Industrial Development in India

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Abstract – This paper presents the indices of development for the selected dimensions of industry development in India. It provides details about the construction of composite indices in respective dimensions of industrial development. It explains the construct over five points of time covering the period 1971-2008. In addition dealing with the extent and pattern of inter-State disparities in the levels of development during this period provides a brief introduction to the respective dimension and justifies the selection of variables therein. Further, this study takes account of the trend in development levels, examines possibilities of absolute and conditional convergence and also determines the main sources of development at different points of time. The industrial dimensional indices are then used as input variables to the construct of a composite index of overall development.

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INTRODUCTION

Industrialization accompanied by urbanization and expansion of trade provide increased opportunity to the expansion of choices, interests and technical know-how. The Second Five Year Plan has well documented the importance of industrial progress for economic development. It sought to rebuild rural India, to lay the foundations of industrial progress and to secure to the greatest extent feasible opportunities for weaker and under-privileged sections of our people and the balanced development. The four interrelated principal objectives of the Plan, rapid industrialization, sizable increase in income and levels of living, large expansion of employment opportunities and reduction of inequalities in income and wealth, in totality, articulated the inseparable role of industrialization for overall development of the economy. Concerned efforts by the government, since then, have encouraged diversifying the industrial base.

At the all-India level, the share of industrial sector in total GDP is growing at the CAAGR (compound average annual growth rate) of 9.4 per cent during the period 1951-2008. It has increased from 13.29 per cent in 1950-51 to 16.61 per cent in 1960- 61, 19.91 per cent in 1970-71, 21.59 per cent in 1980-81, 24.49 per cent in 1990-91 and 34.54 per cent in 2000-08. The 2005 estimates accounts for 27.6 revise share of industrial GDP. The industrial sector employs 17 present of the total workforce. At the State level, contribution of industries to NSDP varies from state to state. In 2008, it varies from maximum of 38.82 per cent in Gujarat to the lowest at 9.87 per cent in Orissa.[i] The extent of dispersion measured in terms of coefficient of variation in the industrial contribution to the State's NS1P has declined over the years. It has declined from 41.53 per cent in 1970-71 to 33.32 per cent in 1980-81 and further to 31.34 per cent in 2000-08. Inter-State disparities in the contribution of industries to NSDP declined more sharply during the period 1971-1981.

REVIEW OF LITERATURE:

A large volume of literature on inter-State disparities during the 1970s until mid l980s or even until 1990s is found to be based on income analysis, infrastructure provisions and to examine the role of planning in the reduction of regional imbalances. A large number of studies concluded divergence in the per capita net state domestic product. The two studies during this period provided for income convergence. These studies are those of Dholakia (1994) and Cashin et al. (1996). There were also few studies that examined the roe of planning in the reduction of regional imbalances. The results offered no consensus on the role of planning. Ansari (1983) raised his doubts on the plan efforts for reducing regional imbalances on the basis of high positive correlation between per capita plan expenditure and per capita income. Cashin and Sahay (1996) explained that the grants from the central government to the states ensured narrower dispersion in states real per capita disposable incomes than the dispersion of states real per capita incomes.

METHODOLOGY:

The statistical procedures that are used to (i) measure growth (ii) treat raw data on variables measured in different units (iii) assign weights to the transformed variables for meaningful analysis (iv) construct a composite index with given set of variables (v) measure the extent of disparities across States (vi) test absolute and conditional convergence in development across

States over time and (vii) identification of the main sources of development.

Selection of Variables to Measure Industrial Development of States:

Initia1ly, seven variables that may be considered as important inputs to the industrial activities were selected for tcdhe construct of a composite index for industrial development. These variables included, number of registered factories per 100 square kilometer area, employment in registered factories per lakh working population, emoluments per employee, wages per worker, ratio of fixed to variable capital, per unit invested capital and annual per unit industrial consumption of electricity.

Observations drawn from the discussions with experts at various levels working on different aspects of industrial progress provided the following facts- Emoluments per employee and wages per worker input variables as these were considered best as output indicators of industrial development. The other variables dealt largely with the number of industrial units and workers/employees but does not reveal the nature of industrial activity, the scale of industrial units, associated benefits of work such as health coverage, life insurance, etc. The variables are thus considered incomplete and hence inefficient to comment on industrial development. The variables are also silent on the working/living conditions, health and occupational safety measures of the workers/employees and the location of industrial units, which are considered as crucial inputs to the overall industrial development. These considerations have assumed greater importance in the changing pattern of industrialization over time.

Changing Pattern of Industrialization in India

Industrialization, in terms of participation of workforce in industrial activities, began in the middle of the 9th Century with the building of the railways and the associated coalmines and also with the emergence of textile and jute mills. The pattern of industrialization, in terms of nature, scale and diversification of industrial activities, changed with the changing times thereafter. The process involved problems linked to environment degradation and fatal accidents.[ii]

A shift from the 19th Century industrialization is seen towards plantations of tea, coffee and rubber along with large manufacturing units in steel, general engineering, paper, cigarettes, armaments and foundries as major employers during 1930s. Mining expanded into manganese and mica and a nascent construction sector emerged. The Second World War contributed enormously to the growth of cement, sugar, shipbuilding, dyes and beverage units. The chemical industry made its first appearance and fertilizers, rayon and aluminum were the first large enterprises. Massive expansion of industries took place in the 1970s when plastics, polymers, synthetics, dyes, pharmaceuticals, resins, petro-products, paints and a range of organics and intermediates registered a remarkable rate of growth. From 1990 onwards there was a corresponding jump in the consumer goods industry, information technology and telecommunications.[iii]

Revealing that the occupational health studies initiated in 1970s on tobacco workers, Agnihotram (2005) provided a comprehensive account of the occupational health hazards found by various studies since then. These are mainly reported for industrial workers in the States of Uttar Pradesh, Tamil Nadu and in southeastern coal mines in India. Main findings included, elevated levels of nicotine caused several physical problems amongst workers in tobacco industries, 28 per cent occupational morbidity was recorded amongst the tannery workers in Kanpur industrial slum, 73 per cent workers in the lock factory in Alighar suffered from respiratory tract problems while the chronic bronchitis and emphysema were diagnosed frequently and increasing with duration of work, increase in the deterioration of lung function was observed in Tamil Nadu amongst the workers who were exposed to asbestos dust compared to the general workers in a manufacturing unit, 30 per cent workers in the dusty sections and 17 per cent workers in the non-dusty departments of a textile mill had biopsies.

Today, India is considered as the third largest tobacco producer in the world and the *bidi* manufacturing accounts maximum 87 per cent share in tobacco manufacturing. Though the tobacco industry generates substantial employment and earns good revenue for each State,[iv] and the *bidi* manufacturing, which is a highly labour intensive, employs large numbers of unskilled workers on contract. The conditions of work in the *bidi* industry have raised serious concerns on unethical labour practices which run contrary to the spirit of the Declaration on Fundamental Principles and Rights at Work — a declaration adopted by the International Labour Conference in June 1998.[v]

Moreover, the small scale industrial sector that emerged as a dynamic and vibrant sector, in terms of its spread and employment opportunities, during the 1980s had very high aggregate pollution potential but lacked pollution control mechanisms. Also, in many urban centres, these industrial units are located in densely populated areas, thereby affecting a large number of people.[vi]

RESULTS AND DISCUSSION:

The understanding so developed takes us away from the input approach to measure the levels of industrial development of States. Finally, we resorted to employ an output measure of industrial development, measured in terms of 'net value addition per unit of inputs to industries'.

The industrial development index so developed is presented in Table 1 (a). Here again there is a limitation that this is solely a measure of 'efficiency' and ignores the 'size' element of industrialization in India. A simultaneous account for the size of industrialization is presented through Table 1 (b). It provides 'net value addition by industries' and 'total inputs to industries (in Rs. lakh)' separately for the 17 States at all four points of time during 1971-2008.

In terms of size of industrialization, Maharashtra ranks at the top, while Jammu and Kashmir ranks at the lowest throughout 1971-2008. Maharashtra is followed by the States of Gujarat, Tamil Nadu and Uttar Pradesh, while Himachal Pradesh, Assam and Orissa remained at the lower ranks along with Jammu and Kashmir. On the contrary, the efficiency index (net value addition per unit of industrial inputs) showed that the State of Himachal Pradesh takes the lead, while the States of Maharashtra, Guarat, Tanil Nadu and Uttar Pradesh have taken a back seat along with least efficiency displayed by the State of Jammu and Kashmir.

Table 1 (a) provides the industrial development index ([DI) measured in terms of 'net value addition per unit of industrial inputs' as Index I in column 2 and Index 2 in column 5. Index I is scaled at all-India = 100 and Index 2 is scaled at all- India (1971) = 100. The column 3 of Table 1 (a) provide ranking of States for IDI and column 4 provide the catching-up rates over different periods of time. The two indices of column 2 and column 5 do not alter States ranking in column 3.

At the all-India level, the industrial development index (IDI, net value added per unit of total inputs of 1971 = 100) declined by 39 points during 1971-2008. The reasons for such marked decline are yet to be explored and demand an urgent attention. Distortions are noticed for growth in the industrial development indices of individual States over the years when Index 1 is compared to Index 2. The distortion are noticed for the States of Uttar Pradesh, West Bengal, Haryana, Punjab, Jammu and Kashmir over the period 1971-1981 andhra Pradesh during 1981-1991 and Bihar, Rajasthan, Maharashtra, Uttar Pradesh, Gujarat and Punjab during 1991-2008. Index I and Index 2 values for these States in the mentioned time periods show an opposite direction of change in the levels of industrial development.

Though these distortions neither altered the relative ranking of States nor affected inter-State disparities, but are enough to misinterpret the movements in the industrial development levels of individual State over time. In order to have a comprehensive account of the extent, pattern and variations in the State's movement over time, the following analysis is based on Index 2 of IDI (Table 1(a)).

The States in column 1 are arranged in descending order of IDI for the year 2008. Seven States were found above the all-India level of industrial development and are considered as group I States. These included, Himachal Pradesh, Bihar, Orissa, Karnataka, Madhya Pradesh, Rajasthan and Maharashtra. The remaining ten States below the all-India levels of industrial development are considered as group II States. The relative position of few States noticed extreme changes during the period 1971-2008. Madhya Pradesh moved up by nine positions, while Bihar, Uttar Pradesh and Andhra Pradesh moved up by five places. During the same period, Kerala shifted down by eight places and Haryana fell down by four places.

None of the States showed any improvement during the period 1971-2008. Eight States, four from each of the two groups, registered a continuous decline in IDI since 1971. These are the States of Karnataka, Rajasthan, Maharashtra, Uttar Pradesh, West Bengal, Haryana, Punjab and Jammu and Kashmir. None of the States showed any improvement during this period. Himachal Pradesh, the State with maximum industrial efficiency, registered maximum decline during the period 1971-2008. This large decline is followed by the States of Karnataka, Kerala and Haryana. The States, thus, became more vulnerable to the high negative catch-up rates as well. Madhya Pradesh is the only State that showed considerable improvement during the period 1971-1981 but could not sustain its efforts and registered a decline thereafter. However, it could register a positive (5.70 per cent) catch-up rate over the period 1971-1991.

The significance of change in IDI of States during the period 1971-2008 is analyzed with Slipage test which confirmed significant changes in the levels of industrial development during 1971-2008.

The catching-up rates of each State during the periods 1971-1991, 1991-2008 and 1971-2008 are calculated by taking Himachal Pradesh as industrially most competitive State of 1971, which remains so throughout 197l-2008.[vii]

Since States did not registered any improvements in the levels of industrial development and instead registered decline over the years, the catching-up rates are all negative. The States have further added to their base year development distances with Himachal Pradesh. Maximum increase in the base year development distance is made by Karnataka, 148.92 per cent increase is noticed during the period 1971-2008. Madhya Pradesh recorded a minimum loss in terms of negative catch-up rates.

The gaps in the levels of IDI of States, measured in terms of 'range' has increased during the period 1971-1981 but declined sharply thereafter. A sharp decline is more prominent over the period 1991-2008.

Table 1(a) : Industrial Development Index : Development Levels and Catching-up Rates of States in India, 1971-2008

	Index I: Net Value Added per Unit of Total Inputs (All-India=100)					States Ranks					Catching-up Rate (%)					Index 2: Net Value Added per Unit of Total Inputs All-India (1971))=100				
1	2					3					4					5				
STATES	1971	1981	1991	2001	2008	1971	1981	1991	2001	2008	71-91	91-01	71-01	01-08	71-08	1971	1981	1991	2001	2008
HP	222.30	359.48	222.86	138.15	185.75	1	1	1	1	1	-21.41	-51.75	-62.08	-27.08	-25.73	222.30	288.68	174.70	84.30	187.38
OR	131.91	103.32	137.86	120.60	125.62	3	7	3	3	2	-26.38	-51.75	-64.52	-58.61	-30.04	131.91	82.97	108.06	73.58	126.03
BH	103.56	83.27	107.74	120.86	122.24	7	15	7	2	3	-16.09	-11.87	-25.11	-2.67	-27.46	103.56	66.87	84.46	73.74	124.10
MP	83.55	136.55	116.67	116.24	121.43	14	2	5	5	4	5.70	-24.67	-9.10	-6.49	-11.47	83.55	109.66	91.46	70.92	123.74
KA	161.70	127.06	122.84	120.03	118.71	2	3	4	4	5	-107.93	-29.41	-145.98	-4.23	-148.92	161.70	102.03	96.30	73.24	121.33
RJ	114.75	108.90	95.82	112.69	114.96	4	5	11	6	6	-36.86	-6.38	-42.77	-1.81	-0.32	114.75	87.45	75.11	68.76	115.04
MH	110.84	106.69	102.71	110.62	111.38	5	6	9	7	7	-27.21	-13.82	-38.89	-1.35	-40.79	110.84	85.67	80.51	67.50	111.50
INDIA	100.00	100.00	100.00	100.00	100.00	-	-	-	-		-	-	-	-	-	100.00	80.31	78.39	61.02	101.81
UP	88.12	101.21	90.79	97.68	99.99	13	8	13	8	8	-12.64	-11.17	-21.26	-4.54	-23.24	88.12	81.28	71.17	59.60	100.13
KE	107.09	93.93	105.55	82.22	99.46	6	9	8	14	9	-21.14	-35.43	-49.41	-32.79	-16.83	107.09	75.43	82.74	50.16	98.75
AS	96.26	90.91	146.44	93.76	95.41	9	13	2	9	10	14.70	-96.12	-30.99	-1.49	-0.48	96.26	73.00	114.79	57.21	95.34
AP	74.59	92.92	94.47	92.05	93.44	16	12	12	11	11	-0.37	-17.77	-12.47	-1.61	-14.77	74.59	74.62	74.05	56.17	92.21
WB	101.12	121.30	102.52	92.63	90.57	8	4	10	10	12	-17.13	-25.28	-36.81	-20.03	-40.83	101.12	97.41	80.36	56.52	89.53
TN	94.73	93.07	112.66	84.51	85.59	10	11	6	12	13	-5.03	-42.54	-33.84	-1.26	-32.19	94.73	74.74	88.31	51.56	84.59
GJ	91.37	77.67	81.85	83.68	80.79	12	16	16	13	14	-20.78	-11.86	-30.79	-5.38	-26.22	91.37	62.37	64.16	51.06	79.66
PB	63.14	75.63	73.69	75.32	77.52	17	17.	17	16	15	-3.37	-10.10	-10.80	-1.84	-11.49	63.14	60.74	57.77	45.96	76.36
HR	92.78	93.62	82.99	77.28	75.93	11	10	15	15	16	-21.41	-16.33	-35.23	-2.23	-38.95	92.78	75.18	65.06	47.15	74.09
JK	77.58	85.69	84.66	72.73	70.36	15	14	14	17	17	-7.75	-20.30	-22.94	-7.26	-24.93	77.58	68.81	66.37	44.38	69.38
RANGE	159.16	283.84	149.16	65.42	115.39	-	-	-	-	-	-	-	-	-	-	159.16	227.94	116.93	39.92	118.00

Note: 1. States are arranged in descending order of IDI values in 2008.

2. The two indices, Index I and Index 2, do not alter the relative ranking of the States.

3. Since the Catching-up rates for States are calculated from their respective development distances from Himachal Pradesh the Catching-up rate of Himachal Pradesh itself is the percentage growth on its own base in the respective time periods.

Table 1(B): (b) Net Value Added by Industries and Total Inputs to Industries (Rs. Lakh), 1971-2008

	Net Value Added (NVA) by Industries (Rs. Lakh)					States Ranks for NVA					Total Inputs (Rs. Lakh)					States Ranks for Total Inputs				
1	2					3					4					5				
STATES	1971	1981	1991	2001	2008	1971	1981	1991	2001	2008	1971	1981	1991	2001	2008	1971	1981	1991	2001	2008
MH	84347	298599	1200354	3126098	10941343	1	1	1	1	1	241994	1108365	4741286	14728482	51549687	1	1	1	1	1
GJ	28775	113871	446824	1685587	5899554	4	4	4	2	2	100150	580584	2214575	10498521	36744823	4	2	2	2	2
TN	30934	122940	579285	1350145	4725507	3	3	2	3	3	103842	523094	2086017	8326775	29143712	3	3	3	3	3
UP	20822	743930	462484	1053838	3688433	5	5	3	4	5	75139	293171	2066631	5622845	19679957	5	5	4	4	5
AP	12486	58369	298141	887867	3107534	8	8	7	5	4	53232	248757	1280369	5026983	17594440	7	6	5	5	4
MP	11171	60211	300689	870113	3045395	9	7	6	6	6	42521	174614	1045555	3901408	13654928	8	10	7	7	6
KA	18108	60302	276914	830163	2905570	6	6	8	7	7	35613	187943	914483	3604689	12616411	10	9	10	10	7
WB	42940	137494	319842	569916	1994706	2	2	5	8	8	135039	448875	1265652	3206795	11223782	2	4	6	6	8
HR	6957	34571	163618	557054	1449689	12	12	11	9	9	23845	146227	799780	3756934	13149269	12	12	11	11	9
RJ	6613	33405	155559	525802	1840307	13	13	12	10	10	18327	121475	658616	2431963	8511870	13	13	12	12	10
BH	17400	50123	259830	477373	1670805	7	9	9	11	12	53434	238375	978373	2058684	7205394	6	7	9	9	12
PB	7104	38607	185728	430080	1505208	11	11	10	12	11	35780	202141	1022416	2976022	10416077	9	8	8	8	11
KE	9032	39063	122207	355381	1243833	10	10	13	13	13	26821	164691	469693	2252893	7885125	11	11	13	13	13
OR	5948	19815	115271	235168	823088	14	14	14	14	14	14340	75946	339219	1016324	3557134	15	14	14	14	14
HP	1282	6200	37754	130789	457761	16	16	16	15	15	1834	6830	68726	493413	1726945	16	17	16	16	15
AS	4375	11580	73363	128390	449365	15	15	15	16	16	14453	50443	203240	713676	2497866	14	15	15	15	16
JK	262	1791	7626	15948	55818	17	17	17	17	17	1074	8277	36542	114288	400008	17	16	17	17	17
RANGE	314925	1192877	5151459	14362140	50267490						1001496	4723833	20898600	74855152	261993032					

Note: States are arranged in ascending order of Net value added of 2008, which is same for total inputs also.

The extent and pattern of inter-State disparities in the levels of industrial development are also measured in terms of coefficient of variation, standard deviation of logarithmic IDI values and Gini coefficients. The results are given in Table 2. The inter-State disparities in the levels of industrial development, measured in terms of coefficient of variation increased from 35.10 per cent in 1971 to 56.84 per cent in 1981, but declined below the initial levels in the subsequent (1981-2001) period, to reach at 19.19 per cent in 2001 and 09.53 per cent in 2008. Thus, over the period 1971-2008, the inter-State disparities in the levels of industrial development of States (IDI) seems to have declined, but on the lower scales of industrial development. The declining standard deviation of logarithm index values (SD in IDI) since 1981 confirmed a-convergence for the period 1981-2008.

Table 2: Extent and Pattern of Disparities in the Levels of Industrial Development across States : Different Measures (1971-2008)

Measures	1971	1981	1991	2001	2008
All States (N=17)					
Mean	106.79	114.78	110.71	99.47	104.07
SD In IDI	0.2961	0.3546	0.2644	0.1954	0.2401
CV	0.3510	0.5684	0.3151	0.1963	0.0953
GINI	0.1640	0.1969	0.1469	0.1077	0.1760
States Above All-India Level (N=7)					
Average	131.66	145.56	127.78	119.88	125.03
SD in IDI	0.2738	0.4186	0.2387	0.0724	0.1175
CV	0.3166	0.5999	0.2861	0.0751	0.1162
GINI	0.1703	0.2551	0.1470	0.0352	0.1505
States Below All-India Level (N=10)					
Average	84.68	87.41	86.32	85.19	85.45
SD In IDI	0.1389	0.0842	0.0924	0.1011	0.1808
CV	0.1304	0.0818	0.0909	0.1004	0.2064
GINI	0.0785	0.0675	0.1066	0.0541	0.0875

The gap in IDI across the two groups of States remained large throughout 1971-2008 though it declined from 46.98 points in197I to 34.69 points in 2001 and 59.80 points in 2008.[viii] The extent of inter-State disparities in industrial development is more within group I States as compared to group II States, which remained so until 2008. In 2008, inter-State disparities in IDI are more for group II States as compared to group I States. The trend in inter-State disparities for group I followed the same trend as is noticed for the 17 States. A sharp decline in CV, from 31.66 per cent in 1971 to 7.51 per cent in 2001 and 11.6 percent in 2008, managed to cover the gap between the two groups but on the lower scales of industrial development. However, group II States exhibit an opposite trend. Inter-State disparities in group II States declined initially during the period 1971-1981 and increased in the subsequent period 1981-2008, but remained below the initial 1971 levels. Inter-State disparities seem to have declined in both the groups, though this decline is sharper in group I States.

ABSOLUTE CONVERGENCE ANALYSIS:

The continuous drop in SD of in IDI values during the period 1981-2008 confirmed α-convergence in group I. Though the increase in SD In IDI values in group II is small, it restricted sigma convergence in group II.

The regression framework is used to test the possibility of absolute β—convergence in IDI across States under consideration 33. The change in the natural logarithm values of industrial development indices (IDI all-India 1971=100) is regressed on the base year 1971 logarithms. Table 3 presents the results. The negative and statistically significant estimate of 'β' (β= –0.585) confirmed β- convergence in IDI over the period 1971-2008.

Table 3 : Regression Results for Absolute and Conditional β-Convergence in Industrial Development Index, (1971-2008)

Independent Variable (N=17)	Dependent Variable (In IDI_{2008} – in IDI_{1971})			
	Constant	Coefficient	t-statistic	p-values
In IDI_{1971}	1.604	*-0.585	-2.796	0.014

With this understanding, we proceed to enlist initial conditions that may be conducive for the long term growth of industries. Assuming that industrial activities required technical know-how and technically qualified/trained population, we expect positive association of industrial development index with technically qualified population in the workforce. Though we found a positive correlation between the two, surprisingly, the positive correlation is very low and insignificant at all points of competitiveness and its capability to draw foreign direct investments. No doubt, government has played an important role to develop physical infrastructure, but additional efforts are always required to upgrade the existing infrastructure to add more to meet the changing and growing needs of the ever increasing population. Regular monitoring of the infrastructure provisions and infrastructural needs may thus serve an important input mechanism for sustainable overall development.

CONCLUSION:

1. The gap between the industrially most developed and the least developed States was found at 159.16 points in 1971 that has declined by 75 per cent during the period 1971-2008. Even then, the State in the former category was found to be almost twice the latter in 2001. The decline in the gap was not a smooth affair. It registered an upward movement between 1971-1981, only to be followed by a persistent downwards journey during the subsequent period.

2. Maximum decline in the Industrial Development Index (IDI) during the period 1971-2008 is seen for the State with high industrial efficiency and these States included of Himachal Pradesh and Karanataka. Even then, the States of Himachal Pradesh and Kamataka have been among the five most industrialized States along with Madhya Pradesh, Orissa and Bihar in 2008. While the States of Punjab, Haryana and Gujarat have been the States with weak industrial efficiency.

3. The inter-State disparities in industrial development levels of States, measured in terms of CV, declined sharply from 35.10 per cent in 1971 to 19.63 per cent in 2008. This decline

however, includes initial increase in inter-State disparities during the period 1971-1981. The standard deviation of natural logarithm index values of industrial development followed the same trend. Thus, absolute σ-convergence has been evident only for the period 1981- 2008.

REFERENCES:

As identified by CPCB (Central Pollution Control Board) there are seventeen categories of industries (large and medium scale) as significantly polluting and the list includes highly air polluting industries such as integrated iron and steel, thermal power plants, copper/zinc/ aluminum smelters, cement, oil refineries, petrochemicals, pesticides and fertilizer units. The rapid strides of industrialization that records India as one of the ten most industrialized nations of the World, brought with it unwanted and unanticipated consequences, such as un-planned urbanization, pollution and the risk of accidents. UNEP's India: State of Environment 2001.

Each State in the country has around 200 *bidi* manufacturers, making the business very fragmented. Historically, Madhya Pradesh was a large producer of *bidis,* supplying the whole country, with the advantage of proximity to raw material, Milenkovic 2004.

ILO Working Paper, 2003. pp. 99

Refer Appendix A4, Table A 4.2.1: Extent and Trend of Industrial Share in NSDP (Percentages), NSDP Industries/NSDP Total, 1961-2001.

The gap in the IDI levels across the two groups of States is the difference between the average levels of IDI at each point of time. It is 131.66—84.68 = 46.98 points in 1971 and 119.88— 85.19 = 34.69 points in 2001.

The Second Five Year Plan, Introduction, Para 10. 2003-04 estimates.

Total and Industrial NSDP values are at 93-94 prices.

UNEP's India: State of Environment 2001.

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