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Structure of Employment in Indian Industry: Some findings from Census Data

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The broadening and deepening of industrial activity and in particular the growing importance of modern intermediate and capital goods industries -- many of these established for the first time since Independence -- has been widely recognised as indicators of the major structural changes which have occurred in Indian Industry during the last 3-4 decades. Important as this is, it gives us but a partial picture of structural change limited to the organised sector of industry. To get a more complete picture we need also to look at the changing relative importance of factories and of other forms of organisation (non-household and household enterprises) in particular branches of industry and in the industrial sector as a whole. This is what the present note sets out to do. While the available data are far from adequate, they do show that significant change has taken place in terms of a relative reduction in the size of the traditional, household forms of production; a marked expansion in the non-household form of enterprise; and a tendency for greater concentration of manufacturing activity as a whole in urban areas.

Data Sources and Limitations

Our major sources of data are the 1961 Census Economic Tables and the 1981 Census' Key Population Statistics based on 5 per cent Sample Data;

the Labour Bureau's Statistics of Factories (SOF) brought out annually which gives employment in factories registered under the 1948 Factories Act covering units employing 10 or more persons with power and 20 or more persons without power and those specially notified by the State government; and the Annual Survey of Industries (ASI) data on the large factories (that is those employing more than 50 workers with power and 100 workers or more without power).

The problem of inter-censal comparability on account of the change in definition of worker is well known. This is particularly serious for the 1971 census data; even after efforts at adjustment, the Census estimate of workforce in 1971 are underestimates and cannot be used to infer about changes in size and composition of employment between 1961 and 1971. The 1981 census concepts are by and large comparable with the 1961 census. The subsequent discussion relates to changes between 1961 and 1981.

The 1961 and 1981 census give the total number of persons employed in manufacturing (that is Divisions 2 and 3 of the Industrial Classification) by sex and rural/urban breakup, classified into household and non-household industry. It may be noted that the 1981 Census adopts the concept of 'main' and 'marginal' workers, the latter being those who have worked any time in the year preceding the enumeration but not for the major part of the year. While the proportion of marginal workers to total workers is relatively low for males (less than 2 per cent) for females it is as high as 29.0 per cent, the overall average being 9.0 per cent. An exclusion

of these workers would certainly affect comparability with the 1961 census. Fortunately, we have for all-India, the percentage distribution of marginal workers -- male and female -- by industrial division (and within manufacturing by Household Industry and other than Household Industry). This information is used to estimate marginal workers in both household and non-household industry which are then added to the main workers. This procedure however is possible as of now only for the country as a whole*; similar adjustment for rural/urban areas and for individual states can be made once the relevant census tables are available. Nor is it possible to analyse the composition of manufacturing employment in terms of household, large factories and the middle sectors at the disaggregated industry level.

This again has to await the publication of detailed tables. For the present our analysis is for the manufacturing sector as a whole. It may also be noted that since the 1971 census did not cover Assam the study of changes for all-India relate to all states excluding Assam.

The non-household sector comprises two categories "registered factories" and "others". Data on factory employment are available from the Statistics of Factories (SOF) and the Annual Survey Industry (ASI). In terms of concepts, ASI data are better in that they include all categories of employees and are closer to the number on roll than the average daily employment figure (given by SOF). A major limitation of both sources is the serious under-reporting (largely due to under reporting and undercoverage) of small factories: Though all establishments employing 10 or more with power and 20 or more without power are supposed to be registered under the Factories

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*However, with some adjustment we have given state wise data also at the aggregate level.

Act, a large and apparently growing proportion of units mostly concentrated in the smaller sizes, escape registration. The estimates of employment based on SOP therefore understate the growth of the factory sector and, in particular, of small factories relative to non-factory non-household industry.

In view of the above we have divided manufacturing into three broad sectors: household, large factories and the rest. The last category comprising of the factories which fall out of the scope of the census sector of ASI and the non-factory segment of the non-household sector is estimated as the difference between total non-household employment as reported in the census and the number of employees in the large factories as estimated from the ASI. Since marginal worker distribution is not available separately for rural and urban areas even for all India, an analysis of rural-urban distribution of different categories of manufacturing is limited to males.

Distribution of Employment in Manufacturing

Table 1 gives the distribution of the workforce in manufacturing as between household, non-household including the factory sector for 1961 and 1981 (excluding Assam).

Total employment in manufacturing has risen from 17.5 million (9.6 per cent of total workforce) in 1961 to 26.6 million (10.9 per cent of the workforce) in 1981. Over the same period, employment in household industry declined somewhat in absolute terms from 9.7 million to 8.6 million. In relative terms the decline is quite sharp: in 1961 household industry accounted for 55 per cent of total employment in manufacturing; in 1981 its share had gone

Table 1: Distribution of Workers (Actual and Percentage) in Manufacturing by Household, Non Household and Factory Establishments - 1961 & 1981

	Actual Employment ('000)		Absolute Increase	As percentage Manufacturing workforce		As percentage of Total Non-Agricultural Employment		As percentage of All Workers	
	1961	1981	1961-81	1961	1981	1961	1981	1961	1981
Manufacturing of which	17,527	26,592	+ 9,069 (51.8)	100.0	100.0	31.3	33.1	9.6	10.9
. Household Industries	9,651	8,573	- 1,078 (-12.6)	55.1	32.2	17.3	10.7	5.3	3.5
. Non-Household Industries of which	7,872	18,019	+10,147 (128.9)	44.9	67.8	14.1	22.5	4.3	7.4
i. Factory Sector (SDF)*	3,497	6,895	+ 3,398	20.0	25.9	6.3	8.6	1.9	2.8
ii. Large Scale Factory Units (ASI)*	(3,050)	(6,065)	+ 3,015 (98 8)	17.4	22.8				
iii. Non Factory@	4,375	11,124	+ 6,749 (154.3)	25.0	41.8	7.8	13.9	2.4	4.5

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Sources: 1. Census of India, 1961 Part II - B (i) General Economics Tables
2. Census of India, 1981, Paper 2 of 1983, Key Population Statistics based on 5 percent Sample data
3. Statistics of Factories, Labour Bureau, 1961 and Porbet Book of Labour Statistics, Labour Bureau, 1983.
4. Annual Survey of Industries, Census Sector, 1979-80.

Notes: 1. Both 1961 and 1981 exclude Assam
2. Figures in brackets indicate percentage change between 1961-81.
* Refers to 1979-80.
@ Obtained by deducting the SDF data on factory employment from the Census estimate of non-household industry workers.

down to 32 per cent. In the non-household segment of industry, employment in establishments not registered under the factories Act rose faster than that in registered factories. Within the factory sector, reported employment in small factories (50 workers with power and 100 workers without power) rose roughly at the same rate as in large factories, though among the latter, the very large ones(that is, those employing 5000 + workers) seem to have expanded faster than average (See Table 2). However considering

Table 2: Size Distribution of Employment in Factories

(in percent)

Employment Range (Nos)	1961	Average of 1976-77 to 1978-79
0 - 49	15.2	15.0
50 - 99	8.2	8.4
100 - 499	20.9	21.0
500 - 999	11.1	10.4
1000 - 4999	32.9	29.0
5000 and above	11.6	15.1
Total	100.0	100.0

Source: Statistics of Factories, 1961 and ASI, Summary Results for the Factory Sector 1976-77, 1977-78 and 1978-79.

that there is a sizeable and growing under registration of small factories, it seems likely that employment in this category representing the better organised and equipped segment of non-household industry) has grown faster than the large-factory sector. These data suggest that employment in the

"middle" sector that is, between the household and large factory sector (comprising non-household industry outside the factory sector and the small factories) has increased much faster than employment in the large scale factories. Employment in household industry has in fact declined in both absolute and relative terms. The shift toward the "middle" sector in terms of employment is quite striking: In 1961, workers in non-household industry other than large factories amount to 5 million, or 27 per cent of total non-factory employment the corresponding figures for 1981 being 12 million and 45 per cent respectively.

There is also a marked change in the distribution of manufacturing employment between rural and urban areas and in the relative importance of different forms of manufacturing within each (See Table 3). For reasons mentioned, the relevant comparison has to be limited to male workers, but since they comprise the bulk of the workforce in manufacturing, the overall picture may not be drastically different: Total employment in manufacturing rose much faster in urban areas than in rural areas. As a result, the share of the latter in total industrial employment fell from 51 per cent in 1961 to 43 per cent in 1981. Much of this reflects the decline of rural household industry employment which fell by some 15 per cent between 1961 and 1981. Interestingly, over the same period, employment in household industry rose 40 per cent in urban India, and in 1981 accounted for 30 per cent of total employment in household industry for the country as a whole compared to 20 per cent two decades earlier. In the case of non-household industry both rural and urban areas have registered growth, the growth in the former seems to be much greater than in the latter.

Table 3: Distribution of Male Workers in Manufacturing by Rural/Urban Breakup and Type of Establishment

	1961			1981			Percentage Increase 1961-81		
	R	U	T	R	U	T	R	U	T
1. Manufacturing of which	6,680 (51.2)	6,369 (48.8)	13,049 (100.0)	9,161 (42.6)	12,321 (57.4)	21,481 (100.0)	37.1	93.5	64.6
a. Household Industry	4,639 (79.1)	1,229 (20.9)	5,864 (100.0)	3,932 (69.6)	1,716 (30.4)	5,647 (100.0)	-15.2	40.1	-3.7
b. Non-household Industry	2,041 (28.4)	5,144 (71.6)	7,184 (100.0)	5,229 (33.0)	10,605 (67.0)	15,834 (100.0)	156.2	106.2	120.4

Source: Same as Table 1

Note : Figures in brackets refer to rural/urban break up of the workforce in percent.

These trends are to be found in most parts of the country. The data presented in Table 4 shows that between 1961 and 1981 total manufacturing employment has risen in all states, while employment in household industry has recorded an absolute decline in 10 out of 13 states and declined in relative terms in all of them. The "middle sector" employment has in general (9 out of 13 states) risen faster than in large scale factories and so has its share in total manufacturing employment.

Table 4: State-wise Distribution of Manufacturing Employment 1961 and 1981 (in 000)

	1961					1981				
	Total Mfg workforce	HH Industry	Large Factories	"Middle" Sector	Total Non-HH	Total Mfg workforce	HH Industry	Large Factories	"Middle Sector"	Total Non-HH Industry
AP	1904	1428 (75.0)	142	334 (17.5)	476 (25.0)	2454	1153 (47.0)	467 19	834 (34.0)	1301 (53.0)
Bihar	1327	901 (67.9)	176	250 (16.8)	426 (32.1)	1375	537 (39.1)	310 22.5	528 (38.4)	838 (60.9)
Gujarat	848	312 (36.8)	308	228 (26.9)	536 (63.2)	1774	306 (17.2)	526 29.7	942 (53.1)	1468 (82.8)
Punjab and Haryana	759	405 (53.3)	76	278 (36.6)	354 (46.7)	1212	255 (21.0)	314 25.9	643 (53.1)	957 (79.0)
Karnataka	949	528 (55.6)	116	305 (32.1)	421 (44.4)	1758	636 (36.2)	287 16.3	835 (47.5)	1122 (63.8)
Kerala	1011	482 (47.7)	140	389 (38.5)	529 (52.3)	1192	288 (24.2)	226 18.9	678 (56.9)	904 (75.8)
M.P	1128	791 (70.0)	102	235 (20.8)	337 (30.0)	1702	788 (46.3)	255 15	659 (38.7)	914 (53.7)
Maharashtra	2047	743 (36.3)	650	654 (31.9)	1304 (63.7)	3428	669 (19.5)	1076 31.4	1683 (49.1)	2759 (80.5)
Orisa	546	457 (84.2)	24	62 (11.4)	86 (15.8)	699	352 (50.4)	100 14.3	247 (35.3)	347 (49.6)
Rajasthan	510	338 (66.3)	44	128 (25.1)	172 (33.7)	1044	394 (37.7)	150 14.4	500 (47.9)	650 (62.3)
Tamil Nadu	1990	1141 (57.3)	227	622 (31.3)	849 (42.7)	3018	961 (31.8)	578 19.2	1479 (49.0)	2057 (68.2)
U.P	2259	1458 (64.5)	252	549 (24.3)	801 (55.5)	3044	1272 (41.8)	608 20	1164 (38.2)	1772 (58.2)
West Bengal	1762	442 (25.1)	679	641 (36.4)	1320 (74.9)	2635	587 (22.3)	866 33	1182 (44.8)	2048 (77.7)

Source: Same as Table 1

Note: 1. "Middle Sector" has already been defined.

2. Figures in brackets refer to percentage break up of total manufacturing workforce into household, Non-household

3. As mentioned in the text, marginal workers by industry group for 1981 is not available at the state level. Since this affects comparison of the female work force in particular, we have made the following adjustment: For each state, the estimate of female workers (main) in household industry and non-household industry separately has been multiplied by the ratio of $\frac{T\ Main_F + T\ Mar_F}{T\ Main}$ in each state T is total; where F is femal-

It needs to be noted however that these tendencies are not uniformly strong across the states: At least 3 states (Karnataka, Rajasthan and West Bengal) report a significant rise in household industry employment; and there are wide variations in the rate of its decline among the remaining states. The growth of employment in the middle sector again varies: it is about 75% in Kerala and more than 300% in Gujarat and Orissa. The tendency for the relative expansion of the middle sector is stronger in some states (notably Andhra and Orissa) than in others (it being quite weak in West Bengal).

Before discussing the possible factors contributing to these changes, we may briefly note their implication for the estimate of income generation in manufacturing. The official estimates of value added in the large scale factories is based on data collected a census basis on by the Annual Survey of industries, and may be considered the most reliable. There is ofcourse the question whether the data are accurate, but in so far as the degree of under reporting bias has not changed systematically over time, it probably gives a fairly correct picture of growth in this sector). The growth of output in the small factories, estimated on the basis of employment as reported by the Inspector of Factories, is almost certainly an under-estimate. The CSO estimates of income from the non-factory sector is known to be weak. But the CSO does give estimates of value added per worker in the base year for different segments of this sector namely, urban non HH, rural non HH, urban HH and rural HH. Even if the value added per worker in each segment has not changed, the change in the distribution of workers among them would affect the weighted average

value added. A rough calculation based on the census work force data for 1961 and 1981 suggests that with no change in productivity in individual segments, value added at constant prices should have at least doubled in the last 2 decades. The growth is probably considerably faster in so far as there is technical change (one index of which would be the extent of use of power) and the productivity levels in the unregistered sector or at least some segment of it must be rising. We would have a better basis to judge this once the tabulations of the establishments census become available.

Contributory Factors

The above analysis of the census data on the distribution of manufacturing employment by different types of establishment focuses on a structural change of wider scope and dimensions than is captured by much of the available writing on changes in India's industrial structure which are confined to the organised, large scale segment of industry. The census data clearly indicate a marked shift from household industry towards non-household forms of manufacture; and towards better organised technically advanced forms as well as the swelling of the middle rungs of manufacture between household enterprises and large factories. How much of it reflects the shift in the composition of manufacturing production and how much shifts in particular lines of industry cannot be established with available data. But there is enough material on textile

industry to show that such shifts (and the accompanying changes in skills, materials, products and organisation) have taken place in traditional industries on a massive scale: (See LC Jain 1983).

A great deal of work would be needed before the nature and extent of these changes and their incidence as between regions and industries can be adequately mapped. However, one can point to a number of general factors, including government policy, which could have contributed to the evolution of industrial structure in this fashion: To begin with, the expansion of the transport network facilitates the integration of rural markets and, in so far as this reduces transport cost and there are economies of scale and specialisation, it induces a shift of traditional industry to urban areas. This tendency would be reinforced in a situation where the introduction of substitutes for products of traditional industry and of new products puts traditional industry under pressure, forcing it to raise efficiency by better organisation, better equipment etc. The substitution of metal and plastic for earthenware, rubber and plastic for leather in footwear, and synthetics in place of cotton are examples of this process.

Government policy has sought to protect and encourage small industry on grounds of promoting employment. Large industry is taxed at a higher rate and in several cases expansion of capacity in this sector is prohibited while small units are taxed, if at all, at a lower rate, and/or given a variety of encouragements (including subsidies, preference in government purchases, reservation of spheres of production, exemption from licensing, priority in allocation of scarce materials, and technical and financial

assistance on liberal terms). This has unquestionably been a powerful stimulus to the expansion of the small scale sector relative to large factory production over a wide range of industries. However within the small sector the policy has evidently worked more in favour of better organised units using relatively modern techniques rather than those using traditional highly labour intensive methods. To this extent the intention of the policy -- which was explicitly to protect and encourage the traditional sector -- has not been realised.

There are essentially two reasons for this: In the first place, state policy did not adequately recognise the technological and organisational differentiation within the small scale sector or by the time it did (as in the case of weaving and printing of cloth, matches, soap etc.), vested interests had developed sufficient strength to restrict the state's freedom to take corrective action. Moreover as the experience with differential excises has shown it is extra-ordinarily difficult to administer a system of discrimination between different tiers of small industry. The difficulties are the greater-and this brings us to the second reason -- when the technological superiority of the relatively mechanised techniques (like power looms, power operated rice and flour milling machines, and oil mills) combined with the large wage difference between organised and unorganised sector makes the non-household small scale units decisively more profitable from the view point of private enterpreneur: That in many cases (including textiles) the modern, mechanised techniques require not only less labour per unit of output but also less capital has been widely noted long back (See e.g. P.N. Dhar).

The superiority of these techniques may also be due in significant measure, to the fact that they cut down waste in use of materials and produce a better product. These technical advantages are of course available to large factories, both small and large factory type establishment, and the latter may in some cases also have economies of scale. But the larger factories have the disadvantage of higher wages, higher taxes and production quotas. Private investors have the option of expanding production in the small scale sector using similar techniques and take advantage of lower wage rates, lower costs of observing regulations under various enactments as well as lower taxation. This can be done either directly by establishing small scale plants or though subcontracting to producers in the small sector. Both seem to have happened during the last two decades and probably account for the bulging of the non-household urban small scale units relative to both factories and traditional household enterprises.

The absolute decline of household industry and the relatively large growth of non-household forms in rural areas is probably a reflection of the decline of traditional industry under the combined impact of (a) the progressive integration of rural areas into a wider market; (b) the displacement of traditional products of village industry (utensils, cloth) by modern substitutes made in urban areas; and (c) the displacement of traditional techniques by mechanised techniques (mostly in processing of agricultural produce). At the same time new industries have also come up (sugar and other agro based manufactures, workshops and perhaps even plants using mostly non-agricultural materials). What the relative

importance of these factors has been, and how they have been modified by the pace of increase in rural incomes, are questions which call for much closer study.

References

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