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Unorganised Manufacturing Industries in India – A Regional Perspective

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ABSTRACT

Notwithstanding various policies to address regional disparities in industrial development, the issue of balanced regional industrial development still remains in India. Studies dealing with the issue mainly focused on the organised industries. In spite of the fact that the unorganised manufacturing sector occupies a dominant position compared to the organised sector and recognized as the most potential sector for rapid employment creation; no attempt has been made so far to examine the regional pattern of the sector. The major objective of the paper is to analyze the regional of unorganised manufacturing in India before and after reforms. We found that while unorganised manufacturing continued to concentrate in few advanced states, there is barely any improvement in the position of the backward states even after reforms. Spatial concentration is high for the high-technology industries and low for resource-based low-technology industries. Spatial concentration is found to be declined for all and most of the two- and three-digit industries after reforms.

Key Words: Industrial Location, Regional Development, Unorganised Manufacturing

JEL Classification: R12, R58, L5, L6

1. Introduction

India, as in most other developing countries, has been experiencing a high concentration of industries in few locations since her independence. Faced with such situation the government has adapted a series of measures in order to achieve balanced regional industrial development and guided the industrialisation process by highly regulated policies, with many industries reserved for the public sector (see Sekhar for a review of these policies). Notwithstanding these initiatives since the beginning of the planning period, the issue of balanced industrial development still remains in the economy. With the curtailment of role of the State as industrial owner and location regulator after economic reforms initiated in 1991, it is argued that industry will be more concentrated in the already advanced states after reform in order to realise the benefits developed socio-economic infrastructure. In this context many observed that the growing regional inequality in the post reform period is primarily caused by the

differentiated growth pattern between more and less industrialised regions (Bhattacharya and Sakthivel, 2004, Kar and Sakthivel, 2007). Such an argument is supportive to other country level studies, which observed that spatial inequality in industrial development is one of the major causes of spatial income inequality in most of the developing countries (Puga, 1999; Kim, 2008; Fujita *et al.* 1999; Fujita and Thisse, 2002 and Kanbur and Vanables, 2005).

Study on regional aspects of industrialization is not new in India. Extensive attempts have been made in the past to examine the regional pattern of industrialization and its *pros and cons* for growth and development in the national as well as regional economy. However, the existing literature provides contradictory findings and arguments on the regional pattern of industrial development in India for the pre- and post-reform periods, and thus, rarely draws any generalized conclusion. To summarise, these studies have found that inter-state disparity in the distribution of manufacturing industries has declined in the 1980s (Awasthi, 1991 and Dholakia 1994), whereas it has significantly increased in the post-reform period (Chakravorty, 2003, and Lall and Chakravorty, 2005). While all these findings are for the organised (or registered) manufacturing sector, there is dearth of information about the regional pattern of unorganised manufacturing sector. The unorganised manufacturing sector occupies a dominant position in India's industrial scenario in terms of its contribution to employment, value added and export. The sector with more than 99.2 percent of total manufacturing enterprises during 1994-95 to 2005-06, accounted for about 80 percent of total manufacturing employment, around 22 to 25 percent of manufacturing gross value added and about 40 percent of export during the same. Further, the sector is quite diversified and differentiated and is recognized as the most potential sector for rapid employment creation, and thus, a panacea to the burgeoning labour force. Despite this no attempt has been made so far to examine the regional pattern of the sector. The dearth of information on the regional pattern of unorganised manufacturing sector induced us to fill the void.

The main objective of this paper is to analyze the regional pattern of unorganised manufacturing in India before and after reforms. This has been addressed by analysing the spatial distribution of unorganised manufacturing industries in terms of number of enterprises, total employment, gross value added and fixed assets, and then examining the extent of spatial concentration at aggregated and disaggregated industry level. The remaining of the paper is organised in the following sections. Section 2 explains the data source. Section 3 analyses the spatial distribution of unorganised manufacturing at the regional and state

levels. Section 4 examines the spatial concentration at disaggregated industry level. Finally, section 5 discusses the findings in the context of regional development in India.

2. Data Source

The present study refers to the pre- and post-reform period of India's economy and is based on two rounds of quinquennial survey of unorganised manufacturing industries conducted by National Sample Survey (NSS) Organisation.¹ The data are derived from the NSS unit level data available on CD-ROMs for 1994-95 (51st round) and 2005-06 (62nd round). In India economic reforms has been initiated in the early 1990s. However, most of the crucial reform measures directed towards the unorganised sector in the form of de-reservation of items were initiated after the recommendation of the Abid Hussain Committee in 1997. Therefore, the year 1994-95 provides us a reliable representation of the pre-reform period, while 2005-06 will represent the post-reform period.

The 51st round of survey has collected information at the 4-digit level of National Industrial Classification (NIC) 1987 codes, whereas the 62nd round of survey has collected information at the 5-digit level of NIC 2004 codes. For maintaining comparability between these two rounds, required adjustments have been made for the 51st round following the concordance table provided by Central Statistical Organisation (CSO).

These two rounds of NSS surveys have provided information on different characteristics and variables on unorganised manufacturing sector in India both at the state and district levels. For the purpose of analysis we have selected 25 states and divided them into five meta regions: eastern region (Bihar, Orissa and West Bengal), north-western region (Delhi, Haryana, Himachal Pradesh, Jammu and Kashmir, Punjab and Uttar Pradesh), central region (Gujarat, Maharashtra, Madhya Pradesh and Rajasthan), southern region (Andhra Pradesh, Karnataka, Kerala and Tamil Nadu) and the north-east (Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim and Tripura).² For maintaining

¹ National Sample Survey Organisation (NSSO) is the principle agency engaged in the collection of information about various dimensions of unorganised manufacturing industries in India since 1958–1959. In the NSS framework, unorganised manufacturing sector includes all manufacturing enterprises except (i) those registered under section 2m(i) and 2m(ii) of Factories Act, 1948 and Bidi and Cigar Workers (conditions of employment) Act, 1966 and (ii) those run by Government/Public Sector Enterprises. NSSO has provided the details of the definition of the variables; scope and coverage of the survey, sampling design and estimation procedure in its reports for every round of survey (see NSSO 1998 and 2007).

² States, which are the first tier of sub-national administration in India, are considered as the standard unit of analysis for regional studies over the years. This is mainly because of two reasons: first, the easy availability of data at the state level and, secondly, from the point of policy formulation at the sub-national level, a state appears to be the most viable regional unit.

comparability of the states between these two periods, which arise because of the reorganisation of state boundaries, we have merged Jharkhand with Bihar, Chhattisgarh with Madhya Pradesh and Uttaranchal with Uttar Pradesh for the later period.

3. Regional Distribution of Unorganised Industries

In this section we analyse the regional distribution of unorganised manufacturing before and after economic reforms. Two important points need to be kept in mind while looking at the share of the states/regions to the national total. First, the number of enterprises in any states depends on its geographical area. Since, there are huge differences in geographical area across the states; share of the large states will be more as compared to that of the small states. Secondly, the predominant economic activity differs from state to state, and hence, the share of the industrialised states will be more as compared to others.³ Therefore, it is not the absolute numbers/shares of the states, but what matters more is the change in the share of the states between the two time points. We have also considered per capita fixed assets and gross value added across the states to overcome this problem.

The distribution of unorganised industries in terms of number of enterprises, total employment, GVA and fixed assets across the five major regions and 25 states has been reported in Table 1. Very clear location patterns of unorganised manufacturing are discernible for the pre- and post-reform periods. It is apparent that while the eastern region is the leading region in terms of number of enterprises and employment, the region is lagging in terms of GVA and fixed assets for both the periods. On the other hand, the central region, which accounted the least share among the major regions in number of enterprises and employment (about one fifth share in each), is the leading region in terms of GVA and fixed assets (about one third share in each). Thus, a clear mismatch is apparent between the eastern and central regions' shares in number of enterprises and employment and that of in GVA and fixed assets. This is mainly because, as we observed in another study (Saikia, 2011), the differences between the two regions in terms of productivity of the unorganised manufacturing sector and the industrial structure in terms of types of enterprises and industry mix. In Saikia (2011) we observed that the southern region is more productive than the eastern region. The southern region has considerable share in DME enterprises, which are more technology intensive; whereas the eastern region's share in DME enterprises is very

³ For example, Punjab is basically an agrarian economy, while states like Gujarat, Maharashtra etc. are industrialised economy. Therefore, it is natural that the share of Gujarat and Maharashtra will be much higher than that of Punjab.

small and OAME and NDME enterprises constitute the major share in the eastern region.⁴ Further, it has been observed that the southern region's industrial base is in some technology-intensive industries like machinery and electronics, accounting and computing machinery, chemical, transport equipment, etc., whereas that of the eastern region is in some traditional resource based industries like food products, woods and woods products, leather products, textiles, etc.

The decline of eastern region and rise of southern region is one of the foremost post-reform changes in regional pattern of unorganised industries. The eastern region has experienced continuous decline in terms of all the variables after reforms. The two eastern states Bihar and Orissa have individually contributed to this decline, whereas the share of West Bengal has increased in both the variables. The similar is the case in terms of per capita GVA and per capita fixed assets (Figures 1 and 2). On the other hand, the success of the southern region is accompanied by all the states but Karnataka's net gain in number of enterprises and employment; and all states but Tamil Nadu's net gain in GVA and fixed assets in the post-reform period. Contrary to the distinct patterns of these two regions, other regions presented a mixed result. For instance, the central region has gained in terms of all the variables but fixed assets, whereas the north-west region has experienced marginal decline in all the variables but fixed assets.

Looking at the individual state level it is obvious that Maharashtra, Gujarat, Tamil Nadu, Delhi and West Bengal have appeared as the leading states by registering considerably above the all-India average in terms of per capita GVA and per capita fixed assets for both before and after reforms (Figure 3 and 4).⁵ Their combined share accounted for around 50 percent of GVA, 57 percent of fixed assets, 38 percent of employment and 33 percent of enterprises in 1994-95. However, by 2005 their share has been drastically declined in terms of GVA (45.75 percent) and fixed assets (45.4 percent) and marginally increased in terms of employment (38.6 percent) and number of enterprises (34.8 percent). Individually all of them but Tamil Nadu and West Bengal have significantly lost their share in fixed assets after reforms, whereas significant decline is observed in Gujarat and Delhi's share in all other

⁴ Own account manufacturing enterprises (OAMEs) are enterprises run without a hired worker on a fairly regular basis. Non-directory manufacturing establishments (NDMEs) are establishments employing up to six workers, at least one of them being a hired worker employed on a fairly regular basis. Directory manufacturing establishments (DMEs) are establishments employing six or more (but less than ten) workers, at least one of them being a hired worker.

⁵ Though Punjab and Haryana have also registered above the all-India average in per capita GVA and fixed assets for both the periods, their positions in terms of share to the national economy is considerably poor.

variables and Maharashtra, Tamil Nadu and West Bengal have managed marginal gains in other variables. A somewhat similar picture is discernable in terms of per capita GVA and fixed assets.

It is now easy to identify the states that have gained after reforms: West Bengal, Haryana, Jammu and Kashmir, Rajasthan, Andhra Pradesh, Karnataka, Kerala and Assam and the states that have lost: Bihar, Orissa, Delhi, Uttar Pradesh and Gujarat. Despite such significant gains and losses of different states, there has been barely change in their relative positions after reforms compared to pre-reform period. To test this, we have computed the coefficients of rank correlation of shares of the states in unorganised manufacturing between 1994-95 and 2005-06. The coefficients are worked out to be fairly high in terms of number of enterprises (0.961), employment (0.966), GVA (0.958) and fixed assets (0.888) and significant at 1 percent level of significance, implying that the relative ranks of the states remained unchanged before and after reforms.

The clustering of the backward states is one of the typical features of the regional pattern of unorganised industries in India. From the data presented in Table 1 and Figures 3 and 4 clearly we can identify at least two such clusters. The first one is the clustering of Bihar (including Jharkhand), Madhya Pradesh (including Chhattisgarh), Rajasthan, Uttar Pradesh (including Uttaranchal) and Orissa, which are far below the national average in terms of per capita GVA and fixed assets (though their combined share accounted for 35-40 percent of enterprises and employment and 25-30 percent of GVA and fixed assets of unorganised manufacturing, but mainly owing to the large geographical size).⁶ The other cluster is the group of eight north-eastern states, which have been lagging behind not only in terms of development of unorganised manufacturing but in terms of any other indicators of development. All the indicators of unorganised manufacturing show that the north-eastern states, which together accounted for only 3 percent of enterprises, less than 3 percent of employment and GVA and less than 2 percent of fixed assets are out-performed over the years and the situation has not changed even after reforms. Further, excluding Assam, which is the business hub of the north-eastern region; the situation of all other states is much poor for both before and after reform periods.

⁶ These states together accounted for about 35 percent of country's total geographical area and about 39.5 percent of total population as per 2001 census.

Table 1. Share of the States in all-India: Enterprises, Employment, GVA and Fixed Assets								
(in percent)								
States/ Regions	Enterprises		Employment		GVA		Fixed Assets	
	1994 -95	2005 -06	1994 -95	2005 -06	1994 -95	2005 -06	1994 -95	2005 -06
Bihar	9.00	7.97	7.41	6.60	4.78	4.04	3.57	2.46
Orissa	10.54	5.61	9.92	5.56	2.60	2.27	1.76	1.12
West Bengal	14.01	16.14	13.85	15.09	9.67	9.79	4.89	6.55
Eastern Region	33.55	29.72	31.18	27.25	17.05	16.09	10.21	10.13
Delhi	1.07	0.57	2.11	1.26	5.08	2.81	7.13	3.94
Haryana	0.77	1.34	0.88	1.49	2.23	3.22	2.11	6.11
Himachal P.	0.71	0.63	0.46	0.45	0.39	0.66	0.48	0.72
J & K	0.30	1.01	0.21	0.87	0.18	1.44	0.20	1.36
Punjab	1.32	1.72	1.39	1.65	2.84	2.70	3.65	4.24
Uttar Pradesh	16.43	14.19	17.45	14.9	14.83	12.03	12.47	11.75
North-West	20.60	19.46	22.50	20.62	25.55	22.86	26.04	28.12
Gujarat	4.51	3.83	5.75	5.08	10.51	7.37	10.75	7.14
Madhya Pradesh	4.07	6.21	3.72	6.03	4.26	3.96	2.81	3.65
Maharashtra	5.41	6.60	7.09	7.96	14.01	16.12	23.61	16.53
Rajasthan	3.01	3.73	2.45	3.56	3.02	4.48	3.29	4.40
Central Region	17.00	20.37	19.01	22.63	31.80	31.93	40.47	31.72
Andhra Pradesh	8.86	8.99	7.62	8.07	5.09	5.54	4.29	6.08
Karnataka	5.95	5.64	5.63	5.42	4.38	6.46	4.24	5.73
Kerala	2.12	3.86	2.10	3.82	2.04	4.02	1.74	5.02
Tamil Nadu	8.42	8.68	9.01	9.25	11.65	9.66	10.91	11.27
Southern Region	25.35	27.17	24.36	26.56	23.16	25.67	21.18	28.10
Arunachal	0.03	0.01	0.03	0.01	0.06	0.05	0.11	0.11
Assam	2.12	2.17	1.86	1.74	1.16	1.61	0.62	0.75
Manipur	0.46	0.31	0.23	0.22	0.17	0.15	0.23	0.15
Meghalaya	0.17	0.22	0.13	0.25	0.15	0.37	0.05	0.05
Mizoram	0.04	0.03	0.03	0.03	0.04	0.05	0.04	0.01
Nagaland	0.08	0.06	0.06	0.04	0.08	0.06	0.06	0.04
Sikkim	0.00	0.02	0.00	0.02	0.01	0.04	0.01	0.03
Tripura	0.43	0.27	0.39	0.40	0.20	0.40	0.12	0.11
N-E Region	3.33	3.09	2.73	2.71	1.87	2.73	1.23	1.25
Other Sates	0.20	0.18	0.23	0.26	0.56	0.71	0.87	0.70
All India	100	100	100	100	100	100	100	100

Source: Author's own computation using NSS unit level data on unorganised manufacturing sector

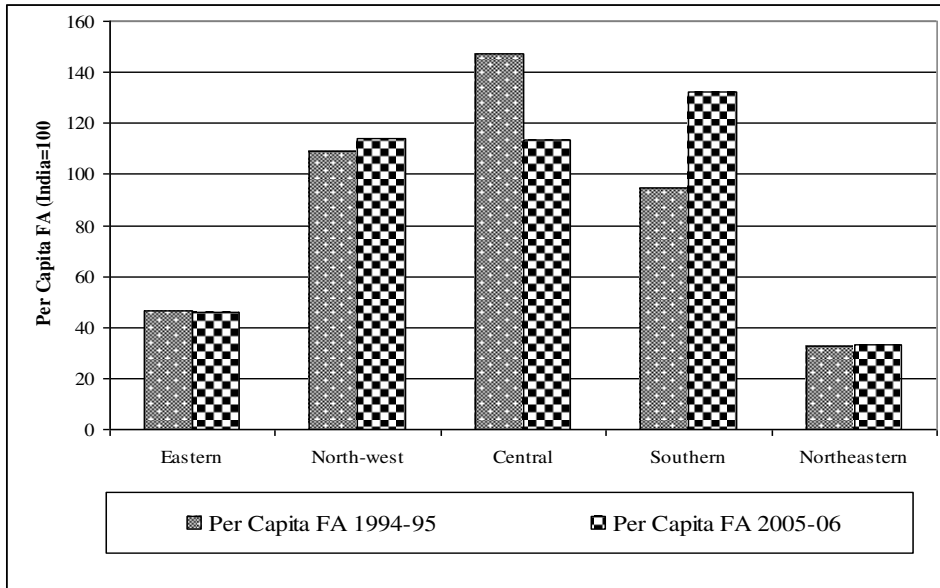


Figure 1: Region wise Distribution of per capita Fixed Assets (all-India=100)
 Source: Author's own computation using NSS unit level data

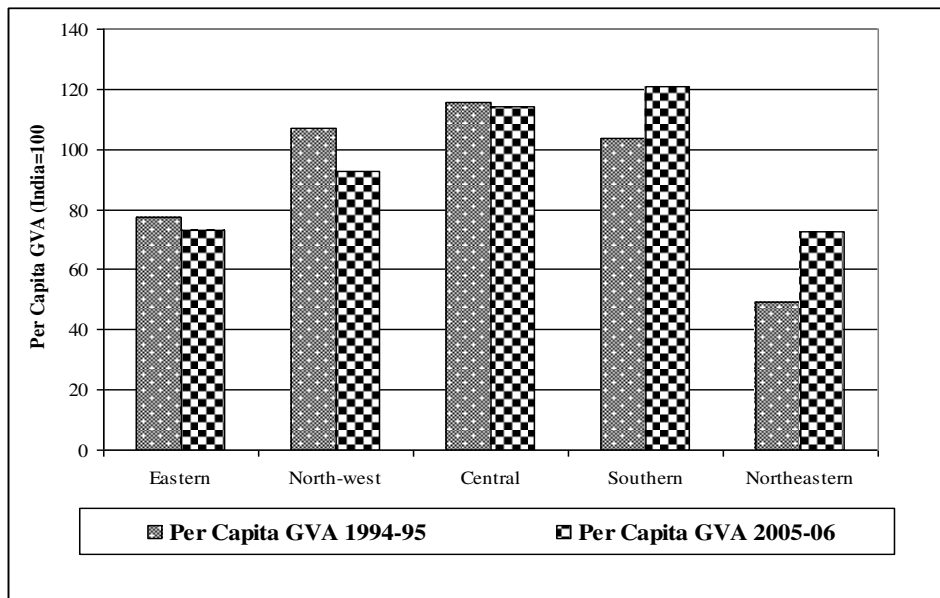


Figure 2: Region wise Distribution of per capita GVA (all-India=100)
 Source: Author's own computation using NSS unit level data

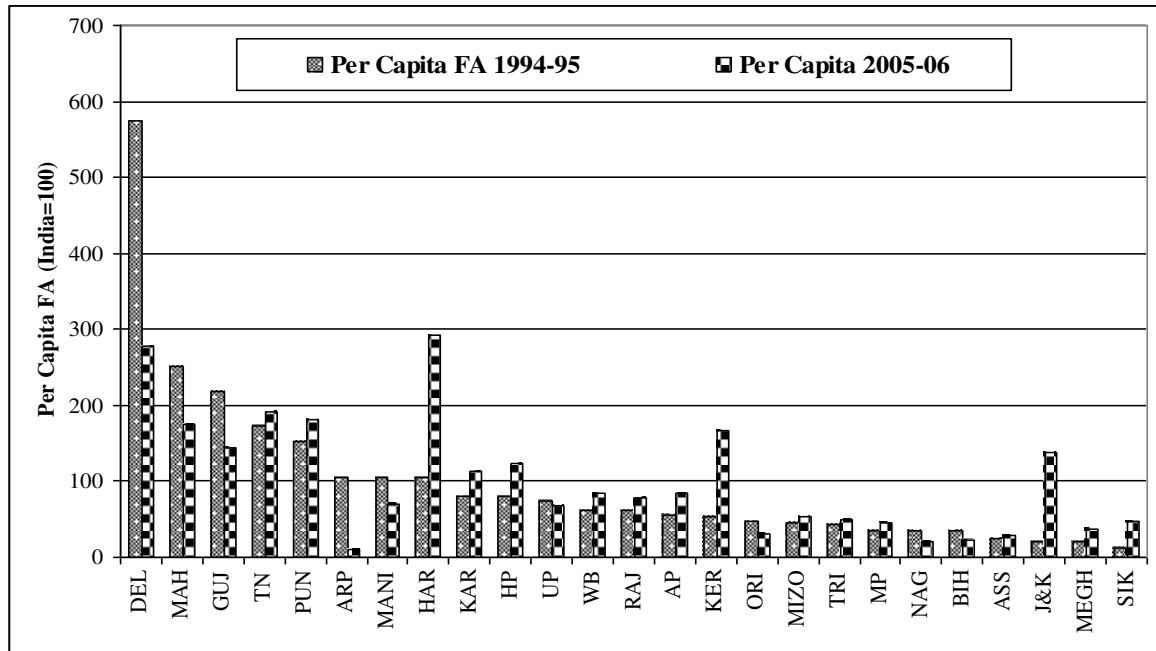


Figure 3: State-wise Distribution of Per Capita Fixed Assets (relative to all-India=100)
Source: Same as Table 1

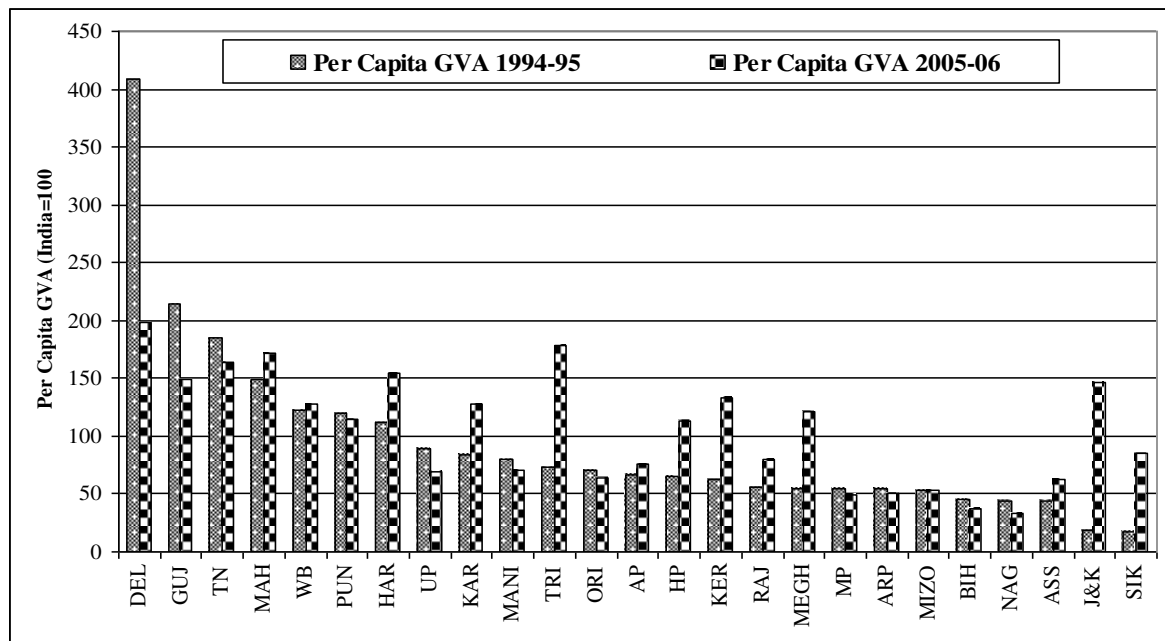


Figure 4: State-wise Distribution of Per Capita GVA (relative to all-India=100)
Source: Same as Table 1

4. Spatial Concentration of Unorganised Industries

The tabular data and graph presented in the preceding section cannot provide information on the extent of spatial concentration of these industries. In this section we examine the extent of

spatial concentration of unorganised manufacturing industries across the states at aggregated and disaggregated industry levels. The term spatial concentration refers to the extent to which a given industry is concentrated in a few geographical units. Sometimes the terms spatial concentration, agglomeration and clustering are used synonymously, though they are fundamentally different to each other. The term agglomeration, in general, refers to the geographic concentration of economic activity as a whole (for example industry, agriculture, etc.), whereas spatial concentration refers to the geographic concentration of economic activity in a particular industry, after controlling for the geographic concentration of overall economic activity (Brulhart, 1998; Redding, 2009). Clustering, on the other hand, is defined as a phenomenon in which events or artifacts are not randomly distributed over space, but tend to be organised into proximate groups (Chakravorty and Lall, 2007). However, these spatial concepts are distinct from “industrial concentration”, which refers to the degree to which economic activities in a particular industry are concentrated in a small number of plants irrespective of their geographical location.

Many standard statistical indices of spatial concentration have been proposed in the literature over the years, which vary from the traditional measures like coefficient of variation, location concentration ratio, location Herfindahl index, location Gini index, location entropy index and location quotient, etc. to the more recent measures like Ellison-Glaeser index and Moran’s I, etc. However, none of these measures can be treated as precise: each one has advantages and disadvantages. The reliability and comparability of these measures is a separate issue for research, which is beyond the coverage of the present paper. In the present paper we have employed a set of traditional measures viz. location Herfindahl index, location Gini and concentration ratio, since any single index is inadequate to arrive at a fairly reliable conclusion. While location Herfindahl index and concentration ratio are absolute measures of concentration, location Gini is a relative measure of concentration.⁷

The location Herfindahl index of an industry i is defined as the sum squares of employment (or output) shares of all states in the industry. Symbolically,

$$H_i^C = \sum_{k=1}^n (E_{ik} / E_i)^2$$

⁷ The absolute concentration measures the space distribution of a specific industry between different geographical units (say, state/district), whereas the relative concentration measures the spatial concentration of a specific industry relative to the spatial concentration of the overall industries.

where, E_{ik} is employment (or output) of k^{th} state in i^{th} industry and E_i is employment (or output) of all the states in i^{th} industry. The location Gini expresses the correspondence between the percentage of the distribution of industrial employment (or output) in certain geographic units and the percentage of the distribution of national employment (or output) within the framework of the same geographic units. Different expression for location Gini is available in the existing literature, but what we follow in this paper is Ceapraz (2008), which measures location Gini as the sum of the differences of the concentration rates by the addition of the differences of the weights of each industry and the weights of the arithmetic mean obtained after the decreasing classification of each region's concentration rates. Symbolically,

$$G_i^C = \frac{2}{n^2 \bar{C}} \sum_{k=1}^n \Lambda_k |C_k - \bar{C}|$$

where, n is number of states, $C_k = S_{ik}/S_k$ for every state in the i^{th} industry, S_{ik} is share of k^{th} state in total employment (or output) of i^{th} industry, S_k is share of k^{th} state in total employment (or output), Λ_k is rank of k^{th} state in the ranking of C_k in descending order and \bar{C} is the mean value of C_k for the state. Both the H_i^C and G_i^C take values between zero and one, where the highest value one is obtained when the industry is located in a single state alone and the lowest value is zero when all the states have equal share. On the other hand, concentration ratio is defined as the percentage share of employment (or output) of an industry located in the largest four states, ranked in descending order of shares of the states. Higher the value of the ratio higher is the concentration.

The summary measure reported in Table 2 used location Herfindahl index to measure the concentration of unorganised manufacturing by sectors (rural and urban) and enterprise types (OAME, NDME and DME) in terms of enterprises, employment, GVA and fixed assets. It is obvious that concentration has declined in terms of all the variables for the overall as well as the three sub-categories of unorganised manufacturing after reforms compared to pre-reforms period. It is not surprising that concentration is high for DME enterprise, which is more capital and technology intensive compared to OAME and NDME enterprises, which are basically household based industries. Though concentration has declined for both rural and urban sectors after reforms, the degree of concentration is high for the rural sector in

terms of number of enterprises and employment, whereas the opposite is true in terms of GVA and fixed assets for both before and after reforms.

Table 2: Location Herfindahl Index of Unorganised Manufacturing by Sectors and Enterprise

Enterprise Type	Enterprise		Employment		GVA		Fixed Assets	
	1994-95	2005-06	1994-95	2005-06	1994-95	2005-06	1994-95	2005-06
OAME	0.098	0.091	0.107	0.096	0.093	0.081	0.089	0.077
NDME	0.092	0.087	0.095	0.086	0.087	0.088	0.108	0.089
DME	0.106	0.097	0.106	0.096	0.123	0.101	0.188	0.106
All	0.094	0.088	0.094	0.087	0.091	0.082	0.112	0.084
Rural	0.103	0.096	0.108	0.097	0.097	0.076	0.086	0.080
Urban	0.099	0.087	0.103	0.091	0.111	0.110	0.156	0.099

Source: Same as Table 1

However, the trends and degree of concentration is not uniform across industries. Extending the scale of analysis to two-digit industries gives a better understanding of the degree of concentration and the variation in the direction of change in concentration across the industries (Table 3). The result shows that concentration (as measured by Herfindahl index) is high for accounting and computing machinery; radio, TV and communication equipments; petroleum and nuclear fuel; and wearing apparel industries. Out of the 22 two-digit industries concentration has declined in as many as 16 industries after reforms. Considering location Gini concentration has declined in 9 and 7 industries in terms of employment and GVA respectively. Barely any significant increase in concentration is observed in any industry groups except motor vehicle and other transport industries based on Herfindahl index, though based on location Gini significant increase in concentration is observed in industries like non-metallic mineral products, printing and recorded media, electrical machinery and apparatus, and textiles industries after reforms.

Looking at the states where the industries are mostly concentrated a more or less similar picture is discernable as we have observed in the preceding section. While a combination of Maharashtra, Gujarat, Tamil Nadu, West Bengal, Delhi and Uttar Pradesh appeared more frequently in the list of four leading states in many of the industry groups, other states like Andhra Pradesh, Karnataka, Kerala, Bihar, Rajasthan, Haryana, Punjab and Madhya Pradesh appeared a couple of times in the list of four leading states in few industries (Table 4). Some remarkable changes in the pattern of concentration can be observed between 1994-95 and 2005-06. For instance, concentration leather industry has shifted from Uttar

Table 3: Spatial Concentration of Unorganised Industries by the 2- digit industries- 1994-95 and 2005-06

NIC	Industry Description	Location Herfindahl Index				Location Gini			
		Employment		GVA		Employment		GVA	
		1994-95	2005-06	1994-95	2005-06	1994-95	2005-06	1994-95	2005-06
15	Food Products and Beverages	0.119	0.092	0.094	0.084	0.422	0.384	0.438	0.377
16	Tobacco Products	0.186	0.141	0.158	0.121	0.387	0.474	0.411	0.477
17	Textiles	0.143	0.128	0.127	0.111	0.470	0.584	0.522	0.588
18	Wearing Apparel; Dressing and Dyeing of Fur	0.199	0.081	0.255	0.080	0.542	0.390	0.553	0.281
19	Leather and Leather products	0.103	0.139	0.125	0.137	0.589	0.518	0.628	0.443
20	Wood and Wood Products	0.088	0.109	0.097	0.076	0.515	0.489	0.536	0.522
21	Paper and Paper Products	0.201	0.246	0.137	0.157	0.362	0.497	0.443	0.415
22	Printing and Recorded Media	0.113	0.097	0.134	0.141	0.472	0.611	0.439	0.616
23	Coke, Refined Petroleum and Nuclear Fuel	0.293	0.175	0.227	0.125	0.233	0.332	0.259	0.316
24	Chemicals and Chemical Products	0.187	0.157	0.118	0.115	0.440	0.473	0.470	0.433
25	Rubber and Plastics Products	0.173	0.110	0.227	0.122	0.698	0.590	0.702	0.502
26	Other Non-Metallic Mineral Products	0.104	0.094	0.124	0.083	0.315	0.480	0.324	0.583
27	Basic Metals	0.212	0.122	0.219	0.130	0.472	0.483	0.364	0.557
28	Fabricated Metal Products	0.107	0.091	0.128	0.108	0.467	0.420	0.433	0.435
29	Machinery and Equipment, n.e.c.	0.096	0.107	0.122	0.151	0.433	0.508	0.412	0.497
30	Office, Accounting and Computing Machinery	0.832	0.706	0.864	0.767	0.087	0.130	0.085	0.111
31	Electrical Machinery and Apparatus, n.e.c.	0.131	0.118	0.232	0.095	0.373	0.481	0.337	0.564
32	Radio, TV and Communication	0.616	0.175	0.589	0.188	0.269	0.212	0.279	0.466
33	Medical, and Optical Instruments, and Watches	0.172	0.152	0.219	0.127	0.265	0.239	0.286	0.298
34	Motor Vehicles, Trailers and Semi-Trailers	0.136	0.282	0.167	0.218	0.238	0.334	0.230	0.317
35	Other Transport Equipment	0.151	0.287	0.221	0.266	0.444	0.539	0.430	0.492
36	Furniture; Manufacturing n.e.c.	0.122	0.101	0.160	0.153	0.466	0.385	0.440	0.455

Source: Same as Table 1

Table 4: Location Concentration Ratio of Unorganised Industries by two digit industries

NIC		Concentration Ratio				Four Leading States	
		Employment		GVA		(in terms of Gross Value Added)	
		1994-95	2005-06	1994-95	2005-06	1994-95	2005-06
15	Food Products and Beverages	59.04	49.75	51.97	47.68	UP, WB, MAH, BIH	KAR, UP, WB, AP
16	Tobacco Products	76.52	65.29	71.91	60.96	WB, UP, AP, TN	WB, BIH, AP, TN
17	Textiles	63.72	63.85	63.22	60.17	TN, UP, GUJ, MAH	MAH, TN, WB, UP
18	Wearing Apparel; Dressing and Dyeing of Fur	80.07	45.86	86.78	43.12	DEL, MAH, WB, TN	MAH, UP, TN, WB
19	Leather and Leather products	56.20	61.32	61.05	65.04	UP, MAH, RAJ, BIH	WB, DEL, MAH, TN
20	Wood and Wood Products	46.36	58.69	51.03	42.66	MP, MAH, UP, WB	UP, TN, BIH, WB
21	Paper and Paper Products	71.80	78.03	65.99	65.36	MAH, WB, DEL, TN	TN, DEL, WB, MAH
22	Printing and Recorded Media	59.30	51.94	64.78	62.01	MAH, UP, TN, WB	MAH, GUJ, TN, UP
23	Coke, Refined Petroleum and Nuclear Fuel	83.69	75.30	86.39	62.01	WB, MAH, TN, KER	GUJ, MAH, TN, HAR
24	Chemicals and Chemical Products	71.39	69.91	57.83	60.71	TN, KAR, PUN, MAH	TN, MAH, GUJ, KAR
25	Rubber and Plastics Products	68.86	56.79	73.25	59.12	MAH, GUJ, WB, DEL	MAH, KER, GUJ, TN
26	Other Non-Metallic Mineral Products	54.39	49.09	53.78	46.08	UP, BIH, RAJ, MAH	UP, RAJ, MP, TN
27	Basic Metals	68.73	63.59	71.01	62.21	GUJ, DEL, UP, WB	DEL, MP, WB, TN
28	Fabricated Metal Products	54.25	50.97	61.58	55.65	MAH, UP, GUJ, TN	UP, MAH, TN, BIH
29	Machinery and Equipment, n.e.c.	51.95	55.79	61.28	67.59	TN, MAH, GUJ, PUN	MAH, GUJ, WB, TN
30	Office, Accounting and Computing Machinery	99.94	97.48	99.99	97.42	MAH, DEL, UP, BIH	KER, HAR, MAH, DEL
31	Electrical Machinery and Apparatus, n.e.c.	62.99	59.40	72.06	51.37	MAH, WB, DEL, TN	MAH, UP, HAR, WB
32	Radio, TV and Communication	91.33	75.10	93.26	79.91	DEL, MAH, GUJ, PUN	DEL, KER, WB, GUJ
33	Medical, and Optical Instruments, and Watches	73.07	66.89	82.97	58.91	DEL, HAR, KAR, MAH	MAH, UP, WB, GUJ
34	Motor Vehicles, Trailers and Semi-Trailers	67.36	73.56	73.82	75.57	DEL, MAH, WB, KAR	MAH, TN, HAR, MP
35	Other Transport Equipment	66.59	78.38	76.02	79.48	DEL, PUN, MAH, TN	UP, PUN, RAJ, DEL
36	Furniture; Manufacturing n.e.c.	59.51	55.00	62.29	63.98	GUJ, MAH, TN, UP	MAH, GUJ, WB, KER
All Industries		50.22	47.31	51.00	47.60	UP, MAH, TN, GUJ	MAH, UP, WB, TN

Note: AP-Andhra Pradesh, BIH-Bihar, DEL-Delhi, GUJ-Gujarat, HAR-Haryana, KAR-Karnataka, KER-Kerala, MAH-Maharashtra, MP-Madhya Pradesh, PUN-Punjab, RAJ-Rajasthan, TN-Tamil Nadu, UP-Uttar Pradesh, WB-West Bengal

Source: Same as Table 1

Pradesh and Maharashtra to West Bengal and Delhi, paper and paper products has shifted from Maharashtra to Tamil Nadu, basic metals has shifted from Gujarat to Delhi, office, accounting and computing machinery has shifted from Maharashtra to Kerala after reforms.

5. Conclusion and Implications

In this paper we have examine the spatial concentration of unorganised manufacturing at the state level before and after economic reforms taking the reforms of 1991 as the point of departure. We have explored a new data set, i.e. national sample survey (NSS) unit level data on unorganised manufacturing for analysing regional pattern of unorganised manufacturing in India. Since no studies, thus far, have explored this data set for regional studies, the analyses presented in this paper are fresh and a new contribution in the area of regional industrial studies in India. Though, the analyses are data exploratory, the findings are important in understanding the location pattern of unorganised manufacturing and its implication for regional development in India.

The findings suggest that the unorganised manufacturing in India has been concentrated in a few advanced states for both before and after reforms. Spatial concentration has declined for overall as well as many of the two-digit industries after reforms. However, the decline is not in the desired direction, as it takes place not because of improvements in the position of the lagging states, rather at the cost of the leading states. Though the share of some of the leading states such as Delhi, Gujarat and Maharashtra have declined after reforms, the benefits are not passing to the lagging states; rather to some moderately advanced states such as Haryana, Punjab, Kerala, Rajasthan, Andhra Pradesh and Madhya Pradesh. Barely any significant improvements have been observed for the backward states, and in fact, the conditions of states like Bihar, Orissa, Uttar Pradesh and the group of north-eastern states have worsened after reforms. It is thus pointed out that though the centrifugal forces have been operating in the unorganised sector of developed states, the centripetal forces in the most of the lagging regions are not strong enough to attract new industries. This is really a disturbing facet of the regional economy of India from the policy point of view, since regional disparity in overall development and in organised manufacturing sector has been found to be widening by many studies in the post-reforms period and the success of policies adopted by the State in the past is very poor in enhancing the economic performance of the lagging states, leaving these states as the poorest of the poorest states with highest incidence of poverty, low literacy rate, high infant mortality rate, low life expectancy, low

human development, low socio-economic infrastructure, low capital formation and any other development indicators.

Development of agro-based industries would probably be a worth considerable strategy for these states, since these states are rich in natural resources and also such industries would stimulate the development of both upstream and downstream industries. At the same time, improving the linkages with organised sector through subcontracting and agriculture sector through diversification of agricultural products and increasing productivity will provide opportunities to the unorganised sector to grow through their complementary relationship. This will also provide readymade market linkages to the unorganised sector's products. Further, emphasis should also be given in developing the socio-economic overheads and investment climates. These states always are always at the disadvantage position in competition with the developed states for new private (including foreign) investments due lack of better infrastructure facilities and investment climate. Therefore, development of socio-economic infrastructure that improves local conditions such as connectivity with leading markets, human capital, electric power, easy finance, etc. and improvement of investment climate by removing restrictions and complex regulations, providing the necessary policy framework and supporting business environment that makes the private investors to attract for new investments are necessary for these states to reap the benefits from the faster national development.

References

- Awasthi DN (1991). *Regional Patterns of Industrial Growth in India*. Concept Publication: New Delhi.
- Bhattacharya BB and Sakthivel S (2004). *Regional Growth and Disparity in India: Comparison of Pre- and Post-Reform Decades*. *Economic and Political Weekly*, 39(10): 1071-77.
- Brulhart M (1998). *Economic Geography, Industry Location and Trade: The Evidence*. *The World Economy*. 21(6): 775-801
- Ceapraz IL (2008). *The Concepts of Specialisation and Spatial Concentration and the Process of Economic Integration: Theoretical Relevance and Statistical Measures*. *The Journal of the Romanian Regional Science Association*, 2(1): 68-93.
- Chakravorty S (2003). *Industrial Location in Post-reform India: Patterns of Inter-regional Divergence and Intra-regional Convergence*. *Journal of Development Studies*, 40(2): 120-52.
- Chakravorty S and Lall SV (2007). *Made in India: The Economic Geography and Political Economy of Industrialization*. Oxford University Press: New Delhi

- Dholakia RH (1994). Spatial Dimension of Acceleration of Economic Growth in India. *Economic and Political Weekly*, 29(35): 2303-09.
- Ellison G and Glaeser EL (1997). Geographic Concentration in U.S. Manufacturing Industries: A Dartboard Approach. *The Journal of Political Economy*, 105(5): 889-927
- Fujita M, Krugman, PR and Venables AJ (1999). *The Spatial Economy: Cities, Regions and International Trade*. MIT Press.
- Fujita M and Thisse JF (2002). *Economics of Agglomeration: Cities, Industrial Location, and Regional Growth*. Cambridge, New York.
- Kanbur R and Venables AJ (2005). Spatial Inequality and Development. In Kanbur R and Venables AJ (ed.) *Spatial Inequality and Development*, Oxford University Press.
- Kar S and Sakhivel S (2007). Reforms and Regional Inequality in India. *Economic and Political Weekly*, 42(47): 69-77.
- Kim S (2008). *Spatial Inequality and Economic Development: Theories, Facts, and Policies*. Commission on Growth and Development Working Paper No. 16, Washington DC.
- Lall S V and Chakravorty S (2005). Industrial Location and Spatial Inequality: Theory and Evidence from India. *Review of Development Economics*, 9(1): 47-68.
- Saikia, Dilip (2011). *Location of Industries under Globalisation in India: Evidence from Unorganised Manufacturing Industries*. VDM: Germany
- Sekhar AU (1983). *Industrial Location Policy: The Indian Experience*. World Bank Working Paper No. 620, World Bank, Washington DC.
- NSSO (1998). Report No. 433(51/2.2/1). *Unorganised Manufacturing Sector in India: It's Size, Employment and Some Key Estimates*, National Sample Survey Organisation, Government of India.
- NSSO (2007). Report No. 524(62/2.2/1). *Operational Characteristics of Unorganised Manufacturing Enterprises in India*, National Sample Survey Organisation, Government of India.
- Puga D (1999). The Rise and Fall of Regional Inequalities. *European Economic Review*, 43: 303-34.
- Redding SJ (2009). *The Empirics of New Economic Geography*. CEP Discussion Paper No 925, Centre for Economic Performance, London School of Economics and Political Science.