community of India" [Sachar, 2006] (hereinafter referred to as Sachar or Sachar Report) remains the first comprehensive attempt at this task. Not only did it present data on Muslims; it also gave comparative data on the Hindu majority as also on Other Minorities, (i.e., non-Muslim religious minorities). It generated widespread interest both in the academic and political world and in civil society. It also stimulated policy initiatives by the Union and State governments.

The Sachar Report has achieved legitimacy as a political document on Muslim deprivation despite some major data and methodological issues relating to its economic sections; issues which call for caution while making policy. Considerable controversy has arisen after the publication of the Sachar Report leading to a reappraisal by policy makers.[2] The Report should be considered only as the precursor to establishing a regular series of credible economic databases on which more robust and objective analysis can be made and effective and robust policy initiatives initiated.

This paper attempts to compare the relative economic status of Hindu and Muslim rural households over the decade 1994-2004. For the 1994 base line, we use data generated by the rural surveys conducted by the National Council for Applied Economic Research (NCAER). For 2004, we depend on the data, published in the Sachar Report, which was extracted from the 61st Round[3] of the National Sample Survey Organisation (NSSO). We have perforce to deal with the data issues posed by the Sachar Report. The paper also examines other data on Hindu-Muslim income differentials identified as a result of surveys of Minority Concentration Districts (MCDs).

The paper concentrates entirely on the income/expenditure of households, as this is the resultant outcome of household resources, household preferences, individual educational qualifications and general job opportunities. Income of a household largely depends on its size, the age and gender profile of its members and the degree to which their members are gainfully employed. We will deal with these issues in due course.

This paper does not address elite issues such as jobs in civil service, armed forces and police - or even in the representation in the legislatures and judiciary and jobs in associated offices. It

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seeks, on the other hand, to consider the household incomes/expenditures of the mass of Hindus and Muslims who live and work in the rural areas where income generating opportunities are not as abundant as in urban areas and where traditional and religious constraints can come in the way of economic progress of households.

One of the Terms of Reference of the Sachar Committee (regarding Muslims) was to determine: "What are their asset bases and income levels relative to other groups across various States and Regions? [Sachar, 2006, p. vi]. However, it would seem that this aspect of income has not received the attention it deserves. The conclusion that Sachar came to by comparing Socio-Religious Categories (SRCs), such as Hindu-General (H-General) (elsewhere also labeled "Other" and implying Upper Caste) with Muslims is that:

"The pattern of distribution of households of SRCs by broad expenditure classes in rural areas (Fig. 8.6) underlines the inequity existing in these areas. A large proportion of Muslim, SCs/STs and OBCs households are located in the below Rs. 500 expenditure class; the proportion of H-General and 'all others' in this class is much lower. While there is a substantial proportion of households in all SRCs in the Rs. 500 to Rs. 1000 expenditure bracket, the share of such households among Muslims, OBCs and SCs/STs is lower, relative to the other SRCs. The proportion of households from these three SRCs with expenditure levels above Rs. 1000 is also very low." [Sachar, 2006, p. 154] (Emphasis added).

Sachar preferred to concentrate on the proportion of rural SRC households in Monthly Per Capita Expenditure (MPCE) classes, rather than their levels of household expenditure and concluded that there was inequity. However, when it came to dealing with MPCE levels for different SRCs, Sachar commented thus:

"Differentials across SRCs in MPCE levels in different states are similar to those observed at the national level in both urban and rural areas (see Appendix Tables 8.2 and 8.3). In urban areas in almost all the states where Muslim proportion is high, the MPCE of Muslims is substantially below that of other SRCs except SCs/STs. In fact in West Bengal, Bihar, Andhra Pradesh, Gujarat, Rajasthan and Madhya Pradesh they have levels lower than even the SCs/STs. Excepting Assam, Muslims in all the states have recorded lower than state average consumption levels. Fig. 8.6 present[s] estimates of MPCEs for selected states for urban areas for different areas. As compared to urban areas, the condition of Muslims is relatively better in rural areas, although the MPCE level itself is much lower than that in the urban areas." [Sachar, 2006, p. 155] (Emphasis added).

No attempt was made by Sachar to reconcile its two conclusions regarding rural expenditure differentials.

This paper attempts to compare the data presented in Sachar with a study conducted ten years earlier in order to examine any changes over the period. The 1994 NCAER survey, however, pertains only to the rural sector and gives the Hindu and Muslim average annual income data. We are limited to just nine states for which comparable data is available. The comparison over the decade is limited to the rural sector and to nine states. We are also conscious of the fact that the sampling frame and methodology of both surveys differ and the data are not exactly comparable and are estimates to be treated with caution.

DATA ISSUES

Since the Sachar and NCAER Hindu-Muslim data available is of a collateral nature - that is, derived from data sets not intended to address the Hindu/Muslim differentials *per se* - we have some significant data issues which need to be highlighted at the outset. This is largely because both the NCAER and NSSO samples were drawn to represent the entire state population and any

segment of this sample relating to a sub-group cannot be representative of the entire sub-group. To be truly representative, sample of a specific group needs to be drawn from a universe exclusively containing that group.

First, Sachar's Appendix Tables 8.2 and 8.3 provide average MPCE levels for each of the States as derived from the NSSO 61st Round data, reclassified for Sachar in terms of religious groups (SRCs). As stated earlier, data resulting from such extraction of a segment of the sample would not accurately estimate variables of segments of the spatially unevenly distributed underlying population. In this case, the Muslim minority is not evenly and proportionally spread across the country. Thus, the All India estimates for Muslims as given in Sachar are flawed as the Muslim population is concentrated in a handful of States and these All-India Muslim estimates are not statistically representative of the Muslim population.

Moreover, even where the NSSO/NCAER main samples are representative of each State, within each State the Muslim population may not be evenly distributed and may thus be inadequately represented in the extracted Muslim sub-sample. These factors - the uneven distribution of Muslim population (both inter-State and intra-State) must be borne in mind while considering the relevant estimates.

Second, the NCAER (2001, 2002, 2003 & 2004) provide data on annual income per household, while Sachar gives expenditure per capita. Comparison between these two data sets would necessarily underestimate the growth rate when income of the earlier data set is compared to expenditure in the later one.[4]

It is generally accepted that in the survey mode of data collection, respondents are likely to under-estimate or even mis-report their income. This is the main reason why NSSO surveys concentrate on household expenditure as collected by their investigators. (Given the above, one would expect the NCAER income data to be underestimates).

There is also the issue of differences in savings behaviour over the period and between religious groups. The Sachar (NSSO) household expenditure data would depend on household income, dis-saving or borrowing and also on private gifts or government assistance. In the absence of relevant information, we have perforce to assume that these factors do not vary across the two communities. These data problems must be borne in mind as the surveys do not allow us to reach firm conclusions on these associated issues.

However, these problems can be limited by comparing the ratio between Muslim and Hindu income and expenditure separately for each relevant year and by examining how those ratios have changed over the decade.

Another major issue arises from the need to re-convert the Sachar MPCE data back into household expenditure. The NSSO first collected expenditure data for each sample household and then reduced it to per capita figures using household size without weightage for the age profile of the household.[5]

Unless adequate weightage is given to gender and age profile of the households, the income /expenditure figures will not represent true per capita estimates.

Given the differences between per capita estimates of Hindu and Muslim income/expenditure and the fact that Muslim households have a higher proportion of children, women and older members than Hindu households, this gender-age weightage (discount) may be expected to have significant effect on these weighted estimates of differences between the two religious groups. One could expect that the greater size of Muslim

households would then be offset by these structural factors in the gender-age weighted estimates. The NSSO estimates for sex ratio (number of females per 1000 males) in rural areas in 1994 was 941 for Hindus and 960 for Muslims, while in 2004 the figures were 961 and 968 respectively [NSSO, 2007, p. 18] to compute the weighted per capita income/expenditure of the two communities, more detailed and micro level analysis is needed to be done using the raw data.

Further, unweighted per capita income/expenditure estimates result in favorable inter-temporal comparisons if household size has fallen over time. Household size for the two religious groups has been generally falling at different rates and from different base levels. It would, therefore, seem better to deal with this complexity openly rather than reduce it to this sort of simplistic standardisation.[6] (In the section on "Results", we have given ratios based on both household as well as per capita figures in Table 3 and discussed the implications).

More critically, the differences in household size both between Hindus and Muslims in the same data set have a significant impact on figures expressed in per capita terms. The size of the household and its participation in income generating work is a result of household decisions. These could have a major effect on household income/expenditure together with other factors such as differences in land resources, available employment opportunities and individual capabilities and household preferences - the last of these also depend upon differences in socio-economic and cultural influences. The general effect of household size and structure on income/expenditure will be indicated in due course. Unlike the NCAER reports, Sachar (surprisingly) does not give the figures for household size of the religious communities, so we have to take recourse to the NSSO [2007a] for this data.

For all these reasons, it would be better to deal with household estimates. This, however, is not to contend that household income or expenditure is an exact index of the household's well being but in economic terms this may be the only available indicator since per capita income/expenditure suffers from the above mentioned weaknesses. As we have noted earlier, other factors are present but those are beyond the scope of this paper and have been dealt with by Sachar. To go back to household expenditure figures we need to multiply the relevant State MPCE figures by the household size data of the NSSO samples to obtain household monthly estimates. These are further multiplied by 12.17 (=365/30) to get annual figures.

The next issue is that since the NCAER data relates to rural households we can only compare it with the rural sample data in Sachar. Further, out of the 16 States surveyed by NCAER, only nine State reports give figures for Hindu and Muslim income data. However, these nine States - Bihar, West Bengal, Kerala, Uttar Pradesh, Karnataka, Andhra Pradesh, Gujarat, Maharashtra and Rajasthan - account (as per 2001 Census) for 80% of All-India Muslim rural population and also 64% of All-India total Muslim population. Despite the above stated caution regarding the unevenness of the Muslim population distribution within each state, this nine-state data covers a substantial part of the All India Muslim rural population.

Yet another important issue relates to the social composition of the two religious communities. Sachar has made comparisons of the General Muslim MPCE with Hindu Scheduled Caste (SC)/ Scheduled Tribe (ST) and Hindu Other Backward Class (OBC) MPCE's. This seems somewhat tenuous given the presence of Upper Caste, SC, ST and OBC segments among Muslims too.[7] As Sachar itself acknowledged these categories extend to religious minorities - Muslim, Sikh, Christian, Buddhist and Zoroastrian - as well as to the Hindu majority community in varying proportions (Table 1).

Table 1. Distribution of Religious Population by Caste Categories (All India, 2004-05)

Religion	SCs	STs	OBCs	Others	All
(1)	(2)	(3)	(4)	(5)	(6)
Hindu	22.2	9.1	42.8	26.0	100.0
Muslim	0.8	0.5	39.2	59.5	100.0
Christian	9.0	32.8	24.8	33.3	100.0
Sikhs	30.7	0.9	22.4	46.1	100.0
Buddhists	89.5	7.4	0.4	2.7	100.0
Jains		2.6	3.0	94.3	100.0
Zorastrians		15.9	13.7	70.4	100.0
Others	2.6	82.5	6.2	8.7	100.0
Total	19.7	8.5	41.1	30.8	100.0

Source: Sachar [2006, p. 7].

Assuming that the income levels of SCs, STs and OBCs are lower than that of Upper Castes, the proportion of SCs, STs and OBCs, would negatively affect the average income/expenditure levels of the religious groups of which they are a part. The data indicates that the proportions of Scheduled Castes (SCs) and Scheduled Tribes (STs) in Christian and Buddhist minorities are larger than in Hindu majority, while in the Sikh minority they are the same as in the Hindu majority. The data also indicates that Hindus have a much larger proportion of SCs and STs than do Muslims, while they both have similar proportion of OBCs. Muslims have twice the proportion of "Other Castes" (presumably Upper Castes) than Hindus. All this by itself will affect to varying degrees the differences between the averages by pulling the All-Hindu estimates downwards due to the Hindu-SC, ST, OBC data and the smaller Hindu household size pushing them upwards - all relative to the All-Muslim estimates. Similarly, the twice as high proportion of Muslim Upper Castes in the All-Muslim group compared to the Hindu would push the Muslim average upwards - assuming that the upper castes generate greater income/expenditure than the others.

In the absence of robust sample data disaggregated by caste and truly representative of the underlying caste population, we cannot, as Sachar does, compare the All-Muslim group with the Hindu-SCs/STs,[8] Hindu-OBCs and Hindu-General (or "Other", Upper Caste) groups alternatively. The proper procedure would be to compare each social group with a similar one in a different religious group. Only then would there be a like-to-like comparison. Sachar does not provide caste level disaggregation for Muslims and anyway the resultant sub-sample size may not generate valid data. For our nine states the NSSO/Sachar sample size for rural Muslim households ranges from a low of 106 (Rajasthan) to a high of 1505 (West Bengal).[9]

However, Sachar devotes a whole chapter to Muslim OBCs[10] which provides data on this group. Sachar gives the All-India MPCE averages for Muslim OBCs and Hindu OBCs [Sachar, 2006, p. 212]. But Sachar has added the Muslim SC/ST groups to the Muslim BC group[11] thus biasing the figures downwards and further confusing the interpretation of the data when compared to Hindu OBCs. Despite these issues, the MPCE's indicate that Muslim OBCs do better than Hindu OBCs in rural areas (Rs 566 compared to Rs 548) while the reverse is the case in urban areas (Rs 689 compared to Rs 901). This would also indicate that the difference between the two OBCs of the two religious groups is mainly in the urban rather than in the rural sector.

We must also bear in mind that Sachar defined its category of Backward Castes as "Other Backward Classes" (OBCs) 'as listed in the comprehensive list of OBCs prepared by the National and State Backward Classes Commissions and adopted by the Central and State Governments for reservation for various purposes.' [Sachar, 2006, p. 3]. While the sociological category is that of caste, the official nomenclature of this sub-group is "Backward Class". This then is a select group of castes or sub-castes from the main and larger backward caste group, which have been selected for special state support. They may be either Hindu or Muslim in religious terms.

Further, the Sachar/NSSO data does not take into account the uneven distribution of the population of SCs, STs and OBCs across the country.[12] Thus, when considering the Sachar data relating to these caste groups in isolation, we may not have accurate estimates which can be used for drawing firm conclusions.

For these reasons we will not deal with the SC, ST and OBC aspects of the data as it will only compound the data problems we already have. Given, further, that the NCAER income data is not disaggregated by social categories we will use the Sachar expenditure data relevant to the All-Hindu category (including all Hindu social groups) for comparison with the All-Muslim category (including all Muslim social groups) to ensure religious comparability at least, bearing in mind the data issues referred to earlier.

Using All-Hindu category for comparison of income/expenditure with the All-Muslim category will thus be influenced by the main internal differences of the two religious groups which include different caste (and class?) sub groups. The resultant averages will be biased downwards depending on the proportions of the sub groups with lower income/expenditure in the religious group. The identification of the exact effect requires use of the raw data and application of more sophisticated tools. But given the caste composition of the religious groups cited above this will tend to bring the All-Hindu and All-Muslim household averages closer to each other due to the higher proportion of SCs and STs in the Hindu sample.

RESULTS

Table 2 gives the household size for each community in the nine states. These show declines across most states over the decade. However, Muslim household size remains constant in Uttar Pradesh and Rajasthan, while Hindu household size there fell in 2004 - creating a gap. In the case of Bihar, household size is the same for Hindus and Muslims in both periods. These three States apart, the difference between Muslim and Hindu household sizes generally varies but Muslim households are larger. The differences in household sizes between the two religious communities and the changes in household size over time would have had a significant effect on any comparison in per capita terms. Thus, using household figures ensured that we took into account such demographic differences in the groups and their changes over time.

Table 2. Rural Household Size

STATES	HINDU		MUSLIM	
	1994 NCAER	2004 61st R	1994 NCAER	2004 61st R
(1)	(2)	(3)	(4)	(5)
Bihar	6.1	5.4	6.1	5.4
West Bengal	5.6	4.7	6.2	5.2
Kerala	4.9	4.1	6.4	5.3
Uttar Pradesh	6.3	6.0	6.3	6.3
Karnataka	5.7	4.7	6.4	5.1
Andhra Pradesh	4.8	4.0	6.0	4.5
Gujarat	5.7	5.0	6.2	5.5
Maharashtra	5.6	4.8	6.2	5.5
Rajasthan	6.3	5.6	6.3	6.3

NCAER (various); NSSO [2007a, pp. 36-37]

Rural household income/expenditure per annum for Hindu and Muslim households in 1994 and 2004 is given in Table 3. As noted earlier, we have re-converted the Sachar monthly per capita data to annual rural household estimates by multiplying them with the relevant household size and then by 12.17 to get annual household expenditure estimates. This permits comparison with NCAER rural household annual income averages. But it must be emphasised again that Sachar estimates are for expenditure while NCAER provided income data. Thus any straight comparison across the decade will underestimate the change as noted earlier.[13] To reiterate, this paper, therefore, concentrates only on the changes in the ratios between the two religious groups in, and between, each period.

Table 3. Rural Household Annual Income/Expenditure

STATES	NCAER 1994 HH Income (Rs.)		SACHAR 2004 HH Expenditure (Rs.)		% MUSLIM/HINDU Household		% MUSLIM/ HINDU Per capita	
	HINDUS	MUSLIMS	HINDUS	MUSLIMS	1994	2004	1994	2004
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Bhar	22812	21369	29436	27991	94	95	94	95
West Bengal	18441	17401	34886	31700	94	91	85	82
Kerala	26344	29991	48392	62427	114	129	87	100
Uttar Pradesh	27079	24298	39716	39019	90	98	90	94
Karnataka	27801	23661	30081	33014	85	110	76	101
Andhra Pradesh	25529	16142	29398	33401	63	114	51	101
Gujarat	30056	21213	39181	44705	71	114	65	104
Maharashtra	30947	26179	35219	38548	85	109	76	96
Rajasthan	26803	34228	40408	46839	128	116	128	103

In order to show the degree to which changes in ratios are affected by changes from household estimates to per capita estimates we have added two columns on the right of the Table 3. The direction of the change in the alternate ratios is not altered but the magnitudes are. This reflects changes in household size over time and between communities. The two alternate ratios for Bihar show no change over the decade as the household sizes have not changed. However, the analysis in the present paper has been carried out on the basis of household data, as the household is the key organisational and decision-making entity. It also determines the allocation of resources including consumption expenditure among its members. This last aspect is beyond the scope of this paper but it is well to bear in mind the internal dynamics of the household may have significant effect, though these may be difficult to estimate.

The 1994 income data for Kerala and Rajasthan show Muslim average income to be higher than that for Hindus; in other seven states, the average incomes of Muslims are lower than that of Hindus. The lowest Muslim-Hindu ratio is for Andhra Pradesh at 63% while Gujarat at 71% provides the second lowest. The remainder have ratios between 85% and 94% On the basis of this data, it seems there is no fixed pattern across the nine states in 1994.

In the 2004 Sachar data, however, the average Muslim household expenditure is nearly equal (90%-98%) or greater than the Hindu equivalent in each of the nine states. This also indicates a general and substantial narrowing of the Muslim-Hindu 1994 differentials in the nine states except in the case of West Bengal where there has been a widening of the gap. This data suggests that Muslim households over the decade have done better than Hindu households especially in Gujarat and Andhra Pradesh (which in 1994 had the lowest ratios) and in Maharashtra.

EXPLANATORY FACTORS

General rural economic conditions in each state over the decade would necessarily have had an impact on income/expenditure growth both for Hindus and Muslims in that state. That analysis is beyond the scope of this paper and must await further work. However, there are some basic elements - such as household age profile, employment and unemployment data, which are examined below based on NSSO data for the entire country.

Table 4 gives the age profiles of Hindu and Muslim rural households gathered by the 50th Round (1994) and 61st Round (2004) of the NSSO, which gives All-India data on Hindu and Muslim households. These indicate that Hindu households have a higher proportion of working-age members than Muslim households.

Table 4. All India Rural Household Age Profile

	FEMALES				MALES			
	50th Round (1994)		61st Round (2004)		50th Round (1994)		61st Round (2004)	
Years	Hindus	Muslims	Hindus	Muslims	Hindus	Muslims	Hindus	Muslims
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Below 15	355	427	341	394	375	451	359	428
15-54	542	494	560	530	527	470	539	493
55 +	103	79	99	76	98	79	102	79
Total	1000	1000	1000	1000	1000	1000	1000	1000

Sources: NSSO (1998: Table 7, A-11, A-12); NSSO (2007a: Table 5, A-7, A-8). Data regrouped.

This will enhance the supply of family labour and income earning potential of Hindu households which have larger proportions of persons in the 15-55 year age-group. It also suggests the need for higher Muslim household expenditure to support the larger proportion of non-working proportion of their households. However, over the decade (1994-2004), the proportions of working members have increased in Hindu households and to a lesser extent also in Muslim households.

As far as the proportion of male population employed is concerned, the Muslim proportions were generally significantly lower than Hindu ones across the nine states and in both periods. However, over the decade there has been an improvement in the proportion of Muslim males employed in five states especially in Gujarat, where Muslim proportion exceeded Hindu proportion in 2004. There have been, however, declines in Bihar, Uttar Pradesh, Andhra Pradesh and Maharashtra (Table 5). No common pattern is visible in the changes in the proportion employed.

Table 5. Proportion of Rural Persons Employed (Principal and Subsidiary Status) Per 1000 persons

	FEMALES				MALES			
	50th Round (1994)		61st Round (2004)		50th Round (1994)		61st Round (2004)	
Years	Hindus	Muslims	Hindus	Muslims	Hindus	Muslims	Hindus	Muslims
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Bihar	178	99	150	74	514	484	487	413
West Bengal	212	104	194	131	571	514	591	541
Kerala	265	134	302	124	565	431	596	448
Uttar Pradesh	230	141	249	190	527	481	504	450
Karnataka	442	272	470	348	607	559	635	600
Andhra Pradesh	529	359	490	397	634	585	609	538
Gujarat	401	254	436	322	575	527	590	619
Maharashtra	484	317	480	280	555	498	572	476
Rajasthan	467	293	411	236	543	450	509	481

Sources: NSSO (1998: Statement 10); NSSO (2007a: 50-51).

The proportion of Muslim women employed is very much lower than that of Hindu women across the nine states and in both periods. But, as Table 5 also indicates, there has been an increase in the proportion of Muslim women employed over the decade in five states - West Bengal, Uttar Pradesh, Karnataka, Andhra Pradesh and Gujarat. In the other four states (Bihar, Kerala, Maharashtra and Rajasthan), the proportion has declined.

This seems to be a firm though gradually changing pattern for low Muslim female employment and consequent poorer income generation.

But despite higher household size, smaller proportion of members in working ages, fewer proportion of both male and female members gainfully employed, Muslim rural households on average have caught up in respect of employment with Hindu rural households over the decade. This is indeed creditable and encouraging.

DISTRICT LEVEL DATA

As a policy reaction to the Sachar Report, the Government of India undertook to accelerate development in "Minority Concentration Districts" (MCDs) among other steps.[14] The MCDs were to be selected on the basis that they had substantial proportion (at least 25%) of religious minorities, that is, Muslims, Sikhs, Christians, Buddhists and Zorastrians (Parsis) as notified under Section 2 (c) of the National Commission for Minorities Act, 1992.[15] However, the 89 MCDs which were selected by the Ministry of Minority Affairs are mostly those districts where Muslims have a large share of the population (though as can be seen there are many districts where their share is well below the national average - let alone 25%).

The Ministry also commissioned base-line surveys of MCDs preparatory to funding development of these districts. The MCD surveys were guided by the Indian Council of Social Science Research (ICSSR) and the work was entrusted to reputed research institutions in the states. These surveys were conducted by independent organisations using a common methodology prescribed by the Ministry.[16] The surveys commenced in 2007 and were completed in 2008. Thus, the data is 4 years later than that used in the Sachar Report. Under the overall coordination of the ICSSR, the survey work was conducted by (i) Centre for Studies in Social Sciences (CSSS), Kolkata, (ii) Giri Institute for Development Studies (GIDS), Lucknow, (iii) OKD Institute for Social Change and Development, Guwahati, and (iv) Institute for Human Development (IHD), New Delhi; (v) the Aligarh Muslim University and (vi) Jamia Millia Islamia.

Despite this, however, their quality is somewhat variable and not all are comparable with each other. The point is illustrated by the fact that of the 89 MCD surveys only 42 present average annual household income for Hindus and Muslims.[17] This is a vital omission. A report, commissioned by ICSSR and titled "Overview of the Findings",[18] deals with some of the issues and shortcomings. Neither the MCD reports nor the "Overview" deals with income differential data even when collected. Yet household income data is critical by itself and can serve as a baseline estimate for measuring the effectiveness of the investment in the MCDs.

Table 6 presents the figures (for 2007-08) for Hindu and Muslim household income per annum and Muslim incomes as a percentage of Hindu incomes in the 42 MCD's. These vary considerably. The lowest three are for Sirsa in Haryana (51%), Uddham Singh Nagar in Uttaranchal (52%) and Mamit in Mizoram (58%). In another 6 districts Muslim incomes are 60% to 70% of Hindu incomes, in 9 districts they are between 70% and 89% of Hindu incomes and in 8 districts Muslim incomes are 90-97% of Hindu incomes. In 16 MCDs, Muslim household incomes are equal to, or higher, than Hindu ones. This indicates an uneven pattern from which no firm conclusions can be drawn about the condition of the Muslim community across these 42 districts.

Table 6. Average Annual Household Income in MCDs 2007-08 (Rupees)

No.	District	State	Source[19]	% Muslim Population	Hindu	Muslim	% M/H
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1.	Bahraich	UP	Garia, 2008, pp: 41 & 52 http://www.icssr.org/District%20Bahraich%20Report-PS%20Garia.pdf	34.8	30153	28224	94
2.	Balrampur	UP	Diwakar, 2008, pp:18-31 & 46 http://www.icssr.org/District%20Balrampur%20-%20D%20M%20Diwakar.pdf.	36.7	46333	41341	89
3.	Barabanki	UP	Jafri, 2008, pp: 18-33 & 47 http://www.icssr.org/District%20Barabanki%20-%20SSA%20Jafri.pdf	22.0	32195	26306	82
4.	Muzzafarnagar	UP	Prasad, 2008,pp:19-35 & 66 http://www.icssr.org/Muzaffarnagar%20Final%20Report%20(Baseline).pdf	38.1	43665	37975	87
5.	Bijnor	UP	Prasad, 2008a, pp:18-34 & 64 http://www.icssr.org/Bijnor%20Final%20Report%20(Baseline).pdf	41.7	30948	25994	84
6.	Baduan	UP	Fahimuddin, 2008a, pp:14 & 36 http://www.icssr.org/District%20Badaun%20-%20Fahimuddin.pdf	21.3	23737	26341	111
7.	Bagpat	UP	Tyagi, 2008, pp: 33 & 52-53 http://www.icssr.org/District%20Baghpt%20-%20R%20C%20Tyagi.pdf	24.7	44735	30498	68
8.	Saharanpur	UP	Tyagi, 2008a, pp: 20-33 & 53 http://www.icssr.org/District%20Saharanpur%20-%20RC%20Tyagi.pdf	39.1	61017	66457	109
9.	Bulandshar	UP	Singh, 2008, pp: 27-43 & 55 http://www.icssr.org/District%20Bulandshahr%20-%20YP%20Singh.pdf	21.1	52985	35482	67
10.	Lucknow	UP	Kumar, 2008,pp:18-37 & 51 http://www.icssr.org/Final%20Report%20District%20Lucknow.pdf	20.5	34068	45557	134
11.	Moradabad	UP	Tiwari, 2008a,pp: 24 & 64. http://www.icssr.org/District%20Moradabad%20-%20R%5B1%5D.S.%20Tiwari.pdf	45.5	40625	41637	102
12.	Siddharthanagar	UP	Garia, 2008a, pp:22-40 & 50 http://www.icssr.org/District%20Siddharthnagar-PS%20Garia.pdf.	29.4	31712	39406	124
13.	JP Nagar	UP	Bajpai, 2008,pp: 29 & 48 http://www.icssr.org/District%20J%5B1%5D.P.%20Nagar%20-%20BK%20Bajpai.pdf	39.4	50987	50842	100
14.	Lashmipur Keri	UP	Joshi, 2008,pp::25-44 & 55 http://www.icssr.org/District%20Kheri%20-%20A%20Joshi.pdf	19.1	30970	24730	80
15.	Shrawasti	UP	Nayak, 2008,pp:18-37 & 51 http://www.icssr.org/District%20Shrawasti%20-%20S%20Nayak.pdf	21.6	41876	37107	89

(Contd.)

Table 6. ***(Contd.)***

No.	District	State	Source[19]	% Muslim Population	Hindu	Muslim	% M/H
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
16.	Bareilly	UP	Fahimuddin, 2008,pp:15-25 & 43 http://www.icssr.org/District%20Bareilly%20-%20Fahimuddin.pdf	33.9	27534	25278	92
17.	Rampur	UP	Tiwari, 2008,pp::36 & 56 http://www.icssr.org/District%20Rampur%20-%20RS%20Tiwari%5B1%5D.pdf	49.1	42940	45699	106
18.	Hardwar	Uttarkhand	Mamgain, 2008,pp:12 & 26 http://www.icssr.org/Haridwar_Final.pdf	37.7	42840	37636	88
19.	U Singh Nagar	Uttarkhand	Sudan, 2008a,pp: 15 & 27 http://www.icssr.org/Udham%20Singh%20Nagar%20final%5B1%5D.pdf	16.2	84796	43985	52
20.	Dharbhanga	Bihar	Pankaj & Poornima, 2008a,pp: 14 & 17 http://www.icssr.org/Darbhanga%5B1%5D.pdf.	22.3	33174	32149	97
21.	P-Chamaparan	Bihar	Pankaj & Mishra, 2008,pp: 18 & 27 http://www.icssr.org/Paschim%20Champaran%20final%5B1%5D.pdf	21.7	25148	33398	133
22.	Kishangunj	Bihar	Sudan, 2008, pp:16 & 26. http://www.icssr.org/kishanganj_final.pdf	74.1	34291	38020	111
23.	Katihar	Bihar	Pankaj, 2008a, pp:16 & 21 www.icssr.org/Katihar%5B1%5D.pdf	44.8	26065	27966	107
24.	Araria	Bihar	Pankaj, 2008,pp:13 &18 www.icssr.org/Araria%5B1%5D.pdf	41.4	32065	31012	97
25.	Purnia	Bihar	Pankaj & Poornima 2008,pp: 15 & 31 http://www.icssr.org/Purnia%5B1%5D.pdf	38.1	32055	28891	90
26.	Sitamarhi	Bihar	Mishra &Singh, 2008,pp: 13 & 21 www.icssr.org/Sitamarhi%5B1%5D.pdf	21.4	32804	29951	91
27.	Gumla	Jharkhand	Sharma & Pankaj, 2008, pp: 16 & 27 http://www.icssr.org/Gumla%5B1%5D.pdf Accessed 15th July 2011	3.6	18996	29004	153
28.	Pakur	Jharkhand	Dayal, 2008,pp:17 & 30 www.icssr.org/Pakur%20final%5B1%5D.pdf	32.7	29070	38438	132
29.	Ranchi	Jharkhand	Dayal & Singh, 2008,pp:16 & 28 www.icssr.org/Ranchi%5B1%5D.pdf	10.2	33565	33426	100
30.	Sahibganj	Jharkhand	Sudan & Bhaskaran, 2008, pp: 13 & 25 http://www.icssr.org/Sahibganj.pdf	32.4	33051	35216	107
31.	Parbhani	Maharashtra	Singh & Sudan, 2008, pp: 15 & 27 http://www.icssr.org/Parbhani%5B1%5D.pdf	6.6	52013	32002	62
32.	Hingoli	Maharashtra	Bhaskaran, 2008a,pp: 13 & 26. http://www.icssr.org/Hingoli%5B1%5D.pdf	6.1	62503	37864	61
33.	Washim	Maharashtra	Bhaskaran, 2008b,pp:14 & 26 http://www.icssr.org/Washim%20final%5B1%5D.pdf	6.5	55461	48445	87
34.	Bhuldana	Maharashtra	Bhaskaran, 2008, pp: 14 & 25 http://www.icssr.org/Buldhana%5B1%5D.pdf	9.1	50898	32876	65

(Contd.)

Table 6. ***(Contd.)***

No.	District	State	Source[19]	% Muslim Population	Hindu	Muslim	% M/H
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
35.	Sirsa	Haryana	Mehta et al, 2008,pp: 13 & 26 www.icssr.org/Sirsa%5B1%5D.pdf	negl	86375	44063	51
36.	Mewat	Haryana	Prasad, 2008,pp: 20 & 36 http://www.icssr.org/Mewat%5B1%5D.pdf	74.2	34798	48580	140
37.	Leh	J&K	Sudan, 2008b, pp: 16 & 28 www.icssr.org/Leh%5B1%5D.pdf	12.9	83079	76527	92
38.	Bidar	Karnataka	Deogankar, 2008,pp: 23 & 49 http://www.icssr.org/Bidar%20final%5B1%5D.pdf	12.2	48324	43539	90
39.	Gulbarga	Karnataka	Deogankar, 2008a,pp:23 & 43 http://www.icssr.org/Gulbarga%20final%5B1%5D.pdf	11.6	49150	40251	82
40.	Mamit	Mizoram	Sudan, 2008c,pp : 14 & 25 www.icssr.org/Mamit%5B1%5D.pdf	1.8	58006	33627	58
41.	Lawngtlai	Mizoram	Sudan & Mamgain, 2008,pp:16 & 26 www.icssr.org/Lawngtlai.pdf	0.3	51203	35254	69
42.	Wynad	Kerala	Upendranadh, 2008, pp: 20 & 26 http://www.icssr.org/Waynad%5B1%5D.pdf	26.5	44446	56802	128

SUMMING UP

After examining the above data from the NCAER, Sachar and MCD survey sources, it is difficult to conclude that Hindu-Muslim rural differentials in income/expenditure have a fixed pattern across States and over time. If anything, rural Muslim households seem to be catching up and, in many cases, overtaking rural households of the Hindu majority.

It seems clear that it is not enough to extract data in the manner in which the Sachar Report has done and to draw conclusions, which led to the mistaken and disoriented policy decision to concentrate investment on rural areas rather than on urban areas where the Muslim disadvantages are significant (as indicated in Sachar itself). Even the selection of MCDs seems to have been misplaced and misdirected as indicated by the initial survey data showing high levels of Muslim household incomes relative to Hindu households in nearly 24 of the 42 MCDs. This subject is too serious to be treated in such an ad hoc manner.

Our primary purpose was to examine the trend of income /expenditure ratios for the Hindus and Muslims in 1994 and 2004. In order to do so, we had to deal, perforce, with these different data sets. In the process, this exercise brought out the difficulties in using available data and in making definitive statements about the trend and the variation between incomes/expenditures ratios of Hindus and Muslim households. The interpretation of this data itself poses problems and the analysis is tentative. More robust surveys are required to enable clearer understanding of the dynamics of household income/expenditure decisions of Hindus and Muslims based on their preferences and available resources.

The Government of India with its enormous resources and control of the NSSO should initiate serious, consistent and comparable studies over time of the progress (or lack of it) of the Muslim minority community with reference to the Hindu majority. The NSSO with its international reputation and experience at data collection should be entrusted with the job of conducting regular specifically designed surveys with the aim of

examining the progress of the Muslim minority taking into account the spatial distribution of its population. These surveys need to be robust, nuanced, disaggregated and location specific and with adequate sample sizes to enable statistically significant comparisons. They should have methodological consistency so as to be comparable over time. This data will then enable both policy-makers and civil society to assess the direction and pace of the progress of minority religious communities in different states and districts within them.

This paper does not substantiate the currently held notion of fixed and firm Muslim income/expenditure differences compared to the Hindu majority in rural areas. On the other hand, it indicates a relatively faster Muslim progress and consequently a gradual closing of the initial gap over the decade 1994-2004. This is a result of the efforts of individual Muslim households and needs to be recognised and lauded. That this should happen in the decade under review is especially heartening for it was a period of low and erratic growth of agricultural sector. It was also a period of liberalisation and transition to a market economy, which has disrupted many patterns of traditional rural livelihoods.

But this paper also concludes that more serious and nuanced efforts need to be made by NSSO to get reliable data to facilitate correct interpretation, robust analysis and sound understanding of the economic status of the Muslim minority in relation to the Hindu majority, which in turn could lead to well-directed remedial measures. Good intentions alone will not deliver results.

NOTES

1. The academic and other studies on the condition of Muslims are extensive - even my modest collection contains over 150 entries.

2. Salman Khursheed, then Union Minister for Minority Affairs, is quoted as saying that the 'Sachar Report is not the Koran which cannot be questioned!' (http://www.indianexpress.com/news/khursheed-says-sachar-report-not-quran-sparks-off-war-of-words/809657/0) (Accessed 7.10.2014).

3. "The cross-sectional pattern with respect to consumption and poverty differentials are analysed at using the most recent NSSO 61st Round data with a reference period of July 2004 to June 2005" [Sachar 2006, p. 151].

4. Comparison of expenditure and income figures for 2004 from two different data sets indicates that income estimates are higher than expenditure estimates by about 54% for Hindus and 40% for Muslims [Shukla, 2010, Table 1.12, p. 38].

5. As every NSSO Report states: "The size of a household is the total number of persons in the household."

6. A similar problem emerges in the comparison of farm income. With different extent of land with differences in size and nature of its cultivated and irrigated portions, cropping intensities and cropping pattern, any attempt to reduce farm income to per acre terms causes loss of detail. This also prevents meaningful inter farm comparisons, by not taking into account land endowments and farmer's crop decisions. Most analysts tend to use econometric tool such as regressions, principal component or factor analysis to separate out the varying effects of these factors on farm income [Pingle, 1976].

7. Ahmad [1967, Pp. 887-891] deals with the categories of Ashraf and Ajlaf in the Muslim community. Also see Aggarwal [1966, Pp. 159-162] and Basant [2007]. See Asian Development Research Institute (ADRI) (no date given, seems c. 2002-2003, Table 2.22, p. 47) for Bihar Muslim data and Shaban [2011, Table 5.3, p. 114] for Maharashtra Muslim data. Also see Shukla [2010, p. 38-40].

8. Combining SC and ST data into one groups when the two populations are significantly different in economic status is unwarranted.

9 Incidentally, Sachar's rural estimates for All-Muslims in Delhi is based on a sample of only two households-illustrating the need for adequate degrees of freedom for credible averages and also the need for statistical significance tests.

10. Sachar [2006, pp. 189-216].

11. Ibid (p. 5).

12. (See interesting Cartograms: http://realitycheck.wordpress.com/2006/11/01/the-india-social-cartogram-project-maps/ (Accessed 21.09.2014).

13. See endnote 4 above.

14. See http://minorityaffairs.gov.in/sites/upload_files/moma/files/Sachar_Committee_Recommendation-wise.pdf (Accessed 30.9.2014).

15. See http://minorityaffairs.gov.in/sites/upload_files/moma/files/guideline.pdf (Accessed 30.9.2014).

16. "The baseline surveys in the identified MCDs were to bring out the following:

(i) A gap analysis of availability of infrastructure like schools, health centres, ICDS centres and drinking water supply.
(ii) A gap analysis of housing and sanitary toilets.
(iii) Identification of income generating activities in which the villagers have comparative advantage.

(iv) A gap analysis of critical linkages like rural roads, ITls, banking facility, markets, etc., which will provide the missing links that can act as catalyst" (http://www.icssr.org/minority-brf.htm).

17. For all 89 reports see : http://www.icssr.org/minority-dist.htm

18. http://www.icssr.org/Overview%20Report.pdf, accessed on 21.09.2014.

19. All accessed on 15th July 2011.

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National Council of Applied Economic Research (NCAER), 2001; *South India: Human Development Report*, Oxford University Press, New Delhi, 2001, Table A2.1, p.52; Table A4.1, p.141; Table 10.1.

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HEALTH EXPENDITURE, HEALTH OUTCOMES AND THE ROLE OF DECENTRALISED GOVERNANCE: EVIDENCES FROM RURAL INDIA

Shailender Kumar Hooda

Political scientists and health policy makers argued that outcomes of the health sector can be improved by improving the service delivery system through decentralisation in governance. But evidences on what constitutes decentralisation, how it affects health outcomes and efficacy of allocated public funds in health are lacking. This paper examines the impact of different decentralised governance measures on infant and child mortality rates of rural India across states and in improving the efficacy of rural health spending. The results show that public health spending in rural area is significant in securing better health outcomes of rural India. The efficacy of rural health spending moreover increases with the extent of decentralised governance in a state. It is noticed that states with high fiscal and political decentralisation have more significant impact in reducing the infant mortality compared to states having high fiscal but low political decentralisation, indicating efficacy of fiscal decentralisation increases with political decentralisation. The study recommend that along with allocating more public funds in rural health sector, the adequate devolution of fiscal, functions, functionaries/administrative and political powers to local bodies can be a significant step towards improving the outcomes of health sector of rural area.

Keywords: Decentralisation, Governance, health outcomes, political participation, public funds for health

1. INTRODUCTION

Globally, it is argued that public spending on health can have positive impact on health outcomes [Farahani, et al., 2010, Pp. 1361-76] particularly in the poor regions, but it cannot be the dominant driver; the factors, namely, income, income inequality, poverty, female education are the other major determinants of health status of the population [Filmer and Pritchett, 1999, Pp. 1309-23]. In addition, countries with good governance level secured better health outcome [Kaufmann et al., 2004] even with low/same level of spending [Farag, et.al, 2013, Pp. 33-52]. The impact of increase in government health expenditure on MDGs outcome was found to be none/minimal in countries with low governance level [Wagstaff and Claeson, 2004]. The impact (size of coefficient) of increase in government spending on health thus depends on the level of good governance achieved by the country [Rajkumar and Swaroop, 2008, Pp. 96-111; Farag et.al, 2013]. Thus, governance has become central in determining the efficacy of public spending for better health outcomes.

The governance, however, is a wider term and, therefore, measured differently, namely, through country policy and institutional assessment, accountability, corruption and decentralisation indices, etc. The decentralised governance (an effective form of good governance) has been advocated as a powerful tool to improve services

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delivery. This involves devolution of powers and authorities to local governments. Scholars have argued that decentralised mechanism improves accountability, effectiveness, efficiency of service delivery [Litvack et al., 1998] by bringing decision makers closer to the people and by enhancing the participation of the community in the decision making and implementation process. Their close relation with the local people enables them to know the local problems and needs, and they are therefore in a better position to establish the right priorities than a central or regional government far away [Peabody et al., 1999]. Local governments have more and better information regarding their constituents, and they may be better able to enforce and coordinate policies and programmes at local level [Oates, 1994; Prud'home, 1995). Being at a close proximity of those in charge also enables citizens to better monitor the responsible parties' performance and hold them accountable.

Health reformists argue that decentralisation can enhance the participation of local communities in decisions regarding health policy objectives, goals, strategies, planning, financing, implementation and monitoring, which are important to improve the health outcomes [Lieberman, 2002]. It also promotes inter-sectoral coordination, increases accountability, reduces duplication, and improves the implementation of health programmes. This, in turn, affects the quality and coverage of health services delivery and thereby health outcomes. For instance, the empirical studies have highlighted that impact of decentralisation has been found significant in reducing the mortality rates in many countries [Robalino et al., 2001] in varied degrees. The marginal benefit from decentralisation is found to be greater in some low and middle income countries like India [Mahal et al., 2000; Asfaw et al., 2004; Khaleghian, 2003; Ebel and Yilmaz, 2002], Argentinean provinces [Habibi et al., 2001] and China [Yee, 2001] and none or negative impact in some others [Treisman, 2000, Pp. 399-458; Montoya and Vaughan, 1990, Pp. 55-63]. It is argued that the impact of decentralisation in broader sense depends on properly designed/ measured [Ebel and Yilmaz, 2002] and implemented decentralised policy, in the absence of which, it may pose risks and challenges that may lead to a deterioration in the provision of health services and consequently to poor health outcomes [Lieberman, 2002].

The studies that have examined the impact of decentralisation on health outcomes either relied on political [Mahal et al., 2000], or fiscal decentralisation at Panchayat [Asfaw et al., 2004] and state level [Robalino et al., 2001] or both [Yee, 2001]. The decentralisation measures that have been used in Indian context seem to be weak in measurement[1] which generally cover limited dimensions of decentralisation.[2] We believe that the gamut of issues that involve comprehensive dimensions of the devolution of different powers (like, fiscal, functional, administrative and political powers) to local bodies have not been captured. In order to fully evaluate the gains from decentralisation, the conceptual clarity on what constitutes decentralisation, how it can be empirically captured and what the constituent elements are needs to be incorporated in a measure of decentralisation. It also needs to be pointed out here that the measurement of decentralisation is highly context specific [North, 1997]. The manner, instruments and mechanisms through which decentralisation gets grounded in any region or country has to be kept in mind in order to identify the parameters that can be used to capture the spatial and regional variations in the quantum of decentralisation.

Along with this theoretical understanding, the literature on the subject that has highlighted that the impacts of decentralisation are highly sensitive to the way the decentralisation variables are measured [Ebel and Yilmaz, 2002], motivated us

to construct an appropriate measure of decentralisation in health of a particular country (India), across its provinces/states that are governed under one constitutional provision. Considering this fact in advance, this study provides a conceptual framework and methodology for some robust measures of the extent of decentralisation across major states of India and compares how these states have performed to achieve a desired level of decentralisation. The estimated dimensions of decentralisation are then associated with selected health outcome parameters of these states. The study specifically includes the important indicators on functional, financial, functionaries/administrative responsibilities/authorities of local Panchayat that are devolved to them under the 73rd Constitutional Amendment Act (CAA).

Based on the decentralisation initiatives that have been taken by Indian government (specially under 73rd CAA), this study first isolates the core dimensions, relevant to the Indian context, to capture the comprehensive measure of decentralisation and then converts these dimensions into measurable parameters along with elaboration of a methodology to combine these parameters. Finally, their impacts on two important Millennium Development Goals of health outcomes, namely, infant mortality rates (IMR) and under five mortality rates (U5MR),[3] by considering a case of rural India at the level of 16 major states are examined. The decentralisation measurements further are used to evaluate the effectiveness of health spending in improving the health outcomes in low and high decentralisation setting. Examining the effectiveness of decentralisation in Indian context became particularly important in view of the fact that Indian government has committed to spend a high 2-3 percent of GDP in health sector under a highly decentralised policy framework [NRHM, 2005]. The belief is that a higher amount of public spending will not contribute substantially, if the existing facilities or funds are not provided and managed through proper channel or through effective government interventions, community participation or through decentralised governance. How far and how effectively this approach has been working needs to be examined.

2. MEASURING DECENTRALISATION

In order to fully evaluate the gains from decentralisation, this section discusses what constitutes decentralisation, what its constituent elements are and how it can be empirically captured. These elements are worked out from a detailed study on the decentralisation initiatives that have been taken by Indian Government. For instance, India has been placing the strength of decentralisation in its development policy agendas since the time of independence; the direct democracy, however, was strongly mandated in the early 1990s through 73rd and 74th Constitution Amendment Acts (CAA). These Acts have enabled state legislatures to transfer, if they so choose, adequate powers and responsibilities to local bodies to enable them to prepare and implement schemes for economic development and social justice. The 73rd Constitution Amendment Act provided viable way of transferring political,[4] fiscal and administrative powers to rural local bodies. This also made a provision of some mandated actions, like constitution of State Election Commission (SEC),[5] State Finance Commission (SFC),[6] District Planning Committee (DPC)[7] and Gram Sabha[8] to ensure an effective way and process of decentralisation in India. The responsibility on 29 functions,[9] under the Eleventh Schedule, is also sought to be entrusted to local Panchayat in planning and implementation of works of local significance. This Act, in a way, provides a formal instrument of *minimum* level of rural decentralised governance in India by enabling state legislative bodies to transfer, if they so desire, functional, financial and functionaries (administrative) powers to local governments along with delegation of political powers to ensure participation of people in grass root politics and policy. Giving discretionary powers to

the states to devolve power to PRIs can greatly dilute the decentralisation process in a state as state(s) may not devolve important functions to the PRIs and so the functionaries and funds also do not get correspondingly devolved to them. Therefore, the extent of devolution of personnel control (functionary), funds and functions powers may vary across states which will impact the magnitude of decentralisation process in that particular state and in turn affect outcomes of the health sector. The extent of decentralisation would be high in states that have devolved adequate and balanced 3Fs powers to PRIs; in reverse case, it would be low. The state that devolves inadequate powers and authorities to local governments in effect treats its local bodies as agents of the state government and no participatory approach is followed. This does not only lower the extent of decentralisation in governance in the state but also reduces local participation in grass route plans and policies in a sector like health. Therefore, devolution of decentralisation powers to local bodies became important for improving the health outcomes.

To capture the diversity in devolution of powers, the study has constructed a comprehensive measure of decentralisation at the state level using information on 18 indicators of funds, functions, functionaries (3Fs) powers which have been devolved to local Panchayat under 73rd CAA on matters and activities related to health (Appendix A). This index not only captures the extent of fiscal decentralisation (funds) but also gives adequate or appropriate weight to the structure and content of devolution, as manifested in the agency to whom the power is transferred (functionary) and the purpose for which the power is transferred (function). This comprehensive nature of the index makes it distinct from and robust compared to the earlier measures which capture only 2-3 indicators of decentralisation (see for example Mahal et al. 2000; Asfaw et al. 2004 studies) while examining its impact on health outcomes. This index is constructed for 16 major states of India for the year 2006-07. The scaling score method is applied (Appendix A). This index is called Devolution Index for Health (DIH) in our study. This index is used to see the effectiveness of rural health spending in the states where local institutions are functionally, financially and administratively viable and vice-versa.

Beside DIH, some time series indices, namely, index of fiscal and political decentralisation have also been constructed, particularly to compare the findings with those of other studies like Mahal et al., [2000] and Asfaw et al. [2004]. As far as the importance of these indices, it is argued that decentralising the budget (fiscal decentralisation - which provides responsibilities to local bodies relating to revenue raising, expenditure allocations and other finances) is the most important step in decentralisation, which enables the local governments to meet the needs of the people and better provisioning of local services, such as the health. However, its effectiveness also requires calibration with other dimensions, particularly with political and administrative decentralisation. The political participation brings decision making closer to the people and thereby increases democratisation. Without political decentralisation participatory decision-making seems to be impossible. The political participation helps in deciding the preferences of local residents. A more active political participation of the population, particularly of the women, is expected to align the decisions of local authorities to the interests and priorities of the population [Asfaw, et al., 2004]. Thus, political decentralisation strengthens the effectiveness of fiscal decentralisation.

Therefore, a political participation index (PPI) is constructed by giving more weight to women representative in assembly and panchayat level politics (Appendix A). This index provides a better understanding of citizens' participation as well as the level of democracy in a particular state. The fiscal decentralisation index is constructed

by using the share of local Panchayat's own revenue in total expenditure of Panchayat. This is a legitimate indicator of fiscal decentralisation since it measures the autonomy of Panchayati Raj Institutions (PRIs) to meet the expenditure of their locality or the fiscal capacity of PRIs to meet their expenses. This also shows the fiscal dependency of PRIs on top authorities like the Centre and State governments. These indices are constructed for the period from 1990 to 2005 for 16 major states of India.

3. DATA, METHODS AND ESTIMATION PROCEDURE

As discussed, the aim of this study is to evaluate the impact of health expenditure and decentralisation on health outcomes and effectiveness of decentralisation in improving the efficacy of public spending. For this purpose, it is important to highlight what and which types of expenditure are relevant for rural health outcomes. It is argued that resource allocation (public spending) may distort the health outcomes if the public health policies are not well-targeted in order to improve child health [Hu, B. and Mendoza R., 2010] and quantum of spending, say, towards high-tech equipment or advanced hospitals may have little effect on public health if morbidity indicators show the need for increased resources for targeted primary care in rural area [NRHM, 2005]. Furthermore, low/inadequate and improper allocation of public funds on essential medicines, drugs and equipment limits the health staff to perform better [Hooda, 2013] and allotted funds may yield little benefit if easy access to water and sanitation facilities are lacking [Deolalikar, 2004]. Thus, the quantum of health spending that are allocated in the rural area (targeted spending in rural area) can be of great significance for rural health outcomes.

Further, in addition to decentralisation and health spending which helps in provisioning of health services in the country, the health outcomes of a region/state also depend on factors like level of development (per capita income), level of female literacy, provisioning of health services, access of drinking water facilities, status of healthcare use in a state, etc.

To substantiate these arguments, first, the graphical association between comprehensive measures of decentralisation (DIH) and rural health outcomes is presented. Then, the cross-sectional and panel regression equations, controlling for socio-economic factors, are estimated. The idea to estimate the different equations is to present robust results, controlling for other factors, of the impact of decentralisation and health expenditure/infrastructure on rural health outcomes. The estimated equations are as follow:

Panel Equations

$$\ln IMR_{st} = \alpha + \beta_1 InRHE_{st} + \beta_2(\ln RHE*DIH)_{st} + \beta_3 \ln IFD_{st} + \beta_4 PPI_{st} + \beta_5 FLR_{st} + \beta_6 LD_{st} + \upsilon_s \varepsilon_{st} \quad \text{.....(1)}$$

$$\ln IMR_{st} = \alpha + \beta_1 InRHE_{st} + \beta_2 DIH_{st} + \beta_3 \ln IFD_{st} + \beta_4 \ln IFD*PPI_{st} + \beta_5 FLR_{st} + \beta_6 LD_{st} + \upsilon_s \varepsilon_{st} \quad \text{.....(2)}$$

IMR - infant mortality rate of rural areas of a particular state

RHE - per capita public expenditure on health of rural areas of a state at 1993-94 prices, which includes expenditure on medical, public health, family welfare and water supply

DIH - Devolution index for health - a decentralised governance index

IFD - Index of fiscal decentralisation: PRIs own revenue as a ratio of their total expenditure[10]

PPI - Political participation index,

LD - level of development (real per capita income of a particular state at 1993-94 prices)

FLR - female literacy rate of rural area

lnIFD*PPI dummy - interaction term of fiscal and political decentralisation, reflecting the effectiveness of political participation in improving the efficacy of fiscal decentralisation. This specifically shows whether high fiscal decentralisation affects the health outcome irrespective of the level of political participation.

lnRHE*DIH dummy - interaction terms of rural health spending (RHE) and DIH dummy variables. This shows the effectiveness of DIH in improving the efficacy of health spending to have significant effect on health outcomes.[11]

υ - State specific residual,

ε - Standard residual with the usual assumptions of zero mean, being uncorrelated with υ and other explanatory variables, and homoscedasticity,

s - State (16 major states of India),

t - Time period (1990 to 2005)

Cross-Sectional Equation

$$U5MR_i = \alpha + \beta_1 RHII_i + \beta_2 RHII*DIH_i + \beta_3 FLR_i \beta_4 UI_i + \beta_5 DW_i + ui \quad \ldots\ldots(3)$$

U5MR - rural under five mortality rate of a district

RHII - index of health infrastructure in rural area,[12] used as a proxy for health expenditure.

DIH - devolution index for health, used in dichotomous form (0 for low DIH value and 1 for high - higher than average value).

RHII*DIH dummy - interaction term of health infrastructure and decentralisation dummy, reflecting the effectiveness of decentralisation in improving the efficacy of rural health infrastructure.

FLR - female literacy rate of rural area (2001)

UI - index of maternal and child health (MCH) care use[13]

DW - percentage of households using safe drinking water (2001)[14]

i - number of observations, here it is the number of districts (504) across 19 major states of India

The equation (3) is estimated by applying Ordinary Least Squares (OLS). The panel equations (1 & 2) can be estimated as 'between effects-BE', 'fixed effects-FE', and 'random effects-RE' models, depending on the assumptions we made about the distribution of v_s and ε_{st}. In the BE specification, the coefficients will be estimated using only the cross sectional information on the means of the dependent and explanatory variables over time. In the FE model, also known as 'within effect', vs is assumed to be fixed, and the coefficients of the parameters will be estimated using the time-series information in the data.[15] This implies that time invariant variables will not be considered. This means that the model allows for different constant for each group/state. In order to allow for different constants for each group/state, it includes a dummy variable for each group/state. This method is known as the Least Squares Dummy Variable (LSDV) method of estimating fixed effects in panel regression. Thus, FE model has some weaknesses as: (i) it ignores all explanatory variables which do not vary over time. By this we mean that it does not allow us to use other dummies in the model, which is particularly inconvenient when we have reasons to consider including such dummies; (ii) if one uses state dummy, the model is inefficient in the sense that it estimates a very large number of parameters, leading to loss in degree of freedom and (iii) it makes it very hard for any slowly changing explanatory variables to be included in the model, because they will be highly collinear with the effects. Thus, even if the F-test (like, the Hausman test) suggests, the FE model may not be used or the model may have to be specified very carefully. In order to avoid the limitations of FE model, the study employs RE model.

The random effects model, on the other hand, takes vs as a random variable and assumes vs not to be correlated with the other explanatory variables. Then it takes a weighted average of the between and the fixed estimates [Greene, 2008]. The advantage of RE is that it treats constant for each section not as fixed, but as random parameters. That is, RE assumes individual effects are uncorrelated with the explanatory variables, which is one of the necessary conditions for applying the weighted least square method. Thus, RE estimates measure the impact of decentralisation and health expenditure on rural infant mortality by considering the information across states and within a state and assuming individual effects are uncorrelated with explanatory variables. The equations (1 and 2), therefore, are estimated with random effect. The detail of data sources is presented in Appendix E.

4. LIMITATIONS OF THE STUDY

This study, based on some qualitative and quantitative indicators (presented in Appendices A to D), quantify the extent of a comprehensive measure of decentralisation (namely, DIH) across major states of India. The index was constructed using scaling score method. This method, however, has some limitations, as one can lose information pertaining to institutional setting if one takes a number of binary indicators and combines these with quantitative indicators, after converting the latter into discrete values. For instance, giving equal weights to all functions of the Panchayats or their sources of tax and non-tax revenue and then combining the different dimensions by assigning equal weights can be questioned as this rules out judgmental factors emerging from field knowledge or experience. However, we could not think of any systematic method to associate different judgmental weights to different functions of the Panchayats or to different sources of their tax and non-tax revenues.

Further, lower revenue of local bodies may reflect not necessarily absence of decentralisation, as we have assumed, but the local body's poor economic base. However, in order to address this limitation, one needs to examine what determines the revenue of local bodies (whether it is poor economic base or low tax base or the number of taxable items on which the PRIs can impose tax, and so on). We have not carried out such an exercise as it would have taken us much beyond the present scope of our study.

Secondly, DIH requires broad based information and content to make it comprehensive in nature. The information on these indicators (presented in Appendix A) is not readily available for a longer period of time. The DIH, therefore, was constructed at one point of time and then associations with rural health outcomes were presented by considering state and district as cross-sectional units. To present robust estimates across space (states) and time, the study has further constructed two (other important measures of decentralisation in governance, discussed above) time series indices of decentralisation, namely, indices of fiscal and political decentralisation for the period from 1990-2005 across major Indian states and values of the other variables are collected for the same period.

Exploring data only up to 2005 is again one of the limitations of the study. There are two reasons that restrict us to explore data only up to 2005 for regression analysis. One, the information on PRI's revenue and expenditure which are utilised for constructing the index of fiscal decentralisation (IFD) were showing a high jump in the trends of values before and after 2005. Any major distortion in the trends of a series may very well affect the overall significance of the model as well as of that particular variable. Even if we were some how to address the problem of the shift in the trend after 2005 by use of an appropriate dummy variable, as explained in the following

paragraph, it was extremely difficult to construct the time series for expenditure on rural expenditure after 2005 required for such an analysis.

As discussed, the purpose of the present study was not only to examine the effectiveness of decentralisation but also to evaluate the impact of government spending that is allocated in the rural health sector on health outcomes (not merely of aggregate rural plus urban spending). Getting time series data on rural health spending across states, particularly after 2005, became difficult for the following reason. In April 2005, the government of India launched the National Rural Health Mission (NRHM). Under NRHM, the government committed to increase the health spending to 2-3 percent of GDP. Along with this commitment, a structural shift in the routes of transfer of central funds to states has also taken place. For instance, some of the central funds, which were earlier routed through state budget via centrally sponsored and plan schemes, started bypassing the state budgets after NRHM implementation. Most of the NRHM funds that were allocated in rural health sector now are implemented through state implementing agencies (like, the rural health centres-CHCs, PHCs, SCs) as well as decentralised agencies (like, the Panchayati Raj Institutions) [Hooda, 2013]. This changing route of central transfers has made it complex and difficult to work out the expenditure data on health that is allocated in the rural areas, especially after the year of 2005, which enforces us to explore data only upto 2005.[16]

5. SUMMARY STATISTICS

It is seen from Tables 1 & 2 that there exists high variation in indicators like health outcomes, health expenditure/infrastructure, education status and the level of development of a state. The correlation matrix between these indicators reflects that health outcomes are highly correlated with some of the indicators, but not with others (Table 3). How these indicators have impacted the health outcome variables is described in the following section.

6. RESULTS AND DISCUSSION

First, how different Indian states have performed in securing high decentralisation score is discussed. The results show that status of decentralised governance, the devolution of health related funds, functions and functionaries (3F) powers to PRIs (DIH), is high in states like Kerala, West Bengal, Karnataka and Tamil Nadu and low in high income states like Punjab and Gujarat as well as in a low income state like Bihar (Figure 1). The variation and low value of devolution index (DIH) may be because of unbalancing nature of the devolution of 3Fs powers to PRIs. For instance, Figure 2 reveals that in some of the states, functions have not been fully transferred. Activity mapping[17] was to be carried out to clarify the role of PRIs at different levels. This also has not been carried out in some states. The states like, West Bengal, Assam, Karnataka and Maharashtra, have scored high value in functions devolution, but the score values are noticed to be low in finance devolution, indicating that the SFCs in these states devolved low funds to meet the requirement of the functions which have already been assigned to PRIs. Assigning more functions with low funds certainly may hamper the degree of autonomy to PRIs in determining their spending priorities for different functions. This may mean that most of the revenue raising and expenditure allocation priorities are with the state government and PRIs are left with meagre resources. The other reasons for low level of finances sub-indices include low spending by PRIs on core services which are planned and budgeted by the state governments, inappropriate criteria of SFCs for funds devolution from state to PRIs, etc., which are reflected from Appendices B to D. The performance of functionaries' sub-indicators also shows similar trends with high variability across states. Thus, uniformity in different sub-indices dimensions is lacking in

many states. Such unbalancing nature of different dimensions undermines the functioning of the inter-governmental transfer system. It can be argued that unless the imbalance is corrected through greater fiscal and administrative decentralisation, Indian states are unlikely to evolve effective PRIs. In short, in order for decentralisation to be effective, it needs to be balanced along the three (3Fs) key dimensions.

The political participation index (PPI) is high in most of the Indian states (Figure 1) and even its score value turns out to be more than the DIH value. It may be because political participation in a democratic country like India is much easier to achieve than vesting the local bodies with administrative control over significant functions or fiscal autonomy. Thus, our construction of the indices of decentralisation and of political participation reveals that the devolution of powers and responsibilities and the outcomes of political processes and the speed of implementation vary across states and within a state through time, depending on the initiatives taken by the respective state governments. This results in variation in decentralisation among the Indian states and low level of decentralisation in some of the Indian states. With varying degree of decentralisation, one can expect the differential impact of it on outcomes of health sector as well as on the effectiveness of health spending.

The graphical presentation of the association between the extent of decentralisation (DIH) and infant mortality rate of rural area shows negative relationship (Figure 3). The estimated linear regression equation of this bivariate association shows that a one basis point increment in the value of decentralisation (DIH) reduces the infant mortality rate of rural area by -0.61 and the coefficient is significant at 10 per cent level of significance. The coefficient of determination R^2 value indicates that 19 percent variation in rural IMR is explained by the level of DIH. Overall, the extent of decentralisation leads to a lower infant mortality rate in rural area.

The correlation between IMR and DIH turns out to be highly significant (at 5 percent level of significance) with negative coefficient value of about -0.43 (Table 4). Interestingly, the correlation between rural IMR and General devolution index (DI) turns out to be insignificant with a low coefficient value (Table 4). This indicates that a move from General DI to health DI results in lowering the rural IMR, the most. Further, an examination of the association between different dimensions, (i.e., sub-indices) of decentralisation and IMR provides more robust results, as it provides a fairly good idea about the importance of a sub-index for better health sector outcomes. The correlation coefficients between these decentralisation sub-indices and IMR, presented in Table 4, show that finances devolution sub-index is negatively associated with IMR (with coefficient value about -0.48) at 5 percent level of significance. This analysis reflects two important points, one, a move from general devolution of 3Fs powers to PRIs to devolution of health related 3Fs powers to PRIs is more significant in lowering the infant mortality rate of the rural area of India, indicating sector specific devolution of powers is more important for better outcomes of that particular sector and two, of the 3Fs, the devolution of finances powers to PRIs is more important in reducing the IMR.

The panel estimation results show that both decentralisation as well as public expenditure on health (RHE) helps in reducing the infant mortality rate of rural area significantly. A one percent increase in real per capita rural health spending reduces the rural infant mortality rate by about 0.045 per cent at 10 per cent level of significance (Model-I, Table 5). The IMR and expenditure variables are used in log form; the coefficient of expenditure therefore reflects the expenditure elasticity of rural infant mortality rate. The

coefficient shows that the expenditure elasticity of rural infant mortality rate is very low. The low coefficient value of health expenditure may be because, the health spending in India is highly biased towards salary components, while the expenditure on non-salary components (namely, drugs, medicines, machinery and equipments) is low and/or lacking [Hooda, 2013]. A low level of spending on non-salary components is an indication of low availability of these facilities with the government hospitals and primary health centres. Such trends limit the health personal to perform better; it can further reduce the faith in public facility and enforces the rural households to use expensive private health facilities which are located in the urban area and purchasing of medicines from outside store. This may result in high out-of-pocket expenditure and increased financial burden on rural households. Thus, productive and beneficial impact of public expenditure on health in influencing the performance of health sector largely depends on how much funds are allocated to health sector and how funds are allocated within this sector.

The estimates show that a one percentage point improvement in the value of fiscal decentralisation index reduces the infant mortality rate of rural area significantly about 0.023 per cent, at 1 per cent level of significance. Similarly, a one percentage point increment in the Index of political participation, particularly the women's participation, reduces the infant mortality rate of rural area about 0.24 per cent, again at one per cent level of significance. Both the control variables like, the level of female education as well as the level of state's income, are significant in reducing the infant mortality rate of rural area of India at the state level.

The states with high fiscal and political decentralisation indices have more significant impact in reducing the rural IMR compared to the states that have high fiscal but low political decentralisation index. Thus, political decentralisation increases the efficacy of fiscal decentralisation in reducing the rural IMR. This may mean that high women participation in politics is important for better utilisation of local funds which further leads to better health outcomes of the rural area.

The level of public expenditure on health also turned out to be significant in reducing the infant mortality rate of rural area. The efficacy of public health spending, in improving the rural IMR, increases with the level of decentralisation (DIH) in the states. The results show that a one percent increase in per capita public spending on health lowers the rural IMR by 0.052 percent in states with high decentralisation compared to the low decentralisation states. Thus, decentralisation improves the efficacy of rural health spending in reducing the rural IMR.

Interestingly, among the different measures of decentralisation, namely, fiscal, political and comprehensive measure of health related decentralisation (DIH), the comprehensive measure of health related decentralisation shows greater impact in reducing the rural infant mortality rates. The value of the coefficient of comprehensive measure of health related decentralisation even turned out to be greater than the other socio-economic control variables that are used in the study (Model-II, Table 5).

The cross-sectional estimates show that availability of rural health infrastructure not only turned insignificant in reducing under-five mortality rate of rural area but its sign also turned positive, which is contrary to our expectation. This may be because of inadequate availability and low quality of health services in rural area, which are lacking either in terms of staffing or medicines or equipments. Inadequate availability of health facilities may be one of the factors responsible for not having a significant impact in reducing the U5MR of rural area. Interestingly,

the availability of health infrastructure, however, turns out to be highly significant in reducing the under five mortality rate in states with high level of decentralisation (DIH), compared to states with low health related decentralisation index (Model-III, Table 5). This indicates that effectiveness of the availability of rural health infrastructure increases with the extent of governance in the health sector which is measured in terms of devolution index for health (DIH) in the study. Thus, decentralised delivery mechanism is important for effective delivery of services and better health outcomes. The control variables like, level of female literacy and status of utilisation of maternal and child care also turn out to be significant in reducing the U5MR of rural area.

These findings confirm that a comprehensive measure of health related decentralisation, high participation of women in politics and decentralising the budget all improve the infant mortality rate of rural area significantly both directly as well as indirectly via improving the efficacy of public health spending/infrastructure in their impact on health outcomes of rural area. Thus, devolving adequate funds, functions and functionaries powers to local bodies increase the effectiveness of resource utilisation as also significantly reduces the infant and under five mortality rates. The results suggest that state government needs to devolve adequate powers, authorities and responsibility to rural local bodies. Some states have devolved adequate powers to PRIs but some have not. Out of the score value 100, the Kerala scored a high value of 83 and Punjab a low value of about (39) (Figure 1). The devolution of 3Fs powers to PRIs also seems to be unbalanced in nature in Indian states. In some states, the finances have devolved but not the functionaries and functions. Some have devolved all the 29 functions but devolved low funds to meet the requirements of these functions. This affects the effective delivery system, particularly the health services, in the state. Further, the status of fiscal decentralisation also seems to be low in India. This indicates that there is low revenue raising capacity (or fiscal autonomy) with the rural local bodies to meet the expenditure requirements of their locality. The share of total expenditure of PRIs in total expenditure of state governments (all states combined) is also very low in India (at about 6-7%). While, in most of the advanced countries local governments normally account for about 20-35 per cent of total government expenditure [Hooda, 2012]. This certainly affects the effective delivery of public services across the Indian states.

7. CONCLUSION

The study finds that government health spending in the rural area helps in reducing the rural infant mortality rates significantly. Interestingly, this expenditure category turned out to be more significant, with a high coefficient value, in reducing the rural infant mortality rates in states with high level of decentralisation compared to those with low level of decentralisation. Thus, the extent of decentralisation improves the efficacy of rural health spending in its impact in reducing the rural infant mortality rate of India. The extent of decentralisation is associated negatively with rural IMR. Thus, decentralisation ensures better health outcomes via improving the efficiency of resources utilisation of rural area.

The fiscal and political decentralisation also plays a significant role in reducing the infant mortality rate of rural area of India. The effectiveness of fiscal decentralisation in reducing the rural IMR increases with the level of political decentralisation. The regression analysis reveals that states with high fiscal *and* political decentralisation have a greater impact in reducing the rural IMR compared to the states with high fiscal but low political decentralisation. Thus, political decentralisation increases the efficacy of fiscal decentralisation in reducing the infant mortality rates of rural area of India.

Along with the level, the allocation pattern of health expenditure (particularly more on drugs, medicines, machinery and equipments) is important for health sector to perform better. Thus, in one sense, the productive and beneficial impact of public health spending in influencing the health sector performance largely depends on how much funds are allocated to health sector under a more decentralised mechanism and how the funds are allocated within this sector. The impact of other control variables like female literacy rate and the level of development of the states at the same time cannot be ignored, as they also play a significant role in reducing the rural IMR.

The inadequate availability of rural health infrastructure will not be helpful in improving the health outcome (like the under-five mortality rates) of rural India. In order to reap the expected outcomes, adequate and comprehensive public health facilities need to be provided across districts and remote rural regions of India. It would be better if these facilities could be provided under more decentralised governance system, as decentralisation improves the efficacy of the existing health facilities in improving the health outcomes. Higher level of female literacy and status of healthcare utilisation for maternal and child care further add to improving the U5MR of rural area. Thus, along with other contributing factors, the adequacy of public health facilities and decentralised service delivery mechanism matter more in improving the health outcomes of rural areas. The adequacy of public health facilities is particularly important in view of the fact that publicly provided health facilities are the single most important source, with private facilities missing, in the rural area.

Overall, the study finds that decentralised governance and public expenditure on health in the rural area and adequate availability of health facilities are more likely to improve health sector outcomes of rural area across the Indian states. The role of decentralised governance can be seen as a way to increase the efficacy of resource utilisation as well as in ensuring better health outcomes in the country. The findings demonstrate that both *state interventions and institutional change like decentralisation* are important in improving the performance of rural health sector. These findings are consistent with the theoretical arguments and other empirical findings on the subject, as discussed above. These factors, therefore, need to be strengthened to reform the Indian health sector. The study specifically recommends that along with the increase in government spending in the rural health sector, Indian states need to devolve adequate powers (at least as prescribed in 73rd CAA) and authorities over funds, functions and functionaries to rural local bodies so as to improve the performance of public health care system of rural India.

NOTES

1. For instance, Mahal et al., (2000) study in Indian context used states that have moved towards decentralisation during the period 1970-94 as a measure of decentralisation which is identified by knowing the frequency of rural local body election (a proxy of decentralisation) and decentralisation is used in dummy variable form.

2. Like, Asfaw et al., 2004] uses share of local expenditure in the total state government expenditure, the total local expenditure per rural population and the share of local own revenue in the total local expenditure, for the period 1990-1997. Using these indicators an index of decentralisation - named as fiscal decentralisation, was created. This study also used political decentralisation index measured by taking into account the indicators on total voter's turnout, women's participation in polls and the number of polling stations per elector for 14 major states of India. But the comprehensive dimensions of decentralisation have not been utilised.

3. In literature, these mortality indicators are considered superior to life expectancy, an alternative measure of health status. It reflects the infant, child and maternal health, in addition to the state of health development within the society. Further, the variables like IMR are based on actual data whereas life expectancy figures are based on extrapolations from child mortality data and assumed life tables. Secondly, rural infant and under five mortality rates are more sensitive to a policy reform such as decentralisation and level and allocation pattern of public spending on health in the rural area than any other health outcomes like the life expectancy.

4. Under this Act, from political standpoint, there is a provision of three tiers of panchayats, namely, at village, intermediate and district levels. This Act not only gave discretionary political power to states to devolve power to Panchayati Raj Institutions (PRIs) but also sought to protect the political rights of hitherto neglected groups such as Schedule Castes, Tribes and Women by providing them reservation in politics. This involves the provisions for greater participation of backward and deprived sections of the society in decision making.

5. The SEC helps to ensure improved democracy by ensuring regular, free and fair elections at the local level in every five years.

6. The SFC is constituted, every five years, to govern the distribution and devolution of financial resources so as to improve the financial position of the panchayats across the districts with in a state.

7. The DPC involves in planning processes and the plans of the Panchayats and Urban Local Bodies in a district will be consolidated by DPCs. All Panchayats are to engage in (economic development and social justice) planning processes under the mandatory action of Constitution. Plans of the Panchayats and Urban Local Bodies in a district are to be consolidated by the District Planning Committees (DPCs). If the Constitutional mandate were to be operationalising, minimally, such bodies should be formed and appropriately resourced.

8. The Gram Sabha or village council has been envisaged as foundation of the Panchayati Raj system as it ensures community participation.

9. The functions are ranging from drinking water, agriculture, poverty alleviation programmes; health & family welfare, education, libraries and cultural activities, maintenance of community assets, etc.

10. Further, to check the robustness of the result, an index of fiscal decentralisation is also constructed, using share of PRIs own revenue in total expenditure/revenue of PRIs and in total revenue of state. The estimated results of these indices show just minor changes in the coefficient values, but their signs and significance remained unaffected. However, these results were not reported in the text in order to avoid the confusion in reporting the impact of fiscal decentralisation and to avoid reporting more estimated equations.

11. The dummy of DIH takes 0 for low and 1 for high index value (higher than average). This index however is constructed for the year 2006 but the dummy value is used for the period from 1990 to 2005. This is because states with high DIH value have also taken adequate initiative to implement the decentralised concept from the inception of 73rd CAA from 1992-93 [Hooda, 2012].

12. Health expenditure data at district level is not available; this variable therefore is used as its proxy. This infrastructure index is constructed by using No. of CHCs, No. of PHCs and No. of SCs in rural area per 100,000 population across districts using Principal Component Analysis (PCA).

13. The status of MCH care use is expected to improve U5MR. This is estimated by using, women receiving 3 or more ANC visits, women receiving 2 TT injections and child immunisation coverage rate by applying PCA for the year 2003-04.

14. As most of the diseases are caused by unsafe drinking water and are a cause of child death in the early age, it is expected that a high percentage of use of safe drinking water in a particular district helps in reducing the under five mortality rate.

15. As the number of years of observations used here is small, it is obvious that the Least Squares Dummy Variable (LSDV) method of estimating fixed effects panel regression is not possible in our case. Not only that, but even individual state-wise regressions (for equation 1 and 2) were not worth estimating, as the number of years for which data were available was 15 (1990-2005) and 5-6 explanatory variables were to be introduced. Thus, even in this case, the degrees of freedom (*d.f.*) would be very low. A low *d.f.* decreases the chance of rejecting the null hypothesis and increases the probably of accepting the false hypothesis [Gujarati, 2003, Chapter-V].

16. Estimates between 2005 and 2008 show that on an average over 60 per cent of all central government health allocations are now allocated under NRHM, which, however, fluctuate across the years. Out of these NRHM allocations, around 69 per cent bypasses the state's budget and rest of the funds (31 percent) flow through the state treasuries and are reflected in the state health budget [Berman and Ahuja, 2008]. The Ministry of Health and Family Welfare (MOHFW), *NRHM expenditure statement*, compiles 'total' central funds that are allocated in various NRHM schemes. But, of the total, 31 percent NRHM funds (mentioned above) are also reflected in state budget document. Thus, there is a problem of overlapping of 31 percent central funds both in MOHFW and state's budget documents, which are allocated under various health schemes. Similarly, state governments also allocate funds in NRHM schemes and some of the funds are reported in both state budgets as well as in NRHM expenditure statements document of MOHFW. Thus, to work out the total rural health spending, a detailed examination of individual schemes is required, which would be a separate study.

17. The assignment of duties to functionaries across PRIs should be based on detailed Activity Mapping. As, activity mapping is a way of unbundling subjects into component activities and mapping them against functions devolved to the

panchayats by law. Thus, inclusion of activity mapping in indices analysis is the first step towards high 'quality' of devolution and strengthens the index of decentralisation.

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Table 1. Selected Health Outcomes, Health Expenditure and Decentralisation Indicators at State Level

States	Rural IMR		Rural Female Literacy Rate		Real Per Capita GSDP (Rs.)		Fiscal Dcentra-lisation Index		Real Per Capita Public Health Expenditure in Rural Area (Rs.)	
	1991	2005	1991	2005	1991	2005	1991	2005	1991	2005
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Andhra Pradesh	77	62	23.9	56.8	7814	13360	7.2	3.0	35	61
Assam	83	70	39.2	58.6	6302	7696	37.1	98.2	59	65
Bihar	71	62	18.0	36.9	4864	5079	20.1	3.6	43	46
Gujarat	73	62	38.7	48.9	10368	20497	2.3	2.8	63	171
Haryana	73	62	32.5	59.0	12683	18690	49.6	13.1	74	124
Himachal Pradesh	76	52	49.8	72.7	8464	14908	11.8	23.7	258	331
Karnataka	87	53	34.8	55.4	7483	14539	1.2	1.3	3	44
Kerala	17	16	85.1	87.5	7753	15401	47.4	15.1	42	45
Madhya Pradesh	125	79	19.7	58.6	7208	9611	6.6	47.7	48	26
Maharashtra	69	42	41.0	68.5	11640	19375	2.2	11.6	48	62
Orissa	129	76	30.8	56.0	4990	7677	4.8	2.1	38	42
Punjab	58	48	43.9	64.7	13104	18280	21.4	49.8	71	108
Rajasthan	84	74	11.6	60.5	7481	10819	3.5	2.0	121	77
Tamil Nadu	65	39	41.8	62.7	8878	16035	9.7	11.3	62	200
Uttar Pradesh	102	75	19.0	49.6	5982	8123	5.5	9.8	53	54
West Bengal	76	40	38.1	61.8	6682	13528	4.5	22.8	33	46

Note: Per capita GSDP and health expenditure are at 1993-94 prices.

Source: Reported from Hooda, [2012].

Table 2. Selected Health Outcomes, Health Infrastructure and Literacy Indicators by States (District-wise average value #)

States	U5MR	Value of Health Infrastructure Index	Female Literacy Rate	Index Value of MCH Care Status	Drinking Water Facility
(1)	(2)	(3)	(4)	(5)	(6)
Andhra Pradesh	75	0.47	50.0	0.81	80.4
Assam	115	0.56	55.8	0.37	55.5
Bihar	107	0.32	32.9	0.34	83.8
Chhatisgarh	134	0.46	51.0	0.60	68.1
Gujarat	83	0.75	56.3	0.65	80.8
Haryana	103	0.50	57.1	0.66	86.2
Himachal Pradesh	93	1.86	64.8	0.70	88.3
Jharkhand	100	0.43	36.2	0.40	41.0
Karnataka	79	0.80	58.0	0.82	81.8
Kerala	57	0.63	86.8	0.93	22.0
Madhya Pradesh	147	0.53	49.5	0.43	68.0
Maharashtra	74	0.57	64.6	0.78	75.2
Orissa	132	0.72	47.9	0.60	64.5
Punjab	88	0.61	62.4	0.77	97.4
Rajasthan	120	0.70	42.5	0.38	67.1
Tamil Nadu	84	0.48	63.9	0.97	84.8
Uttar Pradesh	131	0.43	42.5	0.35	86.5
Uttaranchal	94	0.76	59.4	0.48	82.4
West Bengal	103	0.31	57.2	0.68	84.2
Average	101	0.63	54.7	0.62	73.6

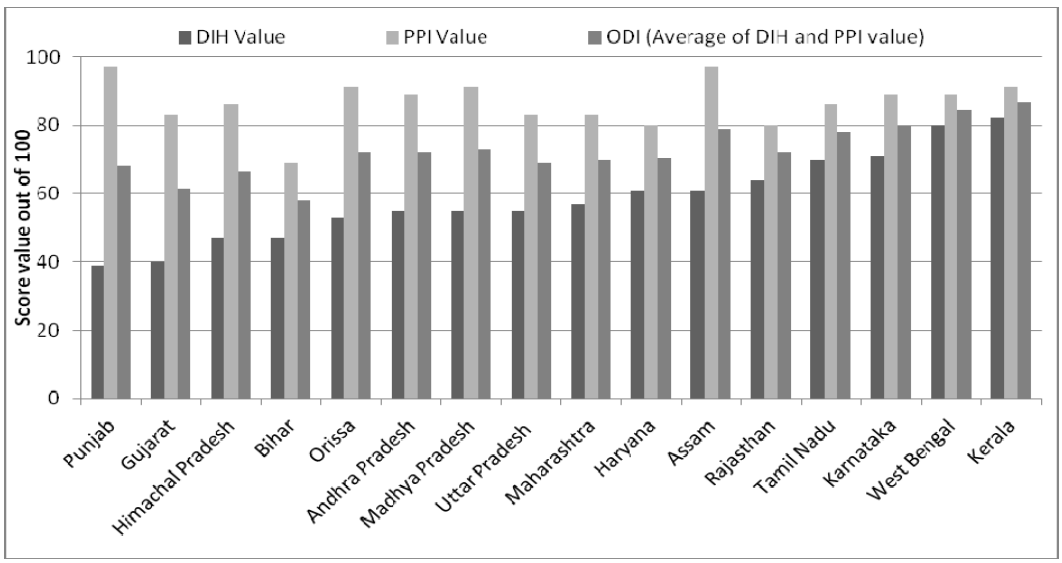
Note: # - District-wise average values of indicators are presented.
Source: Reported from Hooda, [2012].

Table 3. Correlation Coefficients between Health Expenditure, Decentralisation and Outcomes Variables

	A	B	C	D	E	F	G	H	I	J	K	L	M
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
A	1.00												
B	-0.13	1.00											
C	-0.27	0.23	1.00										
D	-0.39	0.11	0.01	1.00									
E	-0.37	-0.41	-0.01	0.28	1.00								
F	-0.30	-0.03	0.19	0.20	0.75	1.00							
G	-0.39	0.05	0.53	0.53	0.21	0.17	1.00						
H	-0.28	-0.01	0.57	0.30	0.09	0.15	0.80	1.00					
I	-0.80	0.22	0.29	0.58	0.33	0.22	0.44	0.33	1.00				
J	-0.78	0.10	0.25	0.37	0.35	0.20	0.41	0.27	0.84	1.00			
K	-0.50	0.41	0.09	0.39	-0.04	0.13	0.17	0.16	0.54	0.37	1.00		
L	-0.49	0.41	0.06	0.25	-0.20	-0.09	0.17	0.11	0.41	0.46	0.80	1.00	
M	-0.56	0.33	0.02	0.26	-0.03	0.07	0.14	0.09	0.50	0.52	0.80	0.84	1.00

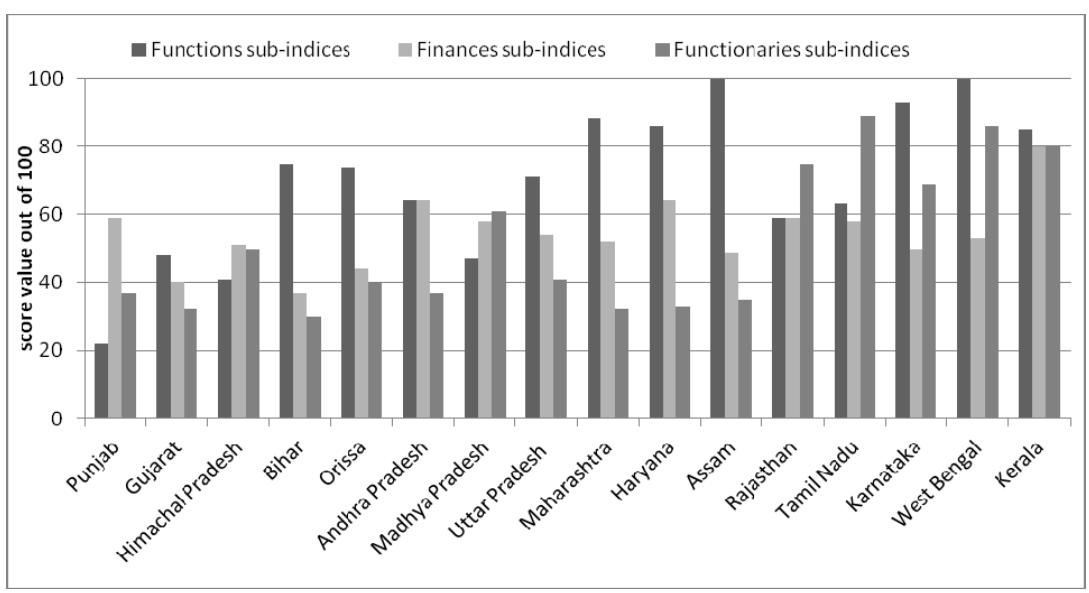
Note: A. Rural IMR; B. Log of real per capita public expenditure on health in rural area (RHE); C. Log of IFD (share of PRIs own revenue in total expenditure of PRIs); D. Log of Political Participation Index (PPI) value; E. Devolution index of health related 3Fs powers to PRIs (DIH) value; F. Interaction term of RHE and DIH dummy (RHE*DIH dummy); G. Interaction term of log of IFD value*PPI dummy (1 for high PPI, 0=otherwise); H. Interaction term of high IFD dummy*high PPI dummy (1 for high, 0= otherwise); I. Rural female literacy rate (continuous variable); J. Rural female literacy rate (FLR) (constant for all years-1991); K. Log of real per capita GSDP; L. Rank of per capita real GSDP (1 = low, 2 = middle, 3 = high income states); M. Per capita GSDP dummy (0 = low and 1 = high income states).
Source: Reported form Hooda, [2012].

Figure 1. Extent of Decentralisation in India across States: 2006



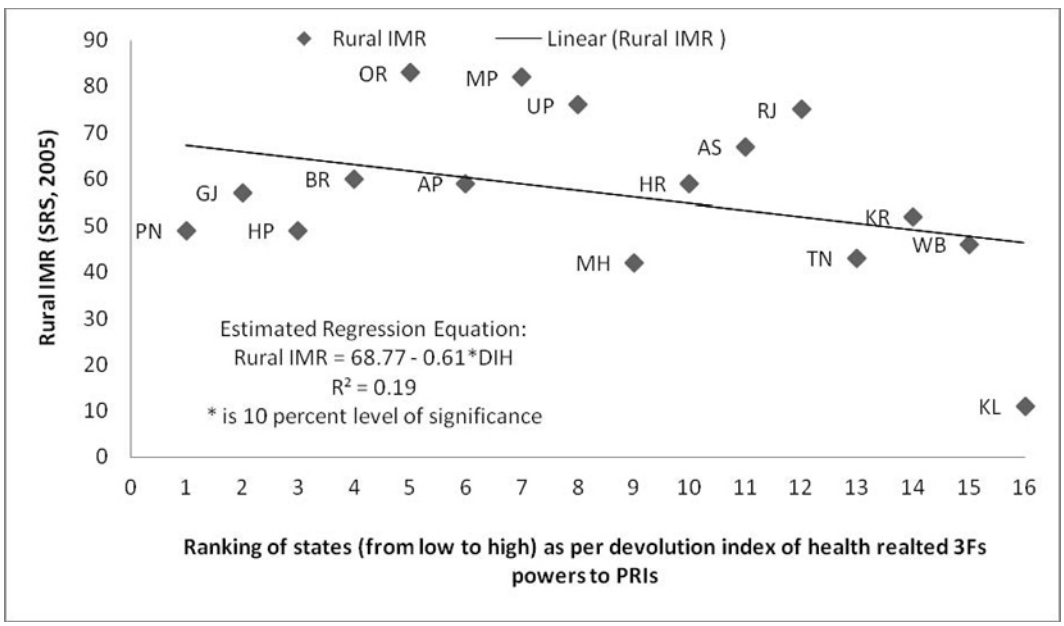
Source: Author's estimates using information from Appendix A and reported from Hooda, [2012].

Figure 2. Nature of Devolution of 3Fs Powers to PRIs across States: 2006



Source: Same as Figure 1.

Figure 3. Extent of Decentralisation and Rural IMR: An Association



Source: Author's designed and reported from Hooda, [2012]

Table 4. Correlation Coefficient between Decentralisation Indices and Rural IMR

	ODI	PPI	Functions DI	Finances DI	Functionaries DI	DIH	General DI#
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
IMR	-0.40	-0.09	-0.17	-0.48*	-0.35	-0.43*	-0.36

Note: * is 5 percent level of significance. #- Value of General DI is taken from NCAER [2007].

Source: Author's Estimates using data on IMR and decentralisation indices and reported from Hooda [2012].

Table 5. Impact of Decentralisation and Health Expenditure on Health Outcomes

Model-I: Panel Regression Results with Random Effect

InIMR = 5.48 - 0.045lnRHE - 0.052(lnRHE*DIH) - 0.023lnIFD - 0.242PPI - 0.018FLR - 0.122LD
(34.51)* (-1.89)*** (-2.24)* (-2.65)(-7.43)* (-4.98)* (-4.35)*

R-sq: Within = 0.40; Between = 0.71; Overall = 0.69; Waldchi2(6) = 191.8; Prob > chi2 = 0.00; sigma_u = 0.23; sigma_e = 0.09; rho = 0.86

Model-II: Panel Regression Results with Random Effect

InIMR = 6.09 - 0.084lnRHE - 0.204DIH - 0.025lnIFD - 0.067(lnIFD*PPI) - 0.017FLR - 0.125LD
(21.04)* (-4.60)* (-2.09)** (-2.77)* (-3.07)* (-4.59)* (-4.44)

*R-sq: Within=0.39; Between =0.75; Overall = 0.73; Waldchi2(6)= 194.2; Prob > chi2 = 0.00; sigma_u =0.22; sigma_e =0.09 ;rho = 0.85

Model-III: Cross-Sectional Regression Results

lnU5MR = 5.19 + 0.016RHII - 0.11(IRHI*DIH) - 0.003FLR - 0.696IU + 0.0003DW
(97.9) (0.59) (-3.23)* (-3.76)* (-11.8)* (0.69)

F(5, 498) = 91.87; Prob > F = 0.00; R-squared = 0.480; Adj R-squared = 0.475

Note: Model- I & II: the figures in parenthesis are z-value; Number of obs.=256; years = 1990 to 2005; Number of states=16; The correlation coefficients between these variables are presented in Table 3;
Model-III: Number of observations/districts across major Indian states are 504; figures in parenthesis are t-values;
*, ** & *** are 1, 5 & 10 percent level of significance. Source: Author's Estimates and reported from Hooda [2012]. The notation of variables can be found in Table-3.

Appendix A: Indicators and Methods for Calculating Decentralisation Indices at State Level in India

Political Participation Index	
Constitution of State Election Commission (SEC)	If, Yes = 5, No = 0
Holding Elections to PRIs Every Five Years	If Yes = 5; No = 0
Share of women and reserved class panchayats representatives	If <=25=1; if >25&<=29=2; if >29&<=33=3; if >33& <=37= 4; if >37=5
% of total voters' turnout in assembly election	If < 45%=1; 45 ^V 65% = 3; > 65% = 5
Total women who voted in assembly election as percentage of men who voted in assembly election	If < 75%=1; 75-85% = 3; > 85% = 5
% of women contestants in assembly election	< 2%=1; 2 ^V 3% = 3; > 3% = 5
% of women elected in assembly election	< 4%=1; 4 ^V 6% = 3; > 6% = 5
Political Participation Index (PPI) #	Arithmetic Mean of all above items is computed and it is normalised to be between 0 and 100 by using the formula: PPIi = (PPIi*100)/5
Sub-Index of Functions Devolution	
De facto transfer of 6 health and health related functions to Panchayats	[(Number of functions transferred/6)*5]
De facto transfer of remaining 23 functions to Panchayats	[(Number transferred/23)*5]
Has activity mapping been conducted on 6 health functions? ##	[(Number of functions for which Activity Mapping is done/6)*5]
Activity mapping has been conducted for the remaining 23 functions?	[(Number of functions for which Activity Mapping is done/23)*5]
a. Functions devolution sub-indices	Arithmetic mean of all Functions items
Sub-Index of Finances Devolution	
Authorisation to the village panchayats as per the PRIs Act to collect appropriate taxes, duties, tolls and Non-taxes fees.	[(Number of taxes items assigned/38)*5] [(Number of non-taxes items assigned/29)*5]
PRIs own revenue as % of expenditure of PRIs	Less than 5% =1; 5 - 10% = 2; 11 - 15% = 3; 16 - 20% = 4; More than or equal to 21% = 5
PRIs own revenue as % of state own revenue	Less than 1% = 1; 1-2% = 2; 2-3% =3 ; 3-4% = 4; more than 4% = 5
Per capita (as per rural population) real (at 1993-94 prices) expenditure on core services (like, health, education, water supply, street light, roads, etc.) by PRIs	Less than Rs. 50 = 1; 51-100 = 2; 101-150 =3 ; 151-200 = 4; more than 200 = 5
Constitution of State Finance Commission (SFC)	If No SFC has been constituted = 0; Only 1st SFC report received = 2; 2nd SFC report received = 3; 3rd SFC report received = 5; (used highest score)

(Contd.)

Appendix A: ***(Concld.)***

Timely Actions on the latest SFC's major recommendations	> Two years = 1; <2 years>one year = 2; < 1 year > six months = 3; < Six months = 5
% of funds devolved to PRIs that are 'untied' to any scheme	<5% are untied=1; 5-25% untied=2; 25-50% untied=3; 50-75% untied=4; >75% untied=5
Release of Funds to PRIs: Compliance of the State Government in Sending the TFC grant without delay (data from NCAER)	>60 Days=1, 45-60=2, 30-45=3, 15-30=4, <15 Days=5
Is the allocation of SFC funds to the PRIs based on an apportionment formula?	If allocation is based on development or equitable criteria and include more than three items = 5, if three items= 4; if two items =3; if one item= 2; if ad-hoc grant = 1
b. Finances devolution sub-indices	Arithmetic mean of all Finance items
Sub-Index of Functionaries Devolution	
whether staff transferred, for instance, whether (i) only general staff transferred; (ii) functionaries of departments transferred but without any control over them by elected representatives; (iii) functionaries of departments transferred with some degree of control invested in the elected representatives (such as sanction of leave); (iv) functionaries transferred and under substantial control of the elected representatives	If item (iv)= 5; if item (iii)=4; if item (ii)=3; if item (i)=1; if no information average of below three items
How many functionaries has been transferred	[(Number of functionaries transferred/29)*5]
General support to Panchayats at present: Government has specified expert institutions and entities to support PRIs for preparation of Annual Plans and for capacity building (data taken from NCAER)	Yes = 5 No = 1
What is the amount of money provided for the training of PRI's elected functionaries in the state budget? (Rs per year per elected functionary) (data taken from NCAER)	Less than or equal to Rs 1000= 1; More than Rs 1000 =5
Has the state's department of Panchayati Raj brought out its Annual Report for the last fiscal year?	Yes=5, No=0
c. Functionaries devolution sub-indices	Arithmetic mean of all Functionaries items
Devolution Index to Health (DIH)###	Arithmetic Mean of a, b & c. The DI value, further, is normalised to be between 0 and 100 by take the formula: DIi = (DIi*100)/5

Note: #-For PPI, the assembly election data for the period from 1992 to 2005 is considered for individual state.
##-Under the Schedule 11 of the 73rd Constitutional Amendment the 29 functions were transferred to PRIs, the activity mapping indicates whether systematic efforts at clarifying the roles and responsibility of PRIs on the transferred functions is carried out or not.
###-The detail of selected indicators is provided in Appendix B to Appendix D.
Source: Detail discussion on indicators can be found in Hooda [2012]

Appendix B: Value of Selected Indicators Used for Devolution Index

	Total functions transfered (in no.)	Functions on which activity mapping has been conducted (in No.)	PRIs authority to collect non-taxes (in No)	PRIs authority to collect taxes/duties/ tolls/fees (in No)	PRIs own revenue as % of exp of PRI (avg. of 2000-2004)	PRIs own revenue as % of state's own revenue (Avg. Of 2000-2004)	Real (at 93-94 prices) per capita PRIs' exp on core services (in Rs.) (Avg. of 1998-99 to 2003-04)	Constitution of State Finance Co mmission (value are based on score)	Timely Actions on the latest SFC's major recommend ations (value are based on score)
AP	12	9	22	16	4	1.02	36	3	3
Assam	23	23	11	4	99	0.21	638	5	5
Bihar	25	29	5	0	4	0.16	13	5	1
Gujarat	15	29	16	5	2	0.41	4	3	1
Haryana	23	10	5	2	23	0.94	22	5	5
HP	26	0	7	1	15	0.56	308	5	3
Karnataka	24	23	10	8	1	0.32	5	5	1
Kerala	21	19	11	15	13	2.76	3	5	5
MP	23	20	7	0	30	1.88	370	3	1
Maharashtra	12	23	8	2	9	2.06	125	5	1
Orissa	20	10	4	2	5	0.07	6	3	3
Punjab	20	0	8	2	58	1.03	137	5	5
Rajasthan	29	25	9	1	2	0.40	68	5	5
TN	29	29	11	9	12	0.35	671	5	3
UP	23	27	6	2	11	0.41	0	5	1
West Bengal	23	23	7	6	10	0.37	205	5	1

Appendix B: (Concld.)

	Percentage of funds devolved to PRIs that are 'untied' to any scheme (values are based on score)	Release of Funds to PRIs: Compliance of the State Government in Sending the TFC grant without delay (values are based on score)	Is the allocation of SFC funds to the PRIs based on an apportion-ment formula? (values are based on score)	Whether staff transferred	How many functionaries transferred	General support to Panchayats at present: Government has specified expert institutions and entities to support PRIs for preparation of Annual Plans and for capacity building	What is the amount of money pro-vided for the training of PRI's elected functionaries in the state budget?	Has the state's department of Panchayati Raj brought out its Annual Report for the last fiscal year?
AP	3	5	5	1	0	1	3	0
Assam	1	1	2	4	0	1	1	0
Bihar	2	5	1	3	3	1	3	0
Gujarat	3	5	1	2	2	1	3	0
Haryana	5	5	1	3	2	1	3	0
HP	2	4	3	4	1	1	3	5
Karnataka	2	5	5	4	3	3	4	5
Kerala	4	5	5	5	3	5	4	0
MP	3	5	4	4	1	1	3	5
Maharashtra	1	5	3	2	2	1	3	0
Orissa	4	5	2	4	2	1	3	0
Punjab	5	1	1	4	1	1	2	0
Rajasthan	4	5	4	3	3	3	4	5
TN	4	5	2	1	5	5	4	5
UP	5	5	3	3	1	0	3	5
West Bengal	2	5	5	3	2	5	3	5

Source: Reported from Hooda, [2012].

Appendix C: Indicators and Criteria Used for funds' Devolution

	Population/ density/ rural pop	Area	Poverty/ level of per capita Income	Illiteracy rate	Population of SC/STs	Population of DDP/ DPAP /TAD	Persons per bed in govt. hospitals / IMR/ other health indicator	Road length/ sq. km	Financial need	Tax effort	Development criteria	Index of Decentralisation	Lump sum criteria
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
AP											Y		
Assam	Y												
Bihar													Y
Gujarat													Y
Haryana													Y
HP	Y	Y											
Karnataka	Y	Y		Y			Y	Y				Y	
Kerala	Y				Y				Y	Y			
MP	Y	Y								Y			
Maharashtra	Y	Y											
Orissa	Y												
Punjab													Y
Rajasthan	Y		Y			Y							
Tamil Nadu	Y												
UP	Y	Y											
West Bengal	Y		Y	Y	Y		Y						

Note: Y - indicates that criteria are adopted for funds devolution.
Source: Reported from Hooda, [2012] and State Finance Commission Reports, individual state.

Appendix D: Criteria Adopted for Funds Devolution by SFCs to Address Horizontal and Vertical Inequalities

	Devolution Recommended		
	SFC-I	SFC-II	SFC-III
(1)	(2)	(3)	(4)
Andhra Pradesh	39.24% of state revenue from tax and non-tax	40.92% per annum of the tax and non-tax revenues of the Government including the share of central taxes to LBs	No information
Assam	2% per annum of tax revenue of the state; and fixed amount of Grants-in-aid: 1996-97: Rs. 36.89 crore; 1997-98: Rs. 37.15 crore; 1998-99: Rs. 37.02 crore; 1999-2000: Rs. 37.02 crore	3.5% per annum of aggregate tax revenue of the state to LBs 2. Grant-in-aid of Rs.10 crore per annum for ULBs	1. No devolution for the year 2006-07; 2. 10% of non loan gross own tax revenue receipts after deducting actual collection charges for the year 2007-08; 3. 25% of non loan gross own tax revenue receipts after deducting actual collection charges for the year 2008-11
Bihar	No information	No information	3% of net proceeds from state

(Contd.)

Appendix D: (Contd.)

	Devolution Recommended		
	SFC-I	SFC-II	SFC-III
(1)	(2)	(3)	(4)
Gujarat	Additional taxation of Rs. 293.09 crore per annum	No information	Not constituted
Haryana	1. 20% of royalty on minor minerals be devolved to the ULBs and Gram Panchayats 2. 7.5% of net receipts under 'stamp duty and registration fees' be devolved to PRIs 3. Tax on motor vehicle 20%; entertainment tax 50% to ULBs	1. 20% of annual income from royalty on minor minerals to gram panchayats and municipalities; 2. 3% of the net receipts from 'stamp duty and registration fees' to PRIs; 3. 65% of the net proceeds of LADT to PRIs; 4. 50% of the entertainment tax; 20% of motor vehicle tax and 35% of LADT to ULBs	4% of the net tax revenue to LBs
Himachal Pradesh	Rs. 138.75 crore devolved to LBs	Rs. 253.19 crore devolved to the LBs	Cess on liquor to be transferred to LBs; incentive fund at the rate of Rs. 10 crore to LBs; Gap filling grant of Rs. 228.28 crore. Grantin- aid to LSGIs; and maintenance expenditure for roads.
Karnataka	36% of non-loan gross own revenue receipts to the LBs	40% of non loan net own revenue receipts to the local bodies; Rs. 5 crore to be common purpose fund each year	1. 33% of state's own revenue receipt to be devolved to PRIs and ULBs in the ratio of 70:30 2. Salary component of officials; working in the PRIs should be delinked while working out the total share of PRIs and ULBs
Kerala	1. 25% surcharge on stamp duty be levied on behalf of ULBs. The surcharge on stamp duty as well as basic tax collected from Corporation area be transferred to them on collection basis;	1. Government may devolve to the LSGIs, plan funds (excluding state sponsored schemes) not less than one-third the annual size of state plan as fixed by government from time to time;	25% of the total state tax revenue of the year 2003-04 be transferred to LBs during the year 2006-07. For subsequent years, annual growth rate of 10% may be applied for transfer of funds to the LBs

(Contd.)

Appendix D: (Contd.)

	Devolution Recommended		
	SFC-I	SFC-II	SFC-III
(1)	(2)	(3)	(4)
	2. Land tax be doubled and 60% of the additional income generated there from be given to block panchayats and balance to district panchayats	2. 5.5 per cent of the annual own tax revenue of the state government may be devolved to the LSGIs as Grant-in-aid for maintenance of assets under control of the LSGIs including the transfer of assets; 3. 3.5 per cent of the own tax revenue of the state government based on the figures certified by the accountant general could be devolved to LSGIs as general purpose grant, in lieu of assigned taxes, shared taxes and various statutory and non-statutory grant-in-aid, both specific purpose and general purpose	
Madhya Pradesh	2.91% of total tax and non-tax to PRIs and 0.514% share of the divisible pool to ULBs; specific grant Rs 67.66 crore to PRIs	2.93% of total tax and non-tax to PRIs and 1.07% to ULBs. Assignment of taxes to LBs after deduction of 10% collection charges; establishment grant Rs. 28.40 crore to PRIs and Rs. 5 crore to ZPs for training	No information
Maharashtra	1. 10% of the professional tax collected by the state should be given to LBs; 2. 66.67% of the demand of land revenue and cess thereon should be given to PRIs as advance grants; 3. Irrigation cess grant equal to 66.67% of the demand should be given to zilla parishads as advance grants; 4. 25% of net income from motor vehicle tax be given to ULBs	40% of state's tax, duties, tolls proceeds to the LBs	No information

(Contd.)

Appendix D: (Contd.)

	Devolution Recommended		
	SFC-I	SFC-II	SFC-III
(1)	(2)	(3)	(4)
Orissa	Government is bearing the full salary and other recurring and nonrecurring cost of staff deployed by various line departments in PRIs. The quantum of money to be provided for salary of the staff of panchayat Samities should be treated as direct devolution of funds to RLBs	10% of average of state's gross own tax revenue from 1999-2000 to 2001-02 be devolved to LBs. 10% of the state's gross own tax revenue for the year 2002-03 minus devolvable amount was recommended as grants in-aid for various specific purposes	15% of the average gross tax revenue of the state for the years 2005-06 to 2007-08 @ Rs. 896.17 crore per annum be devolved to the LBs
Punjab	20% of 5 taxes, i.e., stamp duty; motor vehicle tax; electricity duty; entertainment tax; cinema shows be devolved to the LBs (both urban and rural)	4% of net proceeds from all state taxes be devolved to the LBs	4% share of net proceeds of all state taxes be devolved to the LBs
Rajasthan	2.18% of net tax proceeds of the state to be devolved to the local bodies	2.25% of net tax proceeds to the LBs; entertainment tax 15%; royalty on minerals 1%	3.50% of net own tax proceeds of the state; entertainment tax 100%; royalty on minerals 1%
Tamil Nadu	No information	The share of SOTR after excluding entertainment tax of local bodies has been recommended as under: i) 2002-04: 8%; ii) 2004-06: 9%; and iii) for 2006-07: 10%; 5% of the central devolution should also be passed on to the local bodies; 10% of SFC devolution may be used for capital works in municipalities and corporations, 15% by town panchayats and 20% by village panchayats	10% of the state's own tax revenue be devolved to the LBs; Specific purpose grant shall be at 0.5% to 1% of the state's own tax revenue
Uttar Pradesh	4% of net tax proceeds to PRIs; discontinued grants-in-aid; 7% of net tax proceed to ULBs	5% of divisible pool to PRIs; 7.50% of state's net proceeds of tax revenue to ULBs; grants in aid: nil	6% of net tax proceeds to PRIs and 9% to ULBs which is under consideration
West Bengal	Entertainment tax: 90%; road & PW cess: 80%	Annual untied funds of Rs. 350 crore; entertainment and amusement tax 90% to LBs; cess on road and public works 80%	Untied fund of Rs. 850 crore from 2009-10 with annual increase of 12% on a cumulative basis for the subsequent years

Source: Reported from Hooda, [2012].

Appendix E: Data Sources

Variables	Data Sources
(1)	(2)
Level of health expenditure (HE)	Finance Account, state governments, various years; further real per capita expenditure (at 1993-94 prices) is estimated by Author
Level of Development (measured through per capita GSDP) of a state	The original figures on GSDP of states are taken from *www.mospi.nic.in* and then converted in real per capita GSDP at 1993-94 prices by Authors
Infant mortality rate (IMR) Female literacy	Sample Registration System, Government of India, various years Census of India, GoI, Government of India, select years (1991 and 2001)
Rural health infrastructure index	Constructed using data from Bulletin of Rural Health Statistics, Ministry of Health and family Welfare (2006), Government of India
U5MR, Drinking water, MCH care use	District Level Household Survey on Reproductive and Child Health (DLHS-RCH), International Institute for Population Sciences, Mumbai, (2006), India
Decentralisation index and indices	Broadly discussed in Hooda, [2012]

FINANCIAL SECTOR DEVELOPMENT AND ECONOMIC PERFORMANCE: THE ROLE OF BANKS AND STOCK MARKET

Malay Kanti Roy, Hirak Ray, and Joydeep Biswas

The 'consensus' finding of the research on the relationship between financial development and economic growth is that financial development has a positive, monotonic effect on growth. The present paper proposes that the relationship between financial sector development and the level of real per capita GDP may not be uniform across countries. We empirically explore the causal link between the banking sector, stock market and real per capita GDP in 22 sample countries. To this effect, first we construct weighted average indices for measuring banking sector and stock market development and then relative importance of the variables objectively measured using the technique of Principal Component Analysis. Finally, we relate two variables, one each from banking sector and stock market, to the real per capita GDP. The empirical investigation is carried out in a vector autoregression (VAR) framework based on the theory of cointegration and error-correction representation. Our finding neither fully supports the view "that finance leads to economic growth" nor does it totally subscribe to the opinion that finance is "an inconsequential sideshow". The role of banking sector is more prominent as a causal factor for economic performance.

Key Words: Banking Sector, Stock market development, Economic growth, Principal Component Analysis, VAR, Granger Causality test

INTRODUCTION

One of the most prevalent themes in contemporary economics involves the relationship between financial development and economic growth. Economists hold different viewpoints on the links between financial development and economic growth [See Ang, 2008, Pp. 536-576, for survey of literature]. Resolving this debate will clearly have implications for appropriate financial sector policies.

Empirical evidence on the relationship between finance and growth are mostly cross-sectional in nature. The findings of cross sectional studies provide a useful guide on the finance-growth relationship but the results cannot be generalised since such causal link is largely determined by the nature and operation of the financial institutions and policies pursued in each country.

Indeed, more is known about bank financing. Many countries have bank dominated financial system [See Miwa and Ramseyer, 2000; Demirgüç-Kunt and Levine, 2005] and a vast body of scholarly works ranging from the early work of Bagehot [1873] and Schumpeter [1912], to Stiglitz [1985], Hoshi, Kashyap, and Scharfstein [1991, Pp. 33-60], and Boot, Greenbaum, and Thakor [1993, Pp. 1165-83] critically examines its role in financing innovation leading to growth. Alternatively, growth implications of a well functioning equity market failed to draw sufficient attention of researchers despite its mammoth transformation in post liberalisation era. A number of theories arguing that "market rationality is a significant special case" [Hirshleifer, 2001, Pp. 1533-97], "prices are not fully revealing" [Grabel, 1995, Pp. 127-149; Singh and Weisse, 1998], "stock markets often misallocate resources and economy suffers" [Stiglitz, 1985, 1994; Bhide, 1993, Pp. 1-51; Singh, 1997] have

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aroused suspicions about the working of this market, which, therefore, needs to be carefully studied further.

Objective of the Study

The present study aims at measuring the development of banking sector and stock markets around the world with the help of a conglomerate index to answer the following set of questions: (i) What is the pattern of growth of the major stock markets around the world? We address this question in Section II after the description of variables. (ii) To what extent do the different channels of financial system (e.g., banks and stock markets) influence economic growth? (iii) What is the nature of the dynamic relationship that exists between variables of our interest of study, for example, banking and stock market development and economic growth?

We follow a country-specific time series analysis rather than cross-country regression analysis. The cross-country growth regressions have been criticised due to the measurement, statistical, and conceptual problems [Levine and Zervos, 1996, Pp. 323-339; Ang, 2008]. The empirical specification is often adopted from Barro's [1991] regression model, augmented with financial development indicators. While such an empirical specification is intuitively appealing for its simplicity, its use may pose problems of potential endogeneity that has not been properly controlled for, and this is likely to yield biased and inconsistent estimators. Researchers often include instrumental variables in the estimation to deal with the problems of endogeneity bias. However, this technique is inadequate to account for the possible reverse causality from economic growth to financial development when data are averaged over decades. Pure cross-country regressions typically construct observations for each country by averaging out the variables over the entire period of study. Averaging data over long periods may mask the important features of the growth path of the economy and eliminate all dynamics. It may also introduce a spurious contemporaneous correlation between time-averaged variables, although the original series may not be contemporaneously correlated. Both the sign and size of the induced correlation may differ from those of the original series. In a single equation framework, the empirical specification derived from any a priori theoretical belief, (i.e., when financial development is specified as the dependent variable) has limited use for disentangling the causal relationship of the variables. A more promising approach is to formulate a set of simultaneous equations, which explicitly provides a specification for the financial development equation. The static assumption of the econometric models adopted in pure cross-country studies reflects a one-period comparative static framework. Hence, the assertion made by these studies that the results represent the long-term economic behaviour does not seem to be convincing. Given that cash flows or profits of firms are pro-cyclical in nature, firms' demand for external funds may be subject to the same cyclical patterns. As such, financial development measures may not necessarily be associated with growth on a short-term basis. Since economic growth is a long term phenomenon, sufficiently long time series are required for the analysis of the finance-growth link. In view of these limitations, a number of researchers have put forward strong arguments for in-depth studies based on country specific time series [see Demetriades and Hussein, 1996, Pp. 387-411; Kirkpatrick, 2005, Pp. 632-635; Ang, 2007a, Pp. 2167-74; Ang, 2007b].

The nature of the present study demands inclusion of a large number of countries in the sample that belong to different stages of economic development from different geographical regions to adjudge how financial structure varies across countries and its implications for economic growth. Accordingly, we selected altogether

twenty-two countries across the world, to examine our research questions for a time period 1980 to 2007.

The rest of the paper is structured in the following manner. Section II presents the description of variables, and attempts the measurement of banking sector and stock markets development. The form of relationship between finance and economic growth is the subject matter of section III. Policy implications of the study have been dealt with elaborately in section IV.

SECTION II
DESCRIPTION OF VARIABLES

Variables used in the present study to prepare a comprehensive index for stock market and banking sector development are not new. We have followed the studies like, Demirgüç-Kunt and Levine [1996, Pp. 291-321], Levine and Zervos [1998, Pp. 537-558] and others and selected the size, liquidity, volatility, and integration of the markets as the indicators to shed light on the relative status of the banking sector and stock markets development. The justifications for using the variables and their measurements are stated below.

Banking Sector Variables

Since many researchers [Ram, 1999, Pp. 164-74; Wang, 1999; Rousseau and Wachtel, 2005 etc.] have focused on the liability side of the balance sheet, we include a measure of absolute size based on liabilities: the ratio of liquid liabilities to GDP (LGDP). Liquid liabilities equal currency plus demand and interest-bearing liabilities of banks and other financial intermediaries. This is the broadest available indicator of financial intermediation, since it includes all banks, bank like and non-bank financial companies. Liquid liabilities is a typical measure of financial "depth" and thus of the overall size of banks and near banks, without distinguishing among the financial institutions or among different uses of liquid liabilities.

To measure the relative size of the assets of the bank and bank-like financial intermediaries, we use Deposit Money Bank Assets / (Deposit Money Bank Assets + Central Bank Assets) (DACBA). Deposit money banks comprise all financial institutions that have "liabilities in the form of deposits transferable by check or otherwise usable in making payments" [IMF, 1984, Pp. 29]. This indicator measures the relative importance of deposit money banks relative to deposit money and central banks. This measure has been used as a measure of financial development by, among others, King and Levine [1993a, Pp. 717-737; b] and Levine, Loayza, and Beck [1998] and equals the ratio of the [total] assets of the deposit money banks to the [total] assets of the deposit money banks and central bank.

While the size measures do not distinguish whether the claims of financial intermediaries are on the public or the private sector, the following indicator concentrates on claims on the private sector, which is used as the measure of activity of financial intermediaries.

The ratio of credit to private sector by deposit money banks to GDP (PCGDP) equals the claims on the private sector by deposit money banks divided by GDP. This measure isolates credit issued to the private sector as opposed to credit issued to governments and public enterprises. The assumption underlying this measure is that financial system that allocates more credit to private firms is more engaged in researching firms, exerting corporate control, providing risk management services, mobilising savings, and facilitating transactions than financial systems that simply funnel credit to the government or state owned enterprises [Levine, 1997, Pp. 688-726]. Moreover, this indicator gauges who is

conducting credit allocation, i.e., whether it is banks or the government, and to where the credit is flowing, i.e., to the private sector or to the government and state-owned enterprises. It is argued that by allocating credit to private firms the financial intermediaries are more likely to improve the efficiency of credit allocation and the monitoring of firms than those that allocate money to the government and public enterprises. It is possible that by not including Bank credit to public sector enterprises, we are giving a lower ranking to Banking sector development in a country such as India, in which public sector enterprises play a relatively greater role in economic growth. However, while constructing this indicator, we have taken a measure that can be used for comparison across sample countries without drawing any special emphasis on any single country. But we need a common measure for comparison. It has to be recognised that dropping bank credit to public sector enterprises (as distinct from credit to general government in the form of investment in government securities) which are also production and investing units, we may be presenting a somewhat biased comparison with other countries. This limitation may be kept in mind while interpreting the conclusions. Furthermore, it concentrates on credit issued by intermediaries other than the central bank. It is a measure of the activity of financial intermediaries in one of its main functions: channelling savings to investors. The present indicator has been used by researchers like Demetriades and Hussein [1996], Levine and Zervos [1998], and Levine, Loayza and Beck [1999], among others.

Stock Market Size

Popularly, the size of the stock market is measured well by two different ways: First, the market capitalisation ratio and second, the number of listed companies. It is argued that there is no special rationale to measure the size of the market by the number of listed companies. The number of listed companies in Indian stock market is more than that of many developed markets such as, Germany, France, Japan, Singapore, Hong Kong, etc. But it does not mean that the size of the Indian stock market is comparable to all these developed markets. So, in the present study we consider only the market capitalisation ratio.

The market capitalisation ratio equals the value of listed shares divided by GDP and analysts frequently use the ratio as a measure of stock market size. In the rest of the paper, we refer to this measure as "MR." In terms of economic significance, the assumption behind market capitalisation is that market size is positively correlated with the ability to mobilise capital and diversify risk. The same rationale may not be applicable to the number of listed companies, and hence the same is excluded from the study.

Liquidity of the Market

While economists advance many theoretical definitions of "liquidity", analysts generally use the term "liquidity" to refer to the ability to easily buy and sell securities. A comprehensive measure of liquidity would quantify all the costs associated with trading, including the time costs and uncertainty of finding a counterpart and settling the trade. Since we want to compare liquidity across countries and since data is very limited, we simply use two measures of realised stock trading. Total value traded / GDP equals the value of total shares traded on the stock market exchange divided by GDP. The total value traded ratio measures the organised trading of equities as a share of national output and therefore should positively reflect liquidity of an economy's stock market on an economy-wide basis. The total value traded /GDP ratio complements the market capitalisation ratio. Although market capitalisation may be large, there may be little trading. Together, market capitalisation and total value traded/GDP inform us about market size and liquidity.

A second measure of liquidity is the turnover ratio. Turnover ratio equals the value of total shares traded divided by market capitalisation. High turnover is often used as an indicator of low transactions costs. The turnover ratio complements market capitalisation. A small but active market will have small market capitalisation but high turnover. Turnover ratio also complements total value traded/GDP. While total value traded /GDP captures trading compared with the size of the economy, turnover ratio measures trading relative to the size of the stock market. Put differently, a small, liquid market will have a high turnover ratio but a small total value traded/GDP ratio. Thus, incorporating information on market capitalisation, total value traded/GDP, and turnover ratio provides a more comprehensive picture of development than the information provided by any single indicator.

Market Risk and Return

We include a measure of stock market risk. This indicator is the Sharpe ratio. The Sharpe ratio expresses the excess return per unit of risk, where risk is measured by the standard deviation of the rate of return. The ratio is defined as:

$$S_p = (R_p - R_f) / I_p$$

Where, S_p = Sharpe ratio for fund *p*; R_p = Average return on fund *p*; R_f = Return on risk free asset I_p = Standard deviation of return on fund *p*;

The ratio is derived from the fact that the preferred portfolio lies on the most counter clock-wise ray in the expected return and standard deviation space, with the former on the vertical and the latter on the horizontal axis. This is equivalent to stating that the slope of the ray is maximised and it is denoted by the Sharpe ratio. Generally it is considered that the higher the Sharpe ratio, the better developed is the market considered, as for a given level of risk, it provides better returns.

In the present study, the risk-free return is the return on the security that is free from the default risk. We have taken 91 days and 365 days Treasury Bills (T-Bills) rates depending on the availability of data as the risk free rate. When the same is not available we substituted the T-Bills rate by long-term Government bond rate. Appendix 1 lists the countries and the data used.

Market Integration

Integrated capital markets, theorists assume, offer greater opportunity of risk reduction by efficient diversification of funds, lower the required rate of return demanded by the investors, increase competition in the local market, encourage the use of sophisticated financial technology, increase information processing capability of local market operators and strengthen financial services. A number of popular ratios like, foreign direct investment/GDP, import and export/GDP, portfolio investment liabilities/GDP, etc, are widely used by the researchers to measure the openness of an economy [El-Wassel, 2005, Pp. 43-69]. But the problem with all these widely used measures is, while these proxies can estimate the degree of openness of an economy, it fails to measure stock market integration directly. Undeniably, openness of economy and stock market integration to an extent are interdependent. However, as a simple and direct measure of stock market integration, we have used the correlation between stock return of one country and return of global standard share index S & P 500 to measure the degrees of unification of a national stock market with the global one.[1]

Finally, the countries under the study are U.S.A, U.K, Germany, France, Australia, Hong Kong, Singapore, Malaysia, Philippines, Indonesia, India, Korea, Japan, Thailand, Pakistan, Bangladesh, Sri Lanka, South Africa, Argentina, Brazil, Mexico, and Chile. The sample of countries encompasses a variety of experiences

with regard to financial systems, financial policies followed and levels of institutional development. In addition, developed countries have been selected as benchmark. Data permitting rest of the countries have been selected on the basis of the proximity in the liberalisation date. For Russia, the data set is available only from 1994; data for China is available in the referred data set only from 1987. Hence, these two countries were not included in the study. In the case of Canada, as USA has been considered in the list of sample countries, Canada, another High Income OECD country and from the same part of the globe like USA, was ignored. The relevant data for the study are collected from the Database of World Bank and Beck, Demirgüç-Kunt and Levine dataset [2009].

Measuring Banking Sector and Stock Market Development

Earlier researchers [Demirgüç-Kunt and Levine, 1995; Levine and Zervos, 1996 and others] have not considered the relative importance of the variables while preparing the stock market development index. Presumably, they may have assumed that all the stock market development indicators like, market capitalisation ratio, turnover ratio, value-traded ratio, etc., are equally important, hence it is needless to assign any specified weights to any variables. This is an *a priori* assumption, not defendable by any logic. We propose to measure the relative importance of the variables objectively using the technique of Principal Component Analysis (PCA) and prepare a Weighted Average Index on the basis of the results obtained from the principal component analysis.

The principal components analysis can be expressed summarily as:

$$z_j = a_{j1}F_1 + a_{j2}F_2 + ... + a_{jn}F_n + d_j U_j \qquad j = 1,2,....,n..... (1)$$

where each of the n observed variables (z_j) is described linearly in terms of n new uncorrelated components F_1, F_2, ..., F_n, each of which, in turn, is defined as a linear combination of the n original variables. The coefficient a_{ji} is the factor loading (regression weight) on the ith factor and U_j denotes a unique factor, i.e., it is the part that is influenced by idiosyncratic determinants specific to each variable z_j, with a loading of d_j. A factor loading is simply the correlation between the series of observations (z_j) (here those on the banking sector or stock market development indicators) from a single country and the associated factor. In the present instance, for working out the Principal Component Index for Banking Sector Development, since we are using 3 indicators, n takes values 1, 2, 3; and for working out the Principal Component Index for Stock Market Development, since we are using 5 indicators, n takes values 1, 2, 3, 4, 5.

The principal components analysis makes no particular assumption about the underlying structure of inter-relationships among the variables. The central point is to obtain their linear combinations, which are mutually uncorrelated and which together account for the sum of the variances of all the variables included in the analysis. From these linear combinations or factors a smaller number then is selected for representing the larger number of original variables included in the analysis. The factors which have eigen values greater than one contribute most to the total variance of the variables (z_j) and hence capture/reflect more of the variability in the data than any other factor(s). As a result, these are examined more closely. We have essentially used the Principal Component analysis, carried out in this section *to select one variable each* to represent banking sector development and stock market development for the causality analysis of the next section. We are selecting one variable each in such a way that it contributes most to explaining the variability of the selected indicators.

In the present study, it is the ratio of the private credit by deposit money banks to GDP and value-traded ratio enjoy highest weight or relative importance in the indexes for the Banking Sector development and the Stock Market development, respectively (that is, 0.936 and 0.908, respectively) (See Table 1 and Table 2). The findings are consistent with earlier studies [Demirgüç-Kunt and Levine, 1996; Levine and Zervos, 1998; Beck and Levine, 2003] and historical evidences also support the validity of our findings. Sir John Hicks [1969], for example, argued that critical new ingredient that ignited growth in 18th century England was capital market liquidity. Thus, historical evidences and current experiences suggest that capital market liquidity increases the fraction of fund available for firm investment, discourages agents to invest in more liquid assets that do not augment growth, improves corporate efficiency that contributes in welfare and helps economy to achieve higher economic growth.

Table 1. Results of Principal Component Analysis (Bank)

Principal Component	Eigen values	Percentage of Variance	Cumulative Percentage of Variance
1	2.102	70.058	70.058
2	0.760	25.345	95.404
3	0.138	4.596	100.000

Variables	Component 1	
	Factor Loadings	Factor Scores
Liquid liabilities to GDP	0.921	0.438
Private Credit by Deposit Money Banks to GDP	0.936	0.445
Deposit Money Bank Assets to (Deposit Money Bank Assets + Central Bank Assets)	0.614	0.292

Note: Extraction Method: Principal Component Analysis

Table 2. Results of Principal Component Analysis (Stock Market)

Principal Component	Eigen values	Percentage of Variance	Cumulative Percentage of Variance
1	2.074	41.476	41.476
2	1.039	20.780	62.256
3	.953	19.067	81.323
4	.771	15.421	96.744
5	.163	3.256	100.000

Variables	Component 1	
	Factor Loadings	Factor Scores
Market Capitalisation Ratio	0.757	0.365
Turnover Ratio	0.532	0.257
Value-Traded Ratio	0.908	0.438
Sharpe Ratio	0.169	0.082
Market Integration	0.603	0.291

Note: Extraction Method: Principal Component Analysis.

The eigen values indicate that the first principal component explains 70.058 per cent of the standardised variance; the second principal component explains another 25.345 per cent and the last principal component accounts for only 4.596 per cent of the variation in the case of banking sector variables (See Table 1). Similarly, Table 2 shows that the first principal component explains 41.476 per cent of the standardised variance, the second principal component explains another 20.780 per cent, the third principal component accounts for only 19.067 per cent of the variation, the fourth principal component accounts for only 15.421 per cent of the variation, and the last principal component accounts for only 3.256 per cent of the variation in the case of stock market variables. Clearly, in both the Tables the first principal component, which explains the variations of the dependent variable better than any other linear combination of explanatory variables, is the best measure of financial development in this case. Hence, only information related to the first principal component are reported in the second part of Tables 1 and 2. The factor scores suggest that the individual contributions of each variable to the standardised variance of the first principal component have been reported, respectively.[2]

We have constructed weighted index for stock market development of all the countries using all the five variables along with their relative importance (load) extracted by PCA. Relying on weighted index so constructed, ranks of the countries under the study along with their respective stages of economic development are shown in Table 3.

Table 3. Rankings of Bank and Stock Market Development

Country	Stock Market		Banking Sector		Level of Economic Development*
	Weighted Index	Rank	Weighted Index	Rank	
(1)	(2)	(3)	(4)	(5)	(6)
USA	2.536	1	0.135	9	3
Hong Kong	2.295	2	2.317	1	3
Singapore	2.233	3	0.546	5	3
UK	2.048	4	0.562	4	3
Korea	1.978	5	0.046	11	2
Malaysia	1.722	6	0.738	3	2
Germany	1.639	7	0.540	6	3
France	1.570	8	0.357	8	3
Australia	1.549	9	0.131	10	3
Indonesia	1.530	10	-0.269	18	1
Thailand	1.512	11	0.477	7	1
South Africa	1.346	12	0.038	12	2
Japan	1.346	13	1.645	2	3
Mexico	1.328	14	-0.433	21	2
India	1.316	15	-0.229	15	1
Chile	1.060	16	-0.098	13	2
Philippines	0.883	17	-0.240	16	1
Brazil	0.859	18	-0.226	14	2
Pakistan	0.858	19	-0.293	19	1
Argentina	0.083	20	-0.464	22	1
Bangladesh	-0.661	21	-0.241	17	1
Sri Lanka	-0.995	22	-0.369	20	1

* Notes: We followed the broad based classification of the World Bank where Per capita GDP at Stage 1 ≤ $ 3000; at Stage 2 > $ 3000 ≤$ 17000; and at Stage 3 =≥ $ 17000.

Here we find, in terms of stock market development the U.S.A tops the list with the index value 2.536 and Sri Lanka stands at 22nd position with -0.995, whereas in the case of banking sector development Hong Kong stands at the top and Argentina ends the rankings with mere -0.464. Performance of many South East Asian countries, namely, Hong Kong, Singapore, Korea, Malaysia, is exceptionally encouraging in the sense that these countries outperformed many developed European markets. The score of South Asia along with Latin American countries is utterly disappointing.

The rank correlation (See Table 4) between the stock market and banking sector development rankings further shows that both the rankings are positively and significantly correlated.

Table 4. Rank Correlation Matrix

	Stock market Development Rank	Banking Sector Development Rank
Stock market Development Rank	1.000	0.765**
Banking Sector Development Rank	0.765**	1.000

Note: ** Correlation is significant at the 0.01 level (2-tailed).

Despite poorly developed capital markets, rate of economic growth of many countries, e.g., India, Brazil, Mexico is quite encouraging. In Table 3, we are only making the point that advanced countries, (i.e., countries with higher per capita incomes) have more developed financial sector.

The sample countries of our study belong to different stages of economic development measured in terms of per capita GDP at market exchange rate. Most of the less developed markets belong to the countries that are at the first stage of economic development while markets of developed economy are more or less matured. Findings may incite the debate - does stock market development cause economic growth or vice versa? Despite numerous studies [Beck and Levine 2003; Capasso, 2006, etc.], the dilemma over the nature of linkage between banking and stock market development and economic growth is still there.

Section III
FINANCE AND ECONOMIC GROWTH

The functional approach of Levine [1997] offers a useful framework to think about the role of financial system to adjudge - is it an "essential ingredients" or an "inconsequential side show" in the growth process? Should a country rely on bank or stock market? Is it truly an ‘either or’ situation, alternatively, are stock markets and banks substitute sources for corporate finance?

Immaculate theories supported by robust empirical findings helped to develop a view that banks mitigate information asymmetries that foster better investment and faster growth [Greenwood and Smith, 1997, Pp. 145-181; Diamond and Rajan, 2001, Pp. 287-327; Ueda, 2006] that too inspired researchers to focus on banks, neglecting stock market.

Presumably, deep rooted contemplation based on theories that "market rationality is a significant special case" [Hirshleifer, 2001], "prices are not fully revealing" [Grabel, 1995; Singh and Weisse, 1998], "stock markets often misallocate resources and economy suffers" [Stiglitz, 1985, 1994; Bhide, 1993; Singh, 1997] discouraged some economists to study stock market seriously. On the contrary, since early 1990s’, King and Levine (1993a, b) coupled with host of economists [Demirgüç-Kunt and Levine, 1996; Rousseau and Wachtel, 2000; Adjasi and Biekpe, 2006, Pp. 144-161, among others] argue that stock market development influences economic growth of a country favourably. Stock markets offer opportunities primarily for trading risk and boosting liquidity. Stock markets may affect economic activity through the creation of liquidity. Liquid equity markets make investment less risky and

more attractive because they allow savers to acquire an asset and to sell it quickly without much loss of time if they need access to their savings or want to alter their portfolios. By facilitating longer-term, more profitable investments, liquid markets improve the allocation of capital and enhance prospects for long-term economic growth.

While assessing this relationship we used some indicators to represent the respective sector. To assess the extent of stock market development and then to relate it with growth, earlier studies relied on a range of variables either singly or jointly and most prominent are turnover ratio, value-traded ratio, market integration ratio, number of listed companies and market size, etc. However, lessons of the earlier studies [Bencivenga *et al.* 1995; Levine, 1997; Levine and Zervos, 1998; Beck and Levine, 2002] suggest that value-traded ratio is the single most important variable that can explain adequately strength of the stock market in an economy. It confirms our findings of the earlier section through PCA and we also rely on this variable to the exclusion of others in this section. A variety of definitions have also been used by researchers while measuring 'depth of banking sector'. Some used overall size of banking sector to proxy "financial depth" (usually M3). While financial depth measures the size of specific liabilities of the financial system relative to national output, this type of 'financial depth' indicator does not measure (a) whether the liabilities are those of banks, the central bank, or other financial intermediaries or (b) where the financial system allocates the funds [King and Levine, 1993a].

We have used the variable Private credit by deposit money banks / GDP (PCGDP) as it enjoys highest load in the PCA for banking sector. This indicator improves upon 'financial depth' measures of banking development. PCGDP isolates credit issued by banks, as opposed to credit issued by the central bank, and PCGDP isolates credit to enterprises, as opposed to credit issued to governments [Levine, 1997]. We focus exclusively on the results with PCGDP. The assumption underlying using PCGDP measure is that financial systems that allocate more credit to private firms are more engaged in researching firms, exerting corporate control, providing risk management services, mobilising savings and facilitating transactions than financial systems that simply funnel credit to the government or state owned enterprises [Levine, 1997].

Following the earlier studies [See Barro, 1991, Pp. 407-443; Levine and Zervos, 1998; Dritsaki and Dritsaki-Bargiota, 2005, Pp. 113-127, among others], the real per capita gross domestic product has been used as a proxy for measuring level of economic development.

In analysing the relationship between stock market, bank credit and economic development the following function is used:

$$E_g = f\,(S_m, B_s)$$

where

E_g stands for the level of economic development proxied by the real per capita gross domestic product (hereinafter GDP per capita); S_m = stock market development indicator represented by value-traded ratio (hereafter, VTGDP); B_s =Banking sector development represented by Private credit by deposit money banks / GDP (henceforth, PCGDP).

While searching the explanatory power of the stock market and banking sector variables in influencing economic development in select sample countries, this study has started with the linear regression of the variables in the form:

$$Y_t = \alpha_i + \beta_1(S_t) + \beta_2(B_t) + e_{it} \qquad \text{.....(2)}$$

where, Y_t denotes real GDP per capita, S_t denotes the stock market variable, namely VTGDP, B_t indicates the banking sector variable, namely PCGDP, α_i denotes the intercept, β_1 and β_2 denote the slope coefficients and the error term is e_{it}.

Stationarity of the Variables

A major problem with using regression equation as an estimation technique relates to the issue of non-stationarity of the time series involved in Eq (2). If the time series is non-stationary, then the estimate of β_i would be spurious and biased. The stationarity of the time series in our study is estimated through Augmented Dickey-Fuller (ADF) [Dickey and Fuller, 1979, Pp. 427-431] and Phillips-Perron [Phillips and Perron, 1988, Pp. 335-46] tests. Since long time series data is subjected to distributional changes and serial auto correlation, the alternative Phillips and Perron [1988, Pp. 335-46] (P-P) unit root test would be more suitable. P-P developed a generalisation of the Dickey-Fuller procedure.

If a series, say, Y_t, has a stationary, invertible, stochastic ARMA representation after differencing 'd' times, it is said to be integrated of order 'd' and denoted by Y_t = I(d). Stationarity, presence of drift, trend and seasonality can simultaneously be tested by estimating the equation below, against the null hypothesis $n\beta_1 = \beta_2 = \gamma_j = \delta = 0$:

$$\Delta Y_t = \beta_1 + \beta_2 t + \gamma_j \sum_{j=2}^{p} D_j + \delta Y_{t-1} + \alpha_i \sum_{i=1}^{m} \Delta Y_{t-i} + \varepsilon_t \quad \ldots\ldots(3)$$

were, ε_t is a pure white noise disturbance term, Y_t is a variable or time series under study, β_1 is the co-efficient for the drift, β_2 is the differential coefficient for the trend, $\delta = (\rho-1)$, ρ =co-efficient for autoregression, γ_j = seasonal dummies and

$$\alpha_i \sum_{i=1}^{m} \Delta Y_{t-i}$$

using the 1st differences of Y_t at various lags of order i = 1,2,3 .....m,

introduced to augment the equation to achieve the independent and normally distributed error terms, i.e., $\varepsilon_t \sim N(0,\sigma)$. The test statistics asymptotically follows the F-tables computed by Dickey-Fuller [See Gujarati, 2003, p 818]. If the hypothesis $\beta_1 = \beta_2 = \gamma_j = \delta = 0$ is accepted, we can conclude that the series in question, i.e., Y_t is I(1). If we cannot reject the hypothesis that Y_t is I(1), we need to further test the Null hypothesis H_0: Y_t =I(2) versus the alternative hypothesis H_1: Y_t = I(1). The residuals obtained from the Eq. (2) are tested for the influence of the regressors through two sets of tests proposed by Box-Pierce [1970, Pp. 1509-26] and Ljung-Box [1978, Pp. 297-303] using the Null H_0: $\rho_{u,1} = \rho_{u,2} \ldots\ldots\ldots = \rho_{u,h} = 0$ against alternative H_1: $\rho_{u,i} \neq 0$ for at least one i = 1,2,.....h. Here, $\rho_{u,i}$ = corr (u_t, u_{t-1}) denotes autocorrelation coefficients of the residual series. Both the test-statistics Q_h and LB_h follow the $\chi 2$ distribution.

The results of the country-wise unit-root tests under ADF Test are shown in Table 5 and under P-P method in Table 6. From the P-P estimates it is clear that all variables for sample countries are I (1), except for Argentina. The error variables are strongly uncorrelated with the regressors and are white noise.

Table 5. Unit Root Test Results under ADF Test

Country	PCGDP			VTGDP			GDP [per capita]		
	Coefficient	B-P Test	L-B Test	Coefficient	B-P Test	L-B Test	Coefficient	B-P Test	L-B Test
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Argentina	-1.636 (-3.487)*	0.508 (0.776)	0.591 (0.744)	-2.140 (-3.627)*	0.362 (0.835)	0.433 (0.806)	-0.537 (-2.523)	2.250 (0.325)	2.600 (0.273)
Australia	-0.424 (-2.196)	3.775 (0.151)	4.470 (0.107)	-0.637 (-3.188)*	4.048 (0.132)	4.606 (0.099)	-0.558 (-1.651)	0.547 (0.768)	0.6421 (0.725)
Bangladesh	-0.481 (-1.997)	0.852 (0.653)	0.982 (0.612)	-1.655 (-2.322)	0.816 (0.665)	0.997 (0.607)	-0.533 (-3.076)*	2.211 (0.330)	2.634 (0.266)
Brazil	-1.935 (-5.474)*	0.135 (0.935)	0.155 (0.925)	-1.093 (-2.276)	0.189 (0.910)	0.228 (0.892)	-0.817 (-2.317)	0.137 (0.934)	0.158 (0.924)
Chile	-0.637 (-1.786)	1.317 (0.518)	1.578 (0.454)	-1.36 (-3.245)	0.500 (0.779)	0.597 (0.742)	-0.496 (-2.534)	0.029 (0.986)	0.033 (0.984)
France	-1.21 (-2.838)*	0.028 (0.989)	0.254 (0.987)	-0.668 (-2.291)	0.701 (0.704)	0.842 (0.657)	-0.616 (-1.826)	0.674 (0.714)	0.786 -0.675
Germany	-0.522 (-2.888)*	1.094 (0.577)	1.243 (0.537)	-1.232 (-3.091)*	0.428 (0.807)	0.501 (0.778)	-0.549 (-1.693)	0.368 (0.832)	0.423 (0.809)
Hong Kong	-0.616 (-1.668)	0.915 (0.633)	1.276 (0.528)	-1.735 (-2.719)*	1.058 (0.589)	1.238 (0.539)	-0.285 (-1.623)	2.190 (0.335)	2.593 (0.274)
India	-0.65 (-3.054)*	4.742 (0.093)	5.551 (0.062)	-2.248 (-3.783)*	0.255 (0.881)	0.303 -0.86	-0.228 (-1.445)	6.696 (0.035)	7.789 (0.020)
Indonesia	-0.815 (-2.337)	0.000 (0.996)	0.000 (0.997)	-1.931 (-3.476)*	0.000 (0.996)	0.000 (0.996)	-1.037 (-2.424)	0.012 (0.912)	0.014 (0.906)
Japan	-1.551 (-5.008)*	0.354 (0.552)	0.402 (0.526)	-1.19 (-2.789)*	0.076 (0.783)	0.087 (0.768)	-0.747 (-2.478)	0.185 (0.667)	0.218 (0.646)
Korea	-0.83 (-3.476)*	1.040 (0.595)	1.221 (0.543)	-1.158 (-2.797)*	1.121 (0.571)	1.356 (0.508)	-0.783 (-2.753)*	1.454 (0.483)	1.711 (0.425)
Malaysia	-0.714 (-2.108)	0.244 (0.885)	0.293 (0.864)	-1.152 (-2.353)	0.031 (0.985)	0.037 (0.9817)	-0.709 (-1.993)	0.182 (0.913)	0.213 (0.899)
Mexico	-0.822 (-2.429)	0.014 (0.993)	0.017 (0.992)	-1.082 (-3.206)*	0.058 -0.972	0.0690 (0.966)	-0.69 (-2.039)	0.285 (0.867)	0.326 (0.849)
Pakistan	-1.087 (-2.964)*	0.620 (0.734)	0.744 (0.689)	-0.843 (-1.856)	0.962 (0.618)	1.124 (0.570)	-0.555 (-2.688)*	0.579 (0.972)	0.066 (0.968)
Philippines	-0.676 (-2.631)*	0.407 (0.816)	0.466 (0.792)	-0.697 (-1.664)	0.384 (0.825)	0.446 (0.800)	-0.796 (-2.019)	0.183 (0.913)	0.216 -0.898
Singapore	-0.95 (-2.273)	0.114 (0.945)	0.134 (0.935)	-2.149 (-4.366)*	1.104 (0.576)	1.328 (0.515)	-0.492 (-2.146)	0.671 (0.733)	0.730 (0.694)
South Africa	-0.747 (-2.175)	1.037 (0.595)	1.226 (0.542)	-0.788 (-3.691)*	3.360 (0.186)	3.895 (0.143)	-0.751 (-2.872)*	0.389 (0.823)	0.463 (0.794)
Sri Lanka	-1.041 (-2.652)	0.032 (0.984)	0.037 (0.982)	-1.341 (-2.231)	0.117 (0.943)	0.147 -0.929	-0.069 (-0.370)	2.135 (0.344)	2.437 (0.296)
Thailand	-0.419 (-2.101)	0.004 (0.998)	0.004 (0.998)	-1.065 (-3.026)*	0.101 (0.951)	0.121 (0.941)	-0.429 (-1.632)	0.416 (0.812)	0.496 (0.780)
United Kingdom	-0.393 (-1.696)	1.010 (0.577)	1.278 (0.528)	-1.145 (-2.421)	0.412 (0.814)	0.484 (0.785)	-0.533 (-1.961)	1.227 (0.542)	1.437 (0.487)
USA	-1.411 (-4.691)*	0.699 (0.705)	0.806 (0.668)	-1.149 (-3.544)*	0.206 (0.902)	0.249 (0.883)	-0.022 (-0.290)	2.664 (0.264)	3.132 (0.209)

Notes: (i) usually the ADF tests are carried on 2 lags, B-P and L-B tests are carried on 2 lags, if not otherwise stated in the tables;
(ii) ADF critical values: -2.59 at 1% level of significance, -1.94 at 5% level of significance and -1.62 at 10% level of significance.
(iii) Box-Pierce (B-P) / Ljung-Box (L-B) $H_0 : \rho_{ui} = 0$;
(iv) figures in brackets under 'coefficient' column are τ statistic, those under 'L-B' and 'B-P' test are *p*-values.

(v) stationarity is tested through ADF and when $\alpha \sum_{i=1}^{m} \Delta Y_{t-i} = 0$, it turns into DF test.

(vi) PCGDP represents Private credit by deposit money banks / GDP; VTGDP represents value-traded ratio; GDP per capita represents real per capita gross domestic product GDP per capita;
* The hypothesis of non-stationarity is rejected at 1 per cent level of significance.

Table 6. Unit Root Test Results under P-P method

Country	PCGDP	VTGDP	GDP per capita
(1)	(2)	(3)	(4)
Argentina	-3.3478(<0.025)	-3.5067 (<0.01)	0.2649 (<0.99)
Auatralia	-0.8746 (<0.90)	0.456 (<0.99)	-0.0839 (<0.95)
Bangladesh	-0.2226 (<0.95)	-1.5353 (<0.90)	-0.7537 (<0.90)
Brazil	-2.055 (<0.90)	-2.5368 (<0.90)	-1.6849 (<0.90)
Chile	-1.2237 (<0.90)	-1.2237 (<0.90)	-0.3277 (<0.95)
France	-3.2893 (<0.025)	-0.6935 (<0.90)	-0.9018 (<0.90)
Germany	-1.0779 (<0.90)	-1.4046 (<0.90)	-1.2507 (<0.90)
Hong Kong	-1.6394 (<0.90)	-1.4721 (<0.90)	-1.5474 (<0.90)
India	0.4081 (<0.99)	-2.537 (<0.90)	1.2488 (<1.00)
Indonesia	-1.7655 (<0.90)	-1.51621 (<0.90)	-1.4596 (<0.90)
Japan	-2.4402 (<0.90)	-1.8008 (<0.90)	-1.9594 (<0.90)
Korea	-1.5769 (<0.90)	-1.6403 (<0.90)	-0.4719 (<0.90)
Malaysia	-2.5229 (<0.90)	-2.4547 (<0.90)	-1.8048 (<0.90)
Mexico	-1.8166 (<0.90)	-1.8743 (<0.90)	-0.3193 (<0.95)
Pakistan	-3.7994 (<0.01)	1.5367 (<1.00)	-0.9885 (<0.90)
Philippines	-1.7983 (<0.90)	-1.7009 (<0.90)	-0.8496 (<0.90)
Singapore	-1.6226 (<0.90)	-2.394 (<0.90)	-0.8627 (<0.90)
South Africa	-1.4919 (<0.90)	-0.9418 (<0.90)	-0.7956 (<0.90)
Sri Lanka	-1.3707 (<0.90)	-2.1983 (<0.90)	-0.0479 (<0.975)
Thailand	-1.4981 (<0.90)	-1.7599 (<0.90)	-1.281 (<0.90)
United Kingdom	-1.5969 (<0.90)	-0.4359 (<0.95)	0.0353 (<0.975)
USA	-1.1029 (<0.90)	-1.2832 (<0.90)	-0.0496 (<0.975)

Notes: Figures in brackets are *p*-values. PCGDP represents Private credit by deposit money banks / GDP ; VTGDP represents value-traded ratio; GDP per capita represents real per capita gross domestic product GDP per capita;

The P-P tests are non-parametric unit root tests that are modified so that serial correlation does not affect their asymptotic distribution. It is used in time series analysis to test the null hypothesis that a time series is integrated of order 1. P-P test results (Table 6) reveal that all variables except PCGDP and VTGDP for Argentina are integrated of order one with and without linear trends, and with or without intercept terms.

Cointegration of Variables

The regression estimates are super consistent and would converge to their true value faster if the time series under the study are co-integrated. Granger [1986, Pp. 213-228] argued that ‘a test for cointegration can thus be thought of as a pre-test to avoid "spurious regression" situations’. This study has assessed the existence of the long-run relationship between the variables through the cointegration test developed by Johansen [1991, Pp. 1551-80].

The number of significant cointegrating vectors is estimated by using maximum likelihood based λ_{max} and λ_{trace} statistics introduced by Johansen [1991, 1995].

Engle and Granger [1987, Pp. 251-76] have shown that under some regulatory conditions we

can write a cointegrated process y_t as a Vector Error Correction Model (VECM):

$$\Delta y_t = \mu_0 + \Gamma_1 \Delta yt_{-1} + \Gamma_2 \Delta yt_{-2} + \ldots.$$

$$+ \Gamma_{p-1} \Delta y_{t-(p-1)} + \Pi y_{t-1} + \varepsilon_t \quad \ldots\ldots(4)$$

Where δ is a first difference notation, μ_0 includes (non-seasonal) deterministic components, y_t is a *p*x1 vector (p=3), γ and π are coefficient-matrices representing short-term and long-term impacts, respectively, and ε_t is a vector of normally and independently distributed error terms with mean zero and constant variance Ω. The core idea of the Johansen procedure is simply to decompose Π into two matrices α and β, both of which are p x r matrices ($r<p$) such that $\Pi = \alpha \beta'$ and so the rows of β may be defined as the r distinct cointegrating vectors. Then a valid cointegrating vector will be given by the corresponding eigen value [Johansen, 1995]. Johansen proposes a 'Trace test' for determining the cointegrating rank 'r' such that:

$$\lambda_{trace} = -T \sum_{i=r+1}^{k} \text{In}(\hat{1} - \lambda_i) \quad \ldots..(5)$$

and also proposes another likelihood ratio test to assess whether there is a maximum number of cointegrating vectors against r+1 such that:

$$\lambda_{max}(r,r+1) = -T \quad \text{In}(1 - \hat{\lambda}_i) \quad \ldots..(6)$$

with critical values given in Johansen [1995]. In the case of any dispute between the statistics, they suggest following the outcome of the trace test, hence, we have carried on only the trace test to estimate the cointegrating relationship amongst the variables.

The country-wise Johansen cointegration test statistics identifies the number of cointegration relations. The trace test indicates cointegration relationship at 10% level of significance. We have also used an intercept and no trend in the cointegration relationship for all sample countries at lag 1 in a VECM framework. The results are shown in Table 7.

The results so obtained show that there exists no cointegrating relation between GDP per capita, VTGDP and PCGDP, GDP per capita and VTGDP and GDP per capita and PCGDP in the countries like France, Indonesia, Brazil, Japan, Malaysia, Pakistan, and Philippines. Hence, causality test could not be run for all these countries. For Chile, Korea and Germany, cointegrating relation appears either for GDP per capita and VTGDP or for GDP per capita and PCGDP. Apart from these countries, for all other countries there exist cointegrating relationships.

Cointegration of variables means despite being individually nonstationary, a linear combination of two or more time series can be stationary. Economically speaking, two variables will be cointegrated if they have a long-term, or equilibrium, relationship between among them. From Table 7, in the case of India, for example, it can be seen that for the null hypothesis of no cointegration (r=0) among the variables, (i.e., GDP per capita vs VTGDP & PCGDP) in the model, the Trace Test statistic is obtained at 44.63 with p-value 0.0030. This, therefore, rejects the null hypothesis of $r \leq 0$ in favour of the alternate hypothesis r=1. In the similar vein, for the null hypothesis r=1, the Trace Test is obtained at 21.26 with p-value 0.0345, thus rejecting the hypothesis $r \leq 1$ in favour of the alternate hypothesis r=2. Thus, here exist two cointegration relations. In a similar way, in the other two models, i.e., GDP per capita & VTGDP and GDP per capita & PCGDP, we are having two and one cointegration relations, respectively. It is, therefore, empirically tenable for us to conclude that there are cointegrating, (i.e., long run equilibrium) relationships among per capita real GDP, value traded ratio and claims on the private sector divided by GDP in India. The presence of cointegration relationships among the variables permits the causality estimation, as discused in the next paragraph.

Table 7. Co-integration Test Results

Country	GDP per capita vs VTGDP & PCGDP			GDP per capita & VTGDP		GDP per capita & PCGDP	
	r =0	r =1	r=2	r =0	r = 1	r = 0	r = 1
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Argentina	53.39 [0.0001]	21.86 [0.0280]	4.56 [0.3466]	24.66 [0.0101]	7.35 [0.1116]	32.93 [0.0004]	4.04 [0.4189]
Australia	41.23 [0.0087]	10.24 [0.6218]	4.23 [0.3904]	24.52 [0.0107]	2.18 [0.7402]	19.99 [0.0529]	2.53 [0.6749]
Bangladesh	41.56 [0.0079]	20.31 [0.0477]	3.46 [0.5087]	0.2641 [0.0052]	11.37 [0.0175]	26.65 [0.0047]	9.30 [0.0466]
Brazil	21.89 [0.6061]	9.28 [0.7127]	2.60 [0.6631]	10.17 [0.6288]	2.02 [0.7708]	12.30 [0.4312]	3.23 [0.5493]
Chile	32.31 [0.0986]	11.58 [0.4954]	1.62 [0.8416]	21.23 [0.0349]	2.08 [0.7590]	14.70 [0.2497]	1.01 [0.9352]
France	27.48 [0.2689]	8.04 [0.8187]	2.67 [0.6489]	15.89 [0.1829]	2.76 [0.6335]	11.93 [0.4838]	3.52 [0.4996]
Germany	32.40 [0.0966]	9.37 [0.7044]	2.45 [0.6905]	12.06 [0.4519]	3.88 [0.4419]	19.69 [0.0584]	1.76 [0.8170]
Hong Kong	53.27 [0.0001]	16.77 [0.1430]	4.21 [0.3932]	21.73 [0.0293]	6.61 [0.1535]	43.35 [0.0000]	9.73 [0.0381]
India	44.63 [0.0030]	21.26 [0.0345]	1.66 [0.8354]	32.75 [0.0004]	11.95 [0.0132]	24.37 [0.0113]	1.71 [0.8257]
Indonesia	28.49 [0.2226]	6.11 [0.9377]	1.92 [0.7896]	12.12 [0.4463]	2.52 [0.6775]	8.24 [0.8026]	2.65 [0.6527]
Japan	19.16 [0.7752]	9.63 [0.6798]	3.84 [0.4486]	8.38 [0.7916]	2.34 [0.7113]	11.54 [0.4993]	5.26 [0.2652]
Korea	41.32 [0.0085]	17.16 [0.1278]	4.59 [0.3428]	10.79 [0.5900]	2.98 [0.5936]	11.86 [0.4699]	1.38 [0.8812]
Malaysia	23.49 [0.5007]	8.02 [0.8200]	1.65 [0.8374]	9.87 [0.6571]	3.44 [0.5129]	16.94 [0.1362]	1.72 [0.8249]
Mexico	103.77 [0.000]	9.08 [0.7306]	1.26 [0.9010]	59.70 [0.0000]	4.29 [0.3821]	6.22 [0.9327]	1.42 [0.8757]
Pakistan	22.61 [0.5581]	9.65 [0.6780]	1.84 [0.7949]	11.54 [0.4995]	2.10 [0.7563]	10.46 [0.6017]	3.52 [0.5002]
Philippines	24.12 [0.4599]	6.81 [0.9026]	1.16 [0.9193]	4.55 [0.9844]	1.39 [0.8799]	13.21 [0.3556]	3.95 [0.4310]
Singapore	61.37 [0.0000]	16.17 [0.1692]	2.26 [0.7263]	24.84 [0.0094]	4.67 [0.3322]	42.18 [0.0000]	2.29 [0.7209]
South Africa	34.33 [0.0604]	9.26 [0.7147]	4.34 [0.3752]	19.33 [0.0656]	2.43 [0.6938]	10.22 [0.6246]	2.48 [0.6846]
Sri Lanka	49.06 [0.0009]	10.22 [0.1671]	7.51 [0.1042]	29.03 [0.0018]	5.27 [0.2644]	25.28 [0.0080]	4.68 [0.3310]
Thailand	38.09 [0.0221]	14.58 [0.2572]	3.00 [0.5901]	25.13 [0.0085]	2.90 [0.6075]	18.87 [0.0760]	1.56 [0.8517]
United Kingdom	37.03 [0.0296]	14.72 [0.2486]	6.13 [0.1872]	20.71 [0.0416]	5.27 [0.2648]	25.56 [0.0072]	8.47 [0.0680]
USA	88.12 [0.0000]	10.08 [0.6373]	2.69 [0.6462]	68.76 [0.0000]	2.98 [0.5934]	81.27 [0.0000]	7.01 [0.1293]

Notes: VTGDP represents ratio of value traded to GDP and proxies stock market; PCGDP equals Private credit by deposit money banks to GDP ratio and represents banking sector; GDP per capita represents real per capita GDP and proxies the level of economic development. *p-values* are in brackets.

Causality Test of Variables

The regression analysis only deals with the association of one variable with the other but not the direction of the relationships. Thus, it is essential to know the influence of one variable on the other that is adjudged through Granger Causality test [1969]. The test involves estimating the pair of regression equations of the form:

$$\Delta Y_t = \alpha_0 + au_{t-1} + \sum_{i=1}^{n} \alpha_{1i}\Delta Y_{t-i} + \sum_{i=1}^{m} \alpha_{2i}\Delta X_{t-i} + \varepsilon_{1t} \quad \text{.....(7)}$$

and

$$\Delta X_t = \beta_0 + bu_{t-1} + \sum_{i=1}^{n} \beta_{1i}\Delta X_{t-i} + \sum_{i=1}^{m} \beta_{2i}\Delta Y_{t-i} + \varepsilon_{2t} \quad \text{.....(8)}$$

where, u_{t-1} is the residuals of the regression equations involving Y and X as the dependent and independent variables, ε_{1t} and ε_{2t} are uncorrelated error terms and au_{t-1} and bu_{t-1} are the error correction terms. According to Engle and Granger [1987], *failing to reject* Ho: $\alpha_{21} = \alpha_{22} = ... = \alpha_{2m} = 0$ and a=0 implies that X_t does Granger cause Y_t. Similarly, failing to reject Ho: $\beta_{21} = \beta 22 = ... = \beta_{2n} = 0$ and b=0 implies that Y_t does Granger cause X_t. Granger causality test is a technique for determining whether one time series is significant in **forecasting** another [Granger, 1969]. The standard Granger causality test seeks to determine whether past values of a variable helps to predict changes in another variable. In addition, it also says that, for example, the variable, real per capita GDP is Granger caused by the variable, claims on Private sector to GDP if the variable, claims on Private sector to GDP, helps in predicting the value of the variable, per capita GDP better than if only the past values of per capita GDP are used. The null hypotheses (H_0) that we test in this case is that the claims on Private sector to GDP variable does not Granger cause the variable real per capita GDP and the variable real per capita GDP does not Granger cause variable claims on Private sector to GDP.

The test results of Granger Causality have shown in Table 8.

Virtually, the above table includes a mix baggage of experiences that is consistent with our assumption that finance - growth relationship varied across countries during the period of the study, namely, 1980 to 2007. Neither our study fully supports the view "that finance leads to economic growth" nor does it totally support the view that finance is "an inconsequential sideshow", and it is the level of economic development that matters for financial development. From Col. (6) of Table 8, at least for seven countries [Australia, Bangladesh, Hong Kong, India, Mexico, South Africa, USA] causality runs from finance to per capita real GDP that satisfies assumption of Neo-classical theorists [such as Ross Levine, Asli Demergüç-Kunt, etc.] Nearly in all these seven countries both banking institutions and stock market combined together contribute to explaining variations in per capita real GDP. It confirms our assumption that these two channels offer different bunch of services and jointly their functioning can help per capita real GDP to be larger. Thus, the theory "one particular channel is better than other" hence financial structure be designed accordingly to make it more effective does not hold good. Of course, the direction of causality suggests, current role of stock market in South Africa's economy is more important than banking institutions. On the other hand, causality test suggests that for Asian countries, mostly development of banking institutions explains variations in per capita real GDP.

Table 8. Granger Causality Test Results

Country	VTGDP → GDP Per Capita	GDP Per Capita → VTGDP	PCGDP → GDP Per Capita	GDP Per Capita → PCGDP	VTGDP + PCGDP → GDP Per Capita	GDP → VTGDP + PCGDP
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Argentina	0.3864	1.6820	0.1009	1.3786	0.1356	1.2429
	(0.6828)	(0.2031)	(0.9043)	(0.2665)	(0.9682)	(0.3103)
Australia	135.965	3.4756	6.6635	1.2288	28.4253	3.2351
	(0.0000)	(0.0439)	(0.0038)	(0.3061)	(0.0000)	(0.0229)
Bangladesh	3.3527	0.1398	262.8628	3.3103	86.7297	2.1512
	(0.0520)	(0.8702)	(0.000)	(0.0494)	(0.000)	(0.1018)
Chile	0.1074	0.2818	0.2852	68.661	0.1707	51.550
	(0.8985)	(0.7564)	(0.7538)	(0.0000)	(0.9519)	(0.0000)
Germany	2.1719	0.8633	1.3732	0.4087	1.5369	0.7005
	(0.1316)	(0.4320)	(0.2678)	(0.6679)	(0.2123)	(0.5967)
Hong Kong	0.5012	0.7139	9.6698	24.3351	10.6950	24.1630
	(0.6108)	(0.4979)	(0.0032)	(0.0001)	(0.0018)	(0.0001)
India	1.7148	2.9123	3.4769	192.6477	3.3650	173.9364
	(0.1972)	(0.0698)	(0.0430)	(0.0000)	(0.0194)	(0.0000)
Korea	1.7944	4.5099	0.1458	2.7261	2.5200	5.0917
	(0.1836)	(0.0194)	(0.8649)	(0.0807)	(0.0580)	(0.0023)
Mexico	0.2216	0.3999	1.2810	0.2233	3.6253	1.1881
	(0.8026)	(0.6739)	(0.2916)	(0.8011)	(0.0139)	(0.3326)
Singapore	11.8886	1.2539	0.5304	118.9474	0.5666	43.5109
	(0.4330)	(0.2999)	(0.5934)	(0.0000)	(0.6885)	(0.0000)
South Africa	11.8886	46.8559	0.1540	327.2268	5.0081	213.44
	(0.0002)	(0.0000)	(0.8579)	(0.0000)	(0.0026)	(0.0000)
Sri Lanka	1.1682	5.7841	0.0760	22.8795	2.5803	23.3130
	(0.3295)	(0.0096)	(0.9270)	(0.0000)	(0.0630)	(0.0000)
Thailand	3.5634	1.3476	0.2450	1.7365	2.1302	1.4738
	(0.0409)	(0.2751)	(0.7841)	(0.1923)	(0.0971)	(0.2305)
UK	0.9658	0.6181	0.1545	0.0933	2.1831	4.9297
	(0.3922)	(0.5457)	(0.8575)	(0.9112)	(0.0905)	(0.0028)
USA	3.0133	2.2870	0.8671	21.7573	27.2182	4.7090
	(0.0642)	(0.1190)	(0.4298)	(0.0000)	(0.0000)	(0.0037)

Notes: (i) VTGDP represents value-traded ratio; PCGDP equals Private credit by deposit money banks / GDP; GDP per capita equals real per capita GDP. (ii) VTGDP does *not* Granger cause per capita real GDP is indicated by VTGDP ---> GDP. (iii) *p*- values are in brackets. (iv) 1% level of significance has been considered. (v) Framework: Lag 1, intercept. The last two columns examine how both banking sector and stock market-combined together-contribute in explaining variations in per capita real GDP and the reverse casualty, that is to show whether bi-directional causality is apparent between real per capita GDP and value-traded ratio *plus* the ratio of Private credit by deposit money banks to GDP.

Financial sector reforms in India were grounded in the belief that competitive efficiency in the real sectors of the economy will not be realised to its full potential unless the financial sector was reformed as well. Thus, the principal objective of financial sector reforms was to improve the allocative efficiency of resources and accelerate the growth process of the real sector by removing structural deficiencies affecting the performance of financial institutions and financial markets. In the case of India, the stock market liquidity (represented by value traded ratio) does not Granger cause the level of economic development. Therefore, the theory that market liquidity helps to influence allocative efficiency and, thus, invigorates the real sector of the economy does not hold good at least for India during the period under study. Rather, a reverse trend is observed where level of economic development influences the stock market liquidity. It may be inferred that a stable real sector can impart confidence in the minds of the investors who may gather confidence in the market for investment. In comparison to the stock market the Indian banking sector reforms started at an early stage. Following the nationalisation of banks in 1969 and subsequent reforms in 1992 and 1998, private sector credit has expanded rapidly in the past five decades thereby supporting the growth momentum. From Table 8, it is evident that private credit as a percentage of GDP Granger causes the per capita real GDP. As the Indian financial sector is largely bank-centric, the performance of the banking sector is crucial in the development process of the economy [Sahoo, 2013]. Given the potential of further credit disbursement by Indian banks, there is scope to channelise credit to the productive sectors of the economy. Therefore, Indian banks may need to develop strong linkages with the real sector to develop the ability to maintain high growth levels. However, when we examine whether per capita real GDP Granger causes the bank-based and market-based indicators, the result is statistically significant at an even lower level of significance which further implies that a vibrant real sector development can boost the financial sector development in India. Finally, in the tune of Robinson [1952, p. 86] it can be iterated that for India the theory "enterprise leads finance follows" holds well for the time period under study.

Broadly at least for ten countries [Australia, Chile, Hong Kong, India, Korea, Singapore, South Africa, Sri Lanka, UK and USA] causality runs from the level of economic development to finance. Out of ten at least five belong to Asian continent and the countries are at different stages of economic development. Nearly for all these countries, if one has to mention a single financial sector that enjoys maximum benefit of a higher level of economic development - it is banking sector not the stock market. At least for these countries "enterprise leads finance follows" theory can appropriately describe the reality, especially in the context of the banking sector that plays a more significant role in comparison to stock market.

Besides these two broad grouping, for a few countries such as U.S.A, Hong Kong, India and South Africa bi-directional causality is apparent in the present study. Along with them, Germany and Argentina may be treated as special cases where causal relationships between these variables are not statistically significant. Experiences of Germany may surprise researchers. It is one of the most developed nations of the world, where private sectors' contribution (also that of the investment banks) in economic growth is truly impressive but the role of financial system is nearly passive in the sense that causation in either direction is statistically insignificant. Dependence of private sector on Pfandbriefe (covered bonds), not on equity or bank finance, may be the reason for unique findings of Germany. In earlier growth experience of Germany, investment banks played an important role in its industrial growth, and the different type of banking system in Germany compared to the other western countries

was an important factor in the influence of bank finance in Germany's earlier growth experience. However, investment banks have not been considered in this study. For Argentina, series of upheavals such as cyclical correction, bank failures, domestic political uncertainties, poor institutional development, financial contagion may have contributed for such statistically insignificant causality results.

Generally, a number of factors may be at play for the results of no Granger causality from finance to per capita real GDP. One possibility is that funds are being diverted to non-productive activities due to micro-economic inefficiencies in the banking system. Experience of Bangladesh is a case in point in this regard. The stock market is not active in Bangladesh. On the other hand, the political interference in the banking system may also channel funds into unproductive projects, (e.g., financing white elephant projects that generate rents for government officials or crony capitalists). Reverse causality may also indicate fundamental macroeconomic problems, such as a high degree of political or economic uncertainty, including high and unpredictable inflation (for example, Bangladesh). Research shows that in countries with fundamental macroeconomic problems, the effect of finance on growth weakens. Under these circumstances, financial savings may not be channelled into new investment because firms, domestic and foreign, are simply not willing to invest when the future is highly uncertain [Demetriades and Andrianova, 2003]. Moreover, the financial system under consideration is either an international or a regional centre of finance, and may therefore have a weak relationship with domestic economic growth, (e.g., Hong Kong, which in the above analysis shows bi-directional causality). Specifically, the variation of causality results from country to country may be the resultant of a number of country specific factors. First, different financial systems may have different institutional structures and certain institutional structures may be more conducive to economic growth, for example, 'bank-based' and 'capital-market-based' financial systems. The main features of the 'bank-based' systems are the close involvement of their banks with industrial firms, and the relatively low importance and degree of development of their capital markets. The main characteristic of 'bank-based' financial systems is that companies rely heavily on bank loans and not so much on equity, with banks exercising an important monitoring role. Thus, banks play a key role in the process of growth and development. For example, Japan and Germany. By contrast, the 'capital-market-based' financial systems, typically the UK and USA financial systems, are characterised by highly developed capital markets and banks which have relatively low involvement in the allocation of funds or ownership of financial assets. Another more related and important aspect of these financial systems is that finance and financial flows have become a dominant element of the international financial system. In this sense, it is the international circuits that dominate them rather than their links with domestic industries. Second, financial sector policies play an important role in determining whether financial development fosters economic growth. Third, two countries with identical financial systems and financial sector policies may still differ due to the effectiveness of those institutions that design and implement the policies.

SECTION V
CONCLUSION

The motivation for the present study came from the contradictory claims of the economists over the role of the financial sector development in promoting economic growth of the country. This paper studies whether there is any positive causal link between financial development indicators and the level of economic development as proxied by per capita GDP. On the contrary, we found a substantial indication that there has not been a universal experience to the effect that

"finance leads the economic growth". Rather, higher levels of economic development appear to precede subsequent financial development in countries like India, Sri Lanka. Mostly, in fact, the causality is bi-directional, as has to be expected. The empirical analysis in this paper shows that while stock markets may be able to contribute to achieving higher levels of per capita real GDP, their influence is, at best, at a nascent stage in comparison with that of the banking system. So far as the channels of financial development are concerned, our findings are consistent with the view that bank-based financial systems may be more able to lead to long-term variation in per capita real GDP than stock-market-based ones.

Appendix 1. Definition of Variables, Data Sources

Variables	Definition	Data Sources
(1)	(2)	(3)
Ratio of Deposit Money Bank Assets to (Deposit Money Bank + Central Bank Assets).	Ratio of deposit money bank claims on domestic nonfinancial (real) sector to the sum of deposit money bank and Central Bank claims on domestic nonfinancial (real) sector. Deposit money banks comprise commercial banks and other financial institutions that accept transferable deposits, such as demand deposits. Deposit money banks' data measures the stock of deposit money. Deposit Money Banks' Assets includes Reserves (Comprises domestic currency holdings and deposits with the monetary authorities), Claims on Monetary Authorities, Securities (Comprising holdings of securities issued by central bank), Other Claims on Monetary Authorities (Comprising claims on the central bank that are excluded from Reserves), Foreign Assets, Claims on Other Resident Sectors, and Claims on Central government. On the other hand Central Bank Assets includes Net foreign assets, Claims on nonresidents, less liabilities to nonresidents, Domestic assets, Claims on other depository corporations, Net claims on Central government. This indicator measures the importance of deposit money banks relative to deposit money and central banks.	Beck, Demirgüç-Kunt and Levine (2009) Data set
Credit to private sector by Deposit Money Banks to GDP	It equals the claims on the private sector by deposit money banks divided by GDP.	Beck, Demirgüç-Kunt and Levine (2009) Dataset
Liquid Liabilities to GDP	Liquid liabilities equal currency plus demand and interest-bearing liabilities of banks and other financial intermediaries.	Beck, Demirgüç-Kunt and Levine (2009) Dataset

(Contd.)

Appendix 1. (concld.)

Variables	Definition	Data Sources
(1)	(2)	(3)
Market Capitalisation Ratio	It equals the value of listed shares divided by GDP.	Beck, Demirgüç-Kunt and Levine (2009) Dataset
Turnover Ratio	Turnover ratio equals the value of total shares traded divided by market capitalisation.	Beck, Demirgüç-Kunt and Levine (2009) Dataset
Value-Traded Ratio	Total value traded to GDP equals the value of total shares traded on the stock market exchange divided by GDP.	Beck, Demirgüç-Kunt and Levine (2009) Dataset
Market Risk and Return (Sharpe Ratio)	The Sharpe ratio expresses the excess return per unit of risk, where risk is measured by the standard deviation of the rate of return.	Calculated by author.To calculate Sharpe ratio monthly data of share price index has been taken into consideration for all sample countries. The Sharpe ratio has been calculated on the basis of T-Bill rates. The government bond yield rate has been used as surrogate to the T-Bill rates when the latter is not available, namely for Japan, Australia (as T-bill rates are not available from 2002 onwards) and France (as T-Bill rate is not available from 2003 onwards). Under extreme circumstances, Bank Rates/Discount Rates are used to calculate Sharpe ratio, namely for Bangladesh, Chile, and Indonesia (data permitting, from 1990 onwards) due to non-availability of both T-bill rates and government bond yield rate.
Market Integration	Correlation between stock return [SI1-SI0/SI0] of one country and return [SI1-SI0/SI0, where SI1 represents share price index of day 1 i.e. current day and SI0 represents share price index of day zero i.e. previous day] of S & P 500 to measure the degrees of unification of a national market with the global one.	Computed from Monthly Share Price Index of the respective country and S & P Share Price Index
Real per capita gross domestic product	To measure level of economic development	World Bank Data base, World Bank

NOTES

1. A group of researchers [Levine and Zervos, 1998] have relied on International Capital Asset Pricing Model (ICAPM) and International Arbitrage Pricing Technique (IAPT) to measure the integration. However, there is a current trend to use various forms of correlation [Bekaert, Harvey and Lumsdaine, 2002b, Pp. 295-350] to measure stock market integration; which has been of late substituted by econometric techniques known as co-integration [Reid and Plummer, 2005, Pp. 5-28; Davies, 2006]. While using this technique researchers argued that correlation as a measure of integration is not acceptable because the concept is a static one and has limited forecasting ability. Since forecasting the co-movement of share prices among markets is beyond the scope of the present study, we have used the simple measure of integration of stock markets mentioned in the text for our exercise.

2. A weighted average index of Principal Component analysis perhaps does not help us in understanding which specific aspects of development of the banking sector or the stock market contributes most to economic growth, and should be strengthened through appropriate policy measures. However, as the readers will notice in what follows, we have essentially used the Principal Component analysis, carried out

in this section, to select one variable each to represent banking sector development and stock market development. Thus, we are selecting one variable each in such a way that it contributes most to explaining the variability of the selected indicators. Perhaps, it may have been better to examine through an appropriate regression or cointegration analysis, which individual bank and/or stock market indicators would contribute most to the growth of GDP or of per capita GDP. However, such an analysis has not been attempted here.

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WHY DIDN'T WEST BENGAL GOVERNMENT AMEND FRBMA WITHIN THE STIPULATED TIME PERIOD?

Debnarayan Sarker

This study examines as to why West Bengal (WB) didn't amend Fiscal Responsibility legislation within the stipulated time period despite suffering from continuous high levels of debt-trap and when such enactment could have provided adequate debt relief to the state. WB was the only non-special category state not to amend the FRBMA. The most important reason for WB not amending FRBMA within the stipulated time, when all other non-special category states enacted the Fiscal Responsibility legislation, has been grounded in the high incidence of non-development revenue expenditure. However, non-amendment of FRBMA by WB within stipulated period of time did not improve the fiscal position of WB state. Rather, large revenue deficits of the state under left front Government have resulted in the emergence of a vicious cycle of deficit, debt and debt service payments to the new Government of WB state leading to the most unsustainable level of debt for WB among all seventeen major Indian states.

The fiscal situation of West Bengal (WB) at the latest financial year of West Bengal Left front Government (2010-11), in its actual estimate, is characterised by the fact that it has the highest debt-gross state domestic product (GSDP) ratio (41.7 per cent), highest revenue deficit (RD)-GSDP ratio (3.6 per cent), highest primary revenue deficit (PRD)-GSDP ratio (0.7 per cent), second highest gross fiscal deficit (GFD)-GSDP ratio (4.1 per cent) next after Jharkhand, highest interest payment (IP)-GSDP ratio (2.9 per cent) together with the lowest own tax revenue (OTR)-GSDP ratio (4.5 per cent) and capital outlay (CO)-GSDP ratio (0.5 per cent) amongst non-special category states.[1] These are, no doubt, a cause of great concern for WB state compared with other non-special category states. These facts, however, might lead to the pertinent question as to why West Bengal, didn't amend Fiscal Responsibility legislation within the stipulated time period despite suffering from continuous high levels of debt-trap and when such enactment could have provided adequate debt relief to the state.

The study is considered important in that the Fiscal Responsibility and Budget Management Act (FRBMA), 2003, which became effective from July 5, 2004, is, in essence, a target-based framework which could ensure all states as well as the Central Government to streamline their public Finances through their own 'Fiscal Correction Paths'. Its first target was to maintain a zero revenue deficit, based on the 'golden rule' (which is simply that, in the absence of economic emergencies, no economic agent should borrow to finance current consumption)[2] by 2008-09 and, among others, to bring down the fiscal deficit to 3 per cent of GSDP by 2008-09 with a view to achieving long-term macroeconomic stability consistent with medium term growth target over a multi-year period. However, more worrying is that WB Left Front Government enacted FRBM act at the latest financial year (20l0-11)[3], a few months back of WB State Assembly Election, 2011, despite the fact that WB was treated as the most 'highly stressed' state amongst all Indian states for the failure to satisfy the condition of 'sustainable level of debt', between 2002-03 and 2004-05.

The Ministry of Finance in its review of the Fiscal Reform Facility worked out sustainable level of debt, (i.e., debt and debt servicing as a percentage of total revenue receipt) in 2002-03 and 2004-05 [FC-XII, p. 216]. In terms of debt

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and debt servicing it considers non-special category states as 'highly stressed', if this ratio exceeds 300 per cent, whereas for special category states, the threshold is 200 per cent. The ratio in respect of 20 states considered in the review, in the year 2002-03, ranges from 96.09 per cent for Sikkim to 500.93 per cent for West Bengal. The corresponding figures are estimated at 98.26 per cent to 529.69 per cent for the year 2004-05 [ibid]. Thus, despite the fact that WB was treated as the most 'highly stressed' state amongst all Indian states WB did not commit itself to policy changes which could ensure the required fiscal adjustment thereafter. On the contrary, all non-special category states except WB enacted Fiscal Responsibility Legislation in or before the year 2008 and received the benefits of Debt Consolidation and Relief Facility (DCRF) as recommended by Twelfth Finance Commission (FC-XII) in spite of their' favourable sustainable level of debt condition during the same period compared with WB.

This paper, however, first touches upon the discourse of this debate with a view to examining the reasons as to why West Bengal government was reluctant to pursue FRBM within the stipulated time period as prescribed by the Finance Commission. This appears in section 2. Section 3 tries to explore the various issues of the overall National Small Savings Fund (NSSF) loan scheme of the Centre and the States (resulting in higher interest rates on NSSF loan) because West Bengal was one of the major contributors to this loan. The main objective of this study is pursued in Section 4. Section 5 concludes. This paper is mainly based on debt, deficit, interest, revenue and expenditure indicators expressed as ratios to GSDP of Indian states. It depends on secondary data of state finances between 1980-81 and 2011-12, published by the Reserve Bank of India, revenue and expenditure data of finance Department, Government of West Bengal during 2005-2011 and reports of the Twelfth Finance Commission (2005-10) and Thirteenth Finance Commission (2010-15), Government of India.

SECTION 2

The Left Front Government in their political literature and West Bengal government in their memorandum submitted before the 12th FC clearly explained why they were reluctant to enact FRBM act. These may be outlined as follows: **First,** from ideological stand point they felt that such kind of mandated conditionality associated with the FRBM act as given by the 12th FC clearly violated the federal spirit of the Indian constitution. **Second,** such enactment and consequent debt relief, they felt, would hardly help all states in general and West Bengal in particular since FRBM associated debt relief mechanism does not include the debt accumulated from NSSF loan. And the NSSF loan was naturally much higher in case of West Bengal than that of other states. **Third,** the state also mentioned that such debt relief excluded the loan taken from the other Ministries of the Central government and demanded that total loan burden of the states should have been taken into account. However, 13th Finance Commission (TFC) corrected this partially when it included the debt from other Ministries in the debt relief measures as a part of FRBM. **Fourth,** despite enacting FRBM a number of states were of the view that FRBM introduced very restrictive condition and imposed uniformly without regard to the initial conditions of the states. In addition, it suffered from a mechanical and inadequate understanding of the components of revenue expenditure in that according to the accounting principles laid down by the Comptroller and Auditor General of India, all grants to the local bodies, (i.e., Panchayats, municipalities), to the aided schools and colleges, expenditure on account of salaries of doctors, medicines, etc., were classified as revenue expenditure. Therefore, if the states were to make an effort to achieve the targets of FRBM Act, there might not be much fiscal space left for them for

development expenditure. This would amount to curtailing the welfare and developmental role of the states. **Finally,** not only West Bengal but also many states objected to such enactment on the ground that similar kind of fiscal measures had not been introduced for the Central government while attempts had been taken to discipline only the states fiscally.

SECTION 3

NSSF: Historical context

Prior to April 1999, deposits and withdrawals by subscribers were made from the public account and interest payments to subscribers and interest receipts from the States were recorded in the revenue account of the Consolidated Fund of India. Disbursement of loans against small savings made to the States and repayment of such loans were recorded in the capital account of the Consolidated Fund of India. All the payments against the cost of operating the fund were also debited from the Consolidated Fund.

The Committee on Small Savings (Chairman: Shri. R.V. Gupta), which submitted its report in February 1999, examined and identified some lacunae in the prevailing accounting procedure of the small savings like the following: (i) There was no formal transfer of funds collected under small savings in the Public Account to the Consolidated Fund. (ii) Loans to the States/Union Territories were made out of the Consolidated Fund without corresponding receipts. (iii) Transactions in small savings could not be segregated for the purpose of analysing their financial viability. (iv) The on-lending to States from the small savings collections was treated as part of Central Government's expenditure and added to Central Government's fiscal deficit. Therefore, other things remaining the same, an increase in small savings collections led to an increase in fiscal deficit.

In the light of the above, the Committee recommended creation of a separate Fund called the National Small Savings Fund (NSSF) within the Public Account. NSSF would formalise the Central Government's use of small savings collections accruing in the Public Account to finance its fiscal deficit. Further, NSSF was expected to lend transparency to the accounting system, enable an easy examination of the income and expenditure of small savings process, bring into sharp focus the asset-liability mismatch and pave the way for correction.

Operation of NSSF

Small Saving schemes have been always an important source of household savings in India. Small savings instruments can be classified under three heads. These are: (i) postal deposits [comprising savings account, recurring deposits, time deposits of varying maturities and monthly income scheme (MIS)]; (ii) savings certificates [(National Small Savings Certificate VIII (NSC) and Kisan Vikas Patra (KVP)]; and (iii) social security schemes [(public provident fund (PPF) and Senior Citizens' Savings Scheme (SCSS)].

A "National Small Savings Fund" (NSSF) in the Public Account of India has been established with effect from 1.4.1999. A new sub sector has been introduced called "National Small Savings Fund" in the list of Major and Minor Heads of Government Accounts. All small savings collections are credited to this Fund. Similarly, all withdrawals under small savings schemes by the depositors are made out of the accumulations in this Fund. The balance in the Fund is invested in Special Central and State Government Securities. The investment pattern is as per norms decided from time to time by the Government of India.

The Fund is administered by the Government of India, Ministry of Finance (Department of Economic Affairs) under National Small Savings Fund (Custody and Investment) Rules, 2001, framed by the President under Article 283(1) of the Constitution. The objective of NSSF is to de-link small savings transactions from the Consolidated Fund of India and ensure their operation in a transparent and self-sustaining manner. Since NSSF operates in the public account, its transactions do not impact the fiscal deficit of the Centre directly. Yet, as an instrument in the public account, the balances under NSSF are direct liabilities and constitute a part of the outstanding liabilities of the Centre. Further, the NSSF flows affect the cash position of the Central Government.

These securities are issued for a period of 25 years, including a moratorium of five years on the principal amount. All special securities carry a rate of interest fixed by Government of India from time to time. The NSSF is also permitted to invest in securities issued by IIFCL (India Infrastructure Finance Company Limited), NHAI (National Highway Authority of India), IRFC (Indian Railway Finance Corporation) that are wholly owned by the Central Government. So, in addition to the Special General Government Securities (SCGS), the centre can also borrow from the NSSF against securities issued by the aforesaid infrastructure companies.

As fixed by the Government of India, till 2001-02, the net small savings collections in a state (gross collections minus repayments to depositors) were being shared between the Central and State Governments, with the share of the State Government being progressively increased from 66.66 per cent to 75 per cent from 1 April 1987 and to 80 per cent from April 2000. From 1 April 2002 to 31 March 2007, the entire net collections in a state were being invested in special securities issued by the concerned State Government. However, with effect from 2007-08, the mandatory share of State Governments has been reduced to 80 per cent with the option to be raised up to 100 per cent [TFC, 2009, p. 143]. However, the average interest rate paid by the states has been higher than that paid by the Centre from the commencement of NSSF in 1999-2000 [ibid, p. 144].

The income of NSSF comprises the interest receipts on the investments in Central, State Government and other securities. While the interest rate on the investments on the Central and State share of net small saving collection is as per the rates fixed from time to time, the interest rate on the reinvestment of redeemed amounts are at market rate for 20 year Government Securities. The expenditure of NSSF comprises interest payments to the subscribers of Small Savings and PPF Schemes and the cost of operating the schemes, also called management cost.

Although as per National Development Council (NDC) sub-committee recommendations average interest rates of NSSF loan taken by states were reduced from original interest rates (from 13.5 per cent to 10.5 per cent during 1999-00, from 12.5 per cent to 10.5 per cent during 2000-01, from 11.0 per cent to 10.5 per cent during 2001-02, kept unchanged at 10.5 per cent during 2002-03, unchanged at 9.5 per cent 2003-04 to 2009-10 and 9 per cent 2010-11 onwards), the average interest rate charged by the centre on NSSF loan taken by the states still remained much higher than that on NSSF loan taken by Centre [TFC, 2009, p. 144].

SECTION 4

High Incidence of Non-development Revenue Expenditure

From the principal reason as to why West Bengal didn't amend Fiscal Responsibility legislation (it being the only state amongst non-special categories not to do so) within the stipulated period of time is the high incidence on non-development revenue expenditure of the state. It may be examined by referring to the data on revenues and expenditures of the state during 2005-06 to 2011-12 (Table 1).

Table 1. Revenue Receipt, Revenue Expenditure including Expenditure on Salary, Pension and Interest of WB (2005-06 to 2011-12)
(Amount in Rs Crore)

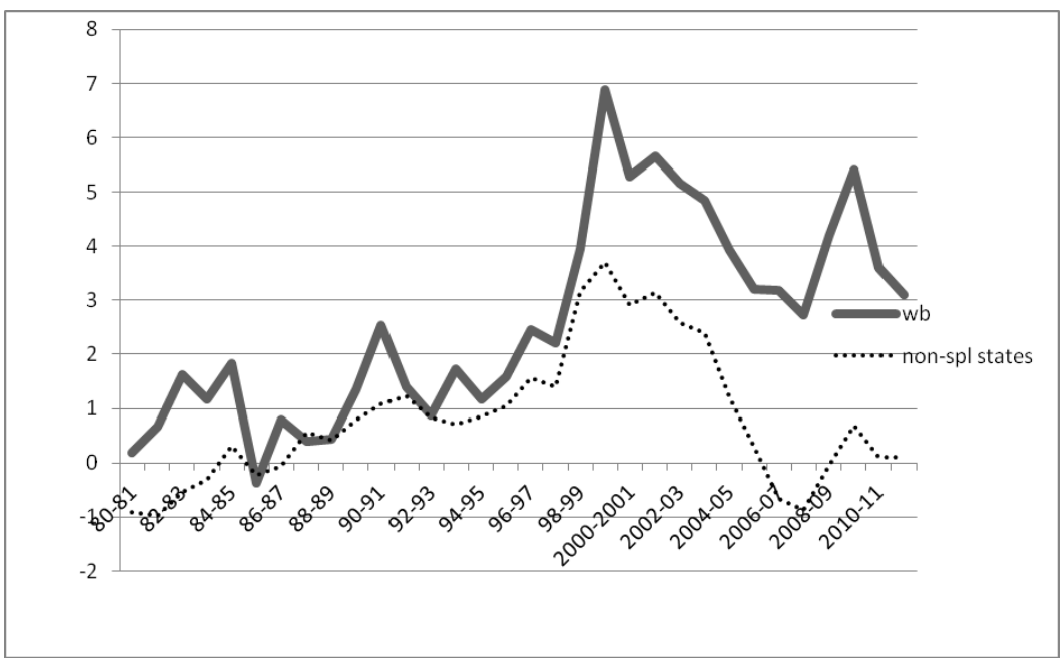
ITEM	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12 (Revised)	2005-06 2011-12
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Revenue Receipt	23725.89	25828.31	30167.39	36904.39	36921.65	47264.20	58755.04	259566.87
Revenue Expenditure	31116.86 (131.15)	34161.27 (132.26)	38314.42 (127.00)	51613.31 (139.86)	58499.88 (158.44)	64538.16 (136.55)	73326.37 (124.80)	351570.27 (135.44)
Expenditure on Salary	10164.67 (42.84)	10849.71 (42.01)	12178.02 (40.37)	13761.44 (37.29)	21880.75 (59.26)	24954.18 (52.79)	26983.73 (45.93)	120772.50 (46.53)
Expenditure on Pension	3641.50 (15.35)	3552.69 (13.76)	1995.40 (13.24)	4432.79 (12.01)	6510.57 (17.63)	8077 (17.08)	10065.74 (17.13)	40275.69 (15.52)
Expenditure on Interest	9752.76 (41.11)	10878.88 (42.12)	11383.56 (37.73)	12068.99 (37.73)	13305.12 (36.04)	13817.29 (29.23)	15895.99 (27.05)	87102.59 (33.56)
Salary+Pension+Interest	23558.93 (99.30)	25281.28 (97.88)	27556.98 (91.35)	30263.22 (91.35)	41696.44 (112.93)	46848.47 (99.10)	52945.46 (90.11)	248150.78 (95.60)
Revenue Deficit	7390.97	8332.96	8147.03	14708.92	21578.23	17273.96	14571.33	92003.40

Figures within brackets represent percentages of revenue receipt.
Source: Government of West Bengal (2005-12)

As regards non-plan revenue expenditure is concerned, Table 1 reveals that WB spent over 95 per cent (95.60 per cent) of Revenue Receipt (RR) on non-plan revenue expenditure on interest payments, subsidies, salaries and pensions over the period from 2005-06 to 2011-12. Individual contribution of Salary-RR ratio, Interest-RR ratio and Pension-RR ratio is 46.53 per cent, 33.56 per cent and 15.52 per cent, respectively. It is worth mentioning that in 2009-10 non-plan revenue expenditure on interest payments, subsidies, salaries and pensions of WB was more than the revenue receipt (112.93 per cent). At the latest financial year of Left Front Government (2010-11), it was over 99 per cent of revenue receipt and in 2011-12, such non-plan revenue expenditure decreased to 90.11 per cent. It implies that about hundred per cent of RR of WB was being spent only for non-development expenditure on interest payments, subsidies, salaries and pensions during the period 2005-06 to 2011-12. Therefore, debt was the only source for other revenue expenses of WB including development revenue expenditure during the period from 2005-06 to 2011-12. Table 1 also reveals that RE of WB was 135.40 percent of RR

during 2005-2011 indicating that WB had to bear a large burden of revenue deficit (RD) to the tune of Rs 92003.40 crore at the current prices during the seven financial years from 2005-06 to 2011-12 and these have led to much higher RD-GSDP ratio for WB than all non-special category states taken together during 2005-12 (Figure 1). On the contrary, as all non-special category states except WB drew up the target-based framework of 'Fiscal Correction Paths' as per FRBMA, the former had surplus in the revenue account for most of the years between 2005-06 and 2011-12 and almost maintained zero revenue deficit.

Figure 1. RD-GSDP Ratio (Expressed as Percentage), of West Bengal and Non-special Category States (1980-81 to 2011-12)



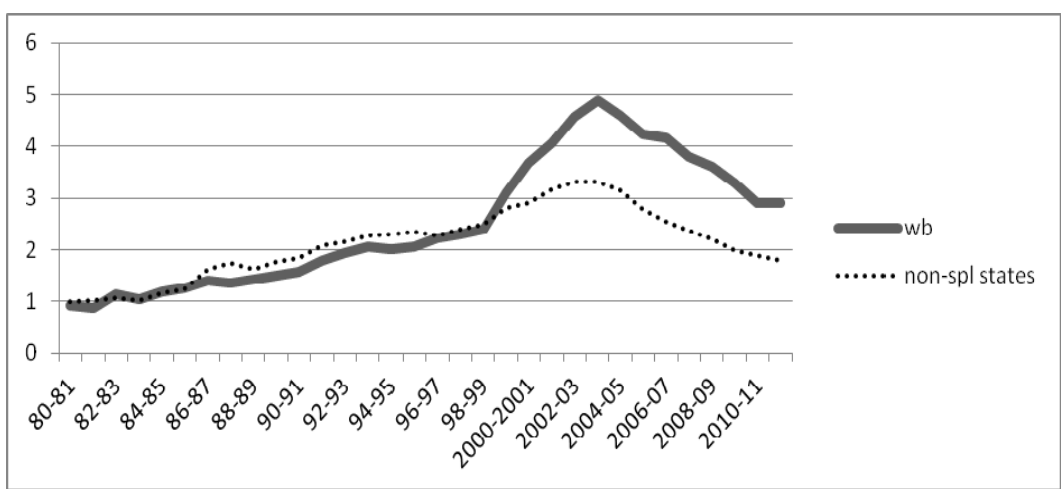
Source: RBI (1980-2012): 'State Finances: A study of Budgets', Reserve Bank of India.

High incidence of NSSF loan

If one compares the IP-GSDP ratio between WB and non-special category states during 1980-2010, one observes that it is much higher for WB than for all the non-special category states taken together for all financial years between 2000-01 and 2011-12 (Figure 2). Why IP-GSDP ratio for WB continued to be much higher than non-special category states from 2000-01 onwards is, mainly, because compared with all non-special category states WB was one of the major receivers of NSSF loan which carried a much higher rate of interest than other central loans. As regards the incidence of NSSF loans is concerned as on March 31, 2004, a few months before FRBM became effective (July 5, 2004), amongst all non-special category states, out of total debt of NSSF loans owed by all non-special category states (Rs 94,727.00 crore) - about one third is borne by one state-WB (Rs 31,580.67 crore) - (Table 2). It also shows that just before

FRBM became effective, WB had not only to bear the highest share of the debt of NSSF loan amongst all non-special category states on the one hand, her dependence on NSSF debt was also more than one third (about 35.36 per cent) of her own total debt and about two-fifth (38.93 per cent) of her total long-term debt (excluding short term debt) on the other. Concerning the rate of interest charged on NSSF loan, the effective interest rate charged by the centre from the states on NSSF loan is much higher than that on central loans [Chowdhury and Dasgupta, 2012]. Even average interest rate of NSSF loan paid by the states has been higher than that paid by the Centre [TFC, 2009, p. 144].

Figure 2. IP-GSDP Ratio (Expressed as Percentage), of West Bengal and Non-special Category States (1980-81 to 2011-12)



RBI (1980-2012): 'State Finances: A study of Budgets', Reserve Bank of India.

Table 2. NSSF Loan and State Government Debt for WB and Other Non-special Category States (in Rs crore) as on March 31, 2004

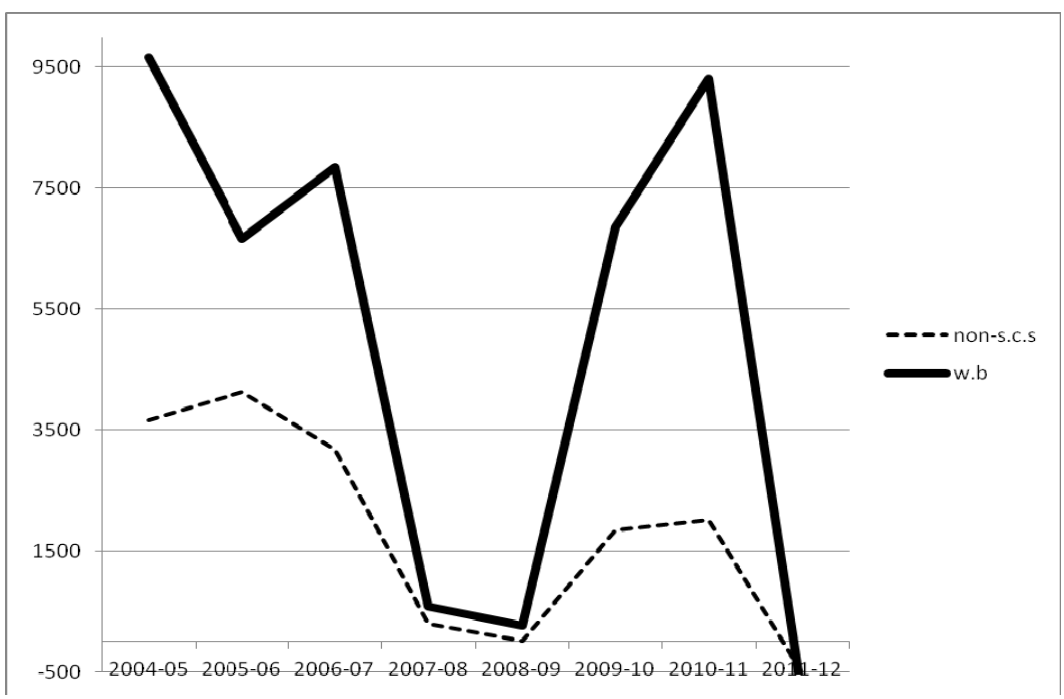
State	NSSF loan	Total Debt	Debt (excluding short-term debt)*
(1)	(2)	(3)	(4)
Andhra Pradesh	10282.48 (10.85)	61132.31	56330.38
Gujarat	21375.00 (22.57)	62734.00	53821.00
Tamil Nadu	9773.93 (10.32)	49673.66	45062.48
Uttar Pradesh	21715.00 (22.93)	119222.00	99416.00
West Bengal	31580.67 (33.33)	89317.80	81116.30

*Short-term debt excludes Ways and Means Advances (from RBI) and Reserve Fund and Deposit. Figures in bracket represent percentages of total NSSF loan amongst non-special category states. The only other state which had NSSF loan (of Rs 2087.87 crore) was Uttaranchal, which is a Special Category state. Thus, the total NSSF Loan for all special and non-special category states, (i.e., for all states) was 96814.95 crore and that for the only five non-special category states which had borrowed NSSF Loan (shown in the above Table) was 94727.08 crore.
Source: FC-XII [2005]: Govt of India (Annexure 12.1, para 12.5:470).

This clearly indicates that as the share of NSSF loans in total loans was much higher in WB than in other non-special category states before FRBMA became effective to all states, except WB, as well as to the Central Government, IP-GSDP ratio was much higher for the former than the latter during the aforesaid period. On the other hand, FRBM associated debt relief mechanism did not include the debt accumulated by WB from NSSF loan.

Most significantly, despite the fact that WB had the highest share of the NSSF loan amongst all non-special category states (33.33 per cent) and her dependence on NSSF debt was more than one third of her total debt (35.36 per cent) before FRBM became effective (July 5, 2004) to all states and to the Central Government, WB was further allowed to receive Rs 51312.78 crore NSSF loan for seven financial years during 2004-2011.[4] This was in spite of the fact that WB was treated by Ministry of Finance as the most 'highly stressed' state amongst all Indian states for the failure of satisfying the condition of 'sustainable level of debt' during 2002-03 and 2004-05.

Figure 3. Amount of NSSF Loan of West Bengal and That of Average NSSF Loan of All Non-special Category States Taken Together, (in Rs. Crore) (2004-05-2011-12)



RBI (2004-2012): 'State Finances: A study of Budgets', Reserve Bank of India, Compiled from Statement 6.

As on the 31st March, 2010, the amount of outstanding NSSF loan for WB was Rs 63,322 crore. At the latest financial year, WB Left front Government (2010-11), as per its revised estimate, was to receive NSSF loan of Rs 12,400 crore, which is about 53.07 per cent of total internal loans of the State Government[5] (excluding Ways and Means Advances from R.B.I.)[6] including loans and advances from Central Government. It indicates that a major part of WB Left Front Government's loan from outside at its latest financial year (2010-11) was NSSF loan. As the NSSF loan bore much higher rate of interest than the other central loans taken by the state, the WB Government, which came to power on May, 2011, was obliged to bear a much higher interest burden annually, along with the amount of outstanding NSSF loan accumulated as on the 31st March, 2010. It thus implies that the NSSF loan played the most significant part for the much higher debt service payments for WB relative to non-special category states during 2000-2010.

Figure 3 shows that the share of NSSF loans in total NSSF loans of all non-special category states is much higher for WB than for all non-special category states taken together between 2004-05 and 2011-12 resulting in a much higher IP-GSDP ratio for WB than for all non-special category states during 2004-2011. Despite the fact that as on March 31, 2004, only five non-special category states received NSSF loans, for all the subsequent years all non-special category states (17 in number) received NSSF loans. (See, for example, statement 6 (page 165, col. 4) and statement 7 (page 166, col. 4) of RBI (2007-08)). Hence, we have worked out the average NSSF Loan for all 17 non-special category states to compare the share of NFFS loan by WB.

Hence, the related query is: why did the state depend heavily on NSSF loan despite knowing that it carried a high interest rate? As West Bengal, unlike all other non-special category states, had continuous revenue deficit for all the financial years from 1980-81 and onwards except only for one year (1985-86), as may be seen in Figure 1 and Table 1, WB used to receive loan from Institutional source, (e.g., NABARD), Central Government, borrowing from market and NSSF source. Despite the fact that the effective rate of interest of Central Government loan and loans from institutional sources is substantially lower than that of market borrowing and NSSF loan, WB government was obliged to take loan from the last two sources because the loans granted to WB from the former two sources were too little to meet the large fiscal deficit of the state every year. As regards market borrowing and NSSF loan are concerned, WB government preferred NSSF loan because the rate of interest of NSSF loan for long period was lower than that on market borrowing and NSSF loan was granted to states for a long period of time. It is also possible that WB Government heavily depended on the NSSF loan because she was of the view that such prolonged objections against NSSF loan by the states would be further scrutinised by the Central Government leading to the substantial reduction of interest rate along with the restructuring of total NSSF loan taken by states from the Centre [CPIM, 2008, Pp. 7-11].

Debt Consolidation and Relief facility

It is also important to mention that WB received the benefits of Debt Consolidation and Relief facility (DCRF) during 2005-10, although she satisfied neither FC-XII condition nor TFC condition nor proved to be fiscally prudent. FC-XII examined the debt position of the states and recommended Debt Consolidation and Relief facility (DCRF) to twenty six states which enacted Fiscal Responsibility Legislation on or before 2008. These twenty-six states out of twenty eight Indian states availed themselves of debt consolidation till October 2009 as per the recommendation of FC-XII. This has resulted in interest relief amounting to Rs. 15,689 crore. Cumulatively, central loans amounting to Rs. 1,13,601 crore have been consolidated. This is

because enacting the fiscal responsibility legislation was a necessary pre-condition for availing of debt relief provided that, among other conditions, a state brought down its revenue deficit down to zero by the targeted year 2008-09 and kept the fiscal deficit contained at the level of 2004-05 [TFC, 2009, p. 142]. As regards the debt waiver component, waiver benefit of Rs. 18,717 crore has accrued to the states by the end of 2008-09. Sikkim and West Bengal failed to receive the benefit of debt consolidation under FC XII award, not having met the conditionality of enacting fiscal responsibility legislation [TFC, 2009, Pp. 142-146]. In 2009, TFC recommended : "While 26 states have availed of debt consolidation, two states, viz. West Bengal and Sikkim, have not legislated FRBM Acts and, thus, did not get the benefit of consolidation. We recommend that this facility be extended to these states during our award period, on the condition that they put in place an FRBM Act as stipulated in this chapter. On meeting this condition, the loans contracted by these states till 31 March 2004 and outstanding as at the end of the year preceding the year in which the Act is put in place, shall be consolidated as per the same terms and conditions as recommended by FC-XII. However, the benefit of waiver, as recommended by FC-XII, need not be continued any further to any state" [TFC, 2009, p. 146]. Significantly, West Bengal Assembly passed the West Bengal Fiscal Responsibility and Budget Management Bill (WBFRBM) on July 26, 2010 and amended it in February 2011 fixing the rolling fiscal targets for 2010-2015 (mentioned in footnote 3). However, the fact is that both WB and Sikkim received DCRF during the period from 2005-06 to 2009-10 without satisfying TFC condition. The precise amount of DCRF benefit which WB received is not known as the relevant report has not been published. It, of course, did not receive the benefit of debt waiver which the other twenty-six states availed of earlier.

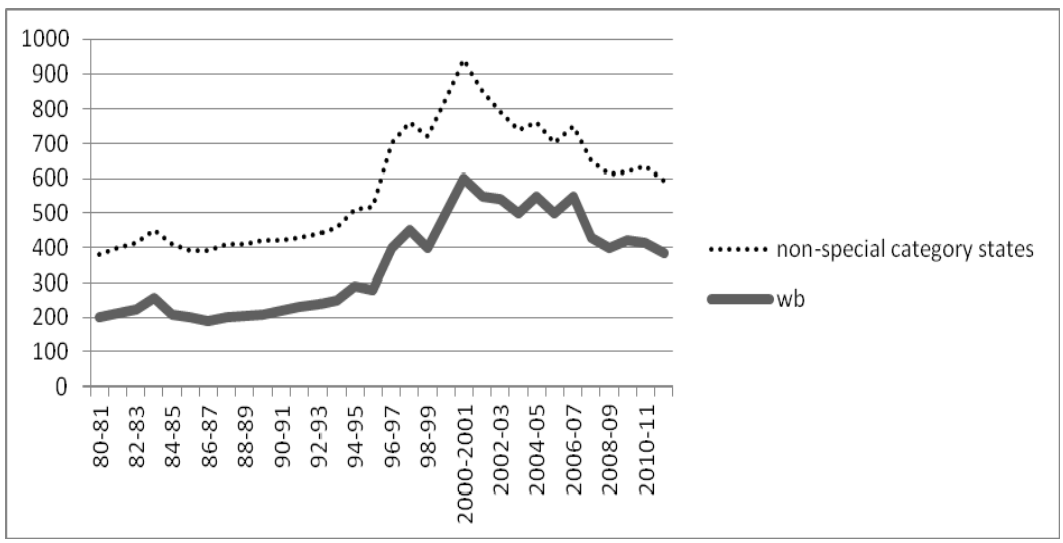
It is praiseworthy that without enacting FRBMA, Sikkim, one of the special category states, proved to be a fiscally prudent state. TFC also states that three special category states (Uttarakhand, Assam and Sikkim) mark major progress despite the known cost disabilities and other fiscal challenges that special category states face. In recognition of their efforts TFC recommended a performance grant as an incentive for them to continue on their path of fiscal prudence [ibid, p. 206].

Unsustainable Level of Debt

If the condition of sustainable level of debt (debt and debt servicing as a percentage of total revenue receipt) is measured by the procedure suggested by Ministry of Finance [12th Finance Commission, FC-XII, p. 216], WB is observed to be a more 'highly stressed' state than all non-special category states taken together on an average since 1999-00 onwards (Figure 4) because of the failure to satisfy the condition of 'sustainable level of debt'.[7]

When the condition of sustainable level of debt is measured individually among all the seventeen non-special category states, WB is observed to be the most 'highly stressed' state of all non-special category states. It is failed to satisfy the condition of 'sustainable level of debt' not only between 1999-00 and 2004-05 but throughout the period between 1999-00 and 2011-12. However, non-amendment of FRBMA by WB within the stipulated period of time did not help improve the fiscal position of WB state. Large revenue deficits of the state under the left front Government have resulted in the emergence of a vicious cycle of deficit, debt and debt service payments to the new Government of WB state, which came in power on May, 2011, leading to the most unsustainable level of debt among all seventeen major Indian states.

Figure 4. Level of Debt as Percentage of the Total Revenue Receipts for WB and for All Non-special Category States Taken Together, (1980-81to 2011-12)[8]



Note: (a) The vertical axis indicates the number relating to Debt and Debt servicing as a Percentage of Total Revenue Receipt. (b) If this ratio exceeds 300 per cent for non-Special Category States, the State (States) is (are) called 'highly stressed' state, (i.e., exceeding the sustainable level of debt) [FC-XII, p. 216]. For all the non-special category states taken together, the plotted figure shows the total debt and debt servicing of all the non-special category states as a percentage of the total revenue receipts of all non-special category states.
Source: RBI (1980-2012): 'State Finances: A study of Budgets', Reserve Bank of India.

Insight from Other States Having High NSSF Loan

It would be interesting to probe further as to why WB state depends heavily on NSSF loan despite knowing that it has a high interest rate. What lessons can be learnt from the other states on ways to financing the deficits. One may have some interesting insights from Table 3.

Before FRBM became effective (July 5, 2004) for all states and for the Central Government, WB had the highest share of NSSF loan amongst all non-special category states (Table 2). But during the period when FRBM became effective (from July, 2004, onwards), it is not only WB state but, among other non-special category states, Maharashtra and UP also depended much on NSSF loan, despite the fact that NSSF loan usually bears much higher rate of interest than other central loans. This is mainly due to two reasons: **First,** the average rate of interest of NSSF loan was much higher before the year 2004, the period before FRBM became effective, than in the later period as per NDC (National Development Council) sub-committee recommendations. Between 1999-00 and 2002-03, the average rate of interest was 10.5 per cent per annum, whereas during the period from 2003-04 to 2009-10 the average rate of interest of NSSF loan was 9.5 percent per annum and 9 per cent per annum during the period 2010-11 onwards. **Second,** the average rate of interest of NSSF loan for long-term is much lower than that of market loan for the same period.[9]

Table 3. Incidence of Revenue Deficit, Fiscal Deficit and NSSF Loan for WB, UP and Maharashtra between 2005-06 and 2011-12

Fiscal Indicators & States	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12 (Revised)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Revenue Deficit as % of GSDP							
WB	3.0	3.2	2.6	4.2	5.4	3.6	2.6
UP	1.2	-1.1	-2.6	-0.5	-1.4	-0.6	-1.3
Maharashtra	0.3	0.6	-0.5	-0.8	0.9	0.1	0.2
Fiscal Deficit as% of GSDP							
WB	5.0	4.5	3.9	3.8	6.3	4.1	3.2
UP	5.1	3.6	3.0	5.0	3.6	3.0	2.9
Maharashtra	3.9	3.1	1.8	2.0	2.9	1.8	1.7
Capital Outlay as % of GSDP							
WB	0.8	0.8	0.9	1.0	0.8	0.5	0.7
UP	3.8	4.6	5.5	5.4	4.8	3.5	4.1
Maharashtra	2.7	2.1	2.1	2.7	1.9	1.7	1.5
NSSF Loan (in Rs Crore)							
WB	12627.00	8244.71	767.65	1653.74	7991.63	12189.24	3000.00
	(5.51)	(3.12)	(0.25)	(0.47)	(1.97)	(2.56)	(0.55)
UP	6888.70	6171.79	1955.69	1212.75	4985.01	6860.12	2500.00
	(2.49)	(1.99)	(0.57)	(0.31)	(0.96)	(1.15)	(0.37)
Maharashtra	15939.46	9277.48	488.09	1537.58	4313.92	7504.99	1964.88
	(3.63)	(1.82)	(0.08)	(0.20)	(0.48)	(0.73)	(0.18)

Source: RBI (1980-2012): 'State Finances: A study of Budgets', Reserve Bank of India.
Figures within brackets represent NSSF loan as % of GSDP.

However, three important features are worth mentioning from Table 3.

First, Maharashtra and UP drew up the target-based framework of 'Fiscal Correction Paths' as per FRBMA; both had either surplus or very meagre deficit in the revenue account for all the years between 2005-06 and 2011-12. **On the contrary,** because of not amending FRBMA before July 2010 WB government did have the highest RD-GSDP ratio among all non-special category states during the period from 2005-06 to 2011-12. WB spent about cent percent of RR only for non-development revenue expenditure on interest payments, subsidies, salaries and pensions as a result of which revenue deficit (RD) was the only source for other revenue expenses of WB including development revenue expenditure during the period from 2005-06 to 2011-12, indicating that WB had a large RD-GSDP ratio between 2005-06 and 2011-12 (Figure 1 and Table 1).

The high revenue deficits of WB were not solely on account of the large interest burden. Large expenditures on salaries, subsidies and pensions, among others, are also responsible for them. Table 1 shows that the major portion (62.05 per cent) of revenue income of WB during 2005-06 and 2011-12 was spent on salaries and pensions.

Second, from 2011-12, while FRBMA was effective in WB, RD-GSDP ratio of WB shows a mark of declining because, among all FRBMA norms, the first target of FRBMA is that the states drawing up the target-based framework of 'Fiscal Correction Paths' as per FRBMA should maintain a zero revenue deficit. This is also supported by the facts that non-plan revenue expenditure on interest payments, subsidies, salaries and pensions of WB is more than 99 per cent of revenue

receipt during 2010-11, whereas the same works out to be about 90 per cent of revenue receipt during 2011-12 (Table 1).

How did WB achieve the reduction in its RD from 2011-12, by cutting which expenditures or by raising which sources of revenues? The new Government under Trinamul congress headed by Smt. Mamata Banerji, could ensure some prudence in fiscal management and fiscal stability by progressive elimination of revenue deficit, reduction in fiscal deficit and prudent debt management consistent with fiscal sustainability during and from 2011-12 onwards both due to decrease in non-development expenditure (mainly salary) and increase in tax revenue (mainly own tax revenue) of State Government. But for 2011-12 in particular the reduction in its RD is mainly due to decrease in non-development expenditure, mainly salary of the state (see, Table 1). The reduction of salary bill was mainly due to non-increase of D.A. bill of state government as per central Government. But in 2012-13 the reduction in its RD is mainly due to revenue income, particularly own tax revenue of the state. For instance, the addition to own tax revenue during the last year (2010-11) of Left Front Government was Rs 4229 crore (Rs 21,129 crore in 2010-11 - Rs. 16,900 crore in 2009-10), the highest increase of own tax revenue during the entire period of left Front Government (1977-2011). But the addition to own tax revenue of the state at the second year of Trinamul Congress Government (2012-13) was Rs. 7871 crore (Rs 32,809 crore in 2012-13 - Rs. 24,938 crore in 2011-12), more than 86 per cent increase of own tax revenue over the highest increase of own tax revenue during the earlier period of Left Front Government.

Third, although Maharashtra and UP had either surplus or very meagre deficit in the revenue account for all the years between 2005-06 and 2011-12, both received considerable amount of NSSF loan during this period. During the 'seven year' period WB received NSSF loan of an amount of Rs 46,474 crore rupees, whereas Maharashtra and UP received an amount of Rs 42726 crore rupees and 30574 crore rupees, respectively, during the same period, signifying that both Maharashtra and UP also received a considerable amount of NSSF loan compared with WB. What is important is that despite receiving a considerable amount of NSSF loan with a surplus or a very meagre deficit in the revenue account and a large FD-GSDP ratio between 2005-06 and 2011-12, both Maharashtra and UP had much higher ratio for capital expenditure compared with WB which is liable to create fixed assets for those two states leading thereby to generate a much higher state revenue income for them in future. Unlike UP and Maharashtra, almost all FD-GSDP ratio including NSSF loan taken by WB state between 2005-06 and 2011-12 was spent to finance current consumption (or for revenue expenditure), not to finance for capital expenditure.

Hence, a related issue might arise as to how Maharashtra and UP were able to restrict their respective revenue deficits in spite of having comparable high interest NSSF loans? It may be judged by the fact that although Maharashtra and UP had comparable high interest NSSF loans in relation to WB, the former two had lower NSSF loan both in absolute terms as well as in percentage terms (NSSF Loan as % of GSDP) during the seven year period (from 2005-06 to 2011-12) than the latter. First, in absolute terms NSSF loan for Maharashtra was 8 per cent lower than that of WB (lower by Rs 3748 crores) and for UP, 34 per cent lower than WB (lower by Rs 15900 crore) during the seven year period. Secondly, in percentage terms ((NSSF Loan as % of GSDP), NSSF loan for Maharashtra and UP was much lower than that of WB. Finally, while FRBMA was effective in Maharashtra and UP, not only does NSSF loan for Maharashtra and UP in percentage terms ((NSSF Loan as % of GSDP) reduced gradually, but RD-GSDP ratio of both

the states showed a mark of declining during the aforesaid period. But this is contrary to WB till after FRBM became effective, (i.e., up to the financial year 2011-12) in the state.

Thus, perhaps the most important reason for non-amending FRBMA by WB under Left Front Government, which ruled the state for about 34 years (1977-2011) at a stretch, has been grounded in high incidence of non-development revenue expenditure (such as large expenditures on salaries, pensions, subsidies) which they did not want to decrease perhaps due to the vote bank politics of the state.

SECTION 5

Conclusions and Policy Implications

The most important reason for non-amending FRBMA by WB within the stipulated time, when all other non-special category states enacted the Fiscal Responsibility legislation, has been grounded in high incidence of non-development revenue expenditure. High incidence of non-development revenue expenditure is judged by the fact that instead of satisfying the first target of FRBMA - that all states as well as the Central Government should maintain a zero revenue deficit based on the 'golden rule' - WB spent about cent percent of revenue receipt (RR) only for non-development revenue expenditure on interest payments, subsidies, salaries and pensions as a result of which revenue deficit (RD) was the only source for other revenue expenses of WB including development revenue expenditure during the period from 2005-06 to 2010-11. On the contrary, as all other non-special category states adopted the target-based framework of 'Fiscal Correction Paths' as per FRBMA, they had negative revenue deficit for most of the years suggesting that they maintained 'golden rule' of FRBM principles for most of the financial years.

Most interestingly, from 2011-12, while FRBMA was effective in WB, RD-GSDP ratio of WB shows a mark of declining because of maintaining the binding condition of zero revenue deficit. As stated earlier, this is also reflected in the facts that non-plan revenue expenditure on interest payments, subsidies, salaries and pensions of WB is more than 99 per cent of revenue receipt during 2010-11, whereas the same works out to be about 90 per cent of revenue receipt during 2011-12. It, evidently, implies that WB government did not execute FRBMA before July 2010 and disregarded the golden rule and other necessary norms of FRBMA, and had on the other hand, about cent percent RR only for non-development revenue expenditure on interest payments, subsidies, salaries and pensions leading to the highest RD-GSDP ratio among all non-special category states during the period from 2005-06 to 2010-11.

However, non-amendment of FRBMA by WB within stipulated period of time did not improve the fiscal position of WB state. Rather, large revenue deficits of the state under left front Government have resulted in the emergence of a vicious cycle of deficit, debt and debt service payments to the new Government of WB state leading to the most unsustainable level of debt for WB among all seventeen major Indian states.

NOTES

1. The typical features of a special category State, i.e., hilly terrain, sparsely populated habitation and high transport costs, etc. lead to high cost of delivering public services. With the relatively lower level of economic activity in most Special Category States, their tax base is limited *vis-à-vis* Non-special Category States. These States (special category states), to a large extent, depend on transfers from the Centre (comprising grants and tax devolutions) for their resource needs.

2. Borrowing should be undertaken for investment purposes only. In the context of the public sector, this requires the government not to use national savings to finance consumption. Thus, all items of consumption expenditure need to be financed from current receipts, a practice which is widely implemented in most countries that have successfully addressed the issue of fiscal responsibility.

3. West Bengal Assembly passed the West Bengal Fiscal Responsibility and Budget Management Bill (WBFRBM) on July 26, 2010 and amended it in February 2011 fixing the rolling fiscal targets for 2010-2015. Although Central Government enacted FRBMA in 2003 to ensure inter-generational equity in fiscal management and long-term macro-economic

stability by achieving sufficient revenue surpluses and removing fiscal impediments in the effective conduct of monetary policy and prudential debt management, states amended their FRBM Acts incorporating the targets set by it as a pre-condition for the release of all State specific grants and debt relief measures as per the suggestions of Thirteenth Finance Commission. So far, 27 States have amended their FRBM Acts/Rules setting out annual deficit and debt ceilings in terms of GSDP in accordance with the path set out by the Thirteenth finance commission. As per guideline, the general category states that attain a zero revenue deficit or a revenue surplus in 2007-08 should achieve a fiscal deficit of 3 per cent of GSDP by 2011-12 and maintain it thereafter. Other general category states should achieve 3 per cent fiscal deficit by 2013-14.

WBFRBMA passed on 30th July, 2010, in West Bengal State Assembly, agreed to set out some principles, unlike other states. These are, among others, (i) revenue deficit to be nil within a period of five years commencing from the year 2010-2011 and ending in 2014-2015, (ii) fiscal deficit to be 3% of GSDP within a period of four years commencing from the year 2010-2011, (iii) debt stock to be 34.3% of the Gross State Domestic Product (GSDP) within a period of five years commencing from the year 2010-2011 and ending on the 2014-2015 (Government of West Bengal, 2010, 2011:1-5).

The act aimed at prudence in fiscal management and fiscal stability by progressive elimination of revenue deficit and reduction in fiscal deficit and prudent debt management consistent with fiscal stability and greater transparency [Report No 1, 2011, Pp. ix-x].

4. The amount of NSSF loan WB received (at current prices) during 2004-05, 2005-06, 2006-07, 2007-08, 2008-09, 2009-10, 2010-11(R) is Rs 9531.55 crore, Rs 10725.50 crore, Rs 8244.71 crore, Rs 767.65 crore, Rs 1653.74 crore, Rs 7991.63 crore and Rs 12400.00 crore, respectively [RBI, 2004-2011].

5. Out of internal debt of the State Government, Market Loan, NSSF loan, Institutional Loans and Ways and Means advance taken from RBI work out to be Rs 9500 crore, Rs 12400 crore, Rs 1148.27 crore and Rs 13000 crore, respectively [RBI, 2011-2012].

6. Ways and Means advances from RBI are excluded from internal debt of State Government, because this item covers borrowing of a purely temporary nature for day to day transactions, which is repayable within twelve months.

7. The Ministry of Finance, in its review of the Fiscal Reform Facility, has worked out sustainable levels of debt as a percentage of total revenue receipts, (i.e., debt and debt servicing as a percentage of total revenue receipt) in 2002-03 and 2004-005 [FC-XII, p. 216]. In terms of debt and debt servicing it considers non-special category states as 'highly stressed' if this ratio exceeds 300 per cent, whereas for special category states, the threshold is 200 per cent. The ratio in respect of 20 states considered in the review, in the year 2002-03, ranges from 96.09 per cent for Sikkim to 500.93 per cent for West Bengal. The corresponding figures are estimated at 98.26 per cent to 529.69 per cent for the year 2004-05 [ibid].

8. Following the formula adopted by The Ministry of Finance, in its review of the Fiscal Reform Facility [FC-XII, p. 216], the procedure of calculating the ratio in figure 4 is as follows. For example, total revenue receipt of West Bengal in 2010-11 amounts to Rs 47,264. Total outstanding debt of West Bengal on 31st March 2011, (i.e., at the end of 2010-11 financial year) works out to Rs 1,92,902. Total interest repayment (debt servicing) on all outstanding debt of West Bengal for the financial year 2010-11 was Rs 13,817 [RBI, 2010-11]. Then the ratio of debt and debt servicing of West Bengal as a percentage of its total revenue receipt during 2010-11 works out to 437.37. It needs mentioning that West Bengal, one of the non-special category of states, is observed to be more 'highly stressed' state than all non-special category states taken together on an average throughout 2001-02 to 2011-12, indicating much higher unsustainable level of debt for WB compared with the latter.

9. As per RBI, State Finances: A Study of Budgets, FY 2004 - FY 2011, the interest rates on WB State Development Market Loans (in per cent per annum) for the fiscal years from 2004 to 2011 were 12.5, 14, 13.85, 13 - 13.05, 11.50 - 12.50, 10.52 - 12, and 9.45 - 12, respectively. Compare these rates with the NSSF Loan rates mentioned in Section 3.

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PEOPLE'S PARTICIPATION AND PUBLIC SERVICE DELIVERY: A REVIEW OF ISSUES AND DETERMINANTS

Debabrata Samanta and Narayan Chandra Nayak

People's participation as a complementary development instrument carries enormous significance for public service delivery. Over time, it has evolved with different forms and created various democratic spaces for effective planning and monitoring at the grass-root level. The present study, reviewing the literature, attempts to analyse evolving concepts and implications of participation in the development process, discusses the role of invited and popular space, identifies determining factors of participation and examines the impact of participation on public service delivery. The study establishes that participation remains crucial for efficient and transparent service delivery and is being increasingly accepted as a development paradigm.

Key words: Clientelism, elite capture, invited space, participation, popular space, public service delivery, women's participation

I. INTRODUCTION

In the developing world, common people depend heavily on government for a wide range of public services. Though the governments, central, state and local, allocate a significant portion of their budgets for developing infrastructure and providing public services, the delivery system of public services itself is questioned on account of its failure to reach the intended beneficiaries with respect to access, productivity and quality [Reinikka and Svensson, 2002]. Criticisms are often raised over lack of infrastructural support, lack of accountability amongst the service providers, 'clientelism' amongst the policy makers, corruption, etc. [World Bank, 2004].

While resource constraint is considered as one of the probable reasons for poor functioning of the public service delivery system, two other potential reasons are as follows. First, resources are available but the ability and willingness to plan and utilise them properly remain much below the desired level. Second, resources are diverted to meet other priorities or there are leakages, which make it difficult to use them productively [Paul et al., 2004]. There are, thus, two interrelated deficiencies that may lead to the failure of public service delivery, viz., lack of proper need-based planning and lack of monitoring over resources. These two deficiencies could possibly be addressed suitably if the people or the primary stakeholders are brought onto the centre stage.

The present paper is, thus, an attempt to examine the role of people's participation in democratic governance and the shifting of the roles from users and beneficiaries to policy makers, co-producers and evaluators of public services. It attempts to build up arguments in favour of participatory processes to make the service delivery effective and efficient. Accordingly, the remainder of the paper is organised as follows. Section II deals with the concepts, implications and evolution of participatory development process and critically reviews this paradigm of development as an instrument to improve public service delivery system. Section III deals with different forms of participation and also demystifies the concept of the spaces of participation, and the importance of local institutions in the process. The determinants of participation are identified in section IV. Section V presents alternative frameworks in delivering

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public services. Section VI examines the link between people's participation and public service delivery primarily through some empirical evidences. Section VII presents concluding remarks.

II. PARTICIPATORY DEVELOPMENT: CONCEPTS AND IMPLICATIONS

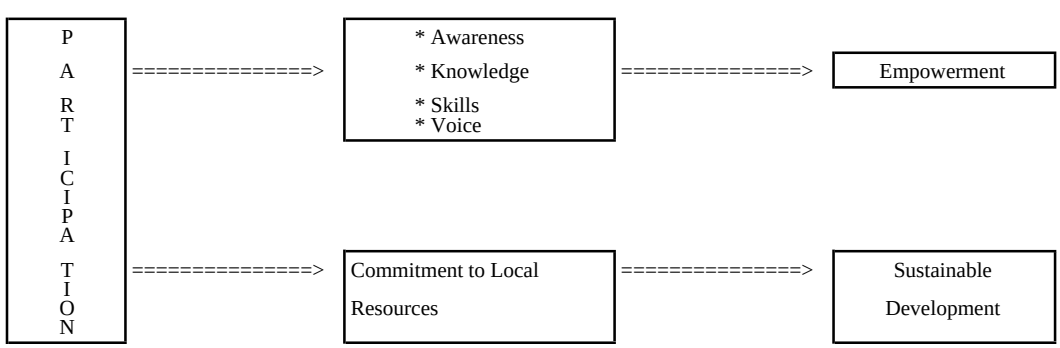
Participatory development is a process by which the efforts of the people are united with those of the governmental authorities to improve economic, social and cultural conditions of the society, to integrate the local communities into the life of the nation, and enable them to contribute to the progress of the nation [McPherson, 1982]. In participatory development, people take active and influential part in shaping decisions that affect their lives [OECD, 1993].

The process of development is viewed not as the sole responsibilities of the community or the state, rather it involves collective responsibilities. The understanding of this dynamics of partnership and engagement between civil society, government and donors remains a critical concern [Gaventa and Valderrama, 1999]. Participation is recognised as a means of empowerment. The idealised aim is to enable people to present, share, analyse and augment their knowledge as the start of a process. The ultimate outcomes are, however, enhanced knowledge and competence, and ability to make demands, and to sustain action [Chambers, 1994].

Although participatory development had been in vogue as a development agenda since the 1950s, it gained momentum only in recent years. The reasons behind its renewed importance may be the following. It is now recognised that participatory development can help meet development objectives of growth, equity as well as the concern for sustainability, good governance and democratisation. The novelty of participatory development lies in a new people-centred vision and development, which replaces the top-down procedures with approaches based on joint learning and negotiation [World Vision International, 2004].

The primary goal of participatory development is to involve local communities and all other stakeholders by creating 'invited space' for participation [Cornwall, 2004]. It promotes creation of voluntary associations, which can identify, plan, control, maintain and use local resources for all-round development of local communities. The rapid growth of such citizens' initiatives is said to have emerged as a new accountability agenda. The voice of the people is at the core of such initiatives as it may be argued that the more the citizens are informed about the crises and needed responses, the more they are likely to hold people's representatives electorally accountable [World Bank, 2004].

Figure 1. Linking Participation to Sustainable Development Process and empowerment



Source: Adapted from Fals Borda (1988).

The participatory process, which builds trust in government and legitimises state action, also empowers people to hold government responsible [Besley et al., 2005] and demand for entitlement [Chambers, 1994]. As Sen [1999] puts it, participation is valuable in itself as it emphasises on the process aspect of freedom, part of which is development. In this way, empowerment or upside governance replaces the top-down reform. Through participation, a radical change in social and economic structures can be brought about, thereby empowering the exploited. A sense of ownership over public resources can also be created, leading to sustainability of the development process [Fals Borda, 1988] (Figure 1). In essence, participation can lead to empowerment when people are allowed to become agents, and not mere beneficiaries of their own development [Goulet, 1971]. Authentic empowerment of the masses depends, to a large extent, on when participation begins in the overall sequence of steps [Goulet, 1995]. It involves active decision-making, in contrast with passive acceptance of decisions by others [Nussbaum, 2000], and expansion of people's capacity in decision-making in the long-run. People must be allowed to make choices that can reduce social and political barriers to the wellbeing (http://www.ethicsofempowerment.org/papers/DrydykGouletFest.pdf).

Participation and empowerment are often considered deeply complementary to each other [Pettit, 2012]. Without meaningful participation, empowerment can remain an empty and unfulfilled promise, and without genuine empowerment, participation can turn out to be just a token exercise [Cornwall and Brock, 2005]. They are both means and ends, and also processes and outcomes [Pettit, 2012].

From another standpoint, some authors define participation as a fuzzy concept acquiring varied meanings over time. At one end of the spectrum, it could mean just a nominal membership in a group, while, at the other end, it could imply having an effective voice in the decision-making process, which has an empowering agenda for community members [Puri, 2004; Agarwal, 2001]. Development economists tend to define participation of the poor in terms of the equitable sharing of the benefits of projects and treat it as an instrument to enhance the efficiency of projects or the co-production of services [Paul, 1989].

The discourse on participation is, however, criticised from various standpoints. Williams [2004] identifies three shortcomings of participatory development, viz., (a) emphasising personal reform over political struggle, (b) obscuring local power differences, and (c) using a language of emancipation to incorporate the marginalised of the global south within an unreconstructed project of capital modernisation. Some others criticise the discourse for assuming communities as undifferentiated, homogenous and depoliticised entities [Bhattacharyya, 2007]. Participatory process also places unfair burden on the shoulders of the rural people [Oakley, 1991]; and at times, the process forces the people to engage against their will [USAID, 1993].

Participatory development is also questioned for its systemic inability to embrace alternative world-views and knowledge [Cooke and Kothari, 2001]. Putting more emphasis on the process is another aspect of criticism. The focus on interaction also directs attention away from justice and sustainability of the material outcomes of planning interventions [Healey, 2003].

Participatory democracy is often questioned for its risk of being captured by socio-economic elites [Brownlea, 1987; Bardhan and Mookherjee, 2000a; Bardhan and Mookherjee, 2000b; Behar and Kumar, 2002] and political opportunists [Besley et al., 2007]. It may be difficult to advocate democracy in rural areas where large numbers of people are dependent upon a few local elites [Platteau and Gaspart,

2003]. The places with high inequality and poverty are likely to be more vulnerable to capture either by political leaders or local elites [Bardhan and Mookherjee, 1999]. Local elites may influence the local officials to channelise resources to them and resist sharing of resources and power. Participation is also used as a sham, where local people have no real ability to influence the direction of a project [Cooke and Kothari, 2001] and marginal groups lack proper empowerment [Blair, 2000]. The reason for such bias in the distribution of benefits in favour of the local elite could be that the political parties are dependent upon a specific class for political support. For the said reason, in the land reform process of Bangladesh, the ruling party showed its loyalty to some farmers only [Blair, 1974]. In Kerala, local beneficiaries are selected mostly according to political considerations [Das, 2000].

Participatory development is also questioned from the standpoint of unequal empowerment. It at times reproduces social inequalities within communities. Some stakeholders have lesser voice and influence than others and this is particularly true with women, who continue to remain marginalised. Even in decision-making bodies deliberately created for women to represent, there is inherent bias in favour of the *status quo*, thus defeating the very purpose. Moreover, even where women achieve formal representation, having a voice may be far less than equivalent to having influence. Even where influence is achieved, it may end up being used by some women against others or in other cases, it can be met with a damaging male backlash [Cornwall, 2003].

In the context of women's empowerment, one may argue that mere participation of women in decision-making spaces may not signify empowerment, and there is a difference between 'formal' power and 'effective' power. While there is no doubt that women have been given formal power to get elected and there is prescribed mandate to get them involved in decision-making, they continue to face a masculine model of politics, a dual burden of domestic chores and professional obligations, and lack of confidence and self-esteem [Shvedova, 2005]. In India, there are instances of women holding formal rather than effective power due to reasons like opposition from the families, interference by husbands, discrimination in meetings, lack of community support, lack of education and dependence on men [Hust, 2004; Rai et al., 2006].

Public participation is also used as a means of social control through which government may legitimise its actions. Aitken [2010] presents the case of a planning application to construct a wind farm in a rural area of central Scotland and argues that government managed to legitimise their decisions of this controversial project by creating an illusion of democratic involvement while restricting the influence of those participating. Historical examples of institutions of decentralisations at times show that they can in practice lead to a system of regimentation and extension of coercive power of the state to the lowest level [Puri, 2004].

In participatory practices, it is likely that a party-society can evolve from a patron-client relationship, which could alienate local people from the decision-making process [Bhattacharyya, 2009]. In West Bengal, such a scenario continues to prevail despite the recent introduction of a new layer in governance, the *Gram Unnayan Samiti* or Village Development Councils, comprising political members from both elected and opposition parties, and certain nominated members [Chattopadhyay et al., 2010].

Despite such shortcomings, participation, as a political concept as well as a process, has opened up space for new relationship between governments and citizens. The concept carries dynamic implications in the wake of recent policies of

decentralisation, where people are not only expected to voice their opinions during elections, but also enjoy the power to participate in the decision-making processes. World Bank Learning Group on Participation defines participation as a process, through which stakeholders influence and share control over development initiatives and the decisions and resources which affect them [World Bank, 1996]. People's Participation also has a social dimension, which relates to various associational activities of individuals or communities in both formal and informal ways. This paradigm of development tries to address the qualitative dimensions of development, which shortens the consciousness gap between leaders and masses [Oakley and Marsden, 1984].

II.I. People's Participation: A Paradigm Shift

Though the foundation of democracy of the modern time was laid by 'The Magna Carta' of England in 1215, it gained prominence in some countries after the World War I (France, Germany, etc.,) and in many other countries of Europe after World War II [Pillai, 2006]. From raising awareness in 1960s, democratic decentralisation has evolved as a process of engagement with government in decision-making related to development programmes, and management and production of public goods and services (Table 1).

Table 1. Historical Typologies of Participation

Year	Typologies	Proponent
(1)	(2)	(3)
1960s	Awareness raising	Van Tatenhove and Leroy (2003)
1970s	Incorporating local perspectives in data collection and planning	Pretty (1995)
1980s	(a) Recognising local knowledge and "put the last first" as well as making use of knowledge and perception of poor (b) Rapid and Participatory Rural Appraisal	Chambers (1983)
1990s	As a norm included in the sustainable development agenda	United Nations Conference on Environment and Development (1992)
2000	As a process of engagement with government to ensure success and sustainability of development programmes	World Bank (1998)
2004	As a process of co-governance, co-management and co-production	Osborne and McLaughlin (2004)

Source: Adapted from Reed (2008).

During the last few decades, new modes of governance like 'democratic decentralisation', 'participatory development' and 'civil society' have gained immense importance in the development paradigm. For example, while in 1974, there were only 39 countries, which had electoral democratic governance, the number increased to 121 in 2002 [World Bank, 2004]. This rapid democratisation is stated to have brought the government closer to the people and made the process more participatory. The primary aim of democratic governance has been to give the people an empowered and meaningful role in decision-making process. Rather than following the approaches like decision-making by the bureaucracy or by the political representatives, people's participation is construed as an essential pre-requisite for improving the performance of public service delivery [World Bank, 2004].

In recent times, the participatory process has gained widespread recognition in development discourse. It is now acknowledged that wider public participation improves the government's ability to discern public interests and provide

customised services. Through this mechanism, people can hold public officials accountable [Held, 1987; Patnaik, 2005]. With greater recognition of civil society and increasing emphasis on good governance, the concept of participation is shifted from beneficiary in state delivered programmes to an understanding of participation as a means of holding the state accountable [Cornwall and Gaventa, 2000].

The concept of participation in course of time has acquired a spectrum of meanings and given rise to a diversity of practices. Participation is now seen from the perspective of negotiation [Leeuwis, 2000], communicative action [Habermas, 1984], a tool to foster people's power [Fals Borda, 1988] and as a means of empowerment [Chambers, 1994]. Its explanation now is no more limited to turning up in the polling booth or taking part in a particular development project. Scholars across the globe have of late disregarded the Schumpeterian notion of participation which is restricted only to expressing their mandate in the electoral process for electing representatives [Patnaik, 2005] and argued that such restricted participation results in the establishment of institutions and processes that tend to discourage citizens' participation.

The participatory development approach is the outcome of a search for an alternative to the conventional mainstream development models [Williams, 2004]. As Pillai [2006] argues, the search for an alternative model became necessary because of the widespread dissatisfaction with the pattern of growth that did not trickle down or alleviate poverty. Development distortions started becoming visible in many countries like Brazil, Iran, Mexico, Pakistan, South Africa, and Bolivia, including India. It was observed that the conventional growth model did not guarantee any promising future for the vast majority of the people. The discontent in these countries precipitated a search for an alternative paradigm and strategies for development received top priority among the political representatives, academics and policy makers. Participatory development emerged as the most vehemently suggested alternative paradigm [Pillai, 2006].

In this evolving paradigm of development, according to Chambers [1997], there is a new high ground, a paradigm of people as people. On this ground, decentralisation, democracy, diversity and dynamism are combined. Multiple local and individual realities are recognised, accepted, enhanced and celebrated. Baskets of choices replace packages of practices. Doubts, self-criticism, self-awareness and acknowledgement of error are valued.

Box 1. Legal Enabling Environment for Citizens' Participation

* Philippines: Local Government Code (1991)
* India: 73rd and 74th Constitutional Amendments (1993)
* Honduras: Municipal Law (1990)
* Bolivia: Popular participation Law (1992)
* Namibia: Local Authority Act (1992)
* Uganda: Local Government Act (1997)
* Tanzania: Local Authorities Law (1992)

Source: Gaventa & Valderrama (1999).

The 1980s and 1990s witnessed gradually growing criticisms about the conventional development models and strategies. The latter have considered development primarily as a series of technology transfer with the aim to increase growth, which would trickle down the benefit to the lower strata of societies. The basic fault of the conventional approach was that it never bothered to consult the poor, the marginalised and other primary stakeholders in the process of decision-making nor did it involve people at the grass-root in the implementation, monitoring and evaluation processes. This might have tempted countries across the world to amend constitutions and create legal provisions for citizens' participation (Box 1).

In course of time, gender representation has gained enormous significance, leading to increasing participation of women in democratic processes. The representation of women in democratic governance remains crucial to ensure equal rights to women, maintain the legitimacy of governance based on people's (including women's) trust, guarantee realisation of women's unique needs and preferences, and utilise the female talent pool as a valuable source of human resource [UN, 1992].

III. FORMS AND LEVELS OF PARTICIPATION

People participate in different activities differently. As Schouten and Moriarty [2003] suggest, for participation to lead to expected sustainable outcomes, people need to be involved in higher levels of decision-making. There are several hierarchies and forms of participation. Human Development Report (HDR) [UNDP, 1993] identifies two basic forms of participation, namely, participation as individuals and participation as groups. As individuals, people participate in electoral processes. However, group action is more effective as it may influence their economic, social and political lives.

HDR [UNDP, 1993] identifies four basic dimensions of participation, viz., (1) household participation, (2) economic participation, (3) social and cultural participation, and (4) political participation. In social life, people participate as members of a household or a community organisation or an ethnic group, whereas in economic life, they participate as producers or consumers or entrepreneurs or employees. People's participation in economic life creates a basis for self respect and social dignity, whereas that in the political process makes the people aware and empowered. Cornwall [2004] argues that citizens are ready to participate and share their political agendas with bureaucrats as long as they are offered appropriate opportunities and that bureaucrats are willing to listen and respond.

Arnstein [1969] introduces the concept of 'ladder of participation', which depicts the range and intensity of participation and represents eight rungs of participation. The ladder describes a continuum of increasing stakeholders' engagements from passive dissemination to active engagement and control. He believes that participation is a 'categorical term' for citizens' power. Though levels of participation varies according to context, objectives and capacity of the participants [Richards et al., 2004; Tippett et al., 2007], the higher rung of participation is usually preferred [Arnstein, 1969].

The typologies of participation are based on two distinct approaches, namely, normative and pragmatic. Normative approach focuses on processes, suggesting thereby that people have a democratic right to participate in decision-making. Pragmatic approach, on the contrary, treats participation as a means to an end, the latter being delivery of high quality decisions [Reed, 2008]. Alternatively, the approach to participation is based on objectives. Consequently, participation is categorised as 'research driven' or 'development driven' [Okali et al., 1994] as well as 'plan-centred' and 'people-centred'. The

plan-centred participation emphasises on outcomes, while the people-centred participation builds capacity and empowers stakeholders to define and meet their own needs [Michener, 1998]. Though participation improves decision-making, the quality of a decision is largely dependent on the quality of the process that leads to it [Reed, 2008].

Table 2. Forms of Participation and their Characteristic Features

Forms/Levels of Participation	Characteristic Features
(1)	(2)
1 Nominal participation	Membership in a group
2 Passive participation	Being informed of decisions ex post facto; or attending meetings and listening in on decision-making, without speaking up
3 Consultative participation	Being asked an opinion in specific matters without guarantee of influencing decisions
4 Activity-specific participation	Being asked to or volunteering to undertake specific tasks
5 Active participation	Expressing opinions, whether or not solicited, or taking initiatives of other sorts
6 Interactive (empowering) Participation	Having voice and influence in the group's decisions
7 Instrumental Participation	Contributing inputs to service delivery with or without attending meetings, raising issues and making complaints
8 Transformative	Participation as empowerment. Practical experience of being involved in considering options, making decisions, and taking collective action.

Source: Agarwal (2001) and White (1996)

Participation may be multidimensional. White [1996] recognises two dimensions of participation in a particular project, namely, 'the people', i.e., 'who participate' and the 'level of participation'. Distinct from other approaches, White identifies four forms of participation, viz., nominal, instrumental, representative and transformative. Following similar line, Agarwal [2001] extends it to six forms, viz., nominal, passive, consultative, activity-specific, active and interactive (Table 2). As participation is a dynamic process, there is, however, a strong tendency for levels of participation to change over time [White, 1996] and these are determined by the participants' socio-economic status, skills, knowledge and intrinsic personalities [Galiher et al., 1971].

Since the 1970s, the concept of co-production has emerged as a direct form of participation. The concept of co-production is related primarily to the involvement of citizens in production, i.e., direct involvement of users. It is a form of participation, whereby citizens provide inputs to services that are traditionally produced exclusively by public agencies. Co-production is defined as a way to establish synergy between efforts of the government and citizens [Brandsen and Pestoff, 2008]. Ostrom [1996], one of the proponents of co-production approach, argues that citizens can play an active role in producing public services of consequence to them. Many public services require, for their execution, active involvement of the public and especially the direct beneficiaries. Accordingly, three broad types of activities constituting co-production are (a) citizens requesting assistance from public agents; (b) citizens providing assistance to public agents; and (c) citizens and agents interacting to adjust each other's service expectations and

actions [Whitaker, 1980].

Co-production is also important for services, which seek transformation of behaviour of the persons being served and reduction of over-reliance upon service agents and bureaucratic organisation [Whitaker, 1980]. Two other dimensions of co-production are co-governance and co-management [Osborne and McLaughlin, 2004]. In terms of users' involvement and institutional arrangement, co-production calls for implementation, while the two others call for policy formulation [Brandsen and Pestoff, 2008].

III.I. Spaces of Participation: The Concept of Democratic Space

Though the neo-liberal revolution in development theory questions the role of the state in development, in developing countries, the state is expected to play a major role in the upliftment of the poor and other dependent groups. The state is expected to create invited spaces to involve people from all spheres of the society into the decision-making process so as to make the system more effective and efficient. This form of participation as a spatial practice emphasises on the relation of power and construction of citizenship that permeate any sight for public engagement [Cornwall, 2002].

Cornwall [2004] categorises the concept of 'space' into two distinct arenas of participation, viz., 'invited space' and 'popular space'. An invited space is provided by the government and often used for deliberation or communication and at times, it takes the shape of regularised institutions. Popular space, on the other hand, is an arena in which people come together at their own will, be it as a protest against government policies or the interventions of foreign powers or to produce their own services or for solidarity and manual aid. Popular space may be the outcome of the passion of the people about any relevant issues or it may take the form of any association or group. This spatial metaphor in the contemporary development discourse is gaining momentum in involving people more directly in the process of development [Cornwall, 2004].

The local level institutions play the primary role in creating invited space for people's participation. Local representatives are elected to represent local community and are accountable to providing services in accordance with community demands. These institutions function as democratic organs under an overall framework. Drawing from the experiences of Argentina, Peru and others in Latin America, Herzer and Pirez [1991] conclude that the existence of popular organisations at the local level and the occupation of political posts in the municipal government by parties or individuals who favour popular participation seem to be the fundamental conditions under which citizens can influence decisions at the local level. In India, the 73rd Constitutional Amendment Act, 1992, has restored the importance of *gram sabha*[1] as an 'invited space' and an active institution for undertaking development activities based on local needs.

These types of participatory forums open up effective channels and spaces of communication and negotiation between the government and the citizens. It enables citizens to engage directly in local problem-solving activities and place their demands directly to state agencies. The space for direct engagement guarantees the poor access to decision-making and social services, hence enhancing prospects for economic and political inclusion [UNDP, 1993]. Responsibility of a local government institution is not only to invite people to participate in decision-making process but also to give them responsibilities and capacitate them to perform their duties.

Apart from invited spaces, local level civil society organisations and community based organisations also play significant roles in creating conducive environment for collective

actions via creation of popular spaces. These, in turn, make people aware and ensure deliberations over decision-making process and monitoring over services. Self help groups (SHG), as a popular space, play a significant role, especially enabling women to participate in decision-making process [Agarwal, 2001]. Similarly, village education committees (VEC) play an instrumental role in monitoring and improving services of education in villages of India [Banerji et al., 2006].

IV. DETERMINANTS OF PARTICIPATION

As participation is construed as an essential development paradigm, its level and quality is determined by several socio-economic, political, cultural and institutional factors. As Sen [1999] puts it, 'what people can positively achieve is influenced by economic opportunities, political liberties, social power and the enabling conditions of good health, basic education and the encouragement and cultivation of initiatives. The institutional arrangements for these opportunities are also influenced by the exercise of people's freedom, through the liberty to participate in social choice and in the making of public decisions that impel the progress of these opportunities'. This clearly establishes a direct linkage between various dimensions of human development and level of participation.

People's participation has three basic prerequisites, viz., (1) equitable access to health and other aspects of physical wellbeing, (2) equitable access to knowledge, and (3) skill, technology and information and equal human rights [UNDP, 1993]. Participation, to be operational, requires (a) a minimum level of education, basic capabilities and equality based on gender, religion or caste; and (b) empowerment of the people at the local level, as local elites often influence officials and resist sharing power [Narayan et al., 2000].

Effective community participation in development activities requires some degree of individual empowerment reflecting a sense of control over one's life and individual agency. Besides, a sense of community empowerment or the belief that the collective voice is heard more favourably and has greater influence than individual voices makes participation more meaningful [Mahmud, 2004]. In this context, three broad sets of factors that may matter are (a) incentives to individuals, (b) socio-economic and structural factors, and (c) normative and ideological forces [Verba et al., 1993].

Apart from these factors, household and individual characteristics, socio-economic and political position of households are also considered crucial for household participation. Education stands out to be an important variable that can serve as an indicator of both social status and economic opportunities [Adhikari et al., 2004] and is perceived as a crucial determinant of participation in democratic politics [Almond and Verba, 1989]. Education has a strong positive impact on social and political engagements like taking part in community based projects, attending seminars, writing letters to newspapers or contacting public officials and registering to vote [Glaeser et al., 2007; Helliwell and Putnam 2007]. There is a significant positive relationship between years of education and group membership [Glaeser and Sacerdote, 2001].

There exists a positive relation between the level of household education and participation in group meetings and in decision-making [Nisha, 2006]. In her study on rural water supply in five GPs of Kerala, Nisha [2006] found that as the level of education increased by 1%, the rate of attendance increased by 0.13% and influence on decision-making increased by 0.28%. Agarwal and Gupta [2005], however, emphasise that

education is statistically significant with a negative sign, which indicates that higher the number of years of schooling, lower is the likelihood of participation.

Political influence also works as one of the important determinants of participation. In a democracy like that in India, it is likely that a participatory development scheme is shaped efficiently by the existing political networks than village based social capital stock [Veron et al., 2003]. In their study on participation of the people in 20 village constituency meetings in West Bengal, Ghatak and Ghatak [2002] found political affiliation as one of the most important driving forces for people attending these meetings. They, further, observed that in the meetings, a majority of the voters present belonged to the parties of the elected members. According to their estimates, the simple correlation coefficient between the parties of the elected members and the percentage of participating voters belonging to the same party was 0.95.

In an overwhelmingly politicised environment of the *Panchayats*[2] [Ghosh, 1988; Chattopadhyay et al., 2010], stock of social capital seems to be failing to promote the working of the democratic bodies [Veron et al., 2003]. There exists a gap in communication, hindering local people to understand the real benefits of an invited space. Political parties take advantages of poor awareness level of the people and consequently, they use this space as an alternative power base [Chattopadhyay et al., 2010].

There are also evidences that the relatively affluent individuals do not attend these meetings, as they do not see any immediate benefits [Sengupta and Ghosh, 2004]. Considering landholding as an indicator of affluence, Bardhan et al. [2009] establish in the context of West Bengal that while attendance rate in village meetings does not vary according to landholdings, the big farmers are certainly ahead of the rest as far as standing up and speaking in a gram sabha meeting is concerned. This could be due to the superior level of education among the big landowners. Interestingly, it is proved that maximum level of education in the household is significantly associated with gram sabha participation and to a lesser extent with gram sabha attendance. However, the possibility of income establishing a negative relation cannot be ruled out. With the increase in individuals' incomes, opportunity costs of participation increase leading to decline in participation [Weinberger and Jutting, 2001]. Nisha [2006] finds that income levels of households have positive but very weak influence on participation of rural people of Kerala in water supply project.

Community and community based organisations have significant impacts on participation [Nisha, 2006]. In a study on participation on three Indian states, namely Kerala, Madhya Pradesh and Tamil Nadu, Narayan [2005] finds membership of SHG as a driving force for the women to participate and more importantly, it also works as a mode of awareness. Minority groups exhibit greater propensities to participate in political actions of their identity and foster their political and civil rights. A study on US cities indicates that income inequality and racial fragmentations are inversely related to participation, and ethnic fragmentations influence participation negatively [Alesina and La Ferrara, 2000]. Nisha [2006] suggests that involvement of household members in community level organisations exerts positive impact on participation and their involvement in decision-making. The study finds that 1% increase in attendance of water user group members in the meetings of other local level organisations enhances the attendance in their own group meetings by 0.22% and their involvement in decision-making process by 0.40%.

Household characteristics are yet the other important determinants. The study of Weinberger and Jutting [2001], using data from two projects at Kashmir and Chad on women's participation in local governance, finds that participation is a function of both household and individual characteristics. Under household characteristics, factors identified are assets (land, livestock, etc.), and number of children. Under individual characteristics, the aspects they identify are bargaining power, age, years of schooling, group membership, monthly income of individuals, etc. The better-off households in terms of asset ownership are found to have a greater inclination to participate. Further, women who are members of the groups are also more prone to participate in local government decision-making compared to women without such membership.

Role of the people in invited space depends on the organisation's activities as well as willingness, and to what extent, the decision-making process remains participatory. Hence, while probing into who participate, it would not be correct to assume that all members participate with equal efficiency. As Galiher et al. [1971] put it, the level of participation is determined by the participants' socio-economic status, skills, knowledge and intrinsic personalities. On this issue, two different views prevail. While Bracht and Tsouros [1990] find that people participating at the local level are from elite communities, Wandersman and Giamartino [1980] suggest that people, who are more concerned about the neighborhood and more experienced in community leadership, are prone to participate.

The study of Besley et al., [2005] over 522 villages in four south Indian states establishes that *gram sabha* meetings are used by some of the most disadvantaged groups in the villages - landless, illiterate and members of the scheduled castes (SCs)/scheduled tribes (STs) - as a forum to influence policies in their favour. Holding such meetings improves the targeting of resources towards the needy. Quite a similar case is observed in West Bengal, where, though attendance of women is low in the *gram sansad*[3] meetings, SCs and STs are the largest categories to participate. Those refraining from participating are the ones who do not visualise any immediate benefit from such meetings [Ghatak and Ghatak, 2002].

In Tanzania, at the Ward Development Committee meeting, though the norms suggest for participation of local representatives, higher administration invites local elites with high level of influence at the time of taking important decisions [Mukandala, 1998]. Brownlea [1987] also conceives similar kinds of risks and consequently argues that if heterogeneity in the existing community structure is not recognised properly, an 'elite capture' may arise, thus, defeating the very purpose of invitation for participation.

Political minorities and those not directly associated with political parties stay away as they feel their opinion would carry little effects [Ghatak and Ghatak, 2002]. Bardhan et al. [2007], undertaking a study on West Bengal, however, are positive about the outcome. They find that in terms of allocating benefits, there is no evidence of discrimination or exclusion of those supporting the rivals of locally dominating political party. They further argue that the *gram sansad* meeting as a forum establishes accountability of local representatives.

While participation of all sections of people and more so, of the poor and the underprivileged, can be considered as a basic prerequisite for a well-functioning democracy, the politics surrounding participation may be subjected to scrutiny. In this context, the experience of West Bengal merits attention. In a study based on household level survey, Bardhan et al. [2009] find that during the regime of left front rules in West Bengal, the state was witness to high levels of

political participation in elections, village meetings and political campaigns. After controlling for education and immigrant status, households belonging to SC and ST communities exhibited significantly higher levels of attendance and active participation in *gram sabhas*, as well as in contribution to political campaigns. It may seem to indicate signs of higher accountability to the poor within the lowest levels of local governments. However, the possibility of 'clientelism' cannot be ruled out as there are evidences that a large fraction of those who attended meetings voted for the left. Evidently, one-half of the total population, comprising predominantly the SCs/STs and the landless, constituted a secure vote bank for the left for over the past quarter century. Moreover, as recurring benefits signify a secure vote bank, they were mostly targeted towards the households belonging to SC and ST, thus indicating possibility of political clientelism in participation. Clientelism, as Bardhan and Mookherjee [2012] define, involves strategic transfers made by political parties and governments to poor and disadvantaged groups as a means of securing their votes. These transfers come at the expense of long-term development and are inherently discretionary rather than programmatic.

In the context of participatory governance, gender representation remains crucial. Although studies suggest a gradual narrowing of gender gap in citizens' activities [Andersen 1975; Welch, 1977; Clark and Clark, 1986; Schlozman et al., 1994], women continue to remain underrepresented in the public sector, business, employment, and income [Haque, 2003]. Women representation in democratic governance continues to haunt for solutions. In this context, citing the case of East Asian countries, Haque [2003] finds many underlying factors of participation and representation of women in the governance process. Among all, education turns out to be one of the important factors. Women are likely to be more represented in countries where they have greater access to education. Education is also a strong determinant of women's participation in labour market [Lisaniler and Bhatti, 2005]. Kaku [2001] finds that in East Asia, the percentage of women in the workforce changes with increase in their education level. Second, there is adverse situation in employment, which makes the economy labour surplus and in turn, it makes the situation unfavourable for women to participate in the workforce. Third, a country's ideological perspectives lead to adoption of specific governance pattern, which may have impact upon creating spaces for women's representation.

The gender stereotypes, by limiting and dictating responsibilities and capabilities of women, constrain women's representation and participation. This is deep-rooted in the social norms and cultural traditions of East Asian countries with some cross-national variations. Public perceptions and attitudes towards women in their expected roles in various domains, viz., as wives, mothers, managers, politicians, and administrators, in a gender-biased society also exert impact on their participation. The political parameter is identified as yet another dominating factor, as the current political sphere is dominated largely by males and there is relative absence of women, especially at the top decision-making levels [Haque, 2003].

In empirical literature, while household income is found to empower women and enables them to take part in community activities leading to their greater participation [Atmis et al., 2007], with greater land holdings, the impact seems to be just the reverse [Farid et al., 2009]. Holding membership of social and community-based organisations also carries significant bearing (Narayan, 2005), which makes the women aware of contemporary issues and that, in turn, encourages women to participate in local level decision-making process.

V. PUBLIC SERVICE DELIVERY: AN ANALYSIS OF DELIVERY FRAMEWORK

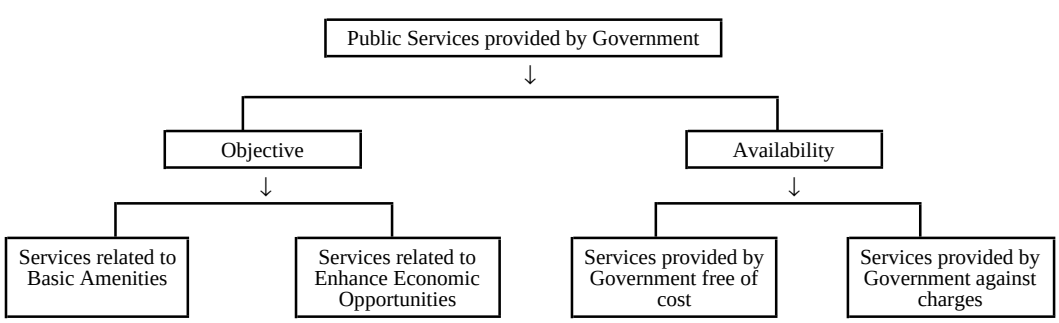
Basic Services are primary requirements for reducing poverty and improving the quality of life. It is widely accepted that state should take the responsibilities of providing basic services to its citizens. Normally, government is responsible for funding and providing the services of public goods. As Seetharamu [2004] argues, it is public, as it is provided by the government and it reflects the will of the public and the government.

Till some years ago, government with its multilayer existence was solely responsible for providing public goods. Since the time of the market reforms, private players have also been engaged in the payment of user fees to provide certain essential services. The monopolistic approach of state for providing basic services to the people was criticised for its old fashioned approach and unfeasibility, leading to the emergence of private players. Besides, direct social provisions through state agencies and indirect social provisions through sub-contracting, direct market provision on commercial terms, social provision through private association and self-provisioning through collective action are some such initiatives, which have emerged as alternative service delivery mechanisms [Joshi and Moore, 2004].

There are different mechanisms through which services are provided to the public [Roy, 2008; Pritchett and Woolcock, 2004]. Broadly they can be classified as follows: (a) some services are provided only by the government; (b) government provides some services through agencies; (c) some services are available from both government and open market; (d) some services are provided to augment economic development and extend livelihood opportunities; and (e) some services are provided to a target group.

Government provides various services to its citizens either freely or at a price. Services, viz., drinking water, education, law and order, immunisation, etc., are either free or involve a nominal payment, while issuing trade license and getting approval of construction plan involve payments. The services provided by the government can be, further, classified into two broad categories, one, based on objectives and the other, on availability (Figure 2). The services based on objectives include those that are related to basic amenities, and that which enhance the opportunities for economic activities. Drinking water, sewerage and health services are the basic amenities, whereas setting up of bank branches and providing loans to businessmen are what people need to expand their livelihood opportunities [Roy, 2008]. On the other hand, services based on availability are provided to improve the availability of essential services.

Figure 2. Classification of Public Services provided by the Government



Source: Adapted from Roy [2008]; Pritchett and Woolcock [2004].

Government provides some services through some private agencies or non-government organisations (NGOs). Services, which are not so essential for living and not related to citizens' rights, are sometimes assigned to the private agencies or NGOs. Government, however, may fix prices and monitor delivery to ensure quality. In India, foodgrains under public distribution system are delivered with the help of ration dealers or fair price shops with government monitoring. In the aftermath of civil war in Cambodia, government had contracted out primary health care service in 12 districts, and consequently, the health indicators and access to services by the poor had improved [World Bank, 2004].

Private organisations and agencies sometimes play complementary roles with government in delivering certain services. In this case, people decide from whom they should receive the services. For example, education, health services, banking services, etc., are available from both of these and the people decide their own service providers. Over the past few decades, participation of private players in delivering services like water and sanitation has grown significantly. Services like construction of roads, communication, irrigation, etc., are provided to augment economic development as well as to improve livelihood opportunities. Some people avail of these services by making payments, while others receive these without payments [Roy, 2008].

Government provides certain services to target groups, especially those who are in disadvantage. Provision of subsidised houses and foodgrains are some of the services government provides to a targeted section with a view to ensuring social justice. In India, government provides housing to the poor and other disadvantaged groups under the National Social Assistance Programmes. Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS), a flagship programme of the government of India, provides secure employment for 100 days in a year to the poor job card holders [GoI, 2008].

Based on the mode of delivering services, the services are further classified into two other broad categories: services that are (a) individual provider dependent; and (b) process dependent [Roy, 2008; Pritchett and Woolcock, 2004]. Under the former, according to the providers, services are further classified as discretionary or non-discretionary. Delivery of services in the former case depends on the providers' decisions. Non-discretionary services are those, for which, providers do not differentiate between recipients. Immunisation is an example for non-discretionary service, while bank loan is discretionary. The services, which are process dependent, may be transaction intensive (for example, issue of birth /death certificate) and non-transaction intensive (for example, teaching in a class). The process basically refers to the interrelation between the providers and the clients.

VI. LINKING PARTICIPATION TO PUBLIC SERVICE DELIVERY

Public services are the goods and services provided to the people. Participation brings about improvement in their quality and quantity. There are cross-country evidences of positive impact of participation on the performance of public works projects [Isham et al., 1995; Hoddinott et al., 1999].

Where the relationship between clients and providers remains stronger, service delivery becomes more effective [World Bank, 2004]. In this context, World Development Report, 2004 [World Bank, 2004] establishes two dimensional roles of the people in improving service delivery, viz., (a) designing the service delivery provision

according to their needs, and (b) monitoring providers of service delivery effectively and holding them accountable.

The central theme of participation is to give citizens a meaningful role in decision-making that affects them. Dreze and Sen [1995] and Webster [1992] argue that the poor functioning of the local public services in India relates to the centralised and non-participatory nature of their management. Participatory methods of governance receive utmost importance in different kinds of service deliveries. With the help of the data from 121 rural water supply projects from 49 countries of Asia, Africa and Latin America, Isham et al. [1995] establish a positive impact of participation on the performance of the project. Hoddinott et al. [1999], in their study on South Africa, also find a positive impact of participation on efficacy of public works projects and targeting of the beneficiaries. They ascertain that as the community possesses informational advantage, community participation offers the prospect of lowering the cost of anti-poverty interventions.

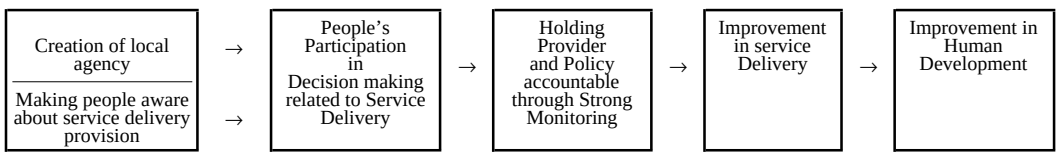
Collective action improves the performance of community based water supply projects in Indonesia [Isham and Kahkonen, 1999]. It also ensures redistribution to disadvantaged groups by enabling them to participate in decision-making [Chattopadhyay and Duflo, 2004]. Examining the role of reservation to minorities in local government institutions in Birbhum district of West Bengal, Chattopadhyay and Duflo [2004] establish that the local governments, even when not dominated by minority groups, are able to elicit their preferences and respond to them. However, when the bargaining power of the people belonging to SC increases, they witness an increasing share in public goods.

It is further ascertained that the *gram sabha* meeting is used as a forum by the disadvantaged groups to direct the policies in their favour. It is proved that a potential beneficiary falling below poverty line (BPL) is more likely to receive the benefits if his village holds *gram sabha* meetings, compared to another potential beneficiary in a village that does not hold such meetings [Besley et al., 2005].

Active engagement of citizens can improve basic services. A study on "condominial system" of Brazil, which provides drinking water and sewerage services to the urban poor, establishes such linkage. The active participation of local citizens in decision-making through neighborhood meeting and their engagement in planning has enabled them to design the services according to their needs. The citizens also decide the price for the services by negotiating with the government. This system is proved to be successful in providing lower cost urban essential services to the poorest neighbourhood of Brazilian cities. The success of this model has inspired countries like Kenya, Paraguay and Indonesia to replicate it in their respective places [Ostrom, 1996].

Participation is also considered as an essential element of human development. High human development warrants adequate and quality public services like education, health, drinking water, sanitation, electricity, etc. It is through participation that people can be closely involved in the economic, social, cultural and political processes, which, in turn, would enable them to get access to the above services according to their needs [UNDP, 1993] (Figure 3).

Figure 3. Participatory Process



Source: Adapted from Banerji et al. [2006]

The local level participation is considered as an effective instrument to achieving better educational outcome. In a study in India [Banerji et al., 2006], habitation level planning and community participation are envisaged as essential elements for ensuring universal enrollment, retention, and achievement to a satisfactory level of learning. VEC works as a tool for participation, planning and monitoring over the quality. At times, it fails to deliver due to inappropriate arrangements especially in making the community aware of its functioning [Banerji et al., 2006]. There are, however, evidences that if all the stakeholders are motivated to help improve services, the quality of services would tend to improve. It is this motivation that helped Chhattisgarh in India to realise about 25% increase in children's reading ability and arithmetic skills [Banerjee et al., 2010]. Where communities are aware about their oversight duties regarding academic activities, academic outcomes tend to improve [Pandey et al., 2010].

Participatory process may be required for four primary interconnected reasons. First, it helps strengthen legitimacy and accountability of democratic institutions. Second, it empowers communities and builds social cohesion. Third, this process helps provide public services to the communities according to their needs. Fourth, it helps enhance citizens' self esteem by developing their intrinsic skills and knowledge and makes them politically aware about their roles as active citizens [Brodie et al., 2009].

Legal and political empowerment is a prerequisite to bring people at the centre stage of service provisioning. It creates an alternative arrangement for service delivery. Though decentralised governance affects different segments of the poor differently [Von Braun & Grote, 2000], it gives local governments incentives to build capacity so that service delivery works for the poor more efficiently [Devrajan and Shah, 2004].

While participation remains crucial, magnitude and quality of service delivery depend upon who those served are. Ironically, the possibilities of 'elite capture' of public services [Behar and Kumar, 2002] and 'clientelism' in allocation of resources [World Bank, 2004] cannot be ruled out. In the context of West Bengal, for instance, Bardhan et al. [2009] find three levels of political clientelism-cum-loyalty of the households towards the previous governments. The weakest form of clientelism-cum-loyalty involves voting behaviour, whereby favours received from the GPs are returned by voting for the party locally in power. Interestingly, households voting for the left without any other political involvement did not get any extra benefits from left-dominated *panchayats*, possibly due to failure to prove allegiance openly as the election is based on secret ballot.

A more visible form of loyalty, as Bardhan et al. [2009] put it, involves attendance in political meetings. They discovered that within a village, the households regularly attending political meetings got more benefits than those who did

not, which proved the presence of clientelism. However, surprisingly, an active part in political campaigns exhibited a negative correlation with receiving benefits. Anecdotes picked up in the field by Bardhan et al., [2009] suggest that those campaigning for the locally dominant party wanted to project clean image of the party or they had hidden rewards meant for them outside the ambit of the *panchayat*-administered programmes as the benefits distributed through *panchayats* were much smaller in comparison. Finally, attendance in *gram sabha* meetings displayed a significant positive association with receipt of benefits. One may argue that this by itself may signal good governance. However, there can also be alternative interpretations, given the fact that attendance in *gram sabha* was having a positive correlation with voting for the left. As Bardhan et al. [2009] argue, one possible explanation could be that *gram sabhas* were dominated by left supporters who used them as a platform to receive more benefits. Those refraining from meetings knew that their demands would not be entertained. They further ascertain that it is the recurring benefits (but not one-time benefits) that matter in getting votes, which strengthens the possibility of clientelism and not voters' gratitude arising out of good governance.

Apart from participation, the working of service delivery system depends on various other factors and actors at different points of service delivery chain. It is also important to note that the level and quality of participation plays a pivotal role in determining the effective delivery of public services. Services, however, fail in terms of their availability, productivity and quality. Services, which are meant for a target group, and which are transaction intensive in nature and discretionary are prone to failure in reaching out to the intended beneficiaries, as the providers are likely to exhibit more control and discretion over selection of beneficiaries and providing services. Delivery of services also depends on the relationships of accountability of different actors in the service delivery chain. The actors so identified are citizens or clients, policy makers, organisational service providers and frontline professionals. These actors are linked in relationship of power and accountability. Citizens exercise voice over politicians or policy makers. Policy makers have compacts with organisational providers. Organisations manage frontline providers and clients exercise client power through interactions with frontline providers [World Bank, 2004].

World Development Report [World Bank, 2004] describes four ways in which services may fail. First, it could be due to diversion of funds from the poor to the non-poor. Second, even if the fund is reallocated, it does not reach frontline service providers. Third, the reluctance and attitude of service providers contain services from reaching the intended beneficiaries. Fourth, lack of demand from the poor keeps the services away from them.

The conventional organisational algorithm of providing basic services through civil service organisations is often questioned [Pritchett and Woolcock, 2004]. The failure of services can also be attributed to the following: (a) confused, overlapping and incomplete responsibilities of different tiers of the government, policy makers and service providers; (b) inefficient delivery due to capacity gap among providers and reluctance among providers; (c) lack of motivation or incentives; (d) lack of awareness among the people regarding the services; (e) lack of voice among the poor; and (f) long route of accountability [Roy, 2008]. Among all these, lack of awareness is considered as a direct factor deterring services to reach to the intended beneficiaries. It may be possible that low level of awareness is caused by low level of coverage of development programmes. Equally likely, low levels of awareness cause development programmes to remain limited in coverage and scale. Finally, a two-way causation with a low level of

awareness limiting development programmes and limited programmes causing low awareness cannot be ruled out either [Bardhan et al., 2009].

The service provisioning or benefits accruing to the people may be recurring or a one-time affair. Clearly a clientelist relationship between the political party and the electorate would involve distribution of recurring benefits. On the other hand, if votes are obtained due to gratitude factors, both kinds of benefits would be important. In West Bengal, being a member of either SC or ST community increased significantly the chance of getting benefits from the *panchayats*, which involved the possibility of clientelistic behavior [Bardhan et al., 2009].

The solution to better service delivery is partly institutional, which requires building up of capacities for service providers and strengthening incentives for providers to serve the poor. There is also a need for physical and mental separation of policy making, service provision and regulation so that efficient service delivery can be achieved [World Bank, 2004]. This can be addressed by giving people a meaningful role in service delivery chain and making them aware of the service provision. In Uganda, the newspaper campaign about spending for primary education led to an increase in recurrent spending on primary education from 13% to 80% of allocated funds. In India, districts with higher newspaper circulation themselves are found to be associated with better local government performance in the distribution of food and drought relief [World Bank, 2004].

The long route of accountability, i.e., citizens as clients influencing the policy makers and policy makers influencing the providers to improve service delivery provision, often breaks down, which causes failure. This deficiency can be met by strengthening the short route through enhancement of the clients' power over providers [World Bank, 2004]. In order to realise better public service delivery, there is an urgent need to place the poor at the centre stage of service provisioning as well as of monitoring and disciplining service providers by amplifying their voice in policy making [World Bank, 2004; Devrajan and Shah, 2004].

VII. SUMMARY AND CONCLUSION

It is evident from the preceding discussions that in recent decades, there is a growing discontent over the conventional development models as the latter seem to have failed to trickle down to the people at the bottom. Participatory development has, thus, emerged as a complementary development agenda as an upshot of such failures. Although the concept of participatory development had been in vogue for the last many decades, it has received its renewed importance since the 1970s both as a complementary development instrument and a prerequisite for successful implementation of development projects and programmes. The primary aim of participatory development is to involve local people in decision-making process regarding use of and control over local resources. The participatory process makes the people aware, enabled and empowered and in effect, it creates enabling spaces for engaging them in decision-making and making the services customised according to their needs. This bottom-up approach to development moves the people from the margin to the mainstream and emerges as a new accountability agenda. It is observed that participation in decision-making and collective action improves services delivered. The more the people are engaged in, the more the benefit they elicit. Besides, the process of participation also makes individuals and community aware about their rights and entitlements, and empowers them to hold the government accountable.

The participatory development process is, however, at times criticised for reasons like taking community as a homogeneous and depoliticised entity, and being captured by local elites and

political opportunists. It also puts unfair burden on the rural people and forces them to participate, and ironically, the government, at times, utilises participation as a tool to legitimise their actions. Despite these criticisms, empowering the masses and their engagement is stated to have opened up spaces for new relationships between the government and the citizens. There has been a paradigm shift in the concept and coverage of people's participation. It is now not limited to turning up to the polling booth, rather it is recognised as an important policy measure and strategy by government and international agencies to meet the objectives of democracy, transparency and good governance. There is a role reversal in that people, who were earlier mere spectators or used to play only the role of beneficiaries of government delivered programmes, are now considered as stakeholders of government programmes and services, and occupy the centre stage as decision-makers, evaluators and co-producers of services delivered.

Realising the importance of people's participation as an effective and efficient mode of governance, many countries have already amended their constitutions to make the decision-making and delivery mechanism more participatory. The administrative mechanism has been decentralised and spaces for participation have been created through local government institutions. Apart from that, civil society organisations and community based organisations are also encouraged.

Participation in decision-making process is said to be multidimensional. It has emerged with varied meanings, forms and levels, and is found to have transformed from a nominal participation, i.e., taking only membership of a group to interactive participation with a voice to influence the process and holding providers accountable. Participatory spaces like 'invited space' and 'popular space' are opened up to facilitate the process. Sometimes, spaces are created by government to engage people in local level decision-making processes and at some other times, people create their own spaces to deliberate or protest. Local government organisations and civil society organisations play crucial roles, in this respect, in creating and maintaining these spaces.

People participate at different levels according to their different intrinsic capabilities. It may be important to note that all those who participate do not necessarily do so with equal efficiency and effectiveness. Level of participation is influenced by participants' socio-economic status, skills, knowledge and intrinsic personalities. Prominent factors that are found to influence participation of individuals as well as community are household characteristics, level of education, level of income, political affiliation, and membership of community based or civil society organisations. Participation of women, on the other hand, is found to be dependent upon a different set of factors. Apart from education, social norms, cultural tradition, employment status of women, governance pattern and above all, spaces of women in the existing political structure influence their participation.

Till some years back, public services were meant to be provided by the government only. Presently, basic services are also provided by the NGOs and private players supplementing government provisioning. People can buy some services from open market from both private and government providers. Government provides some services to augment livelihood and economic opportunities. It also provides some services to target groups, particularly the underprivileged, to establish social justice and improve their economic status. On the basis of the mode of delivery, services provided by the government can be classified as dependent on individual providers as well as on the processes of delivery.

It is found that delivery of public services, which depend on the relationships of accountability of different actors in the service delivery chain, often fail to reach the intended

beneficiaries. The reason for such failure is multidimensional. The existing delivery mechanism is often questioned. Besides, diversion or reallocation of funds and attitude of the service providers also receive the blame. The lack of voice of the poor is another such factor. Delivery of public services may be improved by empowering the beneficiaries legally and politically. It is established that community engagement and collective action in decision-making, designing, monitoring and providing inputs to service delivery exert positive impacts on the quality of services delivered.

Ironically, there exist possibilities of 'elite capture' of public services and 'clientelism' in allocation of resources. The services delivered to the people may be recurring or a one-time affair. Evidently, a clientelist relationship between the political party and the electorate would involve distribution of recurring benefits. On the other hand, if votes are obtained due to gratitude factors, both kinds of benefits would be important.

To conclude, it may, thus, be stated that people's participation is an important development paradigm, which acts as a complementary development instrument towards improving the quality of public service delivery. Especially the democratic spaces like 'invited space' and 'popular space' are critical spatial practices in the contemporary development discourse. These spaces create fundamental conditions under which citizens can influence decisions at the local level. It may, thus, be imperative to protect and strengthen the institutions of participatory governance. The extent and quality of participation depends upon an enabling environment, which is gauged inter alia by the level of education, income, and active involvement of civil societies and NGOs and political forces. Such enabling environment needs to be created and fostered to achieve the desired goals. Participatory democracy will bear fruits only if there is effective participation of all sections of people, including especially the poor and the disadvantaged. Participation cannot be effective just by mere attendance in meetings; rather people must make opinions, raise voice and make choices for reducing social and political barriers to their wellbeing. It is, in this context, important to ensure that the possibilities of 'clientelism' and 'elite capture' are removed from both decision-making spaces as well as service delivery processes. Greater political will supplemented by active involvement of civil society and community based organisations could perhaps be necessary to achieve the same.

The purpose of this paper was to bring to the fore the changing paradigm of people's participation while focusing on different evolving concepts and contemporary practices. The primary thrusts were to examine varying forms of participation, the notions of democratic spaces as practised in different countries in recent years and to find out the impact of participation on public service delivery. The literature on participation made a strong argument in favour of more proactive role of citizens in governance and the notion of co-production. The review also highlighted the notion of people's empowerment, especially women's empowerment through their participation in local level decision-making process and drew clear-cut distinction between 'formal power' and 'effective power'. The paper made an attempt to go beyond understanding participation from the standpoints of forms, spaces, and drivers relevant to any specific country [Brodie, et al., 2009], to examine concepts, notions and determinants of participation in the global context. One specific contribution of this review was to find out the linkage between participation and public service delivery and to ascertain 'elite capture' and 'clientelism' as distorting elements in the service delivery chain and allocation of public resources to intended beneficiary. On the basis of the review, the study argued for a 'short route' of accountability replacing the 'long route' in order to address the overcome the challenges in service delivery.

While there is no denying that the literature on participation is rich and diverse, there are still gaps the review brought into open, which could be taken up and pursued in future. To be specific, though the earlier studies have identified two distinct spaces of participation - invited and popular -, the studies on the role of popular spaces in governance and service delivery are inconclusive and inadequate. There have been attempts to evaluate the status of state delivered public services. Efforts towards assessing the delivery of public services from the perspective of users' feedback are, however, rare. Further, it may be argued that greater participation may enhance the quality of public service delivery. However, it may not necessarily guarantee improved satisfaction. It may thus be interesting to examine what determines the satisfaction level of the users from public services delivered. There thus still remain rooms for further research in these vital aspects.

NOTES

1. A body consisting of all electorates under a GP, village level institute of local self governance, which meets to guide and advice GP in all matters related to local development and allocation of public resources.

2. A village level self government institution.

3. An assembly of all the voters of polling station and is the forum to make GP directly accountable to all its voters.

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DOCUMENTATION

The purpose of this section is to make available to the readers official documents such as reports of committees, commissions, working groups, task forces, etc., appointed by various ministries, departments, agencies of central and state governments and international organisations, which are not readily accessible either because they are old, or because of the usual problems of acquiring governmental publications, or because they were printed but not published, or because they were not printed and remained in mimeographed form. We also present in this section, official documents compiled from scattered electronic and/or other sources for ready reference of the readers. It will be difficult and probably not worthwhile to publish the documents entirely. We shall publish only such parts of them as we think will interest our readers. The readers are requested to send their suggestions regarding official documents or parts thereof for inclusion in this section.

We are also keen to publish Papers, Notes or Comments based on the material included in this section. We invite the readers to contribute the same to our journal, which we shall consider for publication in subsequent issues of the journal, after the usual refereeing process.

In the present section, we publish:

1. Extract from Report of the Social Economic and Educational Status of the Muslim Community of India, (Chairman: Rajinder Sachar) Prime Minister's High Level Committee, Cabinet Secretariat, Government of India, November 2006. Chapters 3, 4, 5, 8, and 12 and Appendix Tables

2. Extract from NSS 66th Round, Report No. 552: Employment and Unemployment Situation among Major Religious Groups in India, (Chapters 2, 3 and Appendix Tables)

SOCIAL ECONOMIC AND EDUCATIONAL STATUS OF THE MUSLIM COMMUNITY OF INDIA
(Prime Minister's High Level Committee, Cabinet Secretariat, Government of India, November 2006)

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CHAPTER THREE
POPULATION SIZE, DISTRIBUTION AND HEALTH CONDITIONS OF MUSLIMS

2001 census enumerated India's Muslim population at over 138 million, and by 2006 it would have crossed 150 million

1. Introduction

Muslims constitute the second largest religious group in India and thus the largest religious minority. The 2001 census enumerated India's Muslim population at over 138 million, and by 2006 the Muslim population would be over 150 million. India's Muslim population is amongst the largest in the world, exceeded only by Indonesia's and close to the Muslim populations of Pakistan and Bangladesh. Moreover, it is larger than the total populations of most countries of the world. India is considered an overpopulated country and India's population policy seeks to achieve replacement level fertility by 2010. However, population policy implementation in India has come under severe attack, more so due to the element of coercion inherent in the promotion and acceptance of modern contraceptives. Besides, Indian population policy does not adequately recognise the multi-dimensionality of the economic and social forces that prevail upon the household decisions regarding the size of families. For example, there are no noteworthy and dependable social safety nets in place to protect the interests of the poor and infirm, and therefore old age security still dominates fertility decisions, although the average family/household size has reduced over time. The population programme is over dependent on female sterilisation with little or no choice based access to a basket of family limitation procedures. There is little recognition of the fact that ultimately it is development and equity that empowers citizens to make informed choices with respect to family formation. In this regard the impact of education, especially of women, has shown dominant

influence, not only in reducing fertility but also in the reduction of infant and child mortality, improvement in birth weights and overall human development.

population policy does not adequately recognise the multidimensionality of the economic and social forces impinging upon household decisions on family size

In India, populations of all major religions have experienced large growth in the recent past, but the growth among Muslims has been higher than the average. Religious differentials in growth were observed in the pre-Independence period as well. The last intercensal decade however, has shown a reversal in the trends in growth; *not a negative growth but a decline in intercensal growth* for India, from 23.9% during 1981-91 to 21.5% during 1991-2001. This has occurred in both the largest religious communities, Hindus and Muslims, with the latter showing a larger fall from 32.9% to 29.5% or 3.4 percentage points, and the former from 22.7% to 19.9% or 2.8 percentage points. Thus, the growth differential has narrowed and is an early indication of convergence occurring over the medium term.

chapter presents a demographic profile of India's Muslim population within the framework of the ongoing demographic transition

This chapter presents a demographic profile of India's Muslim population within the framework of the ongoing demographic transition. Since India is culturally diverse and large in terms of geographical expanse, the states of India are at different stages of fertility and mortality transitions. Hence, the spatial distribution of the Muslim population and variations in the demographic characteristics across states or regions are both noted wherever necessary. The rest of the chapter is divided into seven sections. The levels and trends in the size, growth, and share of the Muslim population at the national level are presented in section 3.2, the spatial distribution in 3.3, the age-sex composition in 3.4, and urbanisation in 3.5. This is followed by an assessment of components of population dynamics, mainly mortality, especially infant and early childhood mortality, fertility, and migration in 3.6. Besides, child nutrition is discussed in 3.7. At the end, in section 3.8, prospects of further growth of population using alternative assumptions, which facilitate a dispassionate and apolitical understanding of India's religious demography, are discussed.

Population growth has been high for all the major religions over the period with the Muslim population increasing rapidly from 47 million to 138 million

2. Population Size and Growth

At the beginning of the twentieth century, the Muslim population (in the post- Partition areas) was close to 30 million and grew rather slowly up to 1921 and later moderately, as did the overall population. Partition led to large-scale migration, and in 1961, well after the major Partition-linked migration had ended, India's Muslim population was enumerated at 47 million, about 10% of the total population of 439 million. The latest census, conducted in 2001, enumerated 138 million Muslims out of India's total population of 1029 million.

India's population has experienced a rapid growth after 1961, generally at a rate exceeding 2% per annum up to the 1990s and the intercensal increase has been over 20% in each of the four decades since 1961. The growth has been fairly steady, with some decline seen towards the end of the century. Over the forty-year period 1961 to 2001, the population more than doubled, from 439 million to 1029 million, an increase of 134%. The rapid growth is attributed to a sharp fall in mortality; though fertility also declined, especially over the later portion of the period, the

decline has not matched that in mortality. Population growth has been high for all the major religions over the period with the Muslim population increasing rapidly from 47 million to 138 million (Appendix Table 3.1). This amounts to an increase of 194%, just short of trebling, and much higher than the average increase of 134%. The Muslim population growth has been close to 30% in each of the four intercensal decades since 1961, with the latest decade showing a fall to a level just below 30%.

The annual growth rate has averaged 2.7% over the period 1961-2001, well above the national average of 2.1%. Hindus and Christians show marginally lower growth, 2.0 percent, Jains even lower, 1.8 percent, and Sikhs and Buddhists, marginally higher, 2.2 percent. All the religious groups other than Hindus and Muslims show some changes in the growth trend; for Christians, very high growth during 1961-71 was followed by slow increase during the next two decades and for Sikhs, the growth rate fell sharply during the 1990s. Buddhists and Jains show irregularities, presumably because of reporting errors and religious conversions, especially the acceptance of Buddhism by many Dalits.

As indicated earlier, the last intercensal decade has shown a reversal in terms of relative decline in intercensal growth for India, from 23.9% during 1981-91 to 21.5% during 1991-2001. This has occurred among both Hindus and Muslims, with the latter showing a larger fall (Fig. 3.1).

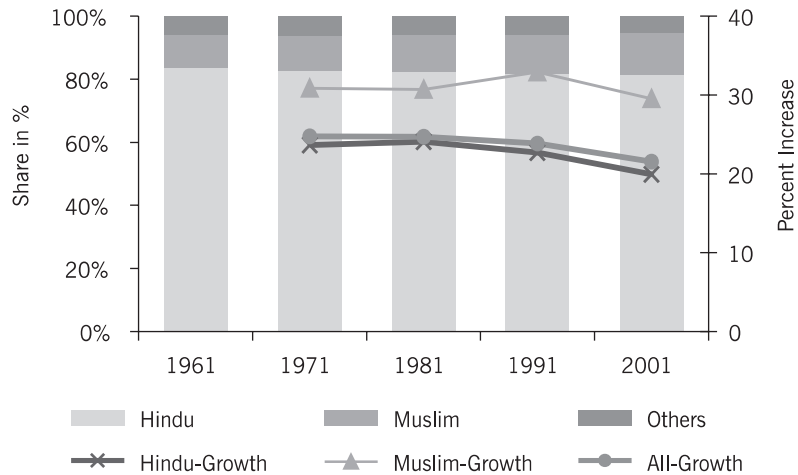
In 1961, the largest group, Hindus, accounted for 83.5% of India's population followed by Muslims, with 10.7%; other minorities had much smaller shares - Christians 2.4%, Sikhs 1.8%, and Buddhists and Jains accounted for less than 1% of the total population (Appendix Table 3.1). By 2001, the share of Hindus had fallen to 80.5% and that of Muslims had risen to 13.4%. This rise of 2.7% points between 1961 and 2001 is a consequence of the higher than average growth among Muslims. The shares of other minorities have remained nearly the same, though some small changes, a rise followed by a fall, occurred among Christians and Sikhs. The rise in the share of Muslims has been less than three percentage points over the four decades, that is, less than one point a decade.

The rise in the share of Muslims has been less than one point a decade during the previous four decades

3. Spatial Distribution

The Muslims in India reside across the country, and yet their concentration varies substantially. Besides, the demographic dynamics have changed over different periods in time and in different regions (Appendix Tables 3.2 and 3.3). The trends in the southern states are quite different from those in the north-central states. The focus in Fig. 3.2 is on the distribution of the Muslim population as estimated from the 2001 census of India. In 2001, of the 138 million Muslims in India, 31 million, or 22%, lived in one state, Uttar Pradesh. Of course, Uttar Pradesh is the most populous state of India with 13% of the total population. Three other states, West Bengal, Bihar, and Maharashtra also had over ten million Muslims each. The majority of the Muslim population in India are in these four states. Besides, Kerala, Andhra Pradesh, Assam, Jammu and Kashmir, and Karnataka had five to ten million Muslims each, Rajasthan, Gujarat, Madhya Pradesh, Jharkhand, and Tamil Nadu 3 to 5 million each, and Delhi, Haryana, and Uttaranchal one to two million each. Generally, large states also have large Muslim populations, as expected. However, Punjab and Orissa, with populations of over twenty million each, had fewer than one million Muslims.

Fig. 3.1: Trends in Population Shares and Growth, India, 1961-2001



While the growth has continued throughout the forty-year period 1961-2001, the recent intercensal decade, 1991-2001, has shown a decline in the growth rate of Muslims in most of the states; this is in keeping with the overall national population. (Fig. 3.1). The Muslim population increase was quite modest, below 20%, much below earlier levels in Tamil Nadu, Kerala, and Andhra Pradesh (Appendix Table 3.4).

the recent intercensal decade, 1991-2001, has shown a decline in the growth rate of Muslims in most of the states

Variations across Districts

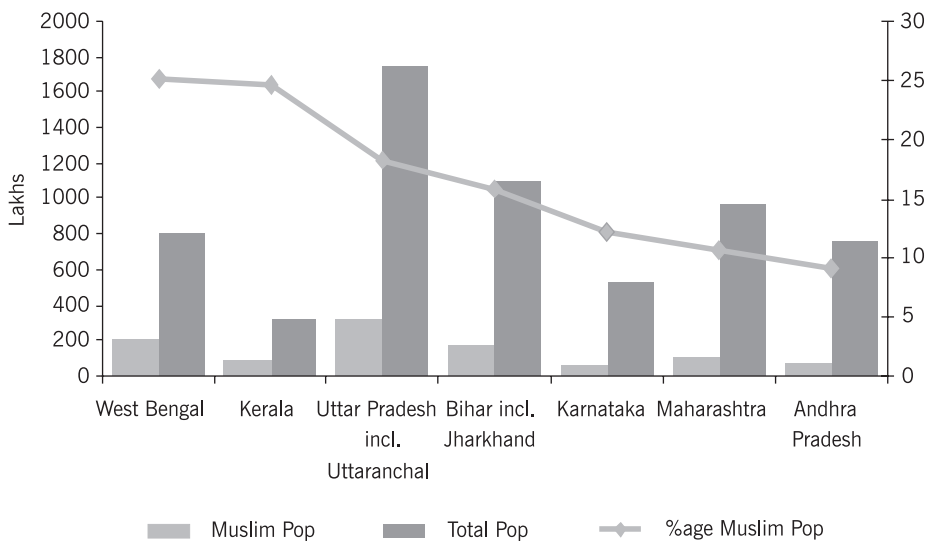
Large variations were seen in the size of the Muslim population among districts. In 25 districts, the Muslim population exceeded one million each in the 2001 census. The largest was Murshidabad (3.7 million) followed by Malappuram, South Twenty- Four Paraganas, and North Twenty-Four Paraganas. Of the million plus Muslim population districts, ten are in West Bengal, five in Uttar Pradesh, three in Jammu and Kashmir, and seven in other states. Besides, in 51 districts the Muslim population is between half to one million. Thus, 76 districts have at least half a million Muslims each and just over half of India's Muslim population, 71 million out of 138 million, resides in one of these districts (Table 3.1). At the other end, there are 106 districts with very small Muslim populations of below 10,000.

Of the 593 districts of India 9 districts have a Muslim population of over 75%

Of the 593 districts of India in 2001, only 9 could be considered predominantly Muslim, that is, with an over 75% Muslim population (see also Fig. 3.3); these included Lakshadweep and eight districts from Jammu and Kashmir. In addition, Muslims constituted 50 to 75% of the population in 11 districts (six from Assam, two from Jammu and Kashmir, and one each from Kerala, Bihar, and West Bengal). Thus, only 20 districts had a Muslim majority. About 13% of India's Muslims

(just over 18 million) resided in these districts. Thirty-eight districts had a substantial, though not majority, Muslim population of over 25% but below 50%. These were distributed in a number of states, Uttar Pradesh (12), West Bengal (5), Kerala (5), Assam (4), Bihar (3), Jharkhand (2), Delhi (2), and one each in Andhra Pradesh, Haryana, Jammu and Kashmir, Uttaranchal, and Pondicherry; they accounted for 22% of India's Muslim population. In a large number of districts (182) the Muslim share was between 10 and 25%, not large but not insignificant either; these districts

Fig. 3.2: Muslim Population in Selected states-2001



accounted for almost half of India's Muslim population (65 million out of 138 million, that is, 47%). At the other end, 77 districts had a very small Muslim share, less than 1%. The top 50 districts in terms of the size and percentage of the Muslim population are listed in Appendix Table 3.5. A district level map presented below highlights the Muslim concentration areas present mostly in the Indo- Gangetic plain, Jammu and Kashmir, the whole of Kerala, parts of Northeast (Assam) and the South-Central parts of India. Appendix 3.6 presents some important socio-economic indicators of Top 100 Districts arranged by proportion of Muslim population.

4. Age-Sex Composition of Population

4.1 Age-Structure

For the first time the 2001 census made available tabulations on age by religion and Muslims show a relatively younger age distribution which is notably different from the general population (Table 3.2; state-wise figures are given in Appendix Table 3.7). While 23% of the total population is of below 10 years in age, 27% of the Muslim population falls in this range. Further, in the age group 10-14 years there is an excess of two percentage points for Muslims. A younger age distribution is an indication of a lag

in population growth decline. A high proportion in the young age group implies less number in the workforce resulting in greater pressure on households and the economy. Fertility decline has brought about a change in age distribution in the form of a decline in the share of the young ages and corresponding rise in the share of the working ages in India, yielding the so called 'demographic dividend or bonus'. This change is rather small amongst the Muslims as of now and thus they are yet to gain much from the demographic dividend.

The share of the elderly (65 and above) is not high, both for the general population as well as the Muslim population, and thus old age dependency is quite low.

Table 3.1. No. of Districts by Muslim Population Size and Concentration, 2001 Census

Muslim Population in the district	Number of districts	Percentage of Muslims in the total populations of the district	Number of districts
(1)	(2)	(3)	(4)
1,000,000 or more	25	75 or more	9
500,000 to 999,999	51	50 or more but less than 75	11
250,000 to 499,999	104	25 or more but less than 50	38
100,000 to 249,999	125	10 or more but less than 25	182
50,000 to 99,999	87	5 or more but less than 10	129
10,000 to 49,999	95	1 or more but less than 5	147
Less than 10,000	106	Less than 1	77
Total	593	Total	593

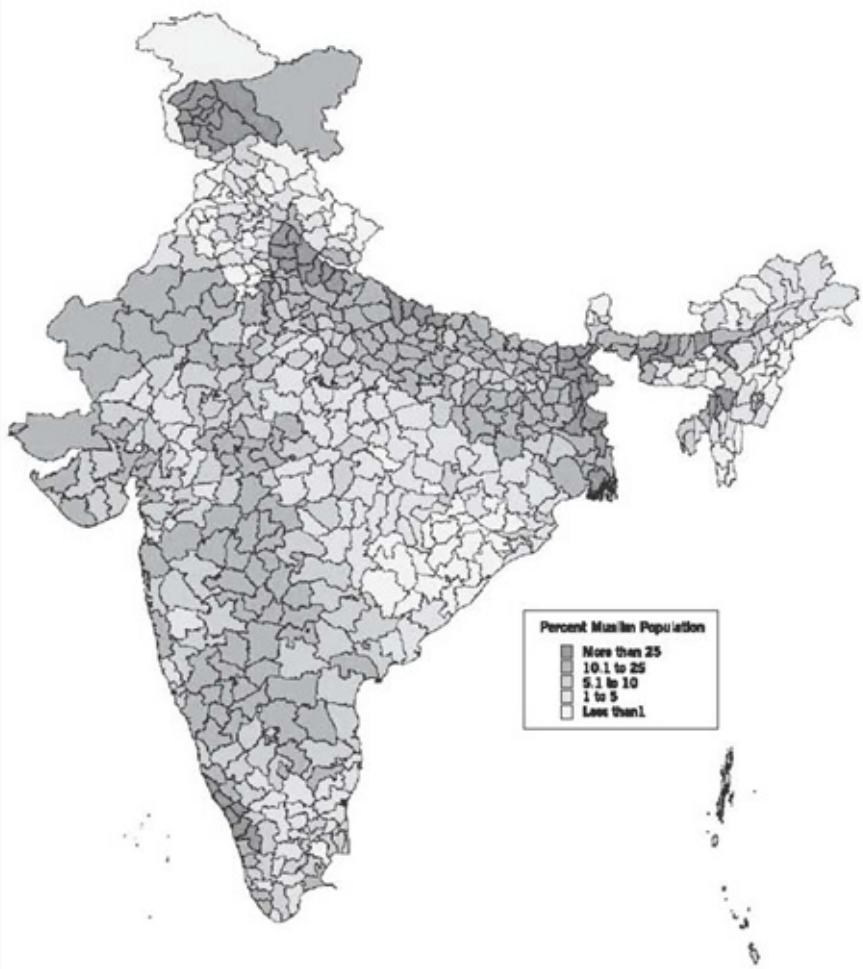
Source: Obtained from 2001 census data CDs, India, Registrar General (2005).

Table 3.2. Age-Sex Distribution of All Population and Muslim Population, India, 2001 (Percentage)

Age Group	All religions		Muslim	
	Male	Female	Male	Female
(1)	(2)	(3)	(4)	(5)
0-4	10.7	10.7	12.4	12.7
5-9	12.5	12.4	14.7	14.7
10-14	12.3	11.9	14.0	13.7
15-19	10.1	9.3	10.8	10.1
20-24	8.7	8.8	8.7	8.6
25-29	7.8	8.4	7.2	7.8
30-34	7.0	7.4	6.3	6.7
35-39	6.8	7.0	6.1	6.3
40-44	5.6	5.2	4.9	4.5
45-49	4.7	4.5	3.9	3.8
50-54	3.7	3.4	3.1	2.7
55-59	2.6	2.8	2.0	2.3
60-64	2.6	2.8	2.1	2.2
65 +	4.5	5.0	3.5	3.8
Age not stated	0.3	0.2	0.3	0.2
Total	100.0	100.0	100.0	100.0

Source: Computed from data CDs from Census India, Registrar General (2005).

Fig. 3.3: District-wise Concentration of Muslim Population



The Muslim population shows an increasingly better sex ratio compared with other SRCs

4.2 Sex-Ratios

Most populations in the world have more women than men. At birth the share of boys is always higher, around 105 boys per 100 girls, but higher mortality among males compared to females leads to a sex composition favourable to females. However, India and some South and East Asian countries differ from this pattern. Female mortality was higher than male mortality in these parts though now this is not the case and the mortality gap is quite narrow. As a result, there are more men than women in India and the sex ratio (females per thousand males) is lower than 1000; for the period 1961-2001 this has hovered around 930. The Muslim population shows a similar pattern (Fig. 3.4) yet sustains an increasingly better sex ratio compared with the general population (see also Appendix Table 3.8).

4.3 Child Sex Ratios

An associated indicator which exhibits relative social position in India is the child sex ratio (the number of female children under 5 for every 1,000 male children under 5). As is well-known, India is one of the few countries in the world to have a child sex ratio that is less than 1,000. In addition, the overall child sex ratio in the country has been declining steadily during the last half century. It has declined from 976 in 1961 to 964 in 1971, 962 in 1981, 953 in 1991, and 927 in 2001. The low and falling child sex ratio is the result of two factors: excess female infant mortality (relative to male infant mortality) and female foeticide. Both in turn reflect parental discrimination against girls.

Fig. 3.4: Trends in Sex Ratio, All Population and Muslim Population, India, 1961-2001

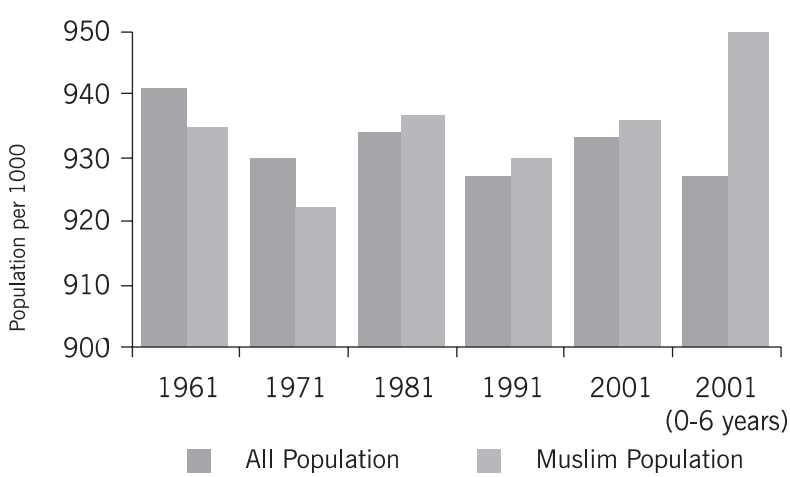


Fig. 3.5: Child Sex Ratio (females aged 0-5 years per 1,000 Males aged 0-5 years) by SRCs, 1998-99

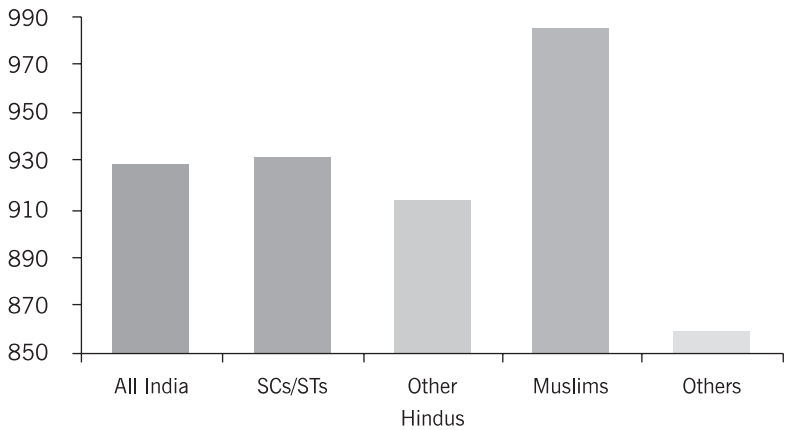
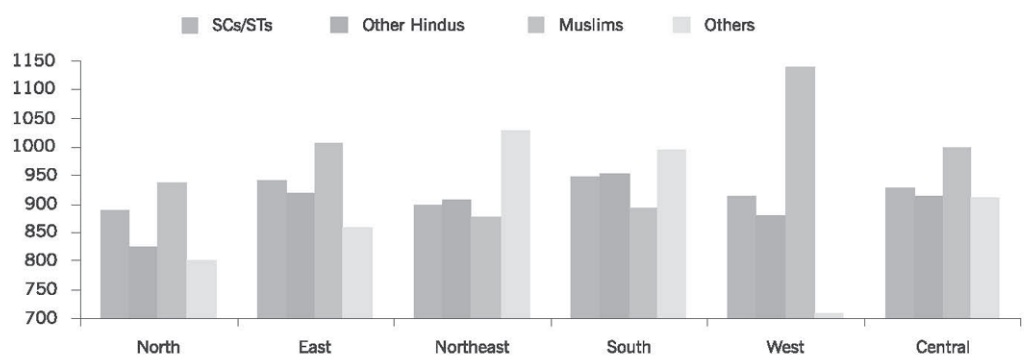


Fig. 3.6: Child Sex Ratio (females aged 0-5 years per 1,000 males aged 0-5 years) among SRCs by region, 1998-99

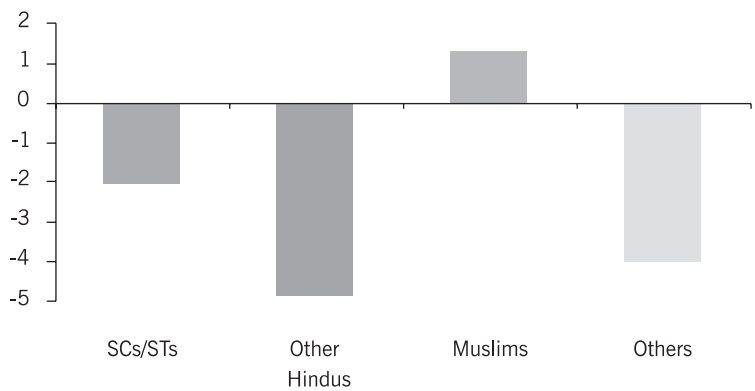


The NFHS data indicate that Muslims have the highest child sex ratio of any social group in the country (Figure 3.5). For instance, the child sex ratio among Muslims was 986 girls per 1000 boys in the age group 0-5 in 1998-99, significantly higher than the ratio of 931 among SCs/STs, 914 among other Hindus, and 859 among other groups.

In order to see if the differentials in sex ratio vary across India, six regions are examined: North (comprising Jammu and Kashmir, Hima-

chal Pradesh, Punjab, Haryana, and New Delhi), East (comprising Bihar, Orissa, and Uttar Pradesh), Northeast (comprising Assam, West Bengal, and all the other Northeastern states, such as Mizoram, Nagaland, Manipur, etc.), South (comprising Tamil Nadu, Karnataka, Kerala and Andhra Pradesh), West (Gujarat, Maharashtra, and Goa), and Central (comprising Rajasthan and Madhya Pradesh). As Figure 3.6 shows, sex ratio discrepancies between Muslims and other SRCs are not uniform across regions. In the Western region, Muslims have a huge child sex ratio advantage (of about 30%) over Other Hindus. In the East, North, and Central regions, the Muslim advantage is positive but smaller (about 10-13%). In contrast, in the South and Northeast regions, Muslims have a lower (about 3-6%) child sex ratio compared to Other Hindus.

Fig. 3.7: Percent change in Child Sex Ratio (females aged 0-5 per 1,000 males aged 0-5) between 1992-93 and 1998-99, by SRC's



Surprisingly, even though Muslims already had the highest child sex ratio of any group in 1992-93, they were the only social group to experience a further increase in the ratio between 1992-93 and 1998-99 (Fig. 3.7). In contrast, Other Hindus experienced the largest decline (of about 5%) in the child sex ratio despite having the second-lowest child sex ratio in 1992-93.

The Muslim population is also predominantly rural, but the level of urbanisation is higher than the population as a whole

5. Urbanisation

India's population is predominantly rural. In 2001 only 27.8% lived in urban areas, cities and towns of various sizes, showing a low degree of urbanisation. Moreover, the tempo of urbanisation has been quite low after 1981, with only about two percentage points rise in the share of the urban population over each decade. The Muslim population is also predominantly rural, but the level of urbanisation among them has been higher than the population as a whole. In 1961, while overall only 18.0% of the population lived in urban areas, 27.1% of the Muslim population

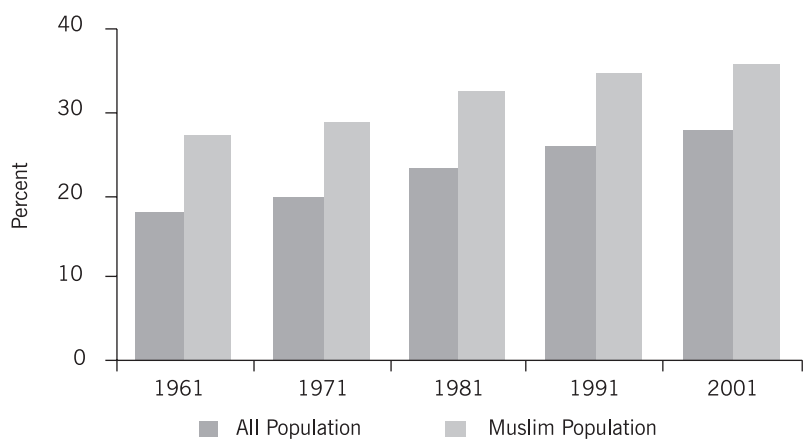
did so (Fig. 3.8). This substantial gap has persisted, and in 2001, 35.7% of the Muslim population was urban compared to 27.8% of the over all population.

In many states, Tamil Nadu, Maharashtra, Karnataka, Andhra Pradesh, Madhya Pradesh, Gujarat, and Chhattisgarh, the majority of Muslims live in urban areas (Appendix Table 3.9). Overall, Muslims are more urbanised than the general population in India and this is not a recent development; Muslims have generally been relatively more urbanised even in the past. By and large, India's Muslim population is less linked to land than the overall population. This is true even in rural areas. The 2001 census data show that whereas among all religions, 40 percent of rural workers were cultivators, among Muslims this figure was only 30 percent (as seen from the tabulations in India, Registrar General, 2004). Agricultural workers (cultivators and agricultural labourers combined) constituted 75 percent of rural workers overall but only 60 percent of Muslim rural workers. A number of historical factors lie behind the higher urbanisation among Muslims in India.

6. Demographic Processes

Population change is a product of three processes, mortality, fertility, and migration. The higher than average growth rate of Muslims has often raised the question of why this is so. Obviously, one or more of these three factors is different for the Muslim population. We do have information on fertility and mortality by religion and hence can analyse this issue in some detail.

Fig. 3.8: Trend in Urbanisation, All Population and Muslim Population, India, 1961-2001



Note : Obtained using interpolated urban populations for Assam in 1981 and J&K in 1991

infant and childhood mortality among Muslims is slightly lower than the average

6.1. Mortality

In the absence of reliable data on age-specific death rates by religion, one is constrained to look at differentials in early childhood mortality, estimates of which are available from surveys and censuses. It is useful to note here that infant and under-five mortality rates are commonly used as good indicators of mortality. Reduction in infant and child mortality is one of the highest public health priorities in India and one of the most important millennium development goals, as children are the most important assets of a nation. India has high levels of infant and underfive mortality in comparison to other countries at its level of per capita income and in comparison to neighbouring countries such as Sri Lanka and Bangladesh. Roughly 1.75 million Indian children die each year before reaching their first birthday.

Estimates from different surveys as well as indirect census-based estimates show that infant and childhood mortality among Muslims is slightly lower than the average (Appendix Tables 3.10 and 3.11). The 1981 and 1991 census (indirect) estimates, and the 1992/93 and 1998/99 National Family Health Survey-1 and 2 (conducted in 1992/93 and 1998/98 respectively) estimates show this consistently. The two main indicators, the infant mortality rate (IMR), which is the proportion of children dying before completing the first year of life, and under-five mortality rate (U5MR), which is the proportion of children dying before completing five years of age, are lower for Muslims than the Hindus and hence also lower than the national average (Fig. 3.9). It has been pointed out earlier that Muslims are more urbanised than the general population, and it is known that urban populations have lower mortality. Separate estimates for rural and urban areas show that the lower than average child mortality among Muslims is partly on account of their higher urbanisation. Within urban areas, Muslim childhood mortality level is very close to the average urban level. While Muslims enjoy some advantage in survival compared to the general population, the mortality among other large minority religious groups, Christians and Sikhs, is even lower than Muslims. Essentially, childhood mortality among Muslims is lower only compared to the Hindus.

Among SRCs, SCs/STs suffer from the highest infant and under-five mortality rate, followed by Other Hindus. Muslims have the second-lowest infant and under-five mortality rate of any SRC in India. This is somewhat surprising, given the economically-disadvantaged position of Muslims. Does the advantageous position of Muslims hold throughout the country? As would be expected, the Central region has the highest infant and under-five mortality rates in the country, followed by the Eastern region (Fig.3.10). The Southern and Western regions have the lowest infant and under-five mortality rates. In virtually every region, with the sole exception of the Northeast, Muslims have the second-lowest infant and under-five mortality rates of any SRC (after the "Other" group). In the South and West, their relative position is even better than in other regions. For instance, in the South, the infant mortality rate among Muslims is as low as 29 per 1,000 live births - significantly lower than the rate of 61 among SCs/STs and the rate of 52 among Other Hindus.

Fig. 3.9: Infant and under-five mortality rates (per 1,000 live births) by SRC's, 1998-99

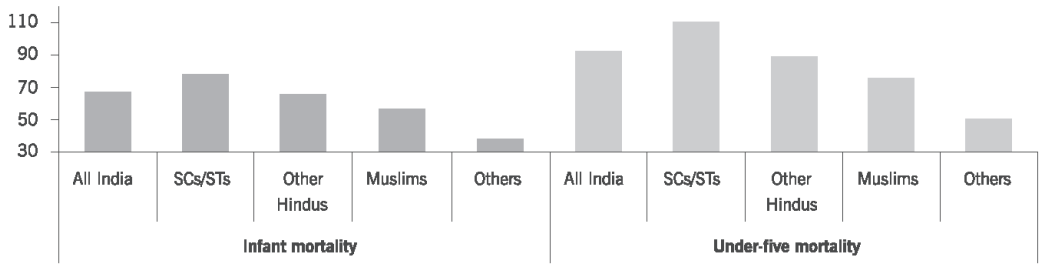
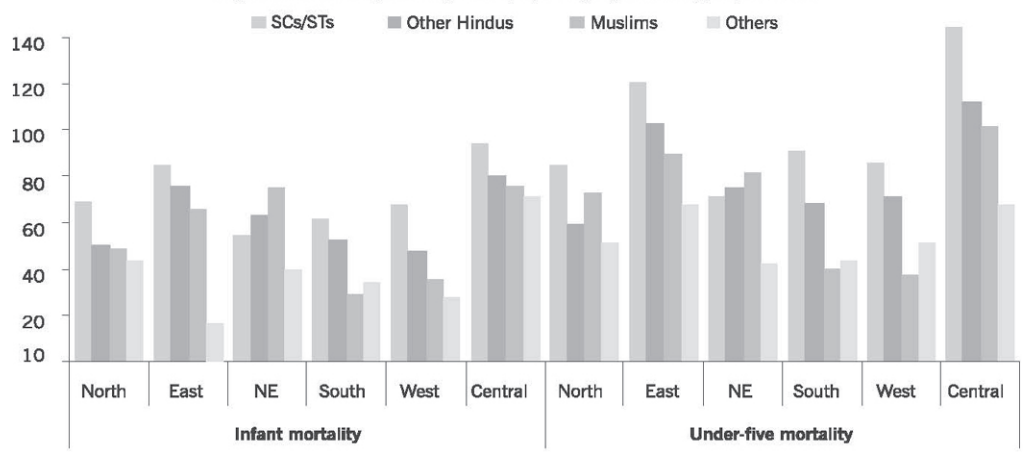
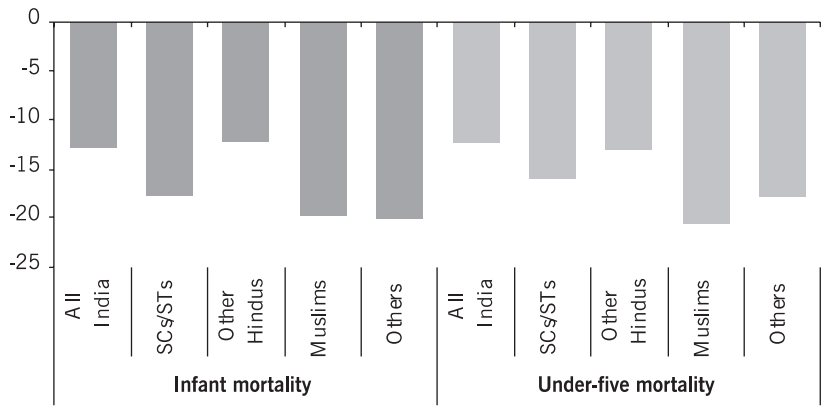


Fig. 3.10: Mortality among SRC's, by Geographical Region, 1998-99



How have infant and under-five mortality rates changed over time among Muslims and other SRCs? Fig. 3.11 indicates that while infant and under-five mortality rates declined between 1992-93 and 1998-99 among all groups, they declined more rapidly among Muslims than amongst Other Hindus. Thus, Muslims not only have among the lowest infant and under-five mortality rates of all SRCs in India, they also have experienced some of the largest declines in infant and under-five mortality of any social group during the 1990s.

Fig. 3.11: Percent Decline in Infant and Under-five Mortality Rates among SRC's, 1993-94 to 1998-99



Why Muslims should have advantage in child survival despite their lower levels of female schooling economic status is a question that needs further exploration

As is well-known, infant and under-five mortality is influenced by biological and socioeconomic variables, such as a child's sex and birth order, the mother's schooling and household economic status. In addition, they are functions of access to infrastructure, such as electricity, drinking water and sanitation. An interesting question is whether Muslims have lower infant and under-five mortality than other SRCs even after controlling for these variables. A priori one would expect this to be the case because Muslims typically have lower levels of female schooling and income than other SRCs (although not necessarily in comparison to the SCs/STs), and both female schooling and household income are inversely correlated with child mortality. The NFHS data was analysed to examine this hypothesis. After controlling for the effect of other socio-economic factors associated with infant mortality including the residence in a particular state, affiliation to SRCs does not significantly influence the likelihood of a child's survival in the first year of life. However, in the first five years of life, Muslim children are less likely to die than children belonging to the 'Other' SRC after controlling for other factors. On average, the under-five mortality rate is 13 deaths (per 1,000 live births) lower among Muslims relative to other children.

To conclude, Muslims have lower levels of infant and under-five mortality than other SRCs in India. Why exactly Muslims should have some advantage in child survival over other SRCs despite their lower levels of female schooling and lower economic status is a question that needs further exploration. For instance, it would be important to know whether the advantage is the result of better infant feeding and care practices among Muslims. The results also suggest that the decline in infant and under-five mortality has been faster among Muslims than among other SRCs, at least during the 1990s. The only states where child mortality among Muslims has

worsened - both in absolute terms as well as relative to other SRCsare Madhya Pradesh and Rajasthan.

the life expectancy for Muslims is higher than average by about one year

Survey data do not generally allow computation of life expectancies since estimates of age-specific death rates for adult ages have large sampling errors and cannot be used. Yet efforts were made from pooled data of two surveys, the NFHS-1 and NFHS-2, to construct life tables for Hindus and Muslims1 and the results show that the life expectancy for Muslims is higher than average by about one year. Besides, estimates of maternal mortality also show lower than average maternal mortality among Muslims. Broadly, it could be said that Muslims do have a slim advantage over the average in survival.

There has been a large decline in fertility in all the religious groups including the Muslims

6.2 Fertility

The total fertility rate (TFR) is the most widely used summary indicator of fertility; this is the number of live births a woman has on an average during her lifetime, if she goes through the reproductive span, following a given age-specific fertility schedule. Religious differentials in fertility from various sources, surveys (NFHS-1 and 2)[1] and the Census are given in (Fig. 3.12; Appendix Table 3.12). These show that among the four large religious groups fertility is the lowest among the Sikhs, closely followed by the Christians and the highest among the Muslims. The TFR for Muslims is higher than the average by 0.7 to one point as seen from the NFHS-1, NFHS-2, and Census estimates. Other measures of fertility also show higher values for Muslims. For instance, the crude birth rate (CBR), estimated from Census figures is also higher among Muslims (30.8, against 25.9 for the total population and 24.9 for Hindus). Various other surveys also corroborate the higher than average fertility among Muslims.[2] There has been a large decline in fertility in all the religious groups; whereas in the pretransition period the TFR was above 6, in recent years it has fallen below 4. Thus, the process of fertility transition is in progress in all communities. The recent level observed for Muslims (from either the NFHS-2 estimate or the 2001 Census estimate) cannot be described as 'high fertility', but can be referred to as 'moderate fertility'. It must be clarified here that while discussing the fertility of a community, we are really talking of the average rather than a common characteristic. Thus, the term 'Muslim fertility' is often used to denote the average fertility for Muslims rather than a fertility norm for Muslims. Strictly speaking, there is no 'Muslim fertility' as such in the sense that Muslims in general cannot be identified as having a particular level of fertility. Fertility varies among Muslims according to socio-economic characteristics as well as on the level of the individual and there are large regional variations in fertility in India. While some states have reached a very low level fertility, with TFR close to 2.1, or near the replacement level, the north-central states have moderate levels of TFR, closer to 4. In states that have low fertility, the fertility of Muslims is also low, though higher than average. In fact, Muslims in the southern states have lower fertility than the average in the north-central states. For example, according to the NFHS-2, the TFR for Muslims in Kerala, Tamil Nadu, Andhra Pradesh, and Karnataka as well as in Jammu and Kashmir was

1. Bhat and Zavier (2004)

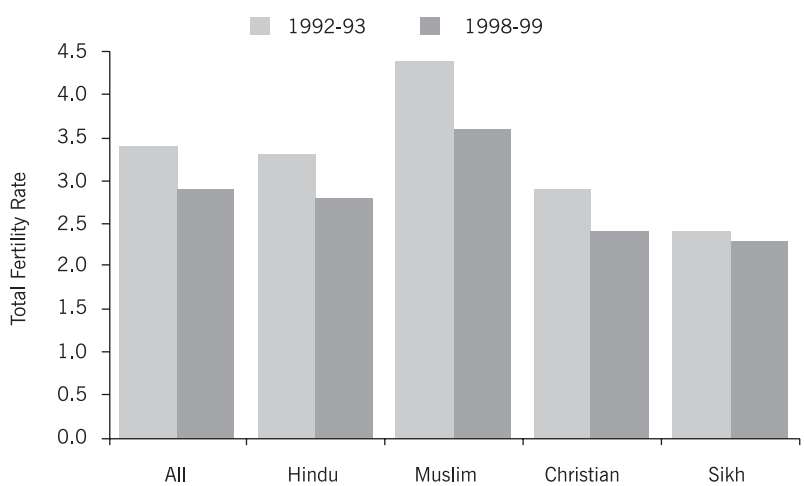
2. The issue of fertility differentials by religion has been investigated by demographers for quite some time; for some recent work, see Morgan et al. (2002) and for work on India, papers from a recent issue of the Economic and Political Weekly, XL (5), 2005.

in the range 2.5 to 2.8, while that for the general population in Uttar Pradesh it was 4.0 and 3.8 in Rajasthan.

Fertility varies among Muslims according to socioeconomic characteristics

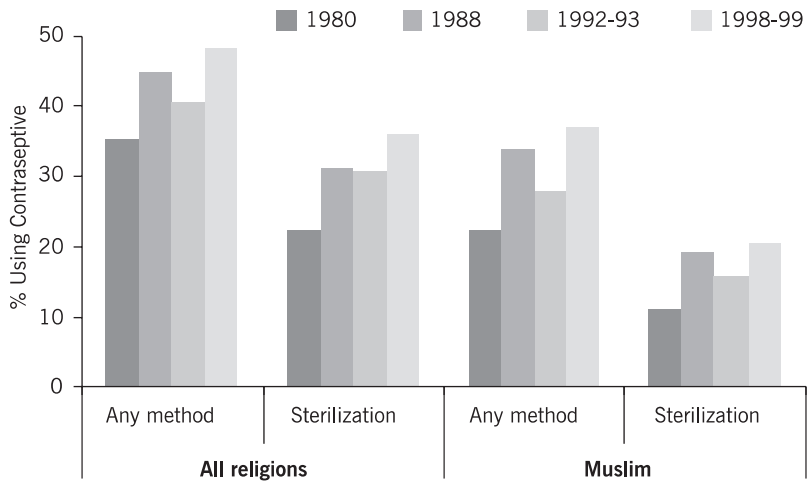
The relatively high fertility of a section of the population could be on account of various factors. A low age at marriage obviously is conducive to high fertility. However, data show that Muslims do not have a lower age at marriage than average. A point made on the higher fertility of Muslims was that the proportion of women married in reproductive ages was relatively high, because widow remarriage is well accepted in the Muslim community unlike the Hindus. However, recent data from the 2001 Census show that the marital status distribution of Muslim women is not notably different from that of the general population in the reproductive age groups, the ages that matter for fertility. The other important factor contributing to fertility differential is the use of contraceptives. Data on contraceptive practices (% of couples of reproductive age using contraception) for Muslims and the general population from various surveys, two by the Operations Research Group (ORG) in the 1980s and two by the NFHS in the 1990s, show that the use of contraception is widely prevalent among Muslims but to a lesser degree than the average (Fig. 3.13; also Appendix Table 3.13). In contraceptive prevalence rate, there is a gap of about 10 percentage points between Muslims and the average. A careful examination reveals that it is the use of sterilisation that shows a wide gap. Apparently, reversible methods are used relatively more commonly by Muslims compared to others. But sterilisation is less popular among Muslims. 'Unmet need' for contraception is relatively high amongst Muslims, and there is evidence of a large demand for reversible methods.

Fig. 3.12: Religious Differentials in Fertility, India



Sources: NFHS-1: IIPS (1995); NFHS-2: IIPS and ORC Macro (2000).

Fig. 3.13: Contraceptive Prevalence Rate, India



Sources: 1980:Operations Research Group (1983); 1988:Operations Research Group (1990); 1992-93: NFHS-1:IIPS (1995); 1998-99: NFHS-2:IIPS and ORC Macro (2000).

The facts do not support the common perception that Muslims shun family planning, as over one third of Muslim couples were reported to be using some contraception.[3] Various other surveys also confirm that there is substantial contraceptive practice among Muslims (this is true in India and in several countries with large Muslim populations as well). However, the prevalence of practice is lower among Muslims than other SRCs in India, and this is primarily responsible for keeping Muslim fertility above the average level. Use of contraceptives is known to be highly positively related to the level of education. Besides, as the level of education rises, the Muslim-non-Muslim differences narrow down.[4]

6.3 Migration

Direct estimates on migration by religion are not available. However, it is possible to make an indirect assessment by treating migration as the residual, that is, the difference between actual growth and natural growth (births minus deaths). Since estimates of fertility and mortality for Muslims are available, the natural growth for an intercensal period can be estimated, and if the actual growth is higher than that, the net difference is the contribution of migration. At the national level, this is primarily international migration. Since the growth of the Muslim population has been higher than average in all the recent decades, there is a feeling that there is considerable international migration of Muslims into India. However, we have seen that mortality among Muslims is lower and fertility higher than the average. Detailed analyses for the decade

3. In any case, use of contraception can not be very high, say over 70%, for any large population group since those with no children or with just one child normally want an additional child and those with primary sterility do not need contraception.
4. See, for example, Chaudhury (1984); Alagarajan (2003)

1981-91 showed that part of the higher than average growth of Muslims is accounted for by lower than average mortality, but a major part was explained by higher fertility.[5] The contribution of migration, obtained as the residual, was relatively small, about one sixth of the *growth differential* between Hindus and Muslims. Other assessments,[6] also show that *the contribution of migration to the growth differential is small.* Thus, while international migration is also responsible for some of the growth in India's Muslim population, it plays only a minor role; the principal factor is the higher than average fertility.

The contribution of migration is small in the overall growth of Muslims in India

6.4 Demographic Transition

Demographic transition is the process of shift from a regime of high fertility and mortality to low fertility and mortality; this generally begins with mortality decline and is followed by fertility decline. Most of the developed countries in the world have gone through this and have reached very low mortality and fertility. India too, is in transition, with mortality having fallen considerably, and fertility dipping especially after 1970. Of course, mortality is not yet very low; life expectancy has crossed 60 years but is much less than in the developed world that shows expectancies above 75 years. Besides, the TFR is close to 3, above the value of 2.1 that corresponds to the low replacement level. Hence it could be said that though India is well into transition it is yet to complete the process.

In order to see how far various sections have advanced into this process, we focus on the level of fertility as measured by the TFR. As mortality transition is in progress and is likely to continue, we proceed with the analysis of fertility transition. The NFHS-2 estimates are used as the survey has given estimates by religion for large states. Table 3.3 shows states classified according to the level of fertility for the whole population and for the Muslim population (only those states that have sufficiently large Muslim populations to yield reliable estimates are included). A TFR of 2.2 or lower is considered to be near replacement in conditions of low mortality and thus fertility at this level is called 'low', TFR above 2.2 but not above 3.0 is called 'moderately low', above 3.0 but not above 4.0, 'moderate', and above 4.0 but not above 5.0, 'moderately high'. Since the NFHS-2 estimates refer to the late 1990s, the fertility level at present is almost certainly lower and the states/communities more advanced in transition than seen here.

Table 3.3 shows that the Muslim population in most states is well into transition. There is a good deal of correspondence between overall fertility and Muslim fertility in the states, although the latter is higher than the average. Generally, Muslim fertility is a notch higher than overall fertility in some states, and in a few others,it falls within the same range. The gap between Muslim fertility and overall fertility is quite low in Jammu and Kashmir, Madhya Pradesh, and Andhra Pradesh. Clearly, the Muslim population in India is well into transition, especially in all the large states, though it is behind the average. There is obviously some lag in its transition. Other evidence shows that the lag is of 10-15 years, that is, the fertility of the Muslim population at a point in time is closer to the average fertility 10-15 years ago.

5. Kulkarni (1996)
6. Bhat and Zavier (2004) and Irudayarajan (2005)

Table 3.3. Large States Classified according to Level of Fertility and Share of Muslim Population,India, NFHS-2

Level of fertility	Range of TFR	All Population	Muslim Population
(1)	(2)	(3)	(4)
Moderately High	Greater than 4.0 but Less than/equal to 5.0		Rajasthan, Uttar Pradesh, Bihar
Moderate	Greater than 3.0 but Less than/equal to 4.0	Uttar Pradesh, Rajasthan, Bihar, Madhya Pradesh	INDIA, Madhya Pradesh, West Bengal, Maharashtra, Gujarat, Assam
Moderately Low	Greater than 2.2 but Less than/equal to 3.0	INDIA, Gujarat, Jammu and Kashmir, Maharashtra, West Bengal, Assam, Andhra Pradesh	Karnataka, Jammu and Kashmir, Tamil Nadu, Kerala, Andhra Pradesh
Low	Less than/equal to 2.2	Tamil Nadu, Karnataka, Kerala	

Source: Obtained from NFHS-2; IIPS and ORC Macro (2000).

Muslim fertility is a notch higher than overall fertility in some states, and in a few others,it falls within the same range

7. Child Nutrition

Another important indicator of social well-being is child nutrition. Child malnutrition significantly increases the risk of infant and child death, with some estimates suggesting that child malnutrition is responsible for half or more of child deaths in the developing world.[7] There is also a large body of evidence from around the world relating under-nutrition in childhood to lower levels of school performance, cognitive development, health, and, ultimately, to lower levels of labour productivity in adulthood. Thus, the economic, human and social costs of child malnutrition in India are likely to be very high.

As in the case of infant and under-five mortality, there are large variations across SRCs in the percentage of children under 5 who are underweight or stunted (Figure 3.14). However, unlike infant and under-five mortality, which is lower among Muslims than among most other SRCs, Muslims are worse off than most other groups in terms of child under-nutrition. For instance, Muslims suffer from the highest rates of stunting and the second-highest rates of underweight children among all social groups.[8,9] In general, though, the differences across the social groups are not overly large, indicating that child malnutrition and low birthweight are pervasive across all SRCs in India.

child malnutrition and low birthweight are pervasive across all SRCs in India

Fig. 3.15 shows the incidence of child underweight and child stunting by SRCs in the six geographical regions of the country. Except in the Northeast, where Muslims have amongst the highest incidence of child malnutrition, Muslim child malnutrition rates are observed to be lower than those among SCs and STs but higher than those among other Hindus in all other regions. Another interesting fact is that the relative position of Muslims (relative to SCs/STs) is much better in the South (and possibly the West) than

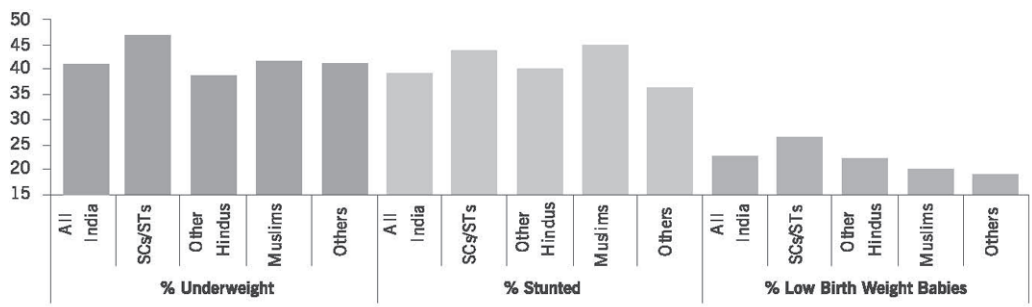
7. For instance, based on worldwide evidence, Pelletier and Frongillo (2003) estimate that a 5 percentage point reduction in the prevalence of low weight-for-age could reduce child mortality by about 30% and under-5 mortality by 13%.

8. As in the literature, a child is considered underweight when his or her weight-for-age is more than two standard deviations below the NCHS/WHO reference weight. A child is stunted when his or her height-forage is more than two standard deviations below the NCHS reference.

9. This is not true of low birth weight, however; Muslims enjoy the second-lowest incidence of low birthweight babies among all social groups.

in other regions of the country. For instance, while SCs and STs have an underweight rate of 43% in the south, Muslims have an underweight rate of only 32%. In contrast, in the Eastern region, the difference in underweight rates among Muslims and the SCs and STs is much smaller (48% versus 50%).

Fig. 3.14: Percentage of children under 5 who are Underweight and Stunted and% of low birth weight (<2,500 gms) babies, mong Muslims and non-Muslims, 1998-99

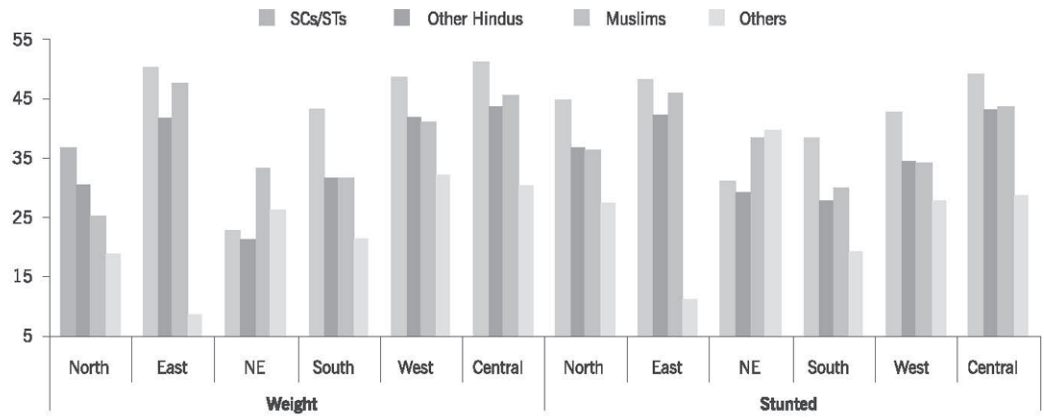


Muslim child experiences a significantly greater risk of being underweight or stunted than a child belonging to other SRCs

The regional variations in the incidence of low birth-weight babies among Muslims and other SRCs are quite unusual (Fig. 3.15). In the South, West, and Central regions, Muslims have the lowest or second-lowest incidence of low birth-weight babies. But in the other three regions, Muslims have the highest or secondhighest incidence of low birth-weight babies among all groups.

As with infant and under-five mortality, we explore whether Muslims have significantly different rates of child malnutrition than other SRCs after controlling for the other individual, household and community covariates of child malnutrition. The analysis suggests that, after controlling for the other factors associated with child malnutrition (including the state of residence), a Muslim child experiences a significantly greater risk of being underweight or stunted than a child belonging to other SRCs. However, relative to this group, the SC/ST children as well as Other Hindu children also have a higher risk of being underweight and stunted. Indeed, the differences among the three groups are relatively small and not significantly different from each other.

Fig. 3.15: Percentage of children under 5 who are Underweight and Stunted among SRC's, by geographical region, 1998-99



Muslim children are at a slightly higher risk of child malnutrition than 'Other Hindu' children

In conclusion, the evidence shows that Muslim children are at a slightly higher risk of child malnutrition than Other Hindu children. However, they are less likely to be underweight or stunted than SC/ST children.[10] But in two regions - the North and the East - the rate of low birth-weight babies among Muslims actually increased sharply between 1992-93 and 1998-99, with Muslims performing much worse than the all-group average for the two regions. There is an enigma in the finding that Muslims have an advantage over Other Hindus in infant and under-five mortality but suffer a disadvantage in child nutrition rates. This incongruence is difficult to understand as most factors that are associated with low rates of infant and child mortality, (e.g., delivery and utilisation of high-quality health services, high female literacy, and good hygiene and child feeding practices) are also typically associated with low rates of child malnutrition.

8. Future Population Growth Prospects

Demographers are expected to provide population forecasts for the near as well as the distant future. This calls for forecasts of fertility and mortality. Given that fertility has declined recently, one could assume that the decline would continue in the future and fertility would eventually reach a low replacement level, i.e., a TFR of 2.1, since mortality is also expected to fall to a very low level. The pace of such decline is difficult to predict and hence alternative projections are often made.

10. The data also suggest that the progress recorded by Muslims in reducing child malnutrition during the 1990s is roughly comparable to that made by other groups (although better than that recorded by SCs and STs.

Some projections, on the assumption that replacement level fertility would be achieved during the decade of 2030's, show that the size of India's Muslim population would stabilise at about 320 million.[11] Independent projections carried out to see how the results would vary if the replacement level is reached by 2041 yielded a figure of 340 million. Thus, the Muslim population is expected to rise, partly due to higher than replacement level fertility for some time and partly due to population momentum, to a level of around 320-340 million.

the question often asked is whether, and if so, when, will the Muslim population become the largest group

Since the growth of the Muslims population has been above average, and is likely to remain so for some more time, the question often asked is whether, and if so, when, will the Muslim population become the largest group? The counter position is that how does it matter which population is the largest. However, given the political and social environment, the debate continues and there is much speculation on this matter. A recent work examined this issue and by extrapolating the trends of the twentieth century, arrived at the conclusion that in India, the Muslim and Christian populations together would be close to the 50% mark around the year 2050.[12] But this is for India including Pakistan and Bangladesh, that is, the pre-partition area of India. There are two problems with this exercise. First, it fits a cubic function to the share of population and this is used to extrapolate the share of a community (the authors use the term Indian religionists to include Hindus, Sikhs, Buddhists, Jains as one group and the other group includes Christians and Muslims), and such a curve becomes steeper as time passes. Second, it assumes that the current trends would continue in the future. But now that fertility decline has been established among all communities, the fertility gap is seen as a transitory matter. As the process of fertility transition progresses, fertility would decline in all the large communities; once some communities reach a low level of fertility further decline would be slow, whereas those lagging, such as the Muslims, would catch up. This would thus narrow the gap, and eventually all communities would reach low fertility as has occurred in much of the developed world. Essentially, a convergence is expected and the present gap in fertility and population growth is not likely to persist forever. The question is how long it would take for the gap to close and what would be the growth differential during this period.[13]

The projections showed that the share of the Muslim population in India would rise somewhat, to just below 19%

In order to project the share of the Muslim population, projections for the total population are required. Earlier projections assumed that Muslims would reach replacement level fertility ten years later than other communities. The projections further showed that the share of the Muslim population in India would rise somewhat, to just below 19% (320 million Muslims in a total population of 1.7 billion) and then stabilise at that level. If it should take a longer time for the gap to close, the share of the Muslim population would be correspondingly higher. Alternate projections on the assumption that both the Muslim and non-Muslim fertility would reach the replacement level but the former would take 10 or 20 years longer showed that by 2101 the Muslim population may reach around 320-340 million in a total population of 1.7-1.8 billion and

11. Bhat and Zavier (2004, 2005)
12. Joshi et al. (2003, 2005)
13. The method of component projection, commonly used by demographers, allows for building in projections of fertility and mortality explicitly and is the appropriate technique for this purpose, not the extrapolation of shares using a mathematical function.

the Muslim population share would be between 18 and 19 percent (Appendix Table 3.14). Broadly, one could say that the Muslim population share is expected to rise from the current level but not expected to be much above 20 percent by the end of the century.

Couples take decisions on fertility in their own interests rather than for raising community's share in the population

While the speculation on population share generates much debate, this is not likely to influence fertility decisions to a major extent. Couples take decisions on fertility in their own interests rather than for raising community's share in the population or for gaining political power for the community. This seems to be true of all communities, majority or minority. Individual considerations of child bearing, costs of children and perceived values, are more important than community exhortations. As recent evidence suggests, there is general acceptance of the idea of fertility regulation, a small family is desirable, and contraceptive services are sought and utilised. The last three decades show that fertility has declined substantially in India and contraceptive practice has become common. Further, the population growth rate has declined in the last decade and recent estimates show that the decline is continuing. Moreover, this has happened for all the major communities including the Muslims. The growth rate for Muslims, as for the total population, is bound to fall further and eventually reach a zero growth stage. There are strong indications that this could occur well before the end of the century.

Recent experience of European countries shows that fertility in many populations has fallen well below replacement level and population sizes have begun to fall rather than stabilise at some 'ultimate level' as was presumed in the past. At this time, it is difficult to say whether this would happen for India as well in this century. If it does, the population sizes of the total and Muslim populations at the end of the century would be lower than those given by the projections cited above (results of some alternative projections given in Appendix Table 3.14 indicate that the total population could be below 1.5 billion and the Muslim population below 300 million by the end of the century).

The pace of convergence depends on a number of socio-economic, political and programme factors, and the process will be hastened with the spread of mass education especially amongst women and girls and a sustained reduction in poverty across all population groups in India. While religion is an important element influencing the lifestyles of sizable segments of citizens, its impact on regulating the human fertility of Muslims is not strong. For example, the contraceptive prevalence rate among Muslims, an overt expression of acceptance of the modern concepts of family planning, has been increasing in recent years nearing, 40%. Over 20 million Muslim couples currently use modern contraception practices and this number will grow if quality and choice based reproductive health care services are made accessible to Muslims across India. However, the relatively higher incidence of poverty and the widening gap in literacy between the Muslims and other comparable SRCs, particularly among women at young ages[14] could in fact impede the decline in Muslim fertility. Excepting Kerala, other states in advanced stage of fertility transition such as Tamil Nadu, Karnataka and recently Andhra Pradesh have achieved noteworthy declines in fertility without major improvements in human development parameters. But practically all well-designed research across the world has

14. For details, see Chapter 4 and 8.

pointed out that improvements in female education associated with declines in poverty levels will facilitate a faster decline in human fertility and improvement in life expectancy. Both the above factors are important as exclusive goals to be achieved.

Muslim population growth has slowed down, as fertility has declined substantially clearly showing that Muslims are well into demographic transition

To sum up, population growth in India is likely to continue for some time but will eventually cease and possibly decline for all communities including Muslims as the ongoing process of demographic transition progresses further. By the end of 21st century, India's Muslim population is projected to reach 320-340 million (in a total of 1.7 to 1.8 billion) and the share is likely to be 18-19 percent. The analysis of demographic and health conditions in a comparative perspective brings out often interesting insights:

* Muslim population growth has slowed down, as fertility has declined substantially clearly showing that Muslims are well into demographic transition. In the future. growth is bound to be slower and eventually population is bound to reach replacement level.
* The demographic transition is lagging in the north-central region for Muslims as well as for others and a speedier change in this region will mean a speedier transition for Muslims.
* Contrary to common perception, there is substantial demand for fertility regulation and for modern contraception among Muslims. This calls for the programme to provide better choices to couples.
* In mortality and child health, Muslims fare marginally better than average but as the overall health conditions are unsatisfactory, efforts are needed to improve them. Addressing health needs of the urban poor would alleviate conditions of poor Muslims as many live in urban areas in the southern and western states.
* The spatial distribution of Muslim population is uneven with high concentration in some states that are lagging behind in development. Bringing down regional disparities could go a long way in reducing demographic disparities.

CHAPTER FOUR
EDUCATIONAL CONDITIONS OF MUSLIMS

1. Introduction

The role of education in facilitating social and economic progress is well accepted today. The ability of a nation's population to learn and perform in an environment where scientific and technological knowledge is changing rapidly is critical for its growth. While the importance of human capital and its augmentation for a nation's development cannot be over-emphasised, its micro-economic consequences also need to be acknowledged. Improvements in the functional and analytical ability of children and youth through education open up opportunities leading to both individual and group entitlements. Improvements in education are not only expected to enhance efficiency (and therefore earnings) but also augment democratic participation, upgrade health and quality of life.

"The State shall provide free and compulsory education to all children of the age six to fourteen years... " (Art. 21 A)

At the time of adopting the Constitution the Indian state had committed itself to provide elementary education under Article 45 of the Directive Principles of State policy. Article 45 stated that *"The State shall endeavor to provide within a period of ten years from the commencement of this Constitution, for free and compulsory education for all children until they complete the age of fourteen years"*. In 1993, in a landmark

judgment, the Supreme Court ruled that the right to education is a fundamental right flowing from the Right to Life in Article 21 of the Constitution. Subsequently in 2002 education as a fundamental right was endorsed through the 86th amendment to the Constitution. Article 21-A states that "*The State shall provide free and compulsory education to all children of the age six to fourteen years in such a way as the State may, by law, determine*". The 86th Amendment also modified Article 45 which now reads as *"The state shall endeavor to provide early childhood care and education for all children until they complete the age of 6 years"*. However, despite this commitment the number of children in this age group who have remained out of school is alarmingly large.

The successive governments have vacillated on enacting the Right to Education Bill despite the fact that Article 21-A makes it the responsibility of the State to provide free and compulsory education to every child. Since education is a concurrent subject, both the State and Central governments are responsible for it. By not passing the required legislation for Right to Education, the Central governments have abdicated their responsibility. As a consequence the educational conditions of the children of India remain precarious.

The availability of Census data on educational attainments by religion for the first time since Independence has enabled the Committee to examine the temporal trends in educational attainments

This chapter provides a broad perspective on issues relating to the education of Muslims in India. It shows that Muslims are at a double disadvantage with low levels of education combined with low quality education; their deprivation increases manifold as the level of education rises. In some instances the relative share for Muslims is lower than even the SCs who are victims of a long standing caste system. Such relative deprivation calls for a significant policy shift, in the recognition of the problem and in devising corrective measures, as well as in the allocation of resources. This chapter focuses on the *differentials in levels* of educational achievement amongst India's Socio-religious Communities(SRCs). The availability of Census data on educational attainments by religion for the first time since Independence has enabled the Committee to examine the temporal trends in educational attainments.

The rest of the chapter is divided into nine Sections. The next Section discusses the indicators of educational attainment used in this chapter. Section 3 analyses the levels of literacy across SRCs and how they have changed over time. Three important aspects of school education, namely years of schooling, enrolment and attendance rates are analysed in Section 4. The next two Sections are devoted to the analysis of the differentials in educational attainment across SRCs. While Section 5 focuses on school education, Section 6 analyses attainments/achievements in higher education. After discussing the differences in educational attainments, Section 7 undertakes an exploration of the correlates of educational attainments. An attempt is made here to ascertain if SRC affiliation remains an important correlate of educational attainment even after controlling for economic status, place of residence and some other socioeconomic variables. The choice of schools for the education of one's children is an important decision. Section 8 discusses the role of Madarsas as a mechanism to provide education to the Muslim community and to expand their choice *vis-à-vis* educational institutions. Discussions on Muslim education have highlighted the role of the Urdu language in educational services in order to make them more accessible to vast sections of the Muslim population. Section 9 discusses this issue. The final section provides a summary of the analysis and outlines some policy options.

2. Indicators of Educational Attainment

Since educational attainment and deprivation have both quantitative and qualitative dimensions, it is not easy to measure their differentials. Several indicators have been developed from a number of data sources. External evaluations indicate that many so-called literates did not have the ability to apply their reading and writing skills to real-life situations,[1] and often a substantial proportion reverted to illiteracy within 4-5 years after leaving school. This aspect is not taken into account by the Census definition. In contrast, the definition of the National Literacy Mission focuses on acquiring the skills of reading, writing and arithmetic *and the ability to apply them to one's day-to-day life.*[2] To measure differentials in attainments at various levels of education between Muslims and other SRCs the following indicators have been used:

Many so-called literates did not have the ability to apply their reading and writing skills to real-life situations, and often a substantial proportion reverted to illiteracy within 4-5 years of leaving schools

* *Literacy rates:* Despite its inadequacies, literacy remains the most easily understood and widely used indicator of educational achievement. The Census measures literacy rates in terms of the percentage of persons aged 7 years and above, who can read and write.
* *Proportion of population completing specified level of education:* The proportion of the population that has completed at least graduation is used as an indicator of higher levels of educational achievement. Similarly, matriculation provides an indication of the intermediary level of education. Educational attainment for primary, middle and higher secondary levels has been similarly defined.[3] In each case the number of persons is expressed as a percentage of the population in the relevant age group.[4]
* *Mean Years of Schooling:* The average number of years a person has attended school during the relevant age span. This has been estimated for the age group 7 to 16 years corresponding to matriculation.
* **Enrolment Rates:** These are estimates of children who are currently enrolled in schools and attending classes.[5]

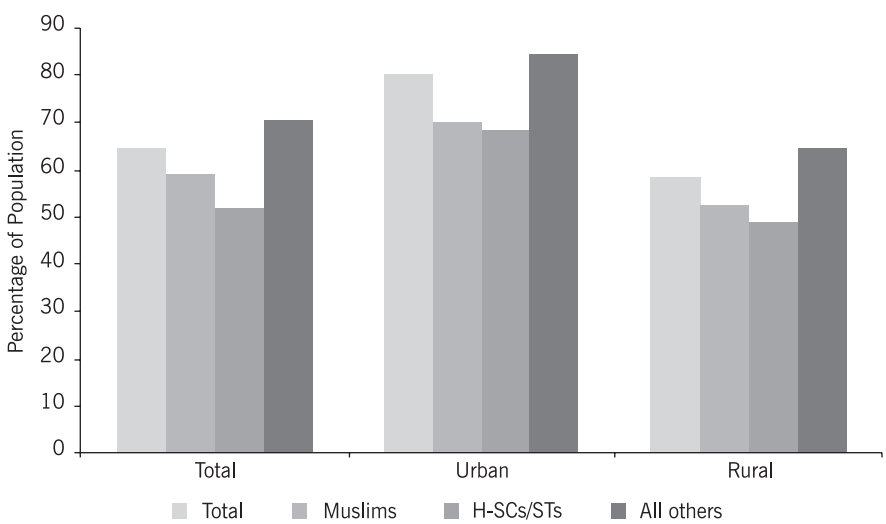
An important source of data for measuring educational achievements is the Census 2001, which for the first time provided information on levels of education according to religions and for SCs and STs. Although data is cross-sectional it is possible to estimate aggregate over-time changes in educational attainment differentials. This is done by using the age profile of persons with different levels of educational achievement. The details of the method for deriving these age specific indicators are discussed in Technical Notes 4.1 and 4.2. While Population Census 2001 is the main source of data for this chapter, wherever necessary data from the 61st Round of NSSO are used to enhance the quality of analysis.

1. National Literacy Mission - 1994 (www.nlm.nic.in).
2. Similarly, the UNESCO definition of a literate person is "One who has acquired all the essential knowledge and skills which enable him/her to engage in all those activities in which literacy is required for effective functioning in his/her group and community and whose attainment in reading, writing and numeracy make it possible to use these skills towards his/her own and his/her community's development".
3. Matriculation refers to completed education up to class X and a pass in the relevant Board/Council examination.
4. The relevant age groups are: 12 years and above (primary education), 15 years and above (middle school education), 17 years and above (matriculation), 19 years and above (Higher Secondary and Diploma) and 20 years and above (graduates).
5. The NSS data provides information on children who are currently attending school, those who enrolled but dropped out and those who never attended. For the NSSO estimates, therefore, the enrolment and attendance rates are the same. They have been used interchangeably in the text.

While all the above measures are quantitative in nature, the qualitative dimensions of education are explored through several other data sources. For example, enrolment and attendance rates, the choice of educational institutions, such as government, private or Madarsas, the cost of and access to education and other qualitative dimensions are studied using data from NSSO, National Council of Educational Research and Training (NCERT), National Institute of Educational Planning and Administration (NIEPA), the Central Board of Secondary Education (CBSE) and the Human Development Surveys conducted by the National Council of Applied Economic Research (NCAER). Besides, data from institutions of higher learning such as universities, Indian Institutes of Management (IIMs), Indian Institutes of Technology (IITs) and other technical and professional educational institutions from different parts of the country is used to highlight various dimensions of accessibility to higher levels of education.

Estimates at the all India level and for selected states are presented, wherever possible, separately for urban and rural areas, and by gender. State-level estimates are also placed in Appendix Table 4.1 so as to make these data accessible to those interested in further probing the issues discussed in this chapter.

Fig. 4.1: Literacy by Place of Residence



The literacy rate among Muslims in 2001 was far below the national average

3. Levels of Literacy

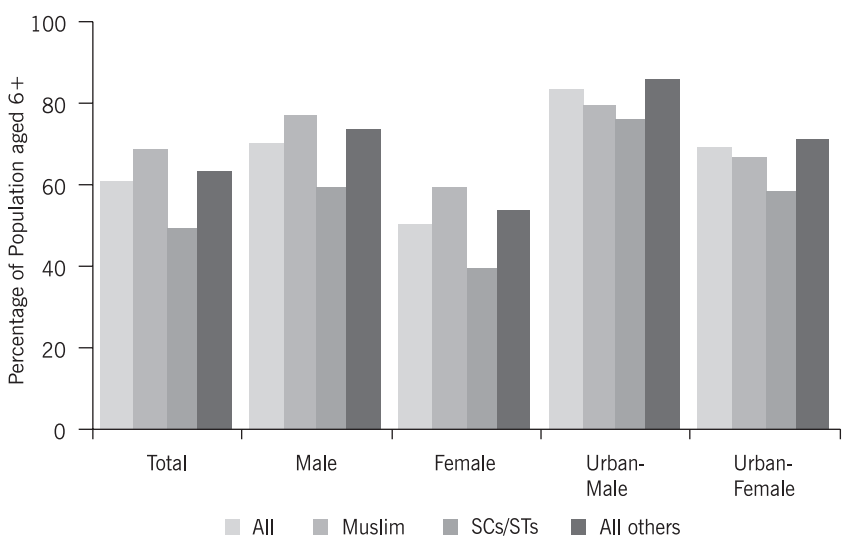
The most commonly used estimate of literacy is available in the Census. Just about 65 % of India's population is literate.[6] Literacy levels are expectedly higher for males than for females - 75.3% against 53.7%. Literacy is also higher in urban areas (79.9%) than in rural areas (58.7%). This gap of about 20 percentage points between

6. The magnitude of the unifinished task can be seen from the fact that 46.8 crore (468 million) people over the age of 6 still illiterate.

rural and urban areas and across gender has been a persistent feature of Indian society over the last two decades despite the increase in literacy levels during this period.

The low literacy level of Muslims and SCs/STs is well documented in research studies. In the mid 1960's literacy levels of both these groups were low, and far lower than that of 'All Others'.[7] In many States however, the position of SCs/STs was worse than that of the Muslims. The literacy rate among Muslims in 2001 was 59.1%. This is far below the national average (65.1%). If the SCs/STs, with an even lower literacy level of 52.2% and Muslims, are excluded, the remaining category of 'All Others' show a high literacy level of 70.8%. In urban areas, the gap between the literacy levels of Muslims (70.1%) and the national average is 11 percentage points and in relation to the 'All Others' category it is 15 percentage points. Although the levels of literacy are lower in rural areas (52.7% for Muslims), the gap between the compared categories is also narrower. It is important to note, however, that the SCs/STs are still the least literate group in both urban and rural India. Although the literacy levels of 64% and 68% amongst male SCs/STs and Muslims respectively are not low, they are far below the level for 'All Others' which is 81%. In contrast, Muslim women with a literacy level of 50% have been able to keep up with women of other communities and are much ahead of the SC/ST women in rural India.

Fig. 4.2 Literacy Levels in Andhra Pradesh



A general analysis at the state level presents a better picture for Muslims. In as many as 10 out of the 21 selected states literacy rates among Muslims are higher than the state average. These include Jharkhand, Karnataka, Maharshtra, Andhra Pradesh and Gujarat (See Appendix Table 4.1). Such estimates, however, can be deceptive and hide the low levels of attainment among specific groups. In quite a few of these states higher aggregate literacy rates are associated with low urban literacy levels among both males and females.

7. This is not to deny that literacy levels within these communities are low even today and need to be improved.

In Andhra Pradesh, for instance, 68% of Muslims are literate, compared to 61% for the state as a whole and 63% for 'All Others'. When aggregate literacy levels among males and females are considered, Muslims (77% and 59%) are better off than 'All Others' (73% and 52%). But Muslim urban literacy levels are lower than all SRCs except SCs/STs among both genders (Figure 4.2). Andhra Pradesh highlights the fact that important dimensions of human development (like literacy) should not be analysed only at the state level.

It is, therefore, necessary to undertake disaggregated analyses at appropriate levels. In general, the state level estimates suggest that the literacy gap between Muslims and the general average is greater in urban areas and for women; Muslims in urban areas, especially Muslim women, have a larger literacy deficit *vis-à-vis* the average condition prevailing in the state. However, there are states like Tamil Nadu where Muslims do better in all sub-groups and states like Kerala where the differences across SRCs are minimal. Since both place of residence (rural-urban) and gender (male-female) identities can be a focus of policy instruments, it is advisable to look at the disaggregated picture before taking decisions regarding allocation of financial resources.

3.1. Time Trends in Literacy Levels

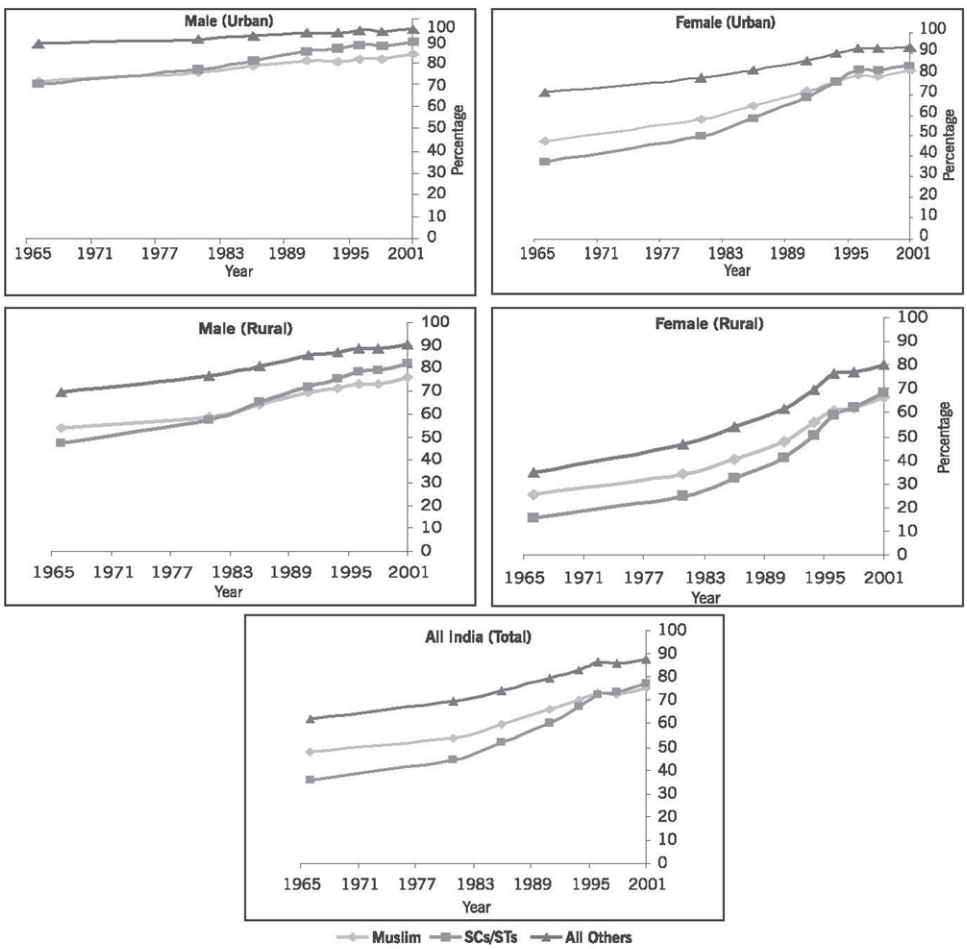
Over time, there has been an improvement in the literacy levels of all communities, Educational Conditions of Muslims 53 Fig. 4.2 Literacy Levels in Andhra Pradesh State level estimates suggest that the literacy gap between Muslims and the general average is greater in urban areas and for women but the rates of progress have not been uniform. The all-India picture shows the presence of a significant gap between Muslims, SCs/STs and 'All Others' in the 1960s. The gap between Muslims and 'All Others' has decreased somewhat in urban areas but has remained the same in rural areas over this period. Literacy levels amongst SCs/STs have increased at a faster rate than for other SRCs. This enabled them to overtake Muslims at the all-India level by the mid-1990s, while reducing the gap with 'All Others'. This trend is common to both males and females and in both urban and rural areas (Figure-Set 4.3 see also Appendix Figure (set) 4.1 for trends in selected states). Thus communities with a relatively high literacy level have continued to improve over the years but the SCs/STs too have also benefited from affirmative action in indirect ways.[8] Muslims, on the other hand, have not been able to respond to the challenge of improving their educational status. Consequently, their gap *vis-à-vis* the group labeled 'All Others' (with initially high literacy levels) has increased further, particularly since the 1980s.

Table 4.1 reports age specific literacy rates computed from the NSS 61st Round data (2004-05). The estimates clearly show that in recent years the literacy rates for the SC/ST population have risen more sharply than for Muslims; while persons of the older age groups in the Muslim community had much higher literacy levels, these are higher for SCs/STs in the younger age groups. Therefore, the trends observed in the Census data are also evident in the NSSO data.

But, how serious are the levels of disparity across SRCs at the higher levels of education? Do the differentials observed at the level of literacy persist at higher levels of school and college education? We now turn to the analysis of these issues.

8. It has been argued that a higher probability of employment due to reservation, and consequent economic security has encouraged investment in children's education among SC/ST households [Desai and Kulkarni, 2005].

Fig (Set) 4.3: All India - Literacy rates by Social Groups - 2001



4. Enrolment Rates and Mean Years of Schooling

Years of schooling and current enrolment are intricately intertwined. Without enrolment and attendance students cannot benefit from schools. Lower enrolment and attendance would typically result in fewer years of schooling, on average.

Table 4.1. Literates as Proportion of Population by Age Groups - 2004-05

Age Groups	Hindus			Muslims	Other Minorities
	Gen	OBC	SCs/STs		
(1)	(2)	(3)	(4)	(5)	(6)
6-13 years	90.2	80.8	74.7	74.6	88.5
14-15 years	95.7	87.5	80.0	79.5	91.9
16-17 years	95.0	85.2	78.6	75.5	91.3
18-22 years	91.4	76.9	65.0	70.5	85.8
23 years & above	74.0	50.6	36.5	46.1	67.0
Total	80.5	63.4	52.7	59.9	75.2

Source: Estimated from NSSO 61st Round, Sch. 10 (2004-05). Muslims have not been able to respond to the challenge of improving their educational status.

4.1 Mean Years of Schooling

The Census of India 2001 for the first time provides data that is somewhat amenable to estimate Mean Years of Schooling (MYS) according to SRCs.[9] The MYS was estimated for children aged 7-16 years, which corresponds to the population that should have completed matriculation.[10] The results are presented in Figure 4.4.

Since the Census provides data on completed educational levels by SRCs, the estimate of MYS is truncated. The completed years of schooling of those who are still studying cannot be incorporated in the estimate. If drop-outs among these children were reduced through appropriate incentives, the MYS would increase.

It can be seen that on an average a child goes to school for only four years. The MYS of Muslims is the lowest (about three years four months). A comparison across SRCs both by gender and by place of residence also reveals consistently lower levels of MYS for the Muslim community. The MYS of Muslim children is only 83% that of the MYS of all children and the disparity is highest in the case of rural boys (MYS of Muslims is only 78% that of all rural children), closely followed by rural girls. It is interesting to observe that the differential is higher among boys than among girls even with regard to urban children.

A comparison across SRCs reveals consistently lower levels of Mean Years of Schooling for the Muslim community

The poor performance of Muslims is also observed in almost all the states, particularly in West Bengal and Uttar Pradesh. In these two states, the MYS among Muslim children is the lowest among all SRCs. The MYS of Muslim

9. The methodology is explained in Technical Note 4.1.

10. Children below the age of 7 could not be taken as the Census bunches all children aged 6 or below in one category. The MYS estimates based on this methodology are likely to yield higher numbers as the denominator is age specific, as opposed to 'all population' normally used both in numerator and denominator.

Fig. 4.4: Mean Years of Schooling of Children aged 7-16 years *(2001)*

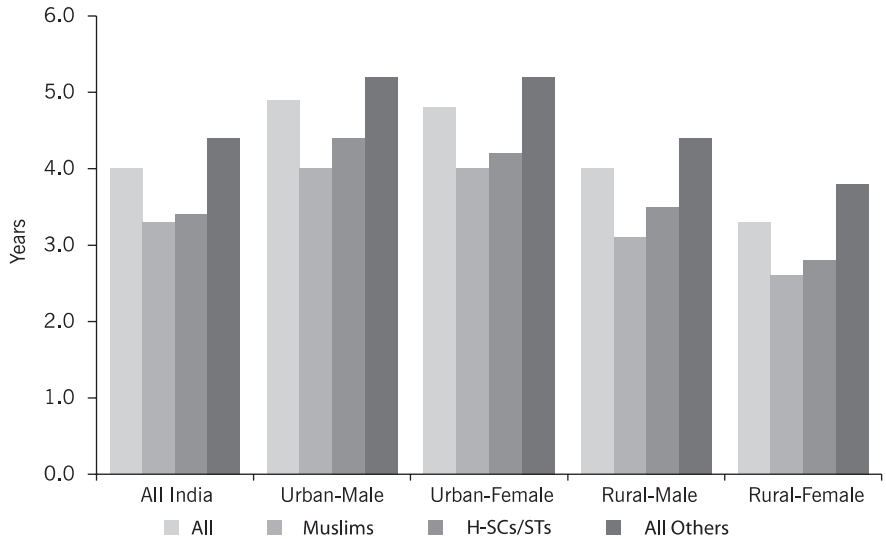
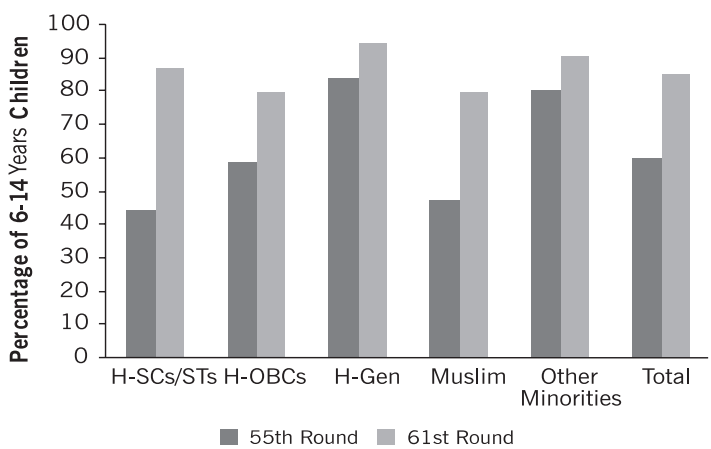


Fig. 4.5: Current Enrolment Rates 1999-00 and 2004-05



children is lower than that of 'All Others' in almost all states. Only in Chattisgarh (with 2% Muslims) is the MYS for Muslims higher than that of 'All Others' (Appendix Table 4.2).There are considerable variations in the relative status of Muslims and SCs/STs. The MYS of Muslims is lowest in States like West Bengal, Uttar Pradesh, Assam, Uttaranchal and Delhi. On the other hand, Muslim children remain in schools for a longer period than SCs/STs in states like Kerala, Bihar, Jharkhand, Karnataka, Maharashtra, Andhra Pradesh and Gujarat.

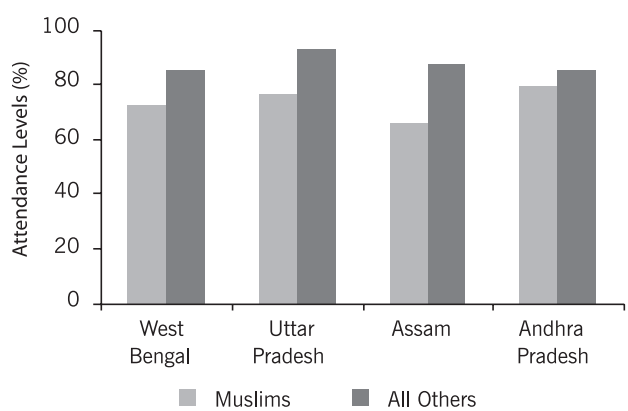
4.2 Enrolment Rates

The Census does not provide information on enrolment and attendance rates. The estimates for currently enrolled children are available from the NSSO and the NCAER India - Human Development Survey, 2004-5 provides provisional estimates on attendance levels. The Committee was able to access the 61st Round NSSO data (2004-05). These figures were compared with the 55th Round (1999-2000) to examine the trends in attendance rates over time. It can be seen that there has been a significant increase in the current enrolment and attendance rates for all SRCs (Figure 4.5).

The increase in enrolments has been highest among SCs/STs followed by Muslims

While an increase in enrolment is observed for all SRCs, the increase has been the highest among SCs/STs (95 percent), followed by Muslims (65 percent). Though this substantial increase has not really changed the relative position of Muslims in terms of ranks, the gaps among SRCs have narrowed dramatically. In 1999-00, Muslims had the lowest enrolment rate among all SRCs except SCs/STs and this rate was 78 % of the average enrolment rate for the population as a whole. In 2004-05 the Muslim enrolment rate was slightly higher than that of the OBCs but was somewhat lower than the average enrolment rate. This is a positive trend consistent with the increasing focus of the Muslim community on education reflected in various interactions with the Committee as reported in Chapter 2.

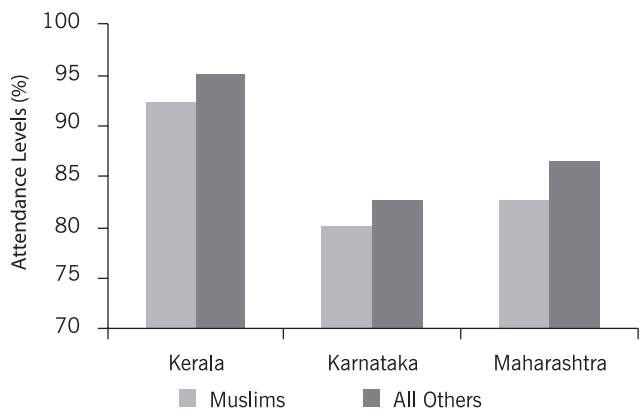
Fig. 4.6: Differences in Attendance (Enrolment) Levels between Muslims and All Others



A state-wise analysis reveals reasonably high enrolment rates amongst Muslim children in most states. In Kerala, Karnataka, Delhi, Maharashtra and some other states the enrolment rates among Muslims are higher than the state average. On the other hand, in states like Uttar Pradesh, Bihar, Jharkhand and Uttaranchal, enrolment rates are very low (below 70% of the state average). In fact, in Uttar Pradesh, Jharkhand and Andhra Pradesh, enrolment rates for Muslim children are lower than all other SRCs (Appendix Table 4.3).[11]

The NCAER survey also estimated current enrolment rates. The provisional estimates are discussed below. The NCAER estimates of current enrolment rates are lower than the NSSO estimates. The difference between Muslims (74%) and the remaining population (83%) is much sharper.

Fig. 4.7: Differences in Attendance (Enrolment) Levels between Muslims and All Others



Enrolment rates are above 90% in Kerala and Tamil Nadu, and satisfactory (above 80%) in Karnataka, Maharashtra and Delhi. The difference in enrolment rates is also small in states like Kerala, Karnataka and Maharashtra. But it needs to be noted that in none of the states are current attendance rates amongst Muslims higher than that of the remaining population. On the contrary, there is a significant difference in enrolment rates in states like West Bengal, Uttar Pradesh, Assam, Andhra Pradesh, and some smaller states (Figures 4.6 and 4.7).

The status of the students who are currently not attending schools has also been analysed from NSSO data. These students can be divided into two groups - those who have never attended any school at any time ('never enrolled'), and those who had enrolled but dropped out later ('drop-outs').

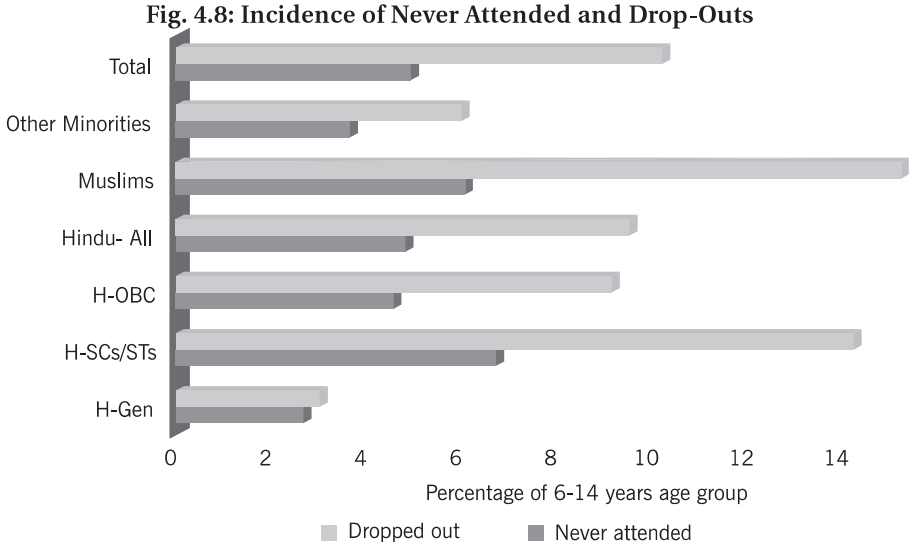
As many as 25 per cent of Muslim children in the 6-14 year age group have either never attended school or have dropped out

As many as 25 per cent of Muslim children in the 6-14 year age group have either never attended school or have dropped out. This is higher than that of any other SRCs considered

11. The estimates for Andhra Pradesh are somewhat surprising as the state showed reasonably high estimates for literacy among Muslims.

in this analysis. The incidence of drop-outs is also high among Muslims and only SCs/STs have a marginally higher drop-out rate than Muslims (Figure 4.8).

Fig. 4.8: Incidence of Never Attended and Drop-Outs



Overall, while the share of dropouts and children who have never attended school is still higher among Muslims than most other SRCs, enrolment rates have risen significantly in recent years. In a recent study it was found that apart from the economic circumstances of the households, school enrolment for different communities is significantly affected by the local level of development, (e.g., availability of schools and other infrastructure) and the educational status of the parents. The study using 1993-94 data showed that higher levels of village development and parental education resulted in higher enrolment rates for all communities. Interestingly, once the children are placed in 'more favourable' circumstances, (e.g., when parents, especially mothers are literate and infrastructural facilities are better), inter-community (Hindu/SC-ST/Muslims) differences in enrolment rates become insignificant. Moreover, differences in parental education were more important in explaining inter-community (especially Hindu-Muslim) differences in enrolment than regional development variables.[12] In the light of these findings, the increase in enrolment rates in recent years is quite remarkable as one cannot expect a significant increase in parental education between 1999-2000 and 2004-05. Muslims seem to be overcoming barriers to enrolment arising out of parental illiteracy and other socio-economic constraints.

12. For details of this study see, Borooah and Iyer.

Attainment levels of Muslims are close to or slightly higher than those of SCs/STs and much lower than those of other SRCs

5. Differentials in Educational Attainment: School Education

The Census data on levels of education by age can be used to estimate the educational attainments of three SRCs, namely, the Muslims, the SCs/STs and 'All-Others'. Four categories of attainment at the school level can be defined:

1. *Primary Education:* Persons of age 12 years and above who have completed at least 5 years of education are analysed.

2. *Middle level education:* Persons of age 15 years and above who have completed at least 8 years of education are included in this group.

3. *Matriculation:* Persons who have matriculated (10 years of schooling) and are at least 17 years of age are included in this group.

4. *Higher Secondary:* Persons who have completed the higher secondary or equivalent examination (12 years of schooling) and are of 19 years of age or more. Those with technical / non-technical diplomas, which are subsequent to secondary level education and therefore equivalent to the higher secondary level, are included in this group.

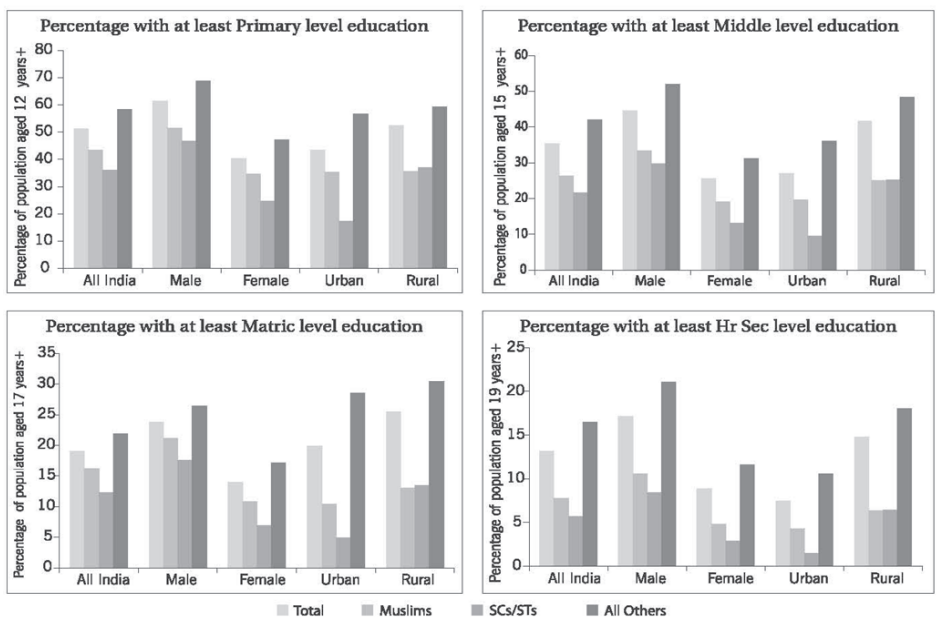
In general, differentials in school education attainment across the SRCs are significant in both rural and urban areas. Typically, the attainment levels of Muslims are close to or slightly higher than those of SCs/STs and much lower than those of other SRCs. However, in the aggregate, the attainment levels of Muslims in rural areas are often lower than those of SCs/STs. This is essentially because the educational attainments of Muslim women in rural areas are lower than those of SC/ST women. At the all India level the educational attainment of Muslims worsens in relative terms as one moves from lower to higher levels of school education. The differentials can be seen according to both gender and place of residence. This can be seen at both middle and primary levels of education (Figure Set 4.9).

Expansion of educational opportunities since Independence has not led to a convergence of attainment levels between Muslims and 'All Others'

5.1 Time Trends in Educational Attainment:Matriculation

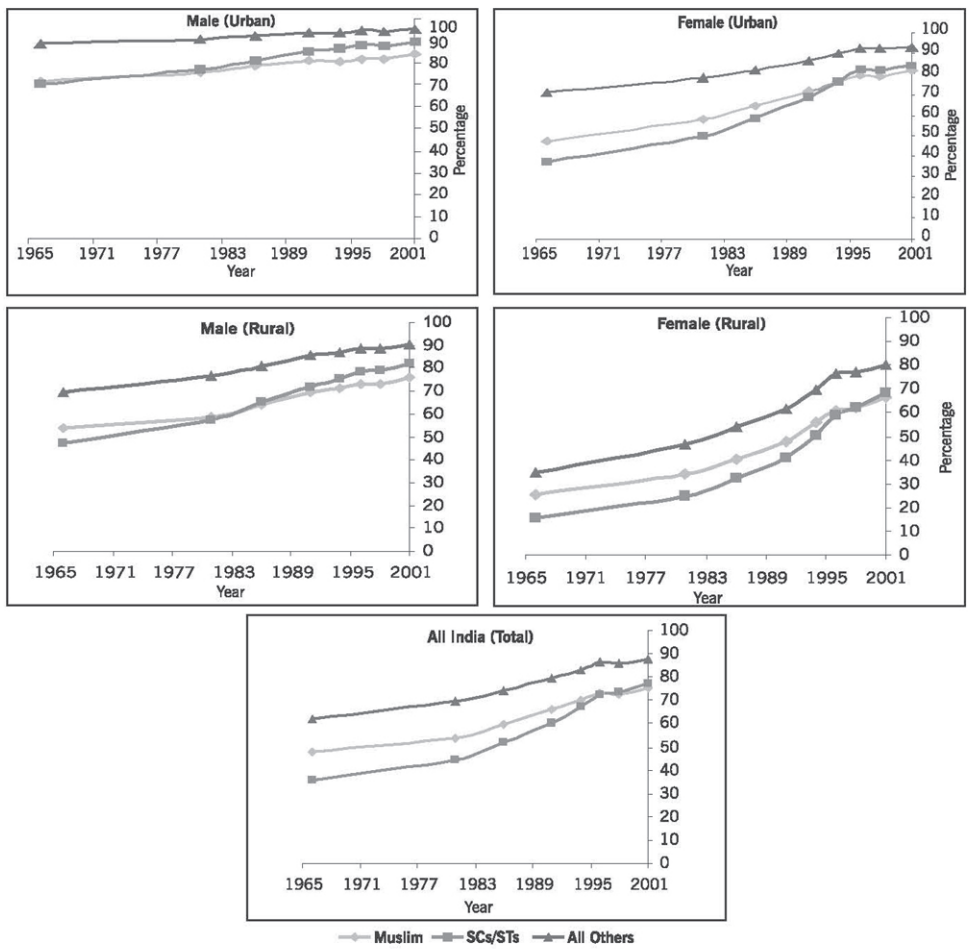
The analysis so far concentrated only on the current status. While the present scenario is important, it is useful to know the temporal context also. This will allow an understanding of changes in educational attainments of the different socioreligious groups over time. Available studies of changes in educational attainments normally discuss only aggregates at the all India and state level. In the following Census 2001 data is used to trace trends in educational attainments at different levels. This was possible by using the data on educational attainments provided by the Census by age, place of residence, gender, religion and caste. In what follows, we confine our analysis to the time trends regarding matriculation as literacy has already been analysed in an earlier section. These are referred to as Matriculation Completion Rates (MCR).

Fig. (Set) 4.9: Percentage Attainment Levels in SRCs



While 26% of those 17 years and above have completed matriculation, this percentage is only 17% amongst Muslims. As was the case for literacy, even at the matriculation level, expansion of educational opportunities since Independence has not led to a convergence of attainment levels between Muslims and 'All Others' (Figure (Set) 4.10). Rather, the initial disparities between Muslims and 'All Others' have widened in all four groups disaggregated on the basis of place of residence and gender. The increase in disparity is most apparent in urban areas for females and amongst rural males. The gap between urban males has not changed significantly, rather it has remained persistently high at about 30 percentage points. The gaps are vast and increasing over time, contrary to the expectation that as the overall educational system improves disparities will be reduced. However, some degree of catching up can be seen for SCs/STs, especially in the case of urban males and females, and also for rural males. This transition seems to have started as early as the 1960s.

Fig (Set) 4.3: All India - Literacy rates by Social Groups - 2001



Detailed data suggests that these patterns exist even in states like Kerala (Appendix Figure (Set) 4.1). In spite of the achievements at lower levels of education, the inequality between Muslims and 'All Others' for both urban males and females in the state has increased significantly. In West Bengal, the percentage of urban males completing matriculation in the 'All Others' group has remained roughly constant at 50%, allowing Muslims to catch-up. While relative deprivation has been lower in rural areas and among females, in West Bengal, the position of Muslim women on the whole has worsened over time by more than 10 percentage points in both rural and urban areas. Andhra Pradesh is the exception in the sense that Muslims - with higher levels of attainment initially in urban areas - have not fallen significantly behind other communities. However, their rate of progress has been slow, so that 'All Others' caught up with them in the 1990s. In rural areas, although Muslims have fallen behind other groups, the gap is still not significant.

Primary education seems to be the major hurdle for school education

The transitions within school education - completing primary, middle, secondary and higher secondary education - are important insofar as they influence the economic and other opportunities available to an individual. It is important to find out the rate at which persons from different communities move into higher levels of education. For example, once a person has completed primary education, does the probability of pursuing middle school education differ by SRCs? A recent study has computed these probabilities by SRCs showing very interesting patterns.[13] The first striking feature is that the probability of completing different levels of school education (primary, middle, secondary etc.) has increased for all communities during 1983-2000. The sharpest rise has been in the probability of completing middle school for all communities, including Muslims. But differences still exist and the Muslims and SCs/STs are behind others. On an average based on four years of data, about 62% of the eligible children in the upper caste Hindu and other religious groups (excluding Muslims) are likely to complete primary education followed by Muslims (44 %), SCs (39%) and STs (32%). However, once children complete primary education, the proportion of children completing middle school is the same (65%) for Muslims, STs and SCs but lower than 'All Others' (75%). The next transition also shows a similar pattern; about 50% of Muslim and SC/ST children who have completed middle school are likely to complete secondary school as well, which is lower than the 'All Other' group (62%). Interestingly, in the transition from secondary to college education, Muslims perform somewhat better than SCs and STs; while only 23% of the SC/ST students who complete secondary education are likely to complete college education, this percentage is 26% for Muslims and 34% for other groups. Given these estimates, while disparities exist at every level, completion of primary education seems to be

13. See Desai and Kulkarni (2005) for more details.

Drop-out Rates among Muslims are highest at the level of Primary,Middle and Higher Secondary compared to all the SRCs

Box 4.1. Jawahar Navodaya Vidyalayas(JNVs)

The Jawahar Navodaya Vidyalayas were set up to provide high quality education for talented rural children, through 'pace setting' residential schools. The Navodaya Vidyalaya Samiti was set up as an autonomous organisation to establish and manage these vidyalayas. It was envisioned that there would be one JNV in every district of the country. At present there are 551 schools, in as many districts, with over 1.50 lakh students on roll.

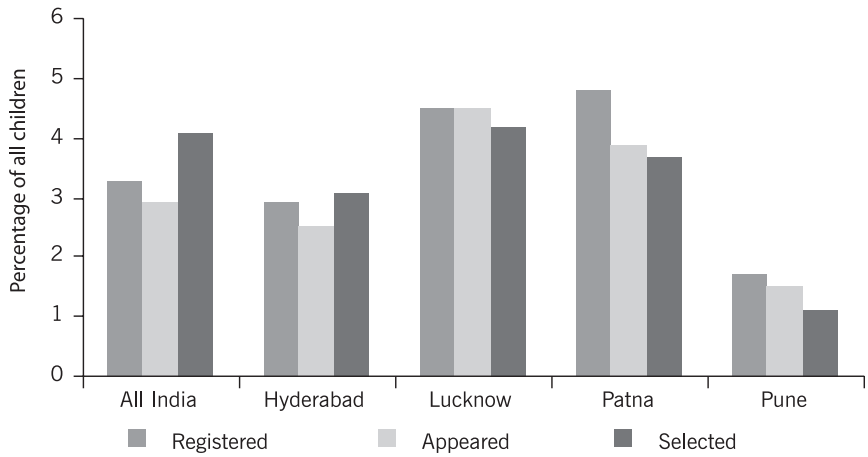
JNVs are fully residential co-educational schools with classes VI to XII; they are affiliated to the Central Board of Secondary Education (CBSE) and impart the CBSE curricula. The medium of instruction is the mother-tongue or the regional language up to Class VIII. Thereafter, the common medium is Hindi for Social Studies and the Humanities and English for Mathematics and Science. Admission to the Vidyalayas is at the class VI level through an open test conducted at the district level by the CBSE in 21 languages, including Urdu. Over 30,000 students are admitted every year. While education in the schools is free including boarding, lodging, uniforms and textbooks, a nominal fee of Rs. 200/- per month is levied from classes IX to XII. Candidates belonging to the SC /ST, the physically handicapped category and those from families below the poverty line are exempt from these fees.

Considering the aim in setting up the NVs - "the objective of excellence, coupled with equity and social justice" (National Policy on Education, 1986) - it would be pertinent to see to what extent this scheme has benefited the Muslim community, which was officially declared as educationally backward in the 1986 National Policy on Education. The setting up of good quality schools like Jawahar Navodaya Vidyalayas in rural areas was expected to somewhat relax the supply side constraints on good quality education but Muslim participation in these schools too is not satisfactory.

It can be seen from Figure 4.11 that the proportion of Muslims among all children registering for, appearing in and being selected in the Jawahar Navodaya Selection Test(JNVST) is extremely low, and far below their share in the population. It is interesting to observe the low coverage of Muslims even in JNV Regions like Lucknow (covering Uttar Pradesh and Uttaranchal) and Hyderabad (including Andhra Pradesh, Kerala, Karnataka, Pondicherry, Andaman & Nicobar Islands and Lakswadeep), which have a significant proportion of Muslims in their population. The performance of Muslim girls is poorer than that of boys.

The setting up of Jawahar Navodaya Vidyalayas in rural areas was expected to reduce the supply side constraints on good quality education ... Muslim participation in these schools too is not satisfactory

Fig. 4.11: Percentage of Muslim Children in JNVST



Notes: [1] Hyderabad Region (Andhra Pradesh, Kerala, Karnataka, Pondicherry, Andaman & Nicobar Islands and Lakswadeep)
[2] Lucknow Region (Uttar Pradesh and Uttaranchal)
[3] Patna Region (Bihar, Jharkhand and West Bengal) [4] Pune Region (Maharashtra, Gujarat, Goa, Dadar & Nagar Haveli and Daman & Diu)
Data Source: Navodaya Vidyalaya Samiti, New Delhi

the major hurdle for school education. Availability of good quality schools like Jawahar Navodaya Vidyalayas in rural areas was expected to partly relax the supply side constraints on good quality education but Muslim participation in these schools is not satisfactory (see Box 4.1). With the explicit recognition of lower than average attainment of Muslims in school education, we move on to the discussion on higher education.

6. Differentials in Educational Attainment: Higher Education

In India, a significant proportion of the relevant population still remains deprived of the benefits of higher education, and the Muslims comprise an important category of the deprived communities (Table 4.2). According to Census data, while only about 7 per cent of the population aged 20 years and above are graduates or hold diplomas, this proportion is less than 4 per cent amongst Muslims. Besides, those having technical education at the appropriate ages (18 years and above) are as low as one per cent and amongst Muslims, that is almost non-existent.

Table 4.2. Graduates and Diploma Holders by SRCs

Census 2001

SRCs	Number (in lakhs)		Percentage of 20 years+ Population		Distribution across SRCs	
	Graduates	Diploma and Certificate	Graduates	Diploma and Certificate	Graduates	Diploma and Certificate
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Total	376.7	40.5	6.7	0.7	100	100
Muslim	23.9	2.7	3.6	0.4	6.3	6.8
SCs/STs	30.8	4.1	2.4	0.3	8.2	10.2
All Others	322	33.7	8.8	0.9	85.5	83.0

Fig. 4.12: Graduates from among age 20+ by SRCs: 2004-05

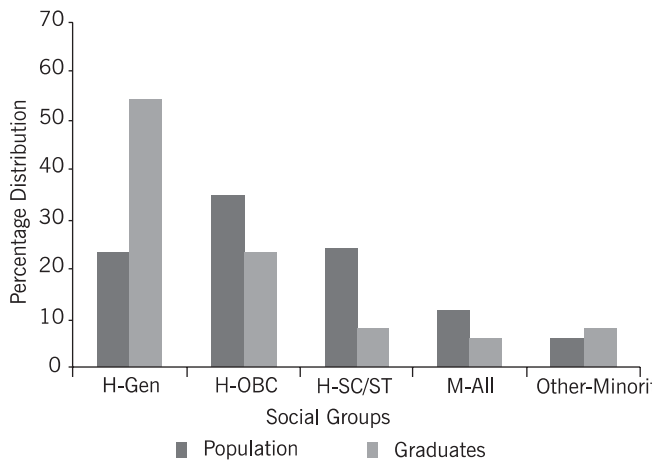
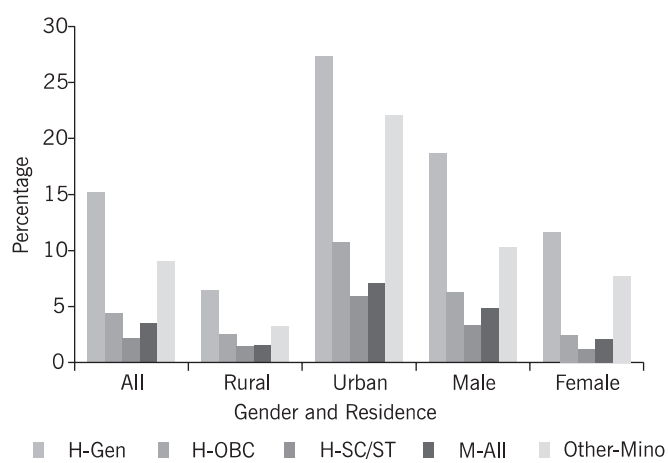


Fig. 4.13: Graduates + as Percentage of 20+ Population: 2004-05



Estimates from the Census 2001 data suggest that just about 38 million men and women above 20 years old have secured a graduation degree and beyond; and only 4 million have received a technical diploma/certificate. Overall this amounts to about 6 % of the relevant population having completed graduation and just under one half percent having technical qualifications at the diploma/certificate level. In the case of Muslims the number is under 4 million graduates, which is about 3.6 % of the appropriate population, and those technically qualified is a meagre 0.4 % (Table 4.2).

Since artisanship is a dominant activity among Muslims technical training should be provided to even those who may not have completed schooling

The NSSO 61st Round data (provisional) regarding graduate level education, furnished by the NSSO to the Committee, show that the SCs/STs and Muslims are the most disadvantaged as their respective shares are much lower than their share in the population (Fig 4.12). In the case of Muslims their share in graduates is 6 % while their share in population aged 20 years and above is about double at over 11%.

Fig. 4.14: Technical Graduates as Percentage of 20+ Population: 2004-05

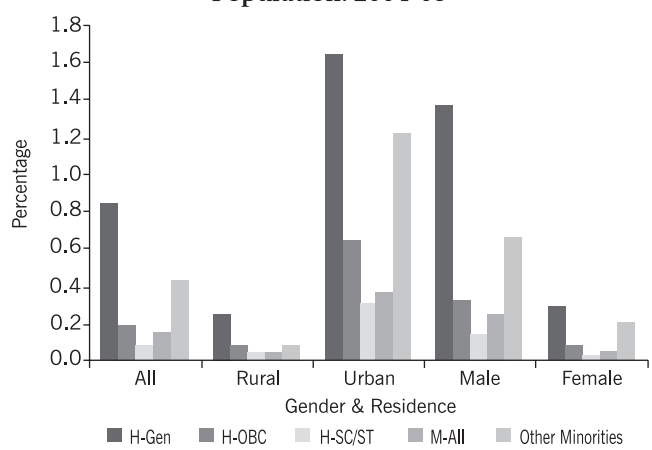
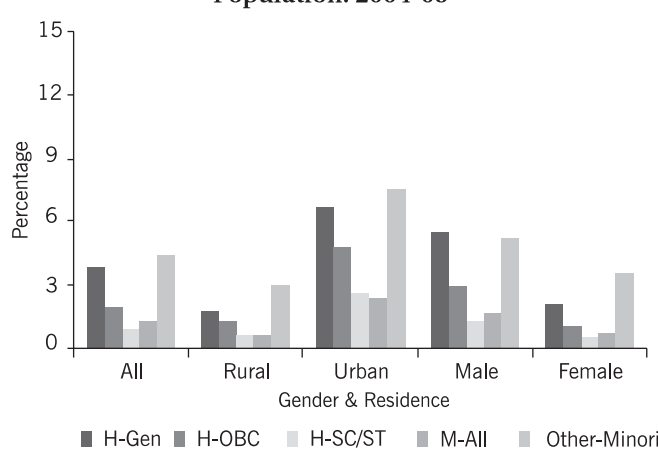


Fig. 4.15: Diplomas as Percentage to 20+ Population: 2004-05



Further disaggregated estimates according to gender, place of residence and SRCs are presented in Fig. 4.13. The relative share of upper-caste Hindus is disproportionately high in all four segments, especially for males and in urban areas. The share of graduates among Hindu-OBCs is lower than their population share but the "deficit" (ratio of share among graduates and in the population) is much lower for this community than for Muslims and SCs/STs.

The proportion of technical graduates is important as it indicates the stock of technical skills available in the community/nation. While the pool of technical graduates is even lower with only about 2 in every 1000 persons being a technical graduate, the performance of Muslims is worse than all SRCs, except SCs/STs, with a sharp differential existing in urban areas and amongst males (Fig. 4.14).

Diploma courses correspond to a lower level of education and skill formation but even at this low level of technical education the overall pattern remains the same with Muslims not doing very well amongst the SRCs, except when compared with the SCs/STs. The gap between Muslims and other SRCs is particularly relevant for such training as Muslims have a substantial presence in the artisanal activities and have the potential, with some technical training, to do well in a variety of emerging and economically viable activities. (Fig 4.15).

6.1 Time Trends in Educational Attainment: Higher Education

The analysis of the age-specific proportion of graduates at the all-India level (Figure - (Set) 4.16) reveals that the overall proportion of graduates has increased over time. But there are two matters of concern: (a) that the proportion of graduates is still too low and (b) at even this low level the disparities amongst the SRCs are considerable. In the case of Muslims the attainment is less than half compared to 'All Others' and the gap is much more prominent in urban areas for both men and women.

The disparity in Graduation Attainment Rates is widening since 1970's between Muslims and all other categories in both urban and rural areas

If one follows the temporal dimension of change in differentials in 'Graduate Attainment Rates' (GAR) among urban males, the disparity between Muslims and 'All Others' is consistently high. There was no significant change in the gap till the early 1970s. Thereafter, there has been a slight widening of the gap. By contrast, the relative differentials between Muslims and 'All Others' have widened over time for urban females. The gap between Muslims and 'All Others' was relatively low at the time of Independence. Since then, however, it has widened steadily to a significantly high level. The disparity levels are currently as high as 15 percentage points in urban areas for both genders. The overall progress has been much less in rural areas, especially among women. But one does not yet find a significant widening of the gap between Muslims and 'all Others'

A comparison between Muslims and SCs/STs also reveals interesting results. Initially, Muslims had a marginally higher Graduation Attainment Rate (GAR) than SCs/STs. In the initial phases of planning, the SCs/STs had performed more slowly and this had led to a slight widening of the gap between them and the Muslims. In the 1970s, however, the GARs for SCs/STs grew at a faster rate than for Muslims. This led to convergence in the GAR of Muslims and SCs/STs. In fact, among urban males, the convergence process had begun in the 1950s itself, and had resulted in SCs/STs 'overtaking' Muslim males after the 1970s; it also resulted in the current significantly higher levels.

Fig. (Set) 4.10: All India - Matriculation *(Completion Rates)*

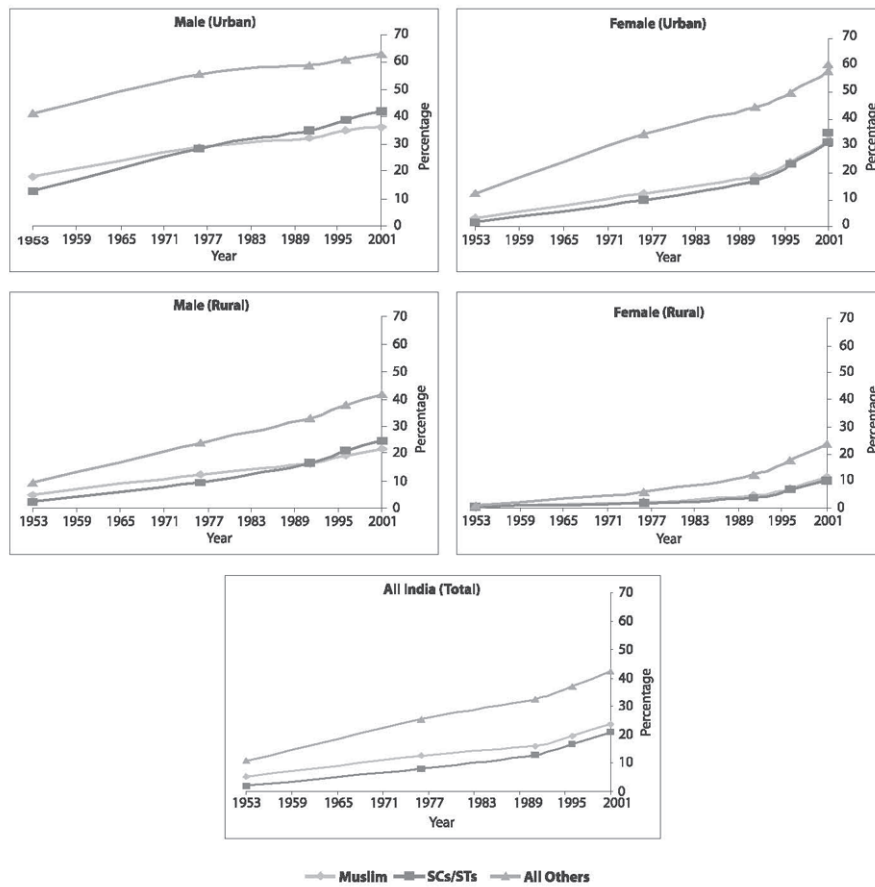


Table 4.3. Graduates as Proportion of Population by Age Groups - All India, 2004-05

Age Groups	Hindus			Muslims	Other Minorities
	Gen	OBCs	SCs/STs		
(1)	(2)	(3)	(4)	(5)	(6)
20-30 years	18.6	6.5	3.3	4.5	11.6
30-40 years	16.8	4.6	2.3	3.3	9.2
40-50 years	14.6	3.2	1.5	2.8	8.1
51 years & above	9.8	1.9	0.9	2.1	5.7
Total	15.3	4.4	2.2	3.4	8.9

Source: Estimated from NSSO (2004-05) 61st Round, Sch. 10.

Similar trends are discernable in rural areas, albeit at much lower levels as fewer percentage of persons complete graduate studies. But what is certain is a widening gap between Muslim men and women compared with 'All Others', and an almost certain possibility that Muslims will fall far behind even the SCs/STs, if the trend is not reversed.

This all India pattern can also be seen when one estimates age specific GARs (Table 4.3). GARs for persons 51 years and above was 2.1 per cent for Muslims, higher than all SRCs except Hindu-General (9.8 per cent). But for the 20-30 years age group, while the GAR for Muslims has gone up to 4.5 per cent, the GAR for H-OBCs has become even higher (6.5 per cent) and the GAR for SC/STs, though still lower, has risen faster.

State Level Patterns

The all-India trend of increasing disparities in GAR between Muslims and 'All Others' is found to be prevalent in all states (Appendix Figure(Set). In urban areas, Muslims are falling behind not only *vis-à-vis* 'All Others', but also SCs/STs in several states. This trend can be observed among both males and females. Bihar is the lone exception, with inequalities remaining frozen over time. The rural scenario is equally bad from the perspective of attainment levels of Muslims. In most states, the differential in GAR between Muslims and 'All Others' has increased. In quite a few, SCs/STs have reduced the differential with Muslims, or even overtaken them. In Uttar Pradesh, for instance, the gap between male SCs/STs and Muslims has widened since Independence, with the former doing better.

6.2 Participation in Institutions of Higher Learning

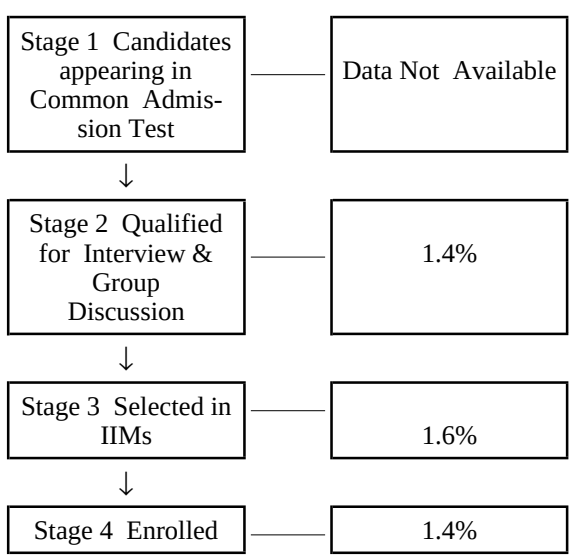
The proportion of graduate and post-graduate students in different SRCs pursuing higher education in well known institutions of higher learning is very small. In recent years the share of different groups in such educational institutions has become an important area of discussion. This subsection analyses data collected from these institutions.

Indian Institutes of Management and Indian Institutes of Technology

As a special case the Committee has considered the enrolment of Muslim students in two sets of elite institutions - the Indian Institutes of Management (IIMs) and the Indian Institutes of Technology (IITs). Efforts were made to collect data on enrolments for recent years - 2004-5 and 2005-6. The process of admission to IIMs is complex and needs to be understood differently from the straight forward procedure of university departments. As these are national level institutions of higher learning, the process of admissions starts from holding a 'Common Admission Test (CAT)' for all IIMs. Therefore, the final admissions are dependent upon the initial number of test seekers, followed by those who qualify to be interviewed and the third stage at which the candidates are selected. The final number which joins a particular institution depends upon the choice of institutions provided to a selected candidate.

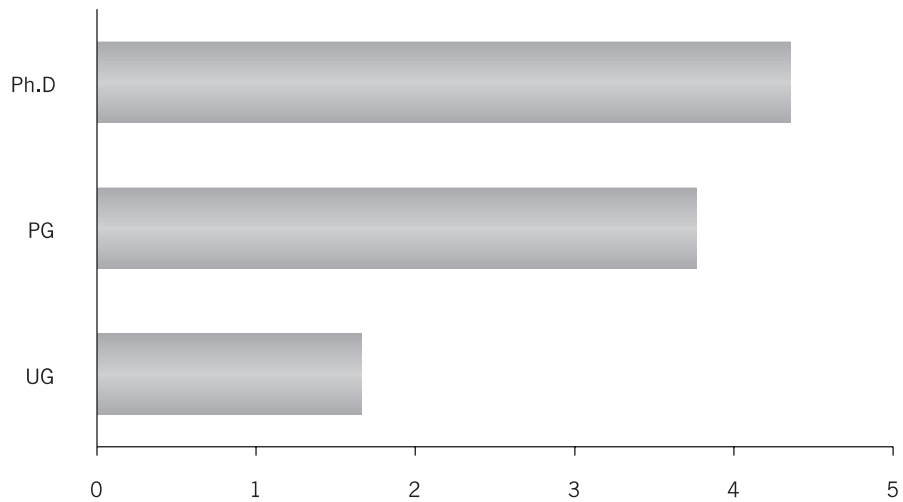
It is important to note that data on candidates taking CAT examinations and respective scores according to SRCs were not made available to the Committee as these are not compiled by these institutions. Stage-2 data on the number of Muslims students called for interview, and those selected at stage-3 was used to calculate the rate of success. About one out of three Muslim applicants is selected, which compares favourably with, in fact is somewhat better, than the success rate of other candidates. Despite a better success rate Muslims constitute only 1.3 % of students studying in all courses in all IIMs in India, and in absolute number they were only 63 from out of 4743[14] (Figure 4.17).

Fig. 4.17. Admission process of IIMs and Share of Muslim students



14. This total includes both years of PG diploma and all other full time courses.

Fig. 4.18: Percentage Muslim Students in IITs



One needs to understand as to why a small number of Muslim students reached the interview stage. One possible factor could be low levels of achievement in the CAT examinations while another could be that although the achievement levels are similar across SRCs, not many Muslim candidates took the CAT examination in the first place.[15] It needs to be re-emphasised that once the Muslim students reach the interview stage (which is essentially based on the scores obtained in a written admission test) their success rate is quite high.[16]

In the case of the IITs, out of 27,161 students enrolled in the different programmes, there are only 894 Muslims. The break up of students according to different course levels is available; the share of Muslims in the post-graduate courses is just about 4 % but it is even lower in under-graduate courses at 1.7% (Fig. 4.18). Muslims' share in PhD courses is somewhat better compared with other courses. It needs to be noted that while entry into the undergraduate programmes at IITs is only through the common test taken after leaving school, for post graduate courses, graduate students from other educational institutions can also enter through another IIT-

15. The figures for different courses reflect a similar picture. The IIMs offer 5 regular courses: Post Graduate Diploma in Management, Post Graduate Diploma in Business Management (Evening course), Post Graduate Diploma in Agricultural Management, Post Graduate Diploma in Computer Aided Management, and Fellowship Programme.

16. The share of Muslims enrolled in IIMs is slightly lower due to the fact that some of the candidates chosen by different IIMs are common.

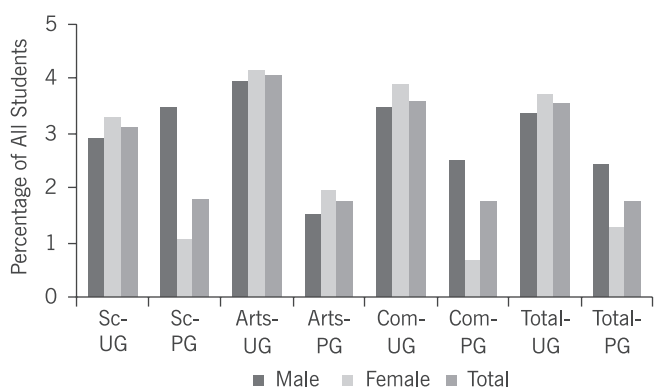
wide entrance examination. Apparently, Muslims are able to compete better in the examination taken after completing graduation. In terms of the demand for these courses the competition at this stage may be lower.

Only one out of the 25 Under-Graduate student and one out of the 50 Post- Graduate student is a Muslim in premier colleges

Participation in Premier Colleges in India

The Committee undertook a survey of students currently enrolled in some of the premier colleges offering streams of regular science, arts and commerce courses and the premier Medical Colleges.[17] The enrolment of Muslims in the regular streams of science, arts and commerce courses[18] is presented in Fig. 4.19. Only one out of twenty five students enrolled in Under Graduate (UG) courses and only one out of every fifty students in Post-Graduate (PG) courses is a Muslim. The share of Muslims in all courses is low, particularly at the PG level, and marginal in the science stream. However, it is interesting that the enrolment ratio is higher among girls than boys in UG courses. At the PG level, however, this proportion falls - except in arts courses.

Fig. 4.19: Proportion of Muslims in Premier Arts/Sc./Comm. Colleges



17. The institutions were selected from the ranking by India Today in 2003, 2004 and 2005.

18. The colleges who had furnished data to the Committee are: SRC College, Hansraj College, St. Stephens College (New Delhi), Presidency College, St. Xavier's College (Calcutta), St. Xavier's College (Mumbai), BIM College of Commerce, Dr. Ambedkar College (Pune), K.J. Somaiya College, Madras Christian College (Chennai) and Mt. Carmel College (Bangalore).

Fig. 4.20: Proportion of Muslims in Premier Medical Colleges

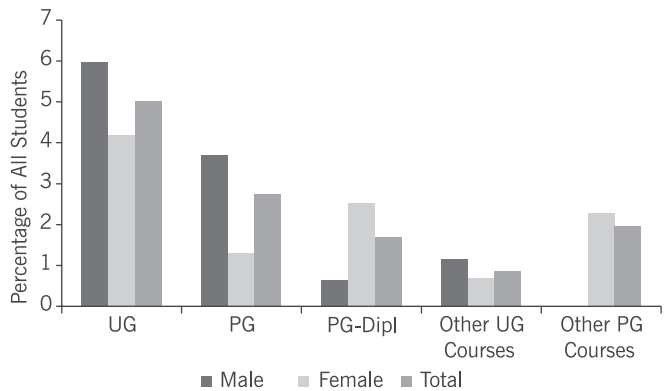
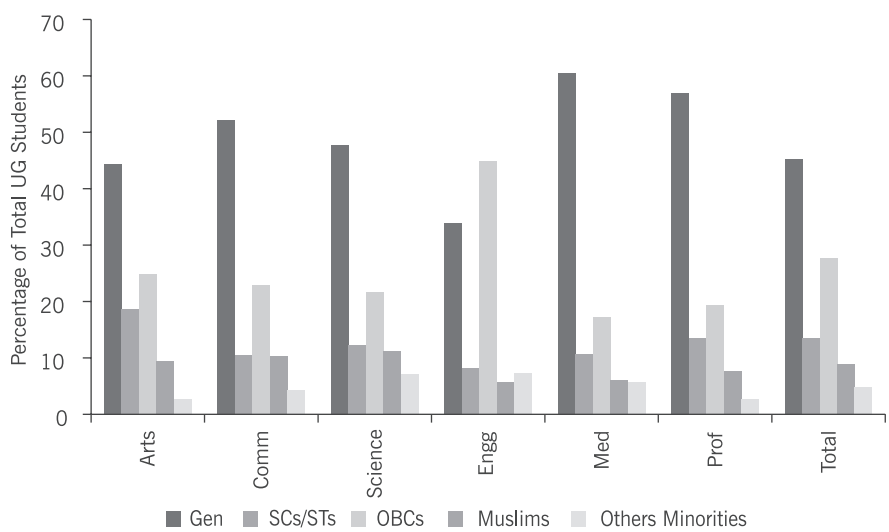


Fig. 4.21: Distribution of Students Enrolled in Undergraduate courses: 2004-05



The Committee was able to obtain adequate responses from the top Management institutions (data here pertains to the management colleges other than the IIMs).[19] The share of Muslims enrolled in MBA courses was found to be only one percent among both boys and girls. While the data is not sufficient to come to any conclusion, it is consistent with the data collected from the IIMs.

The representation of Muslims in the top Medical colleges[20] is only marginally better (Fig. 4.20). It is about 4% of students enrolled in all courses. Most of them are studying at the UG level namely in MBBS, Dental, Nursing, etc. The representation of Muslims in other courses is marginal. Except in PG Diploma courses, the percentage of Muslim girls is lower than Muslim boys in all courses.

University Enrolment

There are around 300 universities across India. Each of these universities manage exclusive departments and a large number of affiliated colleges. All universities were asked to provide data on the socio-religious background of students on roll both at the undergraduate (UG) and post graduate (PG) levels. A total of 129 universities and 84 colleges provided data. The "all India" estimates generated from these data pertain to just over 1.3 million graduate (bachelors degree) and another 1.5 million postgraduates (masters degree and above).

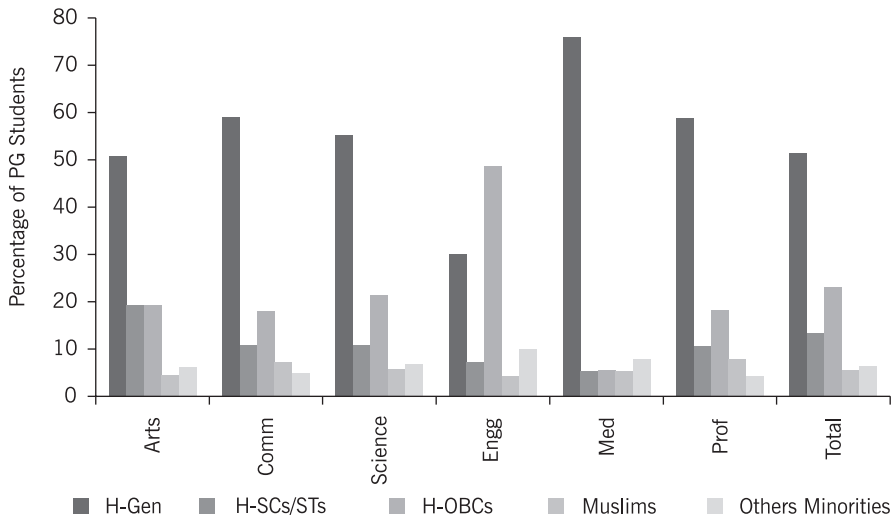
Given that there are about 11.7 million students studying for an under-graduate degree, and about 4.3 million pursuing post-graduate education, the available data reflect only about 11 % of undergraduates and about 38 % of the post-graduates spread across India. As these data are partial the following analysis is only indicative. The total of 2.8 million students for whom data are available constitute about 19 % of men and women studying in various colleges and universities all over India.

According to these estimates (Figure 4. 21) a considerable proportion of students, more than one third, are enrolled in the arts stream. Engineering and commerce are the other popular streams. Although the differences are not large the proportion of Muslim students in the UG courses is about 9%, lower than their share in the population. Muslims are more likely to be located in science and commerce streams followed by arts. Since the sample size of colleges is not large and representative, this conclusion needs to be evaluated on the basis of more detailed data. But, in each case, the share of Muslims is lower than their share in the population, and significantly below that of both the SCs/STs and the OBCs. The participation of Muslims in engineering and medical courses is particularly low.

19. Faculty of Management Studies (Delhi University), Management Development Institute (Gurgaon) and Xavier Labour Relations Institute (Jamshedpur).

20. St. John's Medical College (Bangalore), Bangalore Medical College, JIPMER (Pondicherry), Christan's Medical College (Vellore), Kasturba Medical College (Manipal), BMJ Medical College (Pune) and Lady Hardinge Medical College (Delhi).

Fig. 4.22: Distribution of Students Enrolled in PG courses 2004-05



While some progress has been made over time, differences remain and the current generation of Muslims are lagging behind

The status of Muslims in PG courses is equally disappointing (Fig 4.22). Only about one out of twenty students is a Muslim. This is significantly below the share of OBCs (24%) and SCs/STs (13%). However, Muslim students typically tend to seek professional courses, followed by commerce; in terms of absolute numbers and relative share they are at the bottom amongst the SRCs. Given the limitations of the data it is not possible to make state - specific comments on this subject.[21]

We have so far focused on educational attainments and have analysed some of these by age groups to avoid statistical biases that may come up because of a very broad age group, say 20 years and above. For example, the proportion of graduates in the population aged 20 years and above was significantly lower for Muslims as compared to other SRCs. But this can potentially be an underestimate of the participation in higher education for those groups that have experienced a significant change in levels of education in the last generation. The population stock aged 20 years and above captures approximately two generations of people. If levels of education have changed in the positive direction for the more recent generations, the percentages reported above would under estimate the participation

21. Since the number of responding colleges and universities are not large and representative enough of all regions, it will be difficult to generalise based on this data.

levels in higher education. The data analysed by age showed that while some progress has been made over time, differences remain and the current generation of Muslims are also lagging behind. Educational attainments in the near future would be determined by the current status of participation in education. Table 4.4 provides estimates of 'current status' of enrollment by focusing on those who are studying at present. For example, if we focus on the age cohort of 6-13 years, children of this age group should be in primary school. Similarly, higher age groups correspond to higher levels of education. For the different SRCs, the Table 4.4 provides each age cohort's share in the student population along with the cohort's share in the total population. The difference between the two percentages would show under or over-representation in each age category.

The gap between Muslims and other SRCs increases as the level of education increases

There is hardly any difference between the share in the student and the total population for different SRCs when one focuses on the 6-13 years age cohort. But the gap builds up as one moves to higher age cohorts; the share in the student population for the SC/ST, Muslim and OBC categories become smaller than their shares in the population in the higher age cohorts. The gaps are larger for SCs/STs and Muslims than for Hindu OBCs. The current situation of participation in education, although a significant improvement over the earlier years, would still result in large differences in educational attainments in the coming years between Muslims and the other SRCs. The only other group which shows larger deficits as we move to higher age groups. But surprisingly, in some cases the deficits are greater for Muslims than for SCs/STs in higher age groups (Table 4.4). The recent impetus to education amongst Muslims that has been given by increased enrolment rates will have to be sustained through higher retention.

7. Some Correlates of Educational Attainment

A variety of factors contribute to levels of educational attainment and economic status is likely to be an important one. This section analyses the role of economic status and then explores if SRC status affects educational attainment even after we control for economic status and other factors.

Table 4.4. Children Currently Studying as a Proportion of Population by Age Groups - 2004-05

Age Groups	Hindus			Muslims	Other Minorities
	Gen	OBCs	SCs/STs		
(1)	(2)	(3)	(4)	(5)	(6)
6-13 years	19.1 (17.3)	36.1 (35.5)	25.7 (27.4)	14.0 (15.1)	5.1 (4.8)
14-15 years	24.3 (19.9)	36.1 (35.2)	21.4 (25.2)	12.2 (14.5)	6.0 (5.3)
16-17 years	28.9 (21.1)	33.7 (35.0)	20.2 (24.7)	10.7 (14.0)	6.3 (5.1)
18-22 years	34.0 (20.8)	30.5 (34.4)	17.7 (25.5)	10.2 (13.9)	7.6 (5.5)
23 years & above	35.6 (23.9)	29.2 (35.1)	18.3 (24.1)	7.4 (10.9)	9.5 (5.9)

Note: 1. Figures in parentheses report the share of each socio-religious group in the total population of that age group.
Source: Estimated from NSSO (2004-05) 61st Round, Sch. 10.

Unemployment rates among Muslim graduates is the highest among SRCs both among the poor and the non-poor

Using the NSSO 61st Round data one can estimate GARs for poor and non-poor households for each SRC.[22] Similar estimates can also be generated for those who are pursuing post-graduate studies. Table 4.5 reports these estimates for persons in the age group 20-30 years; an age cohort in which people are likely to be engaged in higher education. Unemployment rates among graduates for each SRC are also presented. A few interesting patterns emerge:

* As expected, a much higher proportion of persons from non-poor households have completed graduation than from poor households; less than 2% of poor persons in the 20-30 age group have completed graduation while more than 8% non-poor have done so.
* In both poor and non-poor households, GARs are much higher for the Hindu- Gen group than for the other SRCs. Irrespective of economic status, GARs for the Muslims are somewhat higher than for SCs/STs but lower than for all other SRCs; other minorities and Hindu-OBCs do better than Muslims and SCs/STs but worse than Hindu-Gen. As a consequence, the share of SCs/STs and Muslims among graduates in both poor and non-poor households is much lower than their share in the population. However, among poor households the gap between GARs of Muslims and SCs/STs and those of other SRCs is much lower than among non-poor households.
* The unemployment rates among graduates are higher among non-poor households than among poor households. This is consistent with the hypothesis that generally the poor cannot afford to remain unemployed and would typically accept whatever job offer comes their way. Non-poor, on the other hand, may be able to wait for a better job opportunity. In relative terms, while SC/ST graduates in both poor and non-poor households report the lowest unemployment rates, the unemployment rates among the Muslim graduates are the highest (although at times not very different from some of the other SRCs) (Table 4.5).
* Except in the case of Hindu-Gen (who have about 5 percentage point advantage over others), the share of persons pursuing post-graduate studies after completing graduation is more or less the same across SRCs for non-poor households. However, the percentage of graduates in poor households pursuing post-graduate studies is significantly lower for Muslims *vis-à-vis* other SRCs. Interestingly, this share is the highest for Hindu-Gen (29%) followed closely by SCs/STs (28%); the shares for OBCs (23%) and Muslims (16%) are much lower. Thus, despite lower unemployment rates among graduates among SCs/STs, a larger percentage of

22. For the methodology used to identify poor and non-poor, see Chapter 8.

SCs/STs in poor households tend to pursue post-graduate education as compared to poor Muslims who report much higher unemployment among graduates.

Table 4.5. Incidence of Graduation and those Pursuing Post-Graduate Studies among Poor and non-Poor Households according to SRCs: 20-30 Age Group - 2004-05

SRCs		20-30 years old persons		Graduates		Attending PG courses		
		Percentage to population	Distri-bution across SRCs	Percentage to population in the age group	Distri-bution across SRCs (SRCs)	Percentage of gradua-tes in the SRCs	Distri-bution across SRCs (%age)	Unemployment Rates among Graduates
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Non-Poor	SCs/STs	66.3	21.8	3.8	10.1	21.5	8.9	19.1
	H-OBCs	78.5	35.1	6.2	26.6	22.1	24.2	23.8
	H-General	89.2	25.5	15.7	48.9	26.6	53.4	20.5
	Muslims	71.2	11.4	4.9	6.8	22.9	6.4	25.6
	All Minorities	86.1	6.2	10.1	7.6	22.4	7.2	25.3
	Total	77.3	100	8.2	100	24.4	100	21.4
Poor	SCs/STs	33.7	37.7	0.8	17.4	27.6	19.6	9.8
	H-OBCs	21.5	32.7	1.7	30.8	23.0	29.0	16.2
	H-General	10.8	10.5	5.8	34.9	29.3	41.9	14.4
	Muslims	28.8	15.7	1.2	10.5	16.3	7.0	16.7
	All Minorities	13.9	3.4	3.4	6.4	9.5	2.5	17.4
	Total	22.7	100	1.8	100	24.4	100	12.7

Given relatively low costs of higher education in India, it is often argued that people (even the relatively poor) pursue post-graduate studies to 'postpone' unemployment. It is difficult to evaluate this argument with the available data. However, it is instructive to note incidence of low GARs among poor and non-poor Muslims and very low incidence of post-graduate studies among poor Muslims as compared to other SRCs. Admittedly, policies of affirmative action need to be fine-tuned to take into account the 'deficits' faced by poor and non-poor Muslims in higher education.

The probability of Muslims and SCs/STs completing graduation were lower than for all other SRCs, especially in urban areas and for males

Given the role of economic status discussed above, the correlates of GARs need to be analysed further. An exploratory exercise was undertaken to assess if the probabilities of persons completing graduation differ significantly across SRCs after controlling for economic status, age, gender, rural/urban residence and location (state). This analysis based on the NSSO 61st Round data for persons aged 20-30 years, threw up some interesting results.[23] As expected, the

23. The analysis is based on the estimated results of Probit equation. Detailed estimates and results are not reported here.

results show that economic status has a very large, positive and significant impact on GARs. Overall, other things being equal, the chances of completing graduation for persons belonging to Hindu-Gen category were significantly higher than for persons of all other SRCs. There were, however, differences across other (excluding Hindu-Gen) SRCs and for males and females in rural and urban areas. The probability of Muslims and SCs/STs completing graduation were similar but lower than for all other SRCs. While these differences were not significant in rural areas, especially for females, Muslims/SCs/STs had significantly lower chances of completing graduation than persons belonging to OBCs and other minorities in urban areas. This was especially the case for males in urban areas. In other words, after controlling for other factors, as compared to other SRCs, being Muslim and SC/ST reduced the chances of completing graduation, especially in urban areas and for males.

Muslims are at a much larger disadvantage at the higher secondary level

The next relevant issue is whether the above-mentioned gaps are specific to graduate education or are a reflection of gaps that existed in earlier years of education. To explore this issue statistical analyses were undertaken around two more questions: (1) whether the probability of completing graduation differs significantly across SRCs if we consider only those persons who have completed higher secondary education - the minimum qualification for graduate studies; and (2) whether the chances of completing higher secondary education differ significantly across SRCs. From the perspective of the Muslim population two conclusions stand out:

* While the chances of eligible (those who have completed higher secondary education) Muslims completing graduate studies are still significantly lower than those of eligible Hindu-Gen persons, the gap narrows down. Besides, in many situations the chances of eligible Muslims completing graduate education are not very different from those for eligible OBCs and other minorities. In other words, once the Muslims cross the hurdle of the minimum qualification and are placed in the same situation in terms of location, economic status, etc., differences between Muslims and other SRCs narrow down and are often not very different.
* The chances of completing higher secondary education are the highest for Hindu- Gen and the lowest for Muslims in both rural and urban areas and for both males and females. Though marginally lower, higher secondary completion possibilities for Muslims are not significantly different from those of SCs and STs. However, the chances of completion for both these SRCs are significantly lower than those of other SRCs, viz., Hindu-Gen, Hindu-OBCs and other minorities.

A comparison of the probability estimates for completion of higher secondary and graduation suggests that Muslims are at a much larger disadvantage at the higher secondary level. This presumably results in a much lower size of Muslim population eligible for higher education. The results of the analyses discussed above are still tentative but provide useful insights. Broadly, these results combined with the analysis of the changes overtime undertaken earlier suggests that while both Muslims and SCs/STs continue to have significant disadvantage *vis-à-vis* other SRCs, the pool of eligible population for higher education seems to be increasing faster for SCs/STs than for Muslims. These trends need to be probed further.

Fig. 4.23 Distribution of Enrolled Muslim Children aged 7-16 Years by Type of School

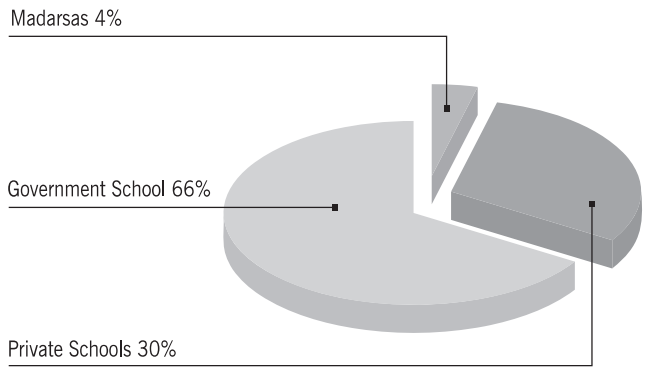
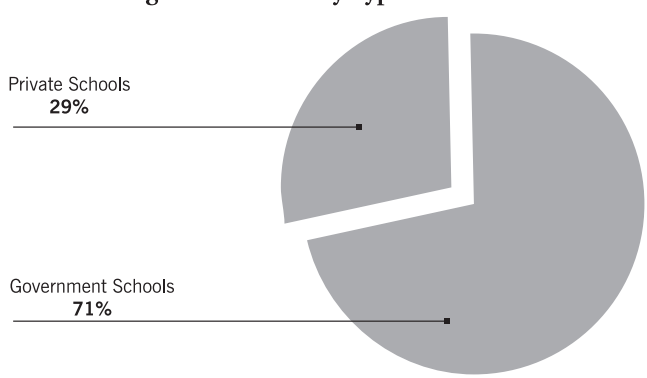
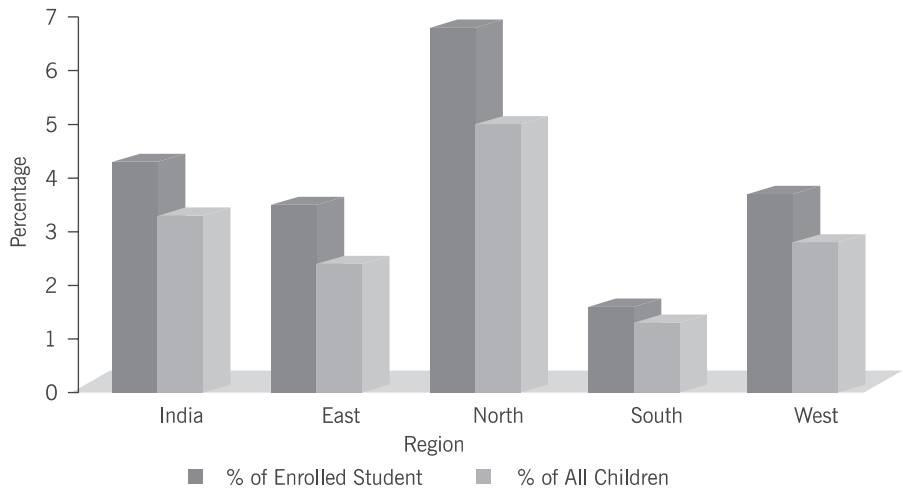


Fig. 4.24 Distribution of 'All Other' Enrolled Children aged 7-16 Years by Type of School



Overall, this section reveals that though all the SRCs have been able to improve their status over time, the process has not been convergent. The gap between Muslims and 'All Others' has widened consistently at the all-India level and for all States - especially at the higher education levels. It is interesting to note that SCs/STs have been able to catch up with Muslims. This may be due to the targeting of SCs/STs households in special programmes that establish schools or improve infrastructure and provide incentives for enrolment. Job reservation, too, may have had an indirect effect, by providing the economic means to educate children and simultaneously increase the economic returns to education.

Fig. 4.25 Madarsa going Muslim Students *(NCAER, Prov)*



8. Choice of Educational Institutions: The Case of Madarsas

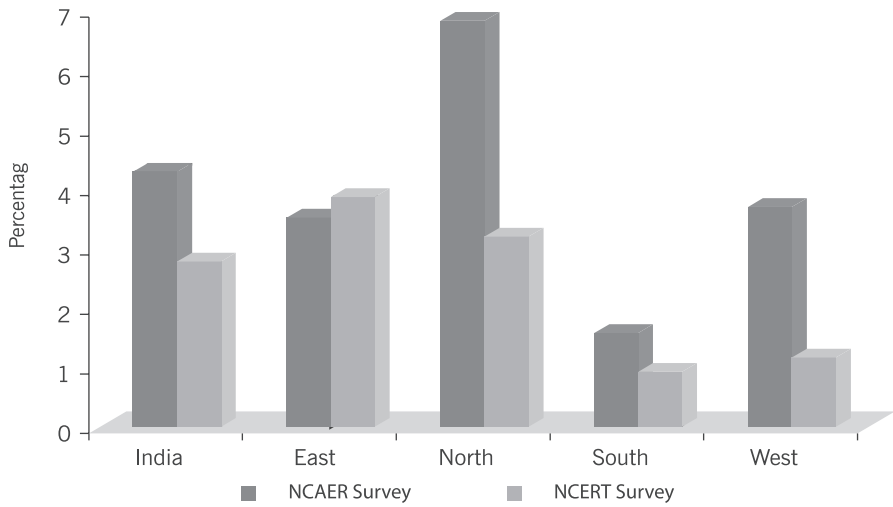
The type of educational institution in which children study is also an important marker of educational status. This is because the quality and cost of education varies in different types of schools. There does not seem to be any major difference in the choice of educational institutions across SRCs analysed (Fig. 4.23 and 4.24). Both Muslim and 'Other' children mostly attend the inexpensive Government or Government-aided schools; about one third attend private schools. Many of the government - aided schools may effectively be privately run; an analysis of the proportion of children going to government versus government-aided schools would be instructive. A small proportion (4%) of Muslim children also attend Madarsas (Fig. 4.23 and 4.25).

It is often believed that a large proportion of Muslim children study in Madarsas, mostly to get acquainted with the religious discourse and ensure the continuation of Islamic culture and social life. A persistent belief nurtured, in the absence of statistical data and evidence, is that Muslim parents have a preference for religious education leading to dependence on Madarsas.[24] It is also argued that education in Madarsas often encourages religious fundamentalism and creates a sense of alienation from the mainstream. In actuality the number of Madarsa attending students is much less than commonly believed Appendix Table 4.4. For example, in West Bengal, where Muslims form 25% of the population, the number of Madarsa students at 3.41 lakhs[25] is only about 4% of the 7-19 age group.

24. Ansari, 1989, Jehangir, 1991, Ruhela, 1998, Salamatullah, 1994, Hasan and Menon.

25. Of which 12% are Hindus, according to a report published in The Outlook (author, 2006). Of course, the concept of Madarsas in West Bengal is somewhat different and many regular schools are also known as Madarsas. This would imply a lower share of students going to institutions conventionally known as Madarsas even in this state.

Fig. 4.26 Proportion of Madarsa Going Children - Provisional Estimate



Only 3% of Muslim children among the school going age go to Madarsas

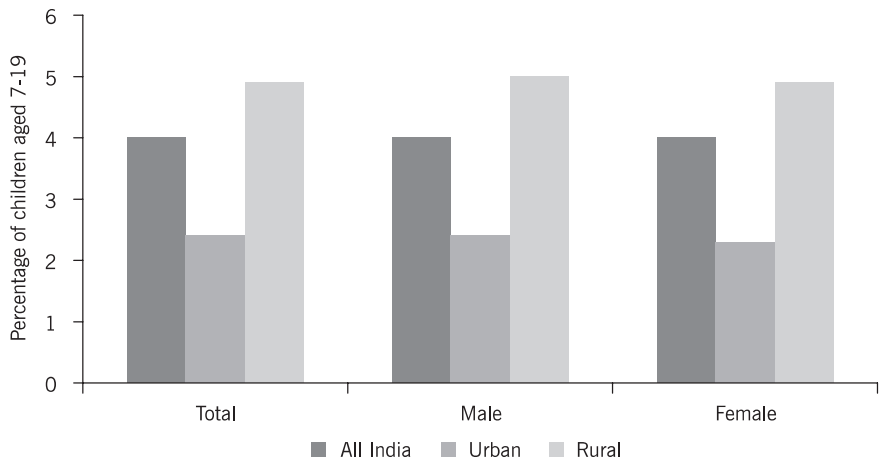
NCAER figures (Figure 4.25) indicate that only about 4 % of all Muslim students of the school going age group are enrolled in Madarsas. At the all-India level this works out to be about 3% of all Muslim children of school going age. The NCAER data is supported by estimates made from school level NCERT (provisional) data; which indicate a somewhat lower level of 2.3% of Muslim children aged 7-19 years who study in Madarsas. The proportions are higher in rural areas and amongst males.

Figure 4.26 compares the NCERT and NCAER estimates of the proportion of Muslim students attending Madarsas at the all India level and for four broad geographic regions. It can be seen that, despite regional variations, the NCERT estimates, in general, are lower than the NCAER ones, except for the Eastern region. Despite wide variations in the two sets of estimates, the importance of Madarsas as a source of education is not high in any of the regions, except the Northern one. But even here, according to the higher NCAER estimate, less than 7% children of the school going age group attend Madarsas.

One reason for the misconception that the majority of Muslim children are enrolled in Madarsas is that people do not distinguish between Madarsas and Maktabs. While Madarsas provide education (religious and/or regular),[26] Maktabs are neighbourhood schools, often attached to mosques, that provide religious education to children who attend other schools to get 'mainstream' education. Thus Maktabs provide part-time religious education and are complementary to the formal educational institutions.

26. Moreover, there are several types of madarsas. For example, residential Madarsas are institutions that impart religious-Islamic education. The pupils do not attend any other type of school nor seek any other kind of education. There are many such Madarsas across the country.

Fig. 4.27: Percentage of Muslim Children aged 7-19 years in Maktabs



The common belief that a high proportion of Muslim children study in Madarsas stems from the fact that they are actually enrolled in the local Maktabs. As emphasised, such local Maktabs provide not a substitute, but a supplementary educational service. In Kerala, for instance, more than 60,000 Muslim students study in both 'mainstream' institutions and Maktabs at the same time. Since private and Government-aided schools do not teach Urdu adequately, children have to be taught to read the scriptures at home. Some children are taught to read the Holy Koran by their parents, relatives or by private tutors. In many cases, especially in low and medium income families, parents do not have the time or ability to teach their children themselves. Micro-level studies show that such parents admit their children to maktabs, in addition to secular schools. In such cases, the children study in two schools. Based on the NCERT (provisional) data the percentage of Muslim children aged 7-19 years going to the first type of maktabs has been estimated. Even these figures are not very high - only 4% of Muslim children study in them.[27] While this percentage is lower in urban areas, interestingly it is almost the same between boys and girls.

The State must fulfill its obligation to provide affordable high quality school education through the formal education system

When modernisation of Madarsas is planned, policy makers should be careful to distinguish between these two types of institutions. The Maktabs and residential Madarsas are necessarily traditional and meant only for religious education, because their social function is to carry on the Islamic tradition. On the other hand, it is the constitutional obligation (under Article 21A) of the Government to provide education to the masses. Aided Madarsas are often the last recourse of Muslims especially those who lack the economic resources to bear the costs of

27. Combining the estimates of Madarsas and maktabs only 6.3% of all Muslim children study in any form of Madarsas. This is a far cry from the 10% that is often cited by academics.

schooling, or households located in areas where 'mainstream' educational institutions are inaccessible. The solution in such cases is not only to modernise Madarsas, but also to provide good quality, subsidised 'mainstream' education and create an adequate infrastructure for education. Therefore, the state must also fulfill its obligation to provide affordable high quality school education to the masses through the formal education system.

Apart from the role Madarsas have played in providing religious education one needs to recognise their contribution towards the education of Muslims in the country. Very often one finds that Madarsas have indeed provided schooling to Muslim children where the State has failed them. Many children go to Madarsas and thereby acquire some level of literacy/education when there is no school in the neighbourhood. This effort needs to be recognised. This could be done by establishing 'equivalence' to Madarsa certificates for subsequent admission into government schools and universities. For this purpose, equivalence between the two systems of education will need to be established at different levels. Many Madarsas provide education that is similar to that provided in 'mainstream' schools. This needs to be understood in a transparent manner. Many Madarsas have shown an interest in the modernisation scheme of the government and are keen to incorporate science, mathematics and other 'modern/regular' subjects in their curriculum and introduce modern methods of pedagogy. However, given the small number of children attending these institutions the 'modernisation scheme' cannot be a substitute for mainstream education.

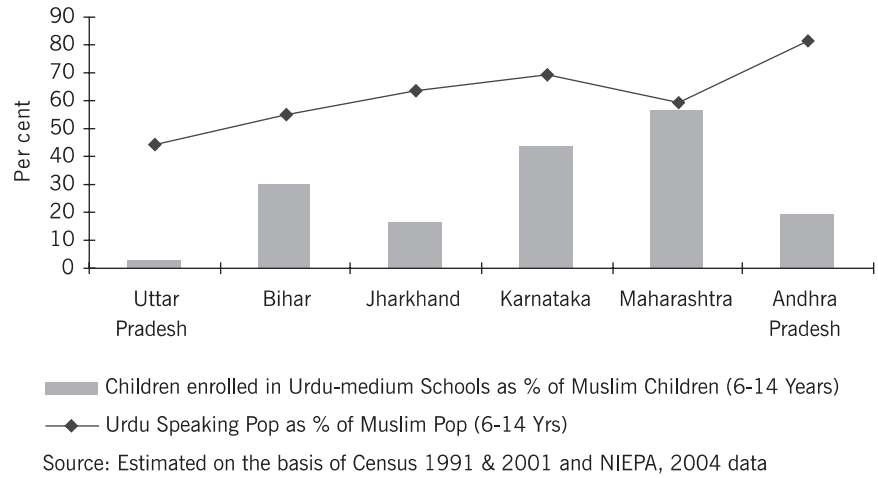
Despite recommendations of different Committees there is a dearth of facilities for teaching Urdu

Moreover, in the case of the implementation of the Scheme for Modernisation of Madarsas a number of deficiencies were discovered by an evaluation exercise.[28] Some of these were as follows: The number and quality of teachers assigned to Madarsas for teaching modern subjects and their remuneration were inadequate. Besides, the important aspect of finding space for modern subjects in the Madarsa curriculum appears to have been ignored. The modern stream remained un-supervised at the Madarsa level and un-inspected at the state level. A fresh evaluation of the scheme which may result in its being overhauled is needed.

It is also important to recognise that Madarsas although primarily and usually intended for producing human resources for manning the mosques and the Madarsas themselves are also expected to produce Ulema who are looked upon by Muslims for guiding them in matters of importance in daily life and in social and political discourse. The modernisation scheme is designed also to make them aware of what is considered the domain of secular learning and enable them to participate in interfaith dialogues.

28. Evaluation Report on Modernisation of Madarsa Education Scheme(U.P), Hamdard Education Society, New Delhi

Fig. 4.28: Urdu Speaking Population and Enrolment in Urdu Medium Schools, 2004



Source: Estimated on the basis of Census 1991 & 2001 and NIEPA, 2004 data

9. Educational Attainment and the Issue of Language

The non-availability of education in the Urdu language is seen by some as one of the reasons for the low educational status of Muslims in India. A substantial number of the Urdu-speaking people in most States[29] made this point during the Committee's interaction with them. This section explores this issue.

9.1 The Context

The advantage of providing education (especially primary education) in the mother tongue is undisputed as it enables the child to understand and apply skills more easily. It was for this reason that the three language formula was adopted in the early 1960's.

As per Article 350A of the Indian Constitution, "It shall be the endeavour of every state and of every local authority within the state to provide adequate facilities for instruction in the mother-tongue at the primary stage of education to children belonging to linguistic minority groups; and the President may issue such directions to any state as he considers necessary or proper for securing the provision of such facilities".[30] However, despite the general agreement on the merit of this proposal, there has been more violation than adherence to it.

29. Percentage of Urdu speakers according to the 1991 Census in ^W Bihar, including Jharkhand(9.9%), Maharashtra(7.3%), Karnataka(10%), Andhra Pradesh(8.4%) and Uttar Pradesh(9%).

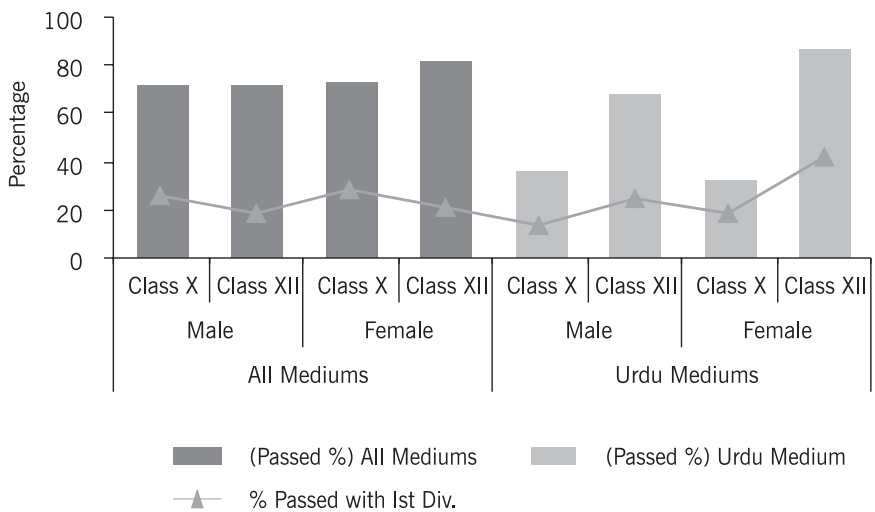
30. Besides this and other such provisions in the Constitution, a number of committees have also been set up by the Central Government to look into the promotion of Urdu in India. The Gujral Committee was set up in 1972 and submitted its report in 1975. This was followed by the setting up of the Ale Ahmed Suroor committee in 1979 which submitted its report in 1983. The year 1990 was witness to yet another report submitted by Ali Sardar Jafri to the Janta Dal government for the promotion of Urdu.

Lower enrolment in Urdu medium schools is due to limited availability of such schools at the elementary level

9.2 Urdu Medium Schools

Despite the positive recommendations of different Committees, in many states, there is a dearth of facilities for teaching Urdu. The number of Urdu medium schools is very low in most States. This can be seen from the low percentage of children enrolled in Urdu medium. Figure 4.28 shows the percentage of the Urdu speaking population (6-14 age group) in the respective states (Census 2001). The NIEPA data shows the enrollment in Urdu medium (of children in the 6-14 age group).

Fig. 4.29: Performance in CBSE Examination



In contradiction to the widely held belief, the Urdu-speaking population is not merely confined to the Indo-Gangetic plains. Urdu is also reported to be the mother tongue of a sizeable section of the populations of Karnataka (10%), Maharashtra (7.5%) and Andhra Pradesh (8.5%). Interestingly, in all these states, the percentage of Muslim population reoporting Urdu as their mother tongue is substantially higher than the states in the Hindi-Urdu belt. In these states, the percentage of children enrolled in Urdu medium as a percentage of Muslim children in the school going age (6-14 years) is quite high. The available data does not permit us to identify if all children going to urdu medium shcools are Muslim. But that is likely to be the case. Surprisingly, the figures for enrollment in Urdu medium in Uttar Pradesh, in particular, is dismally low. It remains unsatisfactory in Bihar and Jharkhand too. Is it that Urdu is not considered as an option for Muslim children in Uttar Pradesh and other Northern states while it is preferred in the states of Karnataka, Maharashtra and Andhra Pradesh?

Box 4.2: Urdu Education Opportunities in Karnataka

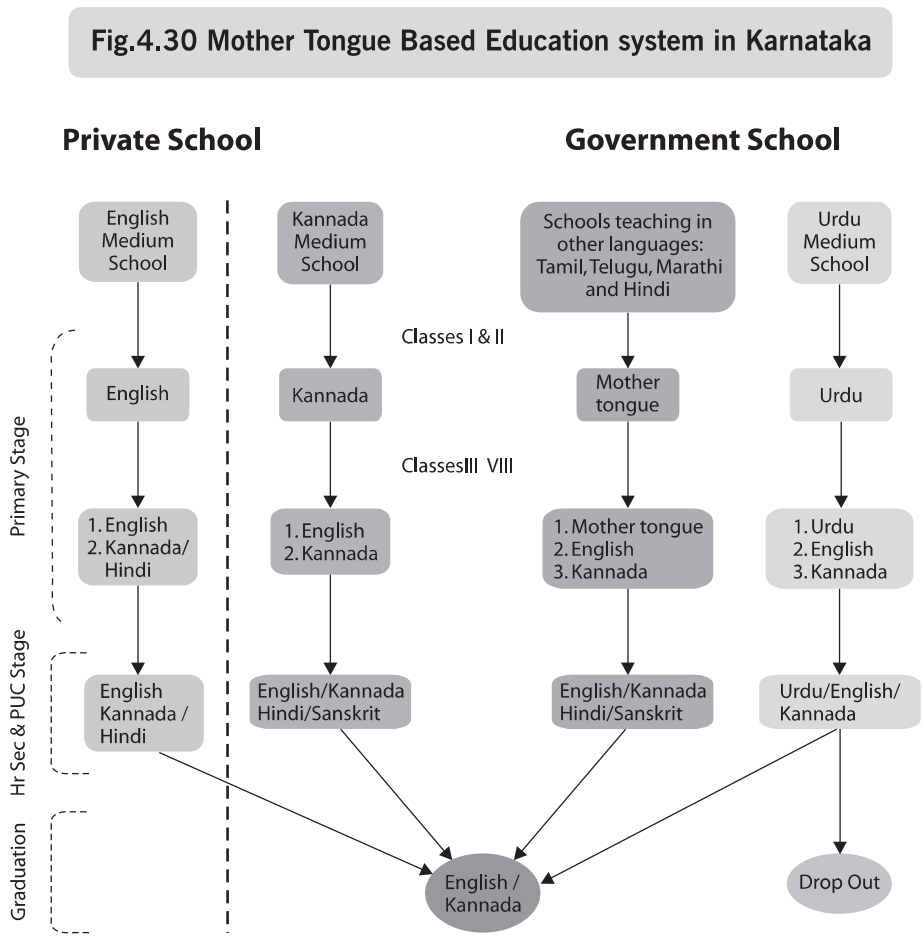
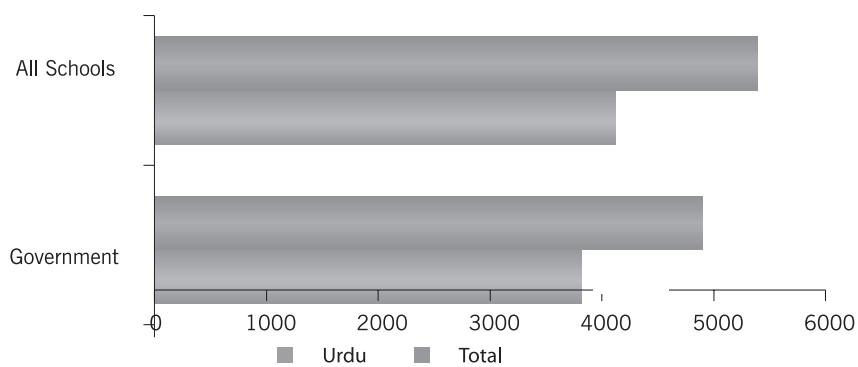


Fig. 4.31 Minority Language Primary Schools



Karnataka and Maharashtra are examples of better provisioning of Urdu Medium schools at the elementary level, they also offer opportunities to study in the English stream concurrently

The Muslims in Karnataka, especially those living in its southern part, speak Urdu and prefer to get primary education in Urdu medium schools. The State of Karnataka has made provision for such education across Karnataka, even in its northern parts if there is a demand for Urdu education.

According to the 2001 Census there are 6.5 million Muslims in Karnataka comprising 12% of the population, and Muslim children aged 6-14 years were about 0.2 million in 2004, comprising 14% of all children in this age group. About 70% of Muslim children report Urdu as their mother tongue indicating that Urdu is an important medium of instruction in Karnataka schools.

Data from the Department of Education in Karnataka reveals that a large proportion (77%) of institutions that impart primary level education in a minority languages are of Urdu medium. While this proportion falls for high schools, it is still significantly high.

The availability of a large number of Urdu-medium schools allows most Urduspeaking children to be educated in their mother tongue; over 70% of Urdu- speaking children are enrolled in Urdu-medium primary schools; while this proportion is lower for high schools, it is still significantly high at 60%. Interestingly, a greater proportion of girls are enrolled in Urdu-medium schools.

A consideration of the staffing pattern also reflects the adequacy of the Urdumedium schools to satisfy the demand for education in Urdu.

Not only is the number of teachers in Urdu-medium schools high, but their gender break up corresponds to the gender structure of the Urdu-medium students.[31] This is an important aspect as literature has documented the preference for Muslim parents to send their daughters to schools staffed by women teachers. Even in high schools about 50% teachers are women. Further, there are even Teachers Training Schools at the D.Ed. (Diploma in Education) level in Urdu. Candidates who have passed PUC can apply for this course. After qualifying, they are eligible to teach in lower primary schools.

31. About 70% of teachers employed in Urdu-medium schools are females.

Fig. 4.32 Teachers In Minority Language Primary Schools

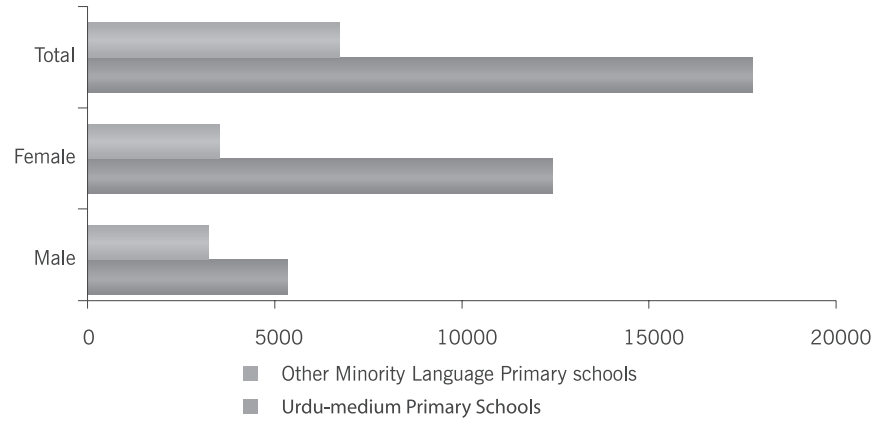
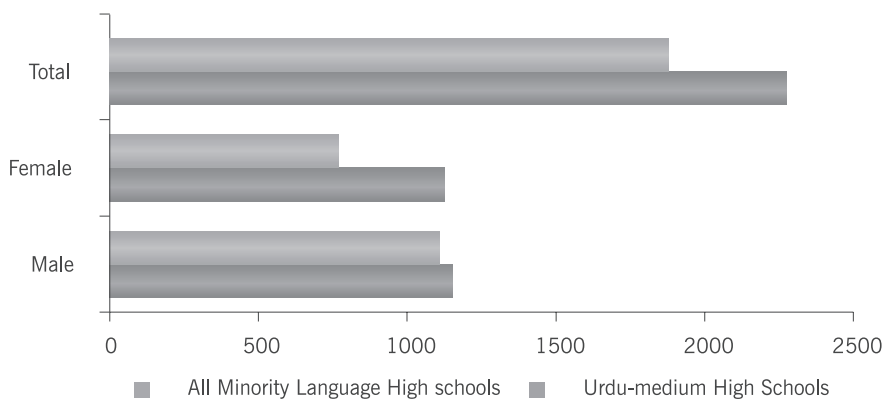


Fig. 4.33 Teachers In Minority Language High Schools



The provisioning of education through Urdu medium is precarious in Uttar Pradesh, Jharkhand, Andhra Pradesh and Bihar

The enrollment figures in Urdu medium seen in conjunction with the availability seem to suggest that lower enrollment in Urdu-medium schools is due to limited availability of such schools in a given state. As per the figures provided by the National Commissioner for Linguistic Minorities (NCLM) the three states of Karnataka (4410), Maharashtra (3443) and Andhra Pradesh (2569) have a large number of

government or government aided Urdu medium schools where a considerable proportion of Urdu speaking children are enrolled. This is primarily responsible for boosting up their enrollment figures in Urdu-medium.[32]

In view of a large number of children with Urdu as their mother tongue Urdu should be taught, as an elective subject uptill graduation

Non-Urdu medium schools with a provision for teaching Urdu as an elective subject are few and far between. This contrasts sharply with the importance attached to, say, Sanskrit, which is offered in a majority of the schools. "The Hindi speaking States operate largely with Hindi, English and Sanskrit whereas the non-Hindi speaking States have largely operated with a two language formula" with some exceptions [NCERT, 2005]. The importance given to Sanskrit in the educational framework in Delhi and many north Indian States has tended to sideline minority languages. Students have to opt for Sanskrit as there is no provision to teach Urdu (or any other regional language) in many schools. This, in effect, makes Sanskrit a compulsory subject.

Not surprisingly, the performance of Urdu medium students is very poor. This creates a vicious circle where the lack of facilities for learning in Urdu leads to poor results (Fig. 4.29). This in turn reduces the functional worth of Urdu, lowers the demand for learning in Urdu, and offers an excuse for downgrading facilities for teaching Urdu.[33] The Committee recognises that the Government's objective is to improve the educational status of Muslim children, rather than increase the number of Urdu-medium schools, per se. However, in view of the large proportion of Muslim children with Urdu as their mother tongue, the Committee feels steps should be taken to ensure that Urdu is taught, at least as an elective subject, in areas which have a substantial presence of Urdu speaking population. The Karnataka experience provides an alternative where continuation in the Urdu medium is possible till the higher secondary level (Box 4.2), but not up to the graduate level. While the provision of primary schooling in Urdu and availability of Urdu as an elective seem an appropriate demand, the question of Urdu medium schooling at the higher level needs to be assessed carefully. The employability of students with schooling in Urdu needs to be kept in mind before taking any initiative in this regard.

The gaps across all levels of education between Muslims and other SRCs is higher in urban areas

10. Some Concluding Observations

Relative deprivation in education of Muslims *vis-à-vis* other SRCs calls for a significant shift in the policy of the State, along with the creation of effective partnership with private and voluntary sectors. Given the vastness of the population to be served and the limited resources available with policy makers, the emphasis on provisioning of a minimum level of school education by the State seems justified. That does not mean, however, that the State can withdraw from participation in higher levels of education. The policy focus should be in those areas of education where private investment is not adequate to cover the weaker section of the population. While investment and effort from private and voluntary sectors could help in promoting convergence of educational levels of Muslims with that of other communities, the task remains essentially that of

32. Bihar, Jharkhand and Uttar Pradesh have consistently failed to provide figures regarding the number of Urdu medium schools in the respective states. See Forty Second Report of the Commissioner, Linguistic Minorities (July 2003 to June 2004), Ministry of Social Justice and Empowerment, GOI.

33. In public meetings with the Committee, Muslim representatives alleged that in Rajasthan many posts had been abolished. In addition, there are no Urdu medium schools after Class V.

the State. Muslims have been not been able to sufficiently reap the benefits of state intervention and growth in education. We first summarise the key findings of this chapter so that areas of policy focus can be delineated.

With regard to school education, the condition of Muslims is one of grave concern. The data clearly indicates that while the overall levels of education in India, measured through various indicators, is still below universally acceptable standards, the educational status of the Muslim community in particular is a matter of great concern. Though the all-India literacy levels of Muslims are somewhat satisfactory, disaggregative analysis of state data, by place of residence and by gender, presents a less flattering picture of the status of Muslims. When alternative indicators of educational achievement, more representative of the progress made in education, are considered, a significant disparity between the status of Muslims and that of other SRCs (except SCs/STs) can be noted. For example, both the Mean Years of Schooling (MYS) and attendance levels of Muslims are low in absolute terms and in contrast to all SRCs except in some cases SCs/STs. In fact, in several context, SCs/STs are found to have overtaken Muslims.

While there is a significant rural-urban differential, it was observed that the gap between Muslims and the other SRCs is generally higher in urban areas than in rural areas. Similarly, though Muslim women have lower educational attainments than men, the gap with other SRCs is lower for women.

Analysis of time trends indicate that, despite overall improvement in educational status, the rate of progress has been the slowest for Muslims. In other words, while educational attainments of Muslims have improved over the years, it has done so at a more gradual pace than other SRCs, so that the expected convergence has not occurred. Instead, the gap between Muslims and advantaged sections has actually widened since Independence, and particularly since the 1980s. In fact, a steady divergence in the level of achievements has seen traditionally underprivileged SCs/STs catching up and overtaking Muslims in several contexts. The last point is of special importance as at the time of Independence, the socio-economic position of SCs/STs was recognised to be inferior to that of Muslims. Apparently, Muslims have not been able to reap the benefits of planning and, while progressing through the operation of trickle down or percolation effect, have gradually slipped further and further behind other SRCs.

Muslim parents are not averse to mainstream education or to send their children to affordable Government schools

Attainments at the graduation level and in technical education are low for all SRCs. Even at these low levels differences across SRCs exist and Muslims lag behind in both areas. That the share of Muslims is poorest in streams having brightest employment prospects is of special concern. This has serious long-term implications for the economic empowerment of the Community and consequently for economic development of the country. Differentials in the attainment levels of SRCs become more apparent when lower levels of education are considered. The differences between SRCs become significant when attainments at the matriculation level onwards. One of the key reasons for the low participation of Muslims in higher education is their significantly low achievement level in higher secondary attainment rates. Muslims seem to have significant disadvantages *vis-à-vis* most SRCs in school completion rates. Once this hurdle is crossed and persons from the Community become eligible for higher education, the gaps between their achievements and those of other SRCs (with similar eligibility) narrow down considerably.

Moreover, the recent trends in enrolments and other educational attainments and Committee's interactions with the Muslim Community are adequate to dispel certain misconceptions and stereotypes with respect to education of Muslims. These need to be highlighted:

* Muslim parents are not averse to modern or mainstream education and to sending their children to the affordable Government schools. They do not necessarily prefer to send children to Madarsas. Regular school education that is available to any other child in India is preferred by Muslims also. A section of Muslims also prefer education through the English medium, while some others would like the medium of instruction to be Urdu. The access to government schools for Muslim children is limited.
* There is also a common belief that Muslim parents feel that education is not important for girls and that it may instill a wrong set of values. Even if girls are enrolled, they are withdrawn at an early age to marry them off. This leads to a higher drop-out rate among Muslim girls. Our interactions indicate that the problem may lie in non-availability of schools within easy reach for girls at lower levels of education, absence of girl^Rs hostels, absence of female teachers and availability of scholarships as they move up the education ladder.

The changes in educational patterns across SRCs suggest that SCs and STs have reaped advantages of targeted government and private effort. This reflects the importance of affirmative action

It needs to be emphasised that the worth of mere literacy is low. Unlike literacy, education is a broad process that enables a person to adopt a rational and questioning attitude and facilitate the recognition of new opportunities. Education also involves retention and enhancement of these capabilities over a lifetime and the ability to transmit education to the next generation in order to generate the considerable spillover effects documented by social scientists. Therefore, a person must be enrolled into a system of education and remain there for a minimum period in order to derive such benefits. The changes in educational patterns across SRCs suggest that SCs and STs have reaped at least some advantages of targeted government and private action supporting their educational progress. This reflects the importance of affirmative action. While the nature of affirmative action that is required needs to be assessed, a sharper focus on school education combined with more opportunities in higher education for Muslims seems desirable. Moreover, skill development initiatives for those who have not completed school education may also be particularly relevant for some section of Muslims given their occupational structure. This is an issue that we will revert to in the next chapter. Some specific policy initiatives are discussed in the concluding chapter.

CHAPTER FIVE
ECONOMY AND EMPLOYMENT: SITUATING MUSLIMS

Availability of employment provides an individual and her family with purchasing power, enabling her to acquire subsistence as well as consumption goods to satisfy the basic needs, comfort and leisure

1. Introduction

Availability of employment provides an individual and her family with purchasing power, enabling her to acquire subsistence as well as consumption goods to satisfy the basic needs, comfort and leisure. In addition, enhanced earnings through employment allow investment. This can take the form of purchase of durable consumption goods and investments in areas like education, health and capital assets. Such investments are critical for increases in future

incomes and for sustaining growth at the level of the individual as well as the economy. While economic benefits derived from such an increase in the entitlements are substantial, employment also has significant non-economic benefits. The belief that one is engaged in some worthwhile activity provides a sense of esteem and well-being to the worker.

Ownership of physical assets (especially land) and human capital (especially education) not only affects employment opportunities but also determines occupational patterns. Relatively poor access to these assets may force workers to remain at the lower end of the labour market hierarchy. Employment, education and investments in physical assets interact dynamically. It has been argued that the positive impact of education crucially depends upon the existence of market (employment) opportunities. Without economic returns to education provided in the form of a higher probability of getting employment or earning higher income, investment in human capital formation will not occur. Similarly, while ownership of physical capital creates opportunities for employment, growth in employment generates resources for new capital formation.

This chapter has the following inter-linked objectives:

* Provide a detailed account of the conditions of employment of Muslims in a comparative perspective;
* Explore the nature of vulnerabilities that the Community faces in the context of employment; and
* Identify areas of employment where policy should focus in order to improve the conditions of work for the Community.

The rest of the chapter is divided into ten sections. The next section briefly describes the database and the methodology. Sections 3-8 use the most recent data (NSSO, 61st Round) to summarise the status and conditions of employment of Muslim workers at the all India level. Section 3 analyses the work participation and unemployment rates. The activity status (self-employed, employer, employee etc.) of workers of different SRCs is discussed in Section 4. The type of enterprises that provide employment and the location of work are analysed in Section 5. The industrial and occupational distribution of the workforce is discussed in the next two sections. Section 8 compares the wage earnings and security of employment across groups of workers. To assess whether employment conditions of Muslims are significantly different across states, section 9 addresses key aspects of employment conditions for all major states of India. It is critical to evaluate if employment conditions have changed in recent years. An effort is made in this direction in Section 10 by analysing data for three time points, namely 1993-94, 1999-2000 and 2004-05. The final section sums up the major findings and identifies some areas for policy intervention.

NSSO 61st Round Data has been liberally used to understand the structure of employment according to SRCs

2. Data Base and Methodology

The core of the analysis of employment conditions is based on quinquennial rounds of National Sample Survey (NSS) data-sets. The latest 61st (2004-05) is the focus of our analysis but data from the earlier Rounds (50th and 55th for the years 1993-94 and 1999-2000) have been used to make some comparisons over time. When possible, data from the 2001 Census is used to check the robustness of our estimates. As discussed in Chapter 1, NSS data has been used to define six broad SRCs. Almost all estimates are generated for each of these categories. Since the census data does not permit us to generate similar

categories, comparable categories have been defined from the NSS data for all those variables where comparisons have been undertaken.

Unless otherwise stated, the analysis of employment status is undertaken for the age group 15-64 years of the population/workforce. For certain analyses, (e.g., existence of child labour), other age groups are also considered. We use a more inclusive definition of a worker while analysing employment characteristics; both principal and subsidiary status workers are considered.[1] As a result, even those who spend a small share of their time as a worker are also counted. Moreover, primarily the average conditions during the year or the usual status characteristics are analysed as against the daily or weekly status features.[2]

The low aggregate work participation ratios for Muslims are essentially due to much lower participation in economic activity by women in the community

3. Worker Population Ratios and Unemployment Rates

Broadly, WPRs (Worker population ratios/rates) provide an idea of the extent of participation in economic activity by a specific population. As mentioned, ability to find work is a function of assets (both physical and others) and opportunities of work available. Also persons (especially women) belonging to well endowed households, (e.g., large landowners), may not participate in the workforce because there is no compelling economic need to do so. Given the endowments if the work available is not of the kind which a person prefers, s/he may not work. These work preferences are a function of a variety of factors, social, cultural and economic. Moreover, non-availability of employment may result in situations that people (especially women) withdraw from the labour force. This is referred to in social science research as "discouraged worker effect". Consequently, differences in WPRs reflect the differences in endowments as well as the nature and quantum of employment opportunities. And often these complex links are difficult to untangle.

Unemployment rates (URs) reflect persons available for and seeking employment as a proportion of the labour force. In developing countries open unemployment (especially usual status) is typically found to be low. This is partly because a large number of the poor cannot afford to be unemployed and undertake whatever work comes their way. While they may not be "gainfully" employed, they do not report themselves as seeking work during an entire year. Therefore, daily status unemployment rates are preferred over usual status unemployment rates.

Given these caveats, in this section we attempt to find out if the Muslim population differs significantly from other SRCs in economic participation and unemployment.

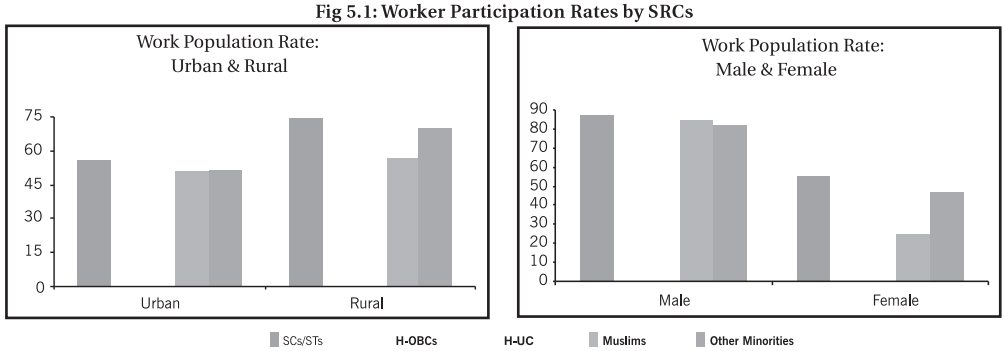
Worker population ratios for Muslims are significantly lower than for all other SRCs in rural areas but only marginally lower in urban areas (Figure 5.1 and Table 5.1. All Tables at end of chapter).The low aggregate work participation ratios for Muslims are essentially due to much

1. Persons who are engaged in any economic activity during the reference period, even as unpaid helpers, constituted workers according to the NSSO definition. Despite her attachment to an economic activity, if a worker temporarily abstains from work due to contingencies like illness, social functions etc., she is also included in the worker category. The principal activity status of a person relates to that activity in which she spent a relatively longer time during the reference period. If a person was working during the major part of the reference period, she is considered a "principal" worker or a worker whose principal status is that of a worker. But if the person spent more time as "non-working" but pursued some economic activity for a relatively shorter time, she is classified as a "subsidiary" worker.

2. Usual status employment captures the average conditions during the reporting year, while daily and weekly status respectively capture the conditions during an average day in the reporting week and the entire reporting week.

lower participation in economic activity by women in the community; while they do not differ much for males in different communities. Interestingly, work participation rates for Muslim women is much lower than even that for women belonging to upper-caste Hindu households, where there may be socio-cultural constraints to women's work.

Fig 5.1: Worker Participation Rates by SRCs



Worker Population Ratio for Muslim women are the least from among all SRCs, more so in urban areas

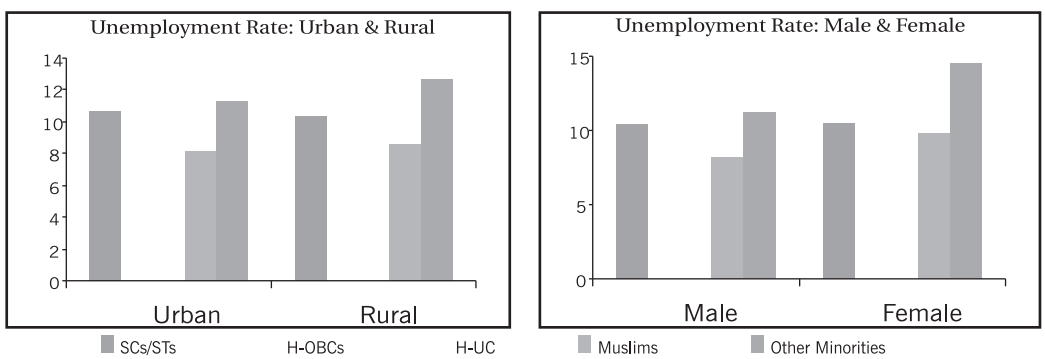
Overall, about 44 per cent of women in the prime age group of 15-64 years in India participate in the workforce while about 85 per cent of men do so. However, on an average the workforce participation rate among Muslim women is only about 25 per cent.[3] In rural areas, while about 70 per cent of the Hindu women participate in the workforce only about 29 per cent of the Muslim women do so. Even the upper caste Hindu women in rural areas have a higher participation rate which stands a[illegible]3 per cent. The lower participation of women in rural areas is partly explained by the fact that Muslim households (and hence women) are less likely to be engaged in agriculture. The WPRs for Muslim women in urban areas are even lower (18 per cent), presumably because work opportunities for women within the household are very limited. Such opportunities may be somewhat higher in rural areas with ownership (though limited) of land making participation of Muslim women somewhat higher in these areas.

One of the reasons for lower participation rates of Muslim women may be higher dependency rates due to relatively higher share of younger

3. The Census 2001 data also shows that the WPRs among Muslim women are low. According to the census estimates, the WPRs for Muslim males of all age groups in India were 47.5 per cent as compared to the average of 51.7 per cent for all religious communities. For Muslim women the WPRs were only 14.1 per cent as against the national average of 25.6 per cent (Census of India, 2004: xivii - xiviii)

population in the community, resulting in women staying at home. We have seen in Chapter 3 that Muslim population is much younger than the total population. While 23 percent of the total population is below 10 years of age (that is, in the age range 0-9 years), 27 percent of the Muslim population falls in this range. Further, in the age group of 10-14 years, there is an excess of two percentage points for the Muslims. This is a situation of large young-age dependency. However, the share of the elderly is not high both for the general population as well as the Muslim population. Thus, old age dependency is not high. What implication does the "young age dependency" have on the aggregate WPRs? Age specific WPRs show that participation rates are lower for Muslims in almost all the age groups (Appendix Table 5.1) for males and females, both in rural and urban areas. Therefore, "young age dependency" does not seem to be driving lower WPRs among Muslims.

Fig 5.2: Unemployment Rate by SRCs



The most striking feature is the relatively high share of Muslim workers engaged in selfemployment activity. This is particularly true in urban areas and for women workers

The daily status unemployment rates (Figure 5.2 and Table 5.2) are generally not higher than 11 per cent. Overall, unemployment rates are slightly higher for all Muslims (taken together), than for all Hindus but there are differences within each group. In general, within the Hindus, URs are lower for high caste Hindus than others especially the SC/ST population. Unemployment rates among Muslims (male, female, rural and urban) are lower than SCs/STs but higher than Hindu-UCs. They are also higher than Hindu-OBCs except in urban areas.[4]

4. Within Muslims unemployment is higher for OBC Muslims than for general Muslims (see Chapter 10).

4. Distribution of Workers by Activity Status

While WPRs provide an indication of the extent of participation of a community in economic activities, the activity status describes the capacity in which workers participate in these activities. For example, a worker may be self employed or an employee. Besides, s/he may work as an employee on salary or on a daily wage and so on. The data permits us to distinguish between the following types of activity statuses of workers:

- Self-employed in household enterprise as:
  - Own account worker / Employer/Unpaid family worker
- Regular salaried/wage employee in:
  - Public sector / Private sector
- Casual wage labour in:
  - Public works / Other types of work

the participation of Muslim workers in salaried jobs (both in the public and the private sectors) is quite low as is in the case of SC/ST workers

While it is difficult to create a gradation of activity-status as the earnings across these categories may vary a great deal, one can safely say that within the selfemployed category, an employer is likely to be better off than the other two categories. Similarly, within employees, jobs providing regular salaries or wages would be preferred over wage based casual work. It is important to assess if Muslim workers are concentrated in specific type of activity statuses.

4.1 Concentration in Self-employment Related Activities

The most striking feature is the relatively high share of Muslim workers engaged in self-employment activity. This is particularly true in urban areas (Figure 5.3 and Table 5.4) and for women workers (Figure 5.4 and Table 5.3). Taken together, the three self-employed categories constituted about 61 per cent of the total Muslim workforce as compared to about 55 per cent of the Hindu workers. In urban areas this share is 57 per cent for Muslims and 43 per cent for Hindus. Among women the share is as high as 73 per cent for Muslims and 60 per cent for Hindus. We shall see later that within self-employment, Muslims are less engaged in agriculture as compared to non-agricultural activity. Within the Muslim community, the reliance on self-employment is higher for OBCs (64 per cent) than for general Muslims (59 per cent) (See Chapter 10). Among the Hindus, while the reliance on selfemployment is relatively very low for SCs/STs (43 per cent), it is much higher for OBCs (51 per cent) and Hindu-UCs (55 per cent). Given higher participation in self-employment related activities, availability of credit presumably is more critical for Muslims than for other SRCs. We shall revert to this issue in Chapter 6.

4.2 Low Participation in Salaried Jobs

As employees, Muslims generally work as casual labourers (Figures 5.3 & 5.4 and Tables 5.3 and 5.4). As is the case of SC/ST workers, the participation of Muslim workers in salaried jobs (both in the public and the private sectors) is quite low. In the aggregate while 25 per cent of Hindu-UC workers are engaged in regular jobs, only about 13 per cent of Muslim workers are engaged in such jobs; the situation of SC/ST workers is no better. In fact, the dominance of casual work in the activity status profile of the SC/ST workers is quite stark with as many as 46 per cent workers in this group engaged in such work.

Lack of access to regular jobs, especially in the public sector has been a general concern among the Muslim population. The estimates reported in Tables 5.3 and 5.4 bear out this concern. As suggested above, the conditions of Muslims with respect to regular jobs do not seem very different from those of OBC and SC/ST Hindus when one compares the aggregate estimates and those for

male and female workers separately (Table 5.3). However, distribution by activity status of workers in urban areas brings out sharply that participation of Muslims in regular jobs is quite limited as compared to even the traditionally disadvantaged SCs/STs. Only about 27 per cent of the Muslim workers in urban areas are engaged in regular work while the share of such workers among SCs/STs, OBCs and Hindu- UC workers is 40, 36 and 49 per cent, respectively (Figure 5.3).

Fig 5.3: Activity Status by SRCs in Urban and Rural Areas by SRCs

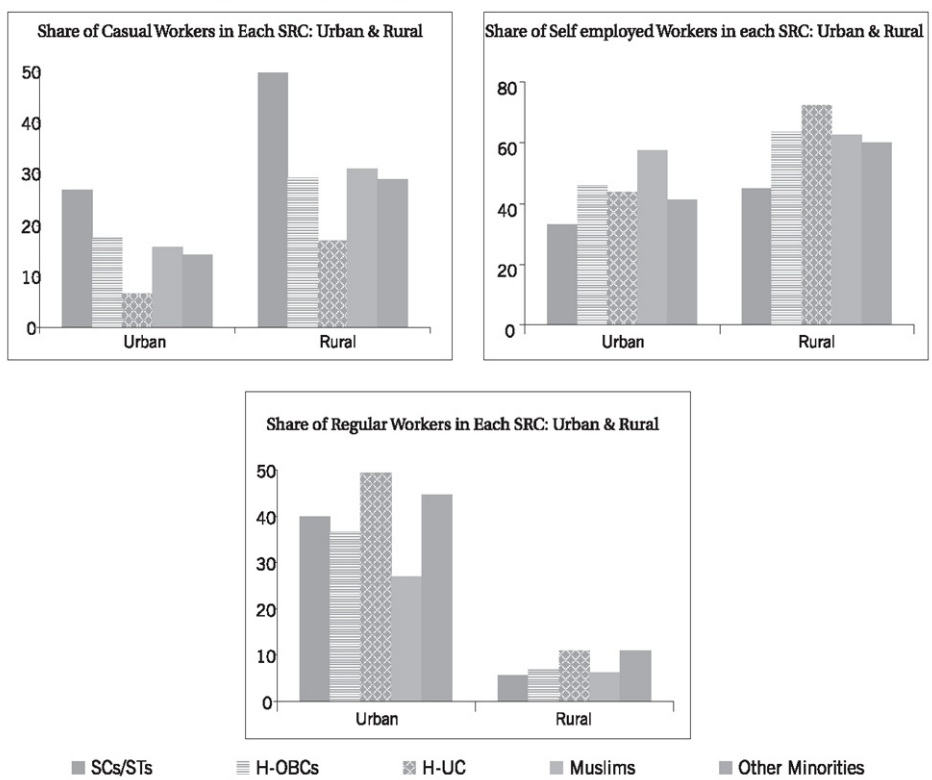
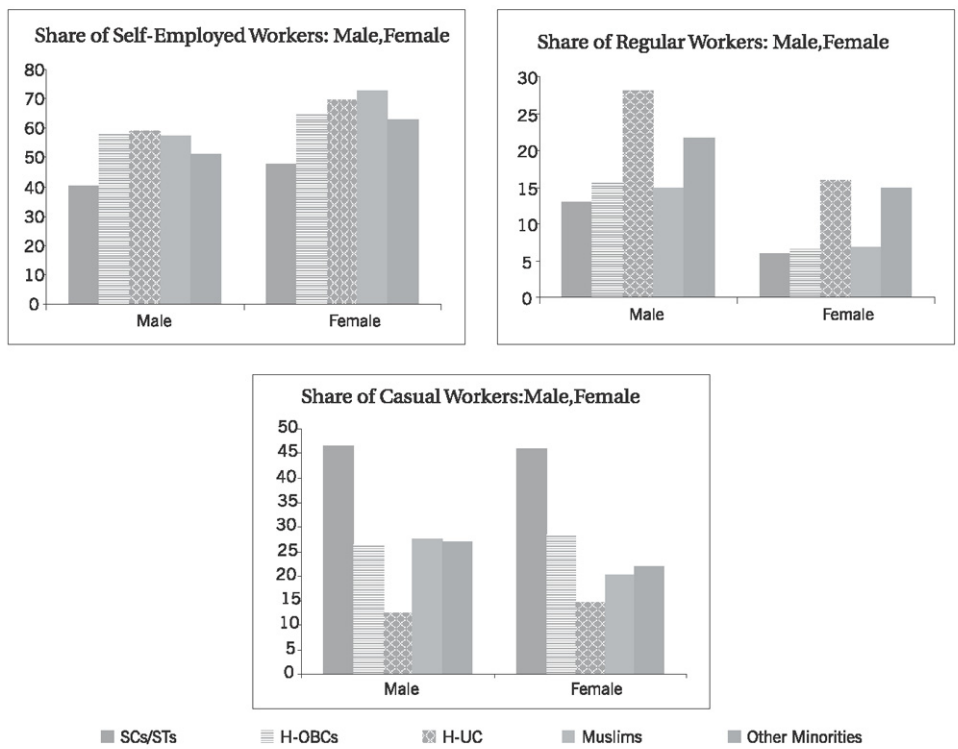


Figure 5.4: Activity Status of Male and Female Workers



Regular workers can be located in smaller unorganised enterprises as well. Regular jobs in large enterprises, however, are more stable and lucrative. These jobs are generally coveted due to social security and other benefits. What proportion of regular workers in different SRCs work in government/ public sector and private/public limited companies? Less than 24 per cent of Muslim regular workers are employed in the public sector or in government jobs (Figure 5.5, Appendix Table 5.2).[5] This proportion is much higher for other SRCs; while about 39 per cent of the regular SC/ST workers are engaged in such jobs, the share for Hindu-UC and Hindu-OBC workers is 37 and 30 per cent respectively. The shares of regular jobs in the large private enterprises (private and public limited) shows a similar pattern with Muslims having the lowest share, save Hindu SC/ST workers.These differentials are sharper in urban

5. Fig. only reports share of regular workers in each SRC employed in government / PSUs and the large private sector. They may also be engaged as regular workers in smaller enterprises.

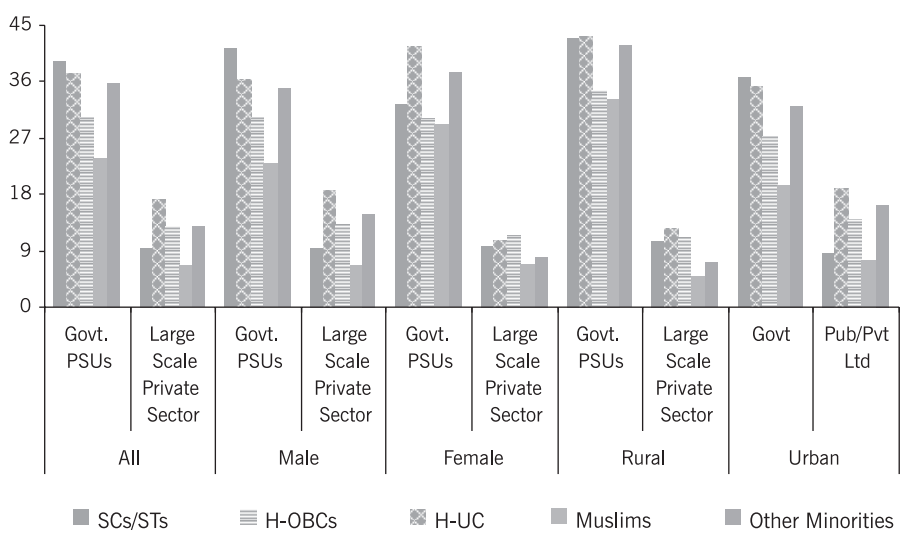
areas with a relatively much lower proportion of Muslim workers engaged in such jobs. The situation is similar in rural areas but the differentials across SRCs are lower. The shares of male and female regular workers in public and large private sector jobs show similar pattern. Muslim workers have the lowest shares in these coveted jobs (Figure 5.5). The large participation in government jobs by SC/ST workers stands out. This is probably the effect of the positive discrimination policy of job reservation for these groups.

the participation of Muslims in regular jobs in urban areas is quite limited compared to even the traditionally disadvantaged SCs/STs

4.3 Employment in the Government and the Public Sector Undertakings

Low share of Muslims in the government/public sector also gets reflected in the data shared with the Committee by various government departments and public sector undertakings (PSUs). This is analysed in greater detail in Chapter 9. Suffice it to mention here that in most of the departments and PSUs, the share of Muslim workers does not exceed 5 per cent. The data from State departments and state level PSUs shows a somewhat higher representation of Muslims than at the Central level. Detailed information however, reveals that while Muslim, OBC and SC/ST public sector employees have relatively higher concentration in lower level positions as compared to Hindu-UC workers whose participation in higher positions is more (see Chapter 9). Moreover, the data analysed in Chapter 9 also shows that in none of the all-Indian civil service cadres, the share of Muslims exceeds 5 per cent.

Fig 5.5: Share of Regular Workers in Each SRCs Employed in Government Sector and in Large Private Enterprises, 2004-05



Note: Large Private Sector includes both public and private limited companies

5. Distribution of Workers by Enterprise-Type and Location of Work

The last section showed that Muslim workers are concentrated in self-employed activities followed by casual labour and their participation in regular jobs, especially in the public/government sector, is very limited. This section provides information on the type of enterprises in which Muslim workers are concentrated. The 61st Round estimates permit us to define the following broad categories of enterprises:

* Proprietary (with male/female proprietors)
* Partnership (with members of the same households/or with others)
* Government/public sector
* Public/Private limited company
* Others

A significantly larger proportion of Muslim workers are engaged in small proprietary enterprises and their participation in formal sector employment is significantly less than the national average

While the government/public sector and public/private limited companies constitute the formal sector, the remaining categories constitutes the informal sector. Therefore, these categories give us the informal/formal distinction and also provide better estimates of government employment. *The estimates of regular jobs in the public sector referred to above did not include the* casual work that is available in the government sector. In that *sense, these estimates of government jobs are more inclusive.*

5.1 Concentration in Informal Own Account Enterprises

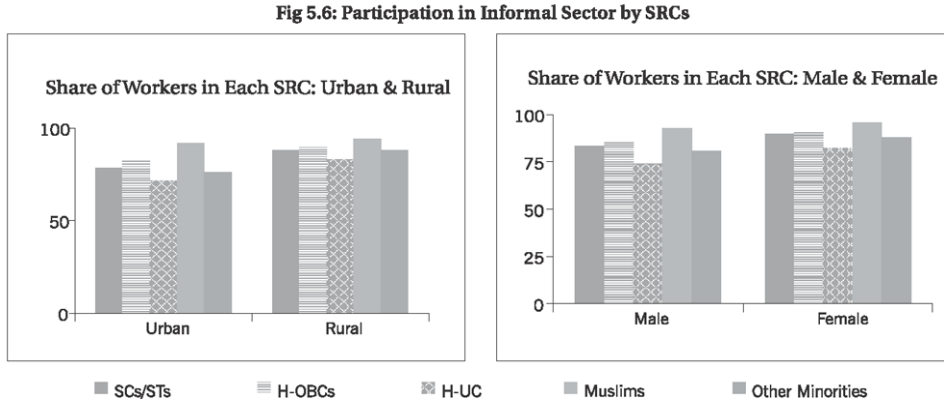
Consistent with the earlier conclusion that Muslims have higher than average reliance on self-employment, the distribution of workers by enterprise type for different SRCs categories (Tables 5.5 and 5.6) show that a significantly larger proportion of Muslim workers are engaged in small proprietary enterprises and their participation in formal sector employment is significantly less than the national average. More specifically, the estimates bring out the following interesting facets of Muslim employment:

* As compared to all other SRCs, a much larger proportion of Muslims (both men and women) work in self-owned proprietary enterprises. This is particularly so in urban areas.
* Participation of women workers in women-owned proprietary enterprises is significantly higher for Muslims. This implies that the prevalence of own account enterprises run by women is higher among Muslims than in other SRCs. However, as enterprises of Muslim women are mainly home-based, they are typically engaged in sub contracted work with low levels of earnings.[6]
* Participation of Muslim workers in PSUs or with the government is the least among all SRCs. For example, among Muslim male workers, less than 6 per cent are engaged in such work as against more than 10 per cent for all male workers and 13 per cent for all-Hindu male workers. Even the shares of OBC and SC/ST workers in such jobs are significantly higher than that for Muslims. Similar situation prevails for women workers and in both urban and rural areas.

6. See next sub-section for some estimates. Unni (2006) showed the same patterns using 55th (1999-2000) data. Her analysis also revealed that such women are typically located in poor households.

* As compared to other SRCs, the participation of Muslim workers in the informal sector enterprises is much higher. For example, less than 8 per cent of Muslim workers in urban areas are employed in the formal sector as compared to the national average of 21 per cent. The share of Hindu OBC and SC/ST workers in such jobs in urban areas is as high as 18 and 22 per cent respectively. The same pattern prevails for both male and female workers and in rural areas. (Figure 5.6).[7]

Fig 5.6: Participation in Informal Sector by SRCs



The participation of Muslim workers in the informal sector enterprises is much higher The percentage of women Muslim workers undertaking work within their own homes is much larger (70 per cent) than for all workers (51 per cent)

5.2 Relatively Larger Focus on Home Based Work and Street Vending

The economic vulnerability of Muslim workers engaged in informal activities is highlighted when we look at the distribution of the workforce by location of work (Tables 5.7. and 5.8; Figure 5.7). The fact that a larger proportion of Muslim workers work in their own enterprises located in their homes is consistent with the relatively larger reliance of Muslim workers on self-employment, a feature that has been noted earlier. Two additional insights emerge from these data. One, the share of Muslim workers engaged in street vending (especially without any fixed location) is much higher than in other SRCs; more than 12 per cent of Muslim male workers are engaged in street vending as compared to the national average of less than 8 per cent. Two, the percentage of women Muslim workers undertaking work within their own homes is much larger (70 per cent) than for all workers (51 per cent). While the larger engagement in street vending highlights the

7. In all these segments, the participation of OBC Muslims in the formal sector (including the public sector) is particularly low. Part of this data is discussed in Chapter 10.

Fig 5.7: Share of Workers in Each SRC according to Location of Work

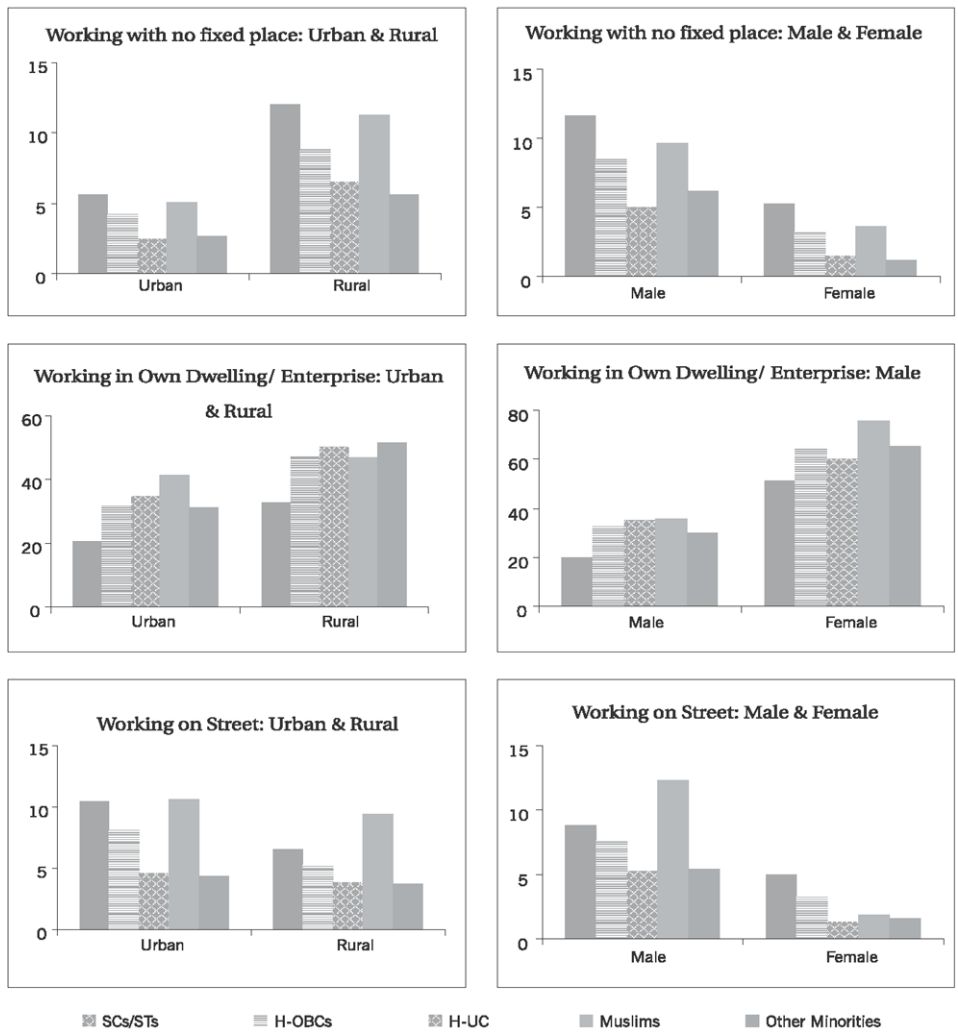


Fig 5.8: Share of Workers in Each SRC in Selected Industrial Groups, 2004-05

higher vulnerability of Muslim workers, concentration of Muslim women in home based work raises issues about spatial mobility and other work related constraints that women face even today. Traditional barriers, in many cases, still prevent women from going out of their homes to work. This is particularly true of Muslim women but is also true for Hindu higher caste women. This also limits the scope of work women can undertake and they often get into very exploitative subcontracting relationships. Moreover, women with responsibility for household duties (including childcare), find it difficult to work outside their homes or areas of residence.

6. Distribution of Workers by Industry Groups

We have seen so far that Muslim workers have a significantly higher concentration in informal self-employment based economic activity than other SRCs. The next issue that needs to be analysed is if Muslim workers are concentrated in specific industry groups. Tables 5.9 and 5.10 provide the industrial distribution of workers for each SRCs, separately for male and female workers and for rural and urban areas. A few interesting differences between Muslim and other workers emerge (Figure 5.8):

* Participation of Muslim workers in agricultural activities is much lower than the workers of all other SRCs; less than 40 per cent of Muslim workers are engaged in agriculture as compared to about 58 per cent for all workers taken together. These differentials are higher among female workers (52 per cent, compared to 74 per cent) than male workers (36 per cent, compared to 50 per cent). Within the Hindu category, a much larger share of OBC and SC/ST workers are engaged in agriculture than the high-caste Hindus.
* While the share of Muslim workers engaged in agriculture is much lower than for other groups, their participation in manufacturing and trade (especially for males) is much higher than for other SRCs. Besides, their participation in construction work is also high.

While the share of Muslim workers engaged in agriculture is much lower than for other groups, their participation in traditional manufacturing and trade (especially for males) is much higher than for other SRCs

A more detailed exploration of employment in various industrial (nonagricultural) categories (Appendix Table 5.3) shows that as compared to other SRCs, the participation of Muslim workers is relatively higher in the following manufacturing industries:

(1) Manufacture of tobacco products (especially for Muslim female workers); and
(2) Manufacture of textiles and textile products like wearing apparel (especially for Muslim female workers);[8]

In addition, the participation of Muslim male workers is somewhat higher than others in the manufacture of fabricated metal products (except machinery and equipment). Among non-manufacturing industries, land transport and retail trade (especially for males) are activities where a larger proportion of Muslim workers are located than workers of other SRCs.

From the perspective of our analysis, two types of industry groups are important: (1) where a relatively large proportion of Muslim workers are located; and (2) where Muslim workers constitute a significant proportion of the total workers.

8. Repair of personal and household goods was also an important segment where Muslims (especially for male workers) are concentrated. However, since this category of "manufacturing" is clubbed with one of the categories of "retail trade", it is not possible to get an exact estimate of the share of Muslim workers engaged in this industry. But the share is likely to be insignificant.

Interestingly, three of the manufacturing segments identified above where the participation of Muslim workers is higher than in other SRCs are also the segments, where Muslims constitute a very high share of the segments' workforce. The shares of Muslims in the total workers engaged in the tobacco and textile/garment related industries are quite significant.[9] The other industries where Muslims constitute a significant proportion of the workforce are: sale, repair and maintenance of motor vehicles[10] and some segments of electrical machinery and apparatus manufacturing.[11]

Likewise, among the non-manufacturing segments wholesale & commission trade and retail trade has a large proportion of the Muslim workers, with about 22 per cent of the male workers in this segment being Muslim.

Obviously, given the concentration of Muslim workers in these segments makes the growth of these segments critical to them. Are the industries where Muslims are concentrated or where they have a significant share, growth oriented? It is difficult to answer this question because even within a narrowly defined industry group Muslims may be concentrated in specific niches which may not experience growth processes that are similar to the industry group as a whole. However, we attempt below a preliminary exercise to ascertain the growth orientation of the *manufacturing* industry groups that are important for Muslim workers.

Among the nonmanufacturing segments retail and wholesale trade has a large proportion of the Muslim workers

6.1 Participation in Growth-Oriented Industries

A key dimension of the industrial distribution of the workforce is whether workers are concentrated in industries which are "declining" or those which are on the "high growth" path. Prima facie, location of a worker in that industry is most desirable where not only employment and output have been growing but there has been growth in productivity as well. In the same vein, location in industries that have experienced limited or no growth in employment, output and productivity is least desirable. From the perspective of growth prospects of workers in different sectors, an assessment if Muslim workers are located in industries that have seen relatively high growth in recent years would be useful.

High growth in output/value added in a sector provides positive growth impulses in the industry as a whole. A simultaneous growth of employment in these sectors ensures that the fruits of output growth percolate to the workers. However, employment at low levels of income in these sectors may not ensure overall wellbeing of the workers; this requires growth with increasing labour productivity or income per worker. In other words, the most desirable outcome is sectoral growth that generates quality employment. Following this broad argument, seven types of groups have been defined reflecting different patterns of growth. These in turn have been clubbed into three categories (Chart 5.1).[12]

9. More than 41 per cent of the male workers engaged in the manufacture of tobacco products are Muslims; the share of Muslims in women workers in this sector is about 35 per cent. Similarly, about 30 per cent of the male workers engaged in the manufacture of garments, wearing apparel etc. are Muslim; the corresponding per cent among women workers is 17 per cent. The share of Muslims in the workers engaged in textile industry is more than 21 and 28 per cent, respectively for males and females.

10. Muslims constitute more than 26 per cent of the total workers in the sector.

11. More than 23 per cent of the male workers in this sector are Muslims.

12. This is based on Unni and Rani (2004).

Chart 5.1. Growth Based Categorisation of Industry Groups

Category A: Growth industries with good quality employment
A1. Growing value added, employment and labour productivity
A2. Growing value added and labour productivity but declining employment
Category B: Growth industries with poor quality employment
B1. Growing value added and employment but declining labour productivity
B2. Growing value added but declining employment and labour productivity
Category C: Non-growth industries
C1. Growing employment but declining value added and labour productivity
C2. Growing labour productivity but declining employment and value added
C3. Declining value added, employment and labour productivity

Usually an industry wherein value added is growing over time is considered to be a dynamic sector. By this criterion, the first four categories of industry groups (A1, A2, B1 & B2) can be considered as growth industries. However, if one gives greater importance to growth of productive employment, the first two industry groups (A1 & A2) can be considered the best in terms of productive employment potential, followed by the third and fourth (B1 & B2) industry groups. The remaining three groups of industries (C1, C2 & C3) with declining value added can be considered the non-growth performing industries.

At the macro level, of the manufacturing sectors which are important for Muslims, wearing apparel, auto-repair and electrical machinery seem to be segments where policy focus can bring in employment related dividends for the Muslim workers

The categorisation of sectors according to growth experience can be done both on the basis of the organised sector data as well estimates for the unorganised sector. Since a large part of Muslim workers are located in the informal sector, it makes sense to focus more on the growth based categories generated on the basis of unorganised sector data. Table 5.11 provides growth rates in the 1990s for value added, employment and labour productivity for the industry groups identified important for the Muslims. The striking feature about these growth rates is that they are not stable and fluctuate a lot. Of the five sectors in Table 5.11, wearing apparel seems to be the only sector which has fared well in terms of growth in value added, employment and labour productivity during the entire period. Auto repair and maintenance is the other segment which has experienced simultaneous growth in value added, employment and productivity in the recent years but it did not do well in the early 1990s. Textiles have also experienced growth in value added and productivity in the late 1990s but employment growth has been negative. Tobacco products experienced growth in employment and value added during the same period but productivity has been on the decline. For electrical machinery, estimates are available only for the second half of the 1990s and the sector seems to be doing well. Overall, therefore, at the macro level, of the manufacturing sectors which are important for Muslims, wearing apparel, auto-repair and electrical machinery seem to be segments where policy focus can bring in employment related dividends for the Muslim workers. Interestingly, these are also the sectors that have significant growth prospects in the economy as a whole. However, it needs to be reiterated once again that given the availability of

information, we are not in the position to figure out the manufacturing sectors more precisely. And it is possible that even within these segments; Muslim workers may be concentrated in areas which have not experienced the same kind of growth impulses that get reflected in Table 5.11. *A more elaborate exercise to identify sectors where Muslims are concentrated is desirable.*

While, policy focus on high growth sectors where Muslim workers are located is desirable, strategies through which Muslim workers can move from low to high growth sectors will also have to be thought of.

6.2 Participation in Security and Defence Related Activities

Participation of Muslims in security related activities is considered to be quite important with respect to the security concerns of the Community (see, Chapter 2). While it is very difficult to assess the participation of Muslims in security activities like the Police, the National Sample Survey provides data for workers engaged in "Public Order and Safety Activities" both at the state and the central government level.[13] The available estimates show that the share of Muslims in these activities at the Central government level was only about 6 per cent, while that of the Hindu-UCs was 42 percent and both Hindu-SCs/STs and Hindu-OBCs had a share of 23 per cent each. At the state level, the share of Muslims was a little higher at 7 per cent while the other categories (in the same order) had shares of 37, 21 and 26 per cent, respectively.

Participation of Muslims in security related activities (e.g. Police) is considerably lower than their share in population

The NSSO also provides estimates of workers engaged in defense activities (code 75220). The share of Muslims in the defence workers was found to be only 4 per cent while that of Hindu-SCs/STs (12 per cent), Hindu-OBCs (23 per cent) and Hindu-UC (52 per cent) was much higher. Additional data made available to the Committee also showed that the participation of Muslims in security related activities, (e.g., Police) is much lower than their share in population (see Chapter 9 for details).

7. Distribution of Workers by Occupational Status

After identifying industrial sectors where participation of Muslim workers is high, the next step is to find out what work these workers do in these industries. Tables 5.13 and 5.12 provide the distribution of workers for each SRC by broad categories of occupations. A few significant differences stand out (also see Figure 5.9):

* The participation of Muslim workers in production related activities and transport equipment operation is much higher than in other SRCs. About 34 per cent of Muslim (all) workers are engaged in such occupations, as against 21 per cent for all workers and about 19 per cent for Hindu workers. Importantly, this pattern prevails for both male and female workers and in rural and urban areas.
* Sales work is the other occupation where the participation of Muslims is higher than other SRCs. More than 16 per cent of Muslim workers were engaged as sales workers, while the national average was only about 10 per cent and for Hindu workers it was about 9 per cent.
* While the participation of Muslim workers was relatively higher in production and sales related occupations, their participation was relatively lower in professional, technical, clerical and to some extent in managerial work. This was particularly the case in urban areas.

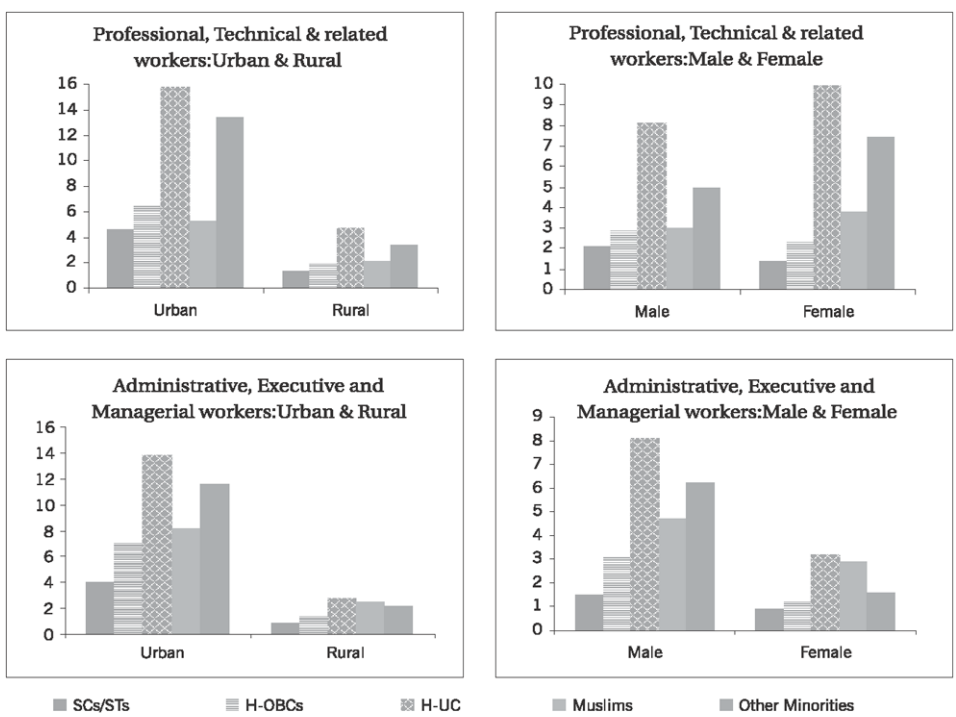
13. These workers include police and fire protection, administration and operation of law courts and prison administration and operation (NIC codes 75231 and 75232).

Table 5.11. Growth Experience of Manufacturing Sectors with Concentration of Muslim Workers, Unorganised Sector

Industry Group	Growth rate of Value Added		Growth rate of Employment		Growth rate of labour productivity	
	1989-95	1994-01	1989-95	1994-01	1989-95	1994-01
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Tobacco products	-4.3 (7.1)	5.0 (7.7)	-8.8 (2.1)	7.7 (-1.9)	4.5 (5.1)	-2.7 (9.6)
Textiles	-2.9 (6.4)	6.3 (2.9)	-2.4 (-0.3)	-0.2 (0.2)	-0.5 (6.8)	6.4 (2.7)
Wearing Apparel	6.2 (27.0)	14.4 (2.2)	1.5 (17.3)	14.4 (3.7)	4.7 (9.7)	-0.1(-1.5)
Motor Vehicles & Parts (including auto repair)	-1.8 (9.1)	16.5 (11.3)	3.0 (3.5)	9.4 (4.3)	-4.8 (5.6)	7.1 (7.0)
Electrical machinery	NA (9.7)	21.7 (5.3)	-6.3 (2.5)	18.6 (-0.8)	NA (7.2)	3.1 (6.1)
All	-1.0 (8.3)	6.9 (6.9)	-1.7 (2.1)	2.2 (0.7)	0.8 (6.1)	4.8 (6.2)

Note: Figures in parentheses provide growth rates in the organised sector.
Source: Unni and Rani (2004)

Fig 5.9: Share of Workers in Each SRC in selected Occupation Groups , 2004-05



Bidi workers, tailors & mechanics need to be provided with social safety nets and social security

A more detailed analysis of the occupational profiles of different SRCs shows higher than average participation of Muslim workers in the following nonagricultural occupations (Appendix Table 5.4):

(1) Merchants and shopkeepers (especially for males and in urban areas);
(2) Sales persons and shop assistants (especially for males and in urban areas);
(3) Tailors, dress makers and the like (especially for women an in urban areas);
(4) Transport equipment operators (especially for males and in urban areas);
(5) Tobacco preparers and tobacco product makers (especially women);
(6) Spinners, weaver, knitters and dyers (especially for males in urban area: and
(7) Machinery fitters, assemblers and precision instrument makers (especially for males and in urban areas).

The participation of Muslims in the professional and managerial cadre is low

In addition, a relatively larger proportion of male workers in urban areas are engaged in carpentry related occupations and in bricklaying and construction work. Broadly, Muslims seem to be concentrated in their traditional occupations. Their participation in the professional and managerial cadre is low. This economic division of labour based on SRCs has serious implications for the overall development of the national economy. Therefore, different policies may need to be invoked for different sectors to make workers engaged in them more productive.

Available data clearly shows that on average,Muslim regular workers are the most vulnerable with no written contract and social security and benefits

8. Earnings and Aspects of Employment Security

The data on location and informal nature of work has already highlighted that the Muslim workers are somewhat more vulnerable than other workers with regard to work related industries. We now explore available data on contractual relations to understand these vulnerabilities better. Information on the following kinds of contractual arrangements for workers of each SRCs is available:

* Distribution by type of contract (written / unwritten, duration)
* Distribution of workers by availability of social benefits (PF, pension, gratuity, etc.)
* Distribution of workers by method of payment (regular/daily, monthly, weekly, piece rate, etc.)

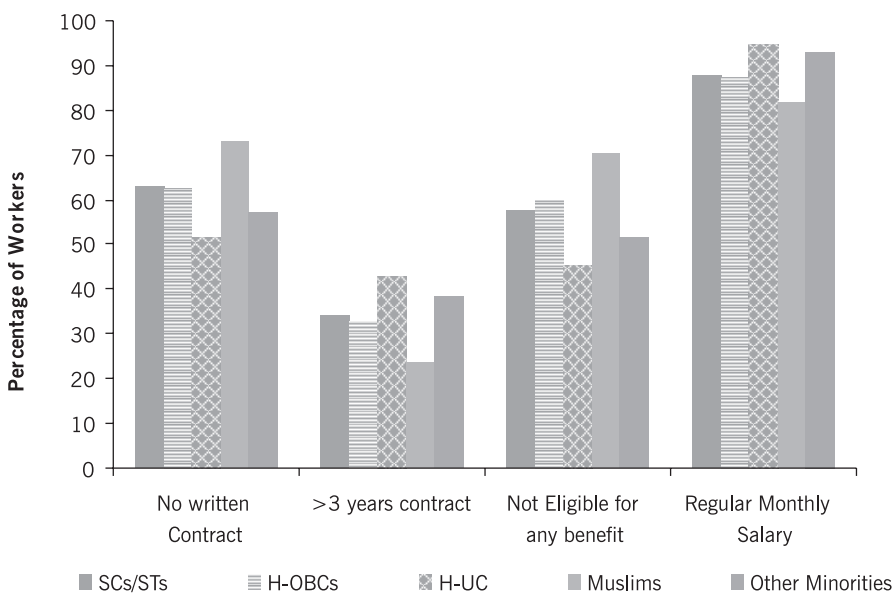
Table 5.13 summarises the key aspects of conditions of workers who receive regular salary or wages. Similar tabulation of casual workers is not reported because almost all of them irrespective of the SRCs are on unwritten contracts with no social security benefits. The available data clearly show that on average, Muslim regular workers are the most vulnerable of all. As compared to regular workers of other SRCs, a much larger proportion of Muslim regular workers work with (Table 5.13 and Figure 5.10):

* No written contract (73 per cent vs 52 per cent for Hindu- UC and 63 per cent each for Hindu-OBCs and SCs/STs);
* No social security benefit (71 per cent against the average of 55 per cent, Figure 5.10 here)

Besides, fewer Muslim regular workers receive monthly salaries as compared to all other SRCs. Finally, on an average a relatively larger proportion of Muslim regular workers are on piece-rate system. Thus, even when Muslim workers are able to get into regular jobs, they are at the lower end of the ladder and their conditions of work on an average are much worse than those of regular workers of all other SRCs including SCs/STs.

The poor conditions of work are also reflected in lower earnings. It has been shown for 1999-2000 that Muslim regular workers get lower daily salary earnings in both public sector and private sector jobs than workers of most other SRCs. While Muslim men and women have lower daily earnings than Hindus in the public sector, the difference in earnings between Hindus and Muslims is much larger in the private sector. In general, the average daily earnings of Hindu-OBC workers were higher than those of Hindu-SC/ST and Muslim workers. No specific pattern emerged when the earnings of Muslim workers were compared with those of Hindu SC/ST regular workers. Finally there is hardly any difference in the daily earnings of casual wage workers by community. Thus, while in casual work there is not much difference in the wage earnings, regular job holders among Muslims draw relatively lower salaries than workers from other SRCs specially in the private sector.[14]

Fig 5.10: Distribution of Regular Workers of Each SRC by Conditions of Work



Note: Large Private Sector includes both public and private limited companies

14. See Unni (2006), for details of earnings differentials.

Muslim regular workers get lower daily earnings (salary) in both public and private jobs compared to other SRCs.

One can surmise that in general Muslim men and women are in inferior jobs, such as clerical or Class IV employees, compared to the Hindu men and women even in the public sector jobs. In the private sector, the difference in earnings may only partly be due to the difference in the nature of the jobs undertaken by the two communities. A large part of the difference is likely to be due to the nature of the private sector enterprises themselves, with the Muslims being engaged in smaller informal and thereby low productivity enterprises. Such enterprises may be small workshops, where a large number of Muslim men are engaged, for example, as mechanics in garages. The women could be attached to small manufacturing enterprises. The lack of variation in casual wage earnings across SRCs is presumably because the nature of the work is very similar for all communities.

9. Inter-state Variations in Employment Conditions

The conditions of employment among Muslims vary a great deal across states. For example, we had seen at the aggregate (all India) level that WPRs for Muslims were generally the lowest. But state specific estimates of WPRs show that participation rates are not the lowest among Muslims as compared to other SRCs in several states. These states include Bihar, Delhi, Gujarat, Haryana, Himachal Pradesh, Madhya Pradesh, Punjab, UP and West Bengal (Appendix Table 5.5).[15] The more interesting differences are with regard to the industrial distribution and the activity status of the workers:

* Most of the states have a significantly higher share of Muslim workers in the manufacturing sector than other SRCs. The share of Muslim workers in manufacturing is particularly high in states like Delhi, Tamil Nadu, Uttar Pradesh, Madhya Pradesh, Maharashtra, and Rajasthan where the share is more than 25 percent. States where Muslims have a lower share in manufacturing than other SRCs are Assam, Gujarat, Punjab, Haryana and Kerala (Appendix Table 5.6).
* As was the case at the all-India level, Muslim workers in most states have a higher share in trade than other SRCs; although in some states other minorities have a higher share. In Tamil Nadu, Orissa, Pondicherry, Kerala, Karnantaka, Madhya Pradesh, and Gujarat the percentage of Muslim workers engaged in trade is particularly high with more than 20 per cent workers engaged in this activity (Appendix Table 5.7).
* As was the case at the all-India level, the share of urban Muslim workers engaged in self-employment is higher than other SRCs in all states except Haryana (Appendix Table 5.8).

10. Patterns of Change in Employment Conditions Since the 1990s

After having seen the current status of Muslims in terms of employment conditions, it would be useful to see if the conditions have changed over time. For several dimensions, data is not available for the early 1990s. To get a general trend, data was compiled on changes in the shares of workers engaged in manufacturing and trade and those employed in administrative, executive and managerial jobs (Table 5.14). The most striking feature is that the trends are similar for all SRCs although the extent of change may differ. The following patterns are evident:

15. Since there is no clear pattern *vis-à-vis* the unemployment rates, the estimates are not reported.

* The 1990s saw a decline in the share of manufacturing workforce but there has been an uptrend in the early years of the current decade (2000-04) without compensating for the earlier loss. Such fluctuations can be seen for all SRCs but have been sharper for women workers, especially Muslims.
* For all-India as a whole, the share of workers engaged in trade has increased consistently during 1993-2005. While rural areas have shown a marginal rise, urban areas have shown a slight decline after 2000. Of all SRCs, the rise has been the sharpest (in terms of percentage point changes) for the Muslim male workers. Thus, in recent years, while all workers have experienced a shift in favour of trade related activities, this shift has been somewhat sharper for Muslims (especially male) workers than for others.
* Shares of workers engaged in administrative, executive, and managerial jobs have increased for all SRCs. These shifts have been sharper in urban areas and for males but no significant differences can be observed across SRCs except that vis-'-vis others, Hindu-SCs/STs in urban areas have experienced an increase that is less sharp.

11. Summing Up

Overall, one finds that as compared to others, Muslim workers are engaged more in self employed manufacturing and trade activities. Their participation in regular salaried jobs (especially in the government or large public and private sector enterprises) is much less than workers of other SRCs. They tend to be relatively more vulnerable in terms of conditions of work as their concentration in informal sector employment is higher and their job conditions (contract length, social-security, etc.) even among regular workers are less for Muslims than those of other SRCs.

CHAPTER EIGHT
POVERTY, CONSUMPTION AND STANDARDS OF LIVING

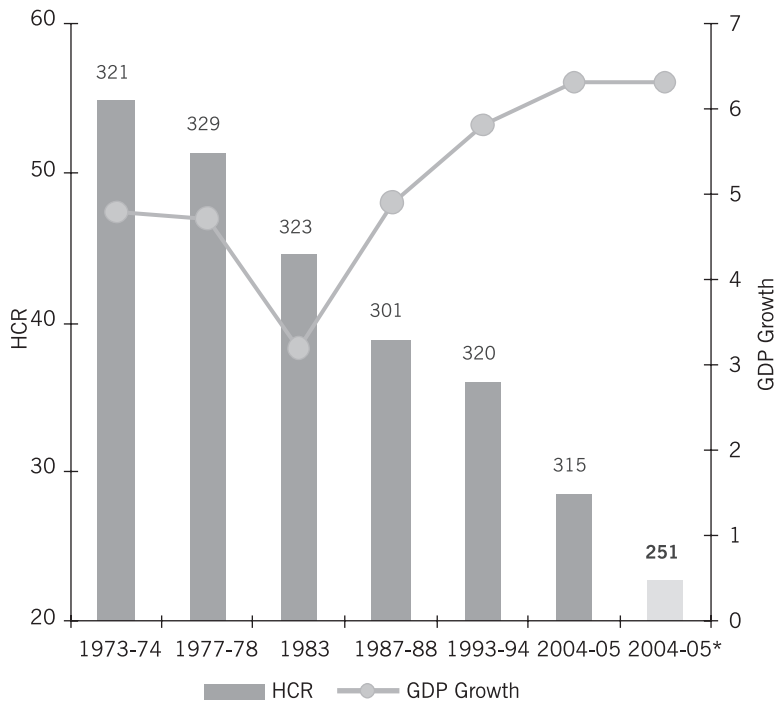
1. Introduction

This chapter analyses disparities in levels of consumption and incidence of poverty across socio-religious categories (SRCs) in India. Though eradication of poverty has been one of the prime objectives of the Indian governments, it has persisted. The income and consumption levels of the masses at the time of Independence, were precarious. Even in the early 1970s, two decades after independence the proportion of persons below the poverty line, or the Head Count Ratio (HCR), was hovering around 55 % at the all India level and somewhat lower in urban areas. Poverty declined during the 1980s and continued to fall in subsequent years, with the most recent estimate placing all India poverty head count at 22.7 percent based on 365 days recall period and 28.5 percent based on 30 days recall period (2004-05). Irrespective of the proportion that was estimated to be poor in India over the years, the estimates of absolute number of poor continues to hover around 320 million (Fig 8.1), when a 30-day recall period is used. On the other hand if a 365-day recall period is used, there is a sharp fall in the number of poor to 251 million in 2004-05. The difference in number of poor differs by as much as 64 million for the same year (2004-05) when the recall period is changed to 30 days. The absolute dimension of poverty has remained a challenge for the government even in this century. The target to reduce HCRs by half as a part of Millenium Development Goals by 2015 seems difficult unless the recent GDP growth of over 8% is sustained while simultaneously reducing inequality within population groups.

The target to reduce poverty (Head Count Ratios) by half as a part of Millenium Development Goals by 2015 seems difficult unless the recent GDP growth of over 8% is sustained and inflation is contained around 3%

This chapter is divided into four sections. Section 2 analyses average per capita expenditure differentials followed by estimates of poverty-HCRs in Section 3. The cross-sectional pattern with respect to consumption and poverty differentials are analysed at using the most recent NSSO 61st Round data with a reference period of July 2004 to June 2005. The estimates used in Sections 1 and 2 are based on the data on monthly consumption expenditure of individuals during 365 days, which is called the Mixed Reference Period Method (MRPM), given by the Planning Commission of the Government of India. Section 4 describes the change in poverty incidence during the period 1987-88 - 2004-05. The temporal changes are discussed using comparisons of the estimates based on the Uniform Reference Period (URP) method that uses consumption expenditure data of last 30 days from the date of

Fig 8.1: Head Count Ratio (HCR) and Growth of GDP



Numbers on top of the bar indicate number of poor in million

* Estimates of poverty based on 365 days MPCE

Source : *Planning Commission, and National Account Statistics*