Trends and Structure of Employment and Productivity in Unorganized Manufacturing Sector of India in Post-reform Period

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Rapid economic development always requires industrialisation and the labour-intensive industrialization is seen as the only sustainable means to absorb large numbers of unskilled workers from agriculture. In India, the manufacturing segment seems to represent only about 13 per cent of total employment but within this sector, we can find considerable variations across different sub-sectors and segments. We can also observe a complete disconnect in the organised and the unorganised segment of the manufacturing sector of India. While the organised segment contributes about 71 per cent of the total manufacturing output, the unorganised segment provides 66 per cent of total manufacturing employment in the country in 2011-12 (calculated from National Accounts Statistics and NSSO, 2014). This points towards low productivity of the segment which provides employment to a big majority of workers. Thus, although the informal sector provides employment to million of the workers, yet it has not been able to keep pace with the productivity levels of the formal sector (Kathuria et al., 2010). Given the persistence of the unorganised segment of Indian manufacturing and the importance of manufacturing sector itself in long-term growth of the economy, it is important to examine the strengths and weaknesses of the unorgansied manufacturing sector of the country. This also points towards the need for the analysis at the sub-sector level as a few sub-sectors have experienced an improvement in productivity growth while the others have shown a decline in the same. In this perspective, present paper has been divided in to VI sub-sections. Apart from this introductory sections, Section II gives the data and methods used in this paper; Section III gives an overview of employment and productivity of manufacturing sector of India, in general; Section IV examines the changes in structure of employment within the unorganised manufacturing sector of India; Section V discuses the performance of traditional and modern manufacturing units in terms of generation of employment as well as productivity while the Section VI gives a brief summary of the findings and an attempt has also been made to give a few policy suggestions.

II. Data and Methods: For an overview of share of manufacturing sector of India in total output and employment, the data on National Accounts Statistics has been taken from CSO while employment figures have been extracted from the NSSO surveys on 'Employment and Unemployment Situation in India". Further, the data for the unorganised manufacturing sector of India has been taken from the compiled reports of NSSO on Unorganised Manufacturing Enterprises and Unincorporated Non-agricultural Enterprises in India. NSSO provides extensive data on three types of enterprises – own account manufacturing enterprises (OAMEs), non-directory manufacturing enterprises (NDMEs) and directory manufacturing enterprises (DMEs) in both the rural and urban areas. OAMEs are the enterprises which employ no hired worker on a fairly regular basis, NDMEs are the enterprises with at least one hired worker and less than six total workers, while DMEs hire at least one worker and six or more total workers (NSSO, 2002).This study has used the data for 51st, 56th, 62nd and 67th Rounds of NSSO. In the 67th Round, we get the combined figures for NDMEs and the DMEs which together are termed as 'Establishments'. For analysis, the sub sectors in unorganised manufacturing sector are sub-divided into traditional and modern ones. The traditional or organic industries (which use organic raw materials) include the manufacturing of food products, wood products

and leather goods. The modern or inorganic industries (which are largely metal based and use inorganic raw materials) include the manufacturing of rubber, plastic, chemicals, basic metals, metallic and non-metallic goods, all types of machinery, transport equipments etc. For analysis, simple growth rates, percentage shares and certain ratios have been calculated and regression analysis has also been used to know about the determinants of productivity and their relative efficiency. For examining the changes in productivity in different sub-sectors of the broader category of the unorganised manufacturing sector, the Relative Efficiency of labour as well as capital has been calculated and further by using the method proposed by Ahmed (1981), the Labour Efficiency Index has also been calculated.

III. Employment and Productivity in Indian Manufacturing Sector: An Overview

In this section, we can have an overview of the performance of the manufacturing sector of India in terms of employment and productivity. In Table 1, we can see the trends in structure of employment in the country during the last decade. The Table shows that the total employment in India has increased by about 75 million between the period 1999-2000 and 2011-12. We can also see the structural changes in the economy as the workers are moving from the agricultural sector to the non-agricultural ones. However, the major gainers are the non-manufacturing sectors and the services while the addition to the manufacturing sector is to the extent of 17 million only which is less than half the gains by the non-manufacturing sector and the services. This table also points towards another interesting fact that the maximum gains in employment has actually been experienced between the period 1999-2000 and 2004-05.

Table 1: Sector-wise Distribution of Work-force in India (in millions) (usual status)

Sectors	1999-2000	2004-05	2009-10	2011-12
Agriculture	246.6 (61.73)	268.6 (58.51)	244.9 (53.22)	231.9 (48.90)
Manufacturing	42.8 (10.71)	53.9 (11.74)	50.7 (11.02)	59.8 (12.61)
Non-manufacturing	20.4 (5.11)	29.4 (6.40)	48.3 (10.50)	55.3 (11.66)
Services	89.8 (22.48)	107.3 (23.37)	116.3 (25.27)	127.3 (26.85)
Total	399.5 (100.0)	459.1 (100.0)	460.2 (100.0)	474.2 (100.0)

Source: Calculations based on unit level records of NSSO (various rounds).
Figures in parentheses show percentage out of total.

The manufacturing sector represented only 12.6 per cent of employment in 2011-12. We can also note that, after manufacturing employment declined from 2004-05 to 2009-10, it rose substantially by 9 million from 2009-10 to 2011-12 which means 4.5 million jobs per year. This positive development in manufacturing employment seems to be silencing the critics who widely discuss about India's failure to industrialise and its service led growth. But before we can pat ourselves we have to delve deep in to few more dimensions of employment in this particular sector. Further, it is generally pointed out that during the last decade or so, the new employment opportunities are mainly informal in character.

Therefore, it is important to analyse the trends in formal and informal employment in the organised as well as the unorganised sector. This can be observed from Table 2.

Table 2: Sector-wise Distribution of Workers in Manufacturing Sector of India by Type and Nature of Employment (in millions and percentage)

	Organised Sector		Unorganised Sector		Total		Nature of Employment		
	Formal	Informal	Formal	Informal	Formal	Informal	Self-Employed	Regular Workers	Casual Labour
2004-05	5.0 (32.9)	10.3 (67.09)	0.6 (1.43)	38.0 (98.6)	5.6 (10.4)	48.3 (89.6)	28.6 (53.16)	15.9 (29.55)	9.3 (17.29)
2009-10	5.3 (32.5)	11.1 (67.6)	0.4 (1.2)	33.9 (98.8)	5.7 (11.3)	45.0 (88.7)	24.6 (48.43)	16.4 (32.28)	9.8 (19.29)
2011-12	6.1 (29.7)	14.6 (70.3)	0.4 (0.9)	38.7 (99.1)	6.5 (10.9)	53.3 (89.1)	29.3 (49.08)	20.5 (34.34)	9.9 (16.58)

Source: Calculations based on unit level records of NSSO (various rounds).
Figures in parentheses show percentage out of total.

Table 2 shows changes in structure of employment in the manufacturing sector. Between the period 2004-05 to 2011-12, the change in employment in the manufacturing sector is that of 5.9 million out of which only 0.9 million were created by the formal sector and 5 million jobs took place in the informal sector. During the period 2004-05 to 2009-10, when the manufacturing employment declined by about 3 million, all the contraction has actually taken place in the informal segment (and also the unorganised sector) while the formal segment showed an increase of 0.1 million jobs due to which the share of the informal sector in total manufacturing employment declined from 89.6 per cent to 88.7 per cent. However, by the year 2011-12 when the manufacturing sector added 9.1 million jobs out of which merely 0.8 million were formal and 8.3 million were informal, the share of the informal sector increased to 89.1 per cent. These changes further justify the changes in nature of employment. An increase in organised sector employment from 15.3 million in 2004-05 to 20.7 million in 2011-12 i.e. an increase of 5.4 million as compared to merely 0.5 million in the unorganised sector seem to be justifying the increase in share of regular workers and a fall in other categories but since the unorganised sector still dominates, a big proportion of those employed in this particular sector are self-employed (49.08 per cent) and casual workers (16.58). This points towards the dominance of the small enterprises where the workers are mainly engaged in low productive home-based enterprises. Before, we go into the details of the unorganised manufacturing sector itself, it is important to look at the changes in labour productivity in the organised as well as the unorganised segment over a period of time. This can be observed from Table 3. One quick observation is that the per worker productivity in the unorganised sector has always been much lower than that of the organised sector. However, the gap is narrowing down over the period as we can see that the labour productivity in the unorganised sector as percentage of the same in the organised sector has increased from about 23 per cent in 1999-2000 to 33 per cent in 2011-12. While, in all the sectors, the productivity ratio of the unorganised to the organised sector has been improving over the study period but in the manufacturing sector, it has declined. We can see that during the period 1999-2000, the labour productivity in the unorganised manufacturing was about 32 per cent of that of their organised counterparts which declined to merely 22 per cent by the year 2011-12 as the former has grown at a slower rate than the latter. In absolute terms, the average productivity is the lowest in agriculture and the highest in the services and the same is

true for the organised as well as unorganised sector. But within the manufacturing sector, the unorganised segment has shown the lowest average productivity as compared to the unorganised segments of the non-manufacturing as well as service sector of the economy.

Table 3: Per Worker Output in Organised and Unorganised Sector (in Rs. at 2004-05 prices)

	1999-2000	2004-05	2009-10	2011-12
Agriculture	23023.94	21058.70	27254.78	32783.33
Organised	25670.92	76716.28	28801.21	23901.38
Unorganised	22947.17	20145.21	27165.97	33539.77
	(89.39)	(26.26)	(94.32)	(140.32)
Manufacturing	73227.91	84086.27	137913.80	135511.48
Organised	140221.78	191074.51	294467.26	276403.14
Unorganised	44779.35	41679.02	63060.24	60921.77
	(31.93)	(21.81)	(21.42)	(22.04)
Non-Manufacturing	11078.10	128080.95	128906.99	124578.45
Organised	208931.81	241402.17	201316.39	173876.16
Unorganised	61650.91	76469.31	84737.25	91414.55
	(29.51)	(31.68)	(42.09)	(52.58)
Services	122851.39	146901.68	214108.59	230787.73
Organised	213883.41	255038.64	337218.42	351788.78
Unorganised	83236.09	105762.64	158470.94	174737.82
	(38.92)	(41.47)	(46.99)	(49.67)
All	56615.58	64723.68	98128.87	110636.72
Organised	170164.83	223330.93	244697.32	232318.77
Unorganised	38680.47	41698.13	65306.90	77465.55
	(22.73)	(18.67)	(26.69)	(33.35)

Figures in bracket show the productivity in unorganised sector as percentage of the same in the organised sector.

Source: NSSO (various rounds on Employment and Unemployment Situation in India) and National Accounts Statistics from CSO.

Thus, we can say that although, the unorganised segment of the manufacturing sector is creating more of the employment opportunities but its performance in terms of productivity is dismal. This raises doubts upon the reliance of future growth strategy upon the manufacturing sector. However, there are huge intra-sectoral differences within the unorganised segment of the manufacturing sector of India. This points towards the need to understand the internal dynamics of this segment. Hence, in the next two sections an attempt has been made to examine the structure of employment as well as productivity in the unorganised manufacturing sector of India.

IV. Structure of Employment in the Unorganised Manufacturing Sector of India: This section examines the change in structure of enterprises as well as employment in the unorganised manufacturing sector of India. In Table 4, we can see the change in number of enterprises as well as the number of workers employed.

Table: 4 Absolute Increase and Decrease in Persons Employed and Enterprises in Unorganised Manufacturing Sector of India.

Change in Number of Enterprises				
	OAMEs	NDMEs	DMEs	All
Rural				
1994-95 to 2000-01	1523313	-38424	-47384	1437505
2000-01 to 2005-06	50472	115788	27423	193683
2005-06 to 2011-12	-1970492	-42692		-2013184
Urban				
1994-95 to 2000-01	892344	150211	39938	1082493
2000-01 to 2005-06	-102986	-57176	13196	-146966
2005-06 to 2011-12	1787575	365058		2152634
Total				
1994-95 to 2000-01	2415658	111787	-7446	2519999
2000-01 to 2005-06	-52514	58612	40619	46716
2005-06 to 2011-12	-18297	322366		139450
Change in Persons Employed (usual principal status)				
Rural				
1994-95 to 2000-01	1302522	104045	453240	1859707
2000-01 to 2005-06	-1125892	451077	147300	-527414
2005-06 to 2011-12	-4808744	-139190		-4947934
Urban				
1994-95 to 2000-01	1096820	571732	349796	2018448
2000-01 to 2005-06	-248114	-233266	370893	-110586
2005-06 to 2011-12	1965602	1427968		3393570
Total				
1994-95 to 2000-01	2399242	675777	803036	3878155
2000-01 to 2005-06	-1373906	217812	518194	-638001
2005-06 to 2011-12	-2843142	1288778		-1554364

Source: calculated from NSSO (51st, 56th, 62nd and 67th Rounds).

The unorganised manufacturing sector of India consists of a vast number of micro enterprises (about 17.21 million in 2011-12). Most of these enterprises are located in rural areas and their contribution to additional work force is immense. This can be observed from table 4 that the absolute number of enterprises increased in both the rural and urban areas during 1994-95 to 2000-01. However, after 2000-01, though the number of enterprises in rural areas showed a positive change as compared to a negative one in urban areas, yet in case of employment, the decline in rural areas is much more than in the enterprises in urban location. But by type of enterprises we can observe that the number of enterprises in the categories of NDMEs and DMEs has increased after 2000-01 as compared to the decline in the preceding period. The period between 2005-06 and 2011-12 shows many contrasts as compared to the previous time periods. During this period, the rural locations witnessed a sharp decline in number of enterprises as well as employment while we can see positive changes in the both in urban ones. The decline in number of enterprises as well as employment has been mainly due to decline in rural OAMEs while we can see a greater increase in number of enterprises as well as workers in urban OAMEs as compared to the establishments. This shows the trends of urbanisation in the unorganised segment of the manufacturing sector on the one hand and within rural enterprises a shift from own account enterprises to the bigger sized establishments (NDMEs and DMEs) on the other. But still the share of rural and small sized own account enterprises in total number of enterprises as well as employment is very high. In Table 5, we can see that the share of rural enterprises in total unorganised manufacturing enterprises is still around 59 per cent and in total employment in the same is about 53 per cent. These shares are higher for the rural OAMEs as compared to the establishments. This points towards the bias of OAMEs towards rural areas while that of the relatively bigger sized units i.e. establishments towards the urban areas. But the share of rural enterprises in gross value added does not commensurate with their shares in enterprises as well as employment. Although the share of rural OAMEs in GVA for all OAMEs was more than 65 per cent during 2000-01 and 2005-06 and 52 per cent in 2011-12 but it is much lower than their share in enterprises and employment which was around 76 per cent during 2000-01 and 2005-06 and 63 per cent in 2011-12. Same can also be stated about the rural establishments. This fact points towards the low level of productivity of rural enterprises as compared to the urban ones. So, we can see that over a period of time, these enterprises in rural areas are loosing the ground on basis of their contribution in employment as well as output. The argument generally given behind this fact is that the rural areas are dominated by the own account and traditional enterprises, which work with low capital intensity, traditional techniques etc. This hypothesis can be further tested if we analyse the performance of the unorganised manufcaturing units on basis of their categorization as traditional and modern manufacturing sectors.

Table: 5 Share of Rural Enterprises in Total Enterprises, Employment and Gross Value Added in Unorganised Manufacturing Sector of India

Period	OAMEs	NDMEs	DMEs	All
Share in Enterprises				
1994-95	77.84	41.75	44.96	72.37

2000-01	75.40	36.78	38.15	70.10
2005-06	76.02	42.10	39.89	71.05
2011-12	63.33	35.14		58.77
Share in Employment				
1994-95	78.74	37.43	43.37	66.64
2000-01	76.40	34.75	45.0	64.69
2005-06	76.08	41.25	43.76	64.37
2011-12	63.39	37.72		53.06
Share in Gross Value Added				
1994-95	61.30	25.51	26.23	41.03
2000-01	66.08	24.52	31.31	44.31
2005-06	67.09	30.37	33.30	43.42
2011-12	51.74	27.82		36.57

Source: calculated from NSSO (51st, 56th, 62nd and 67th Rounds).

V. Performance of the Traditional and Modern Manufacturing Units under Unorganised Manufacturing Sector of India: While we examine the change in structure of the unorganised manufacturing sector of India, apart from looking at its distribution in rural and urban areas and by type of enterprises, it is also interesting to observe the changes in the contribution of the traditional and modern manufacturing sectors in total employment and output. Table 6 shows the changes in employment in the sub-sectors of the unorganised manufacturing sector by their location, by enterprise type and by type of activity/production sector. We can see that the three time periods show different pictures. During the period 1994-95 to 2000-01, employment increased in both the traditional and modern sub-sectors of the unorganised manufacturing sector and during the period 2000-01 to 2005-06, it declined in both categories but during the latest phase i.e. from 2005-06 to 2011-12, the employment increased in the modern sector but declined in the traditional sector. Actually, the overall decline in number of persons employed in the unorganised manufacturing sector of India during this phase has been due to decline in rural, own account and traditional units while the urban, modern and relatively bigger sized units i.e. the establishments created new employment opportunities during this period. This may have also been due to the fact that the smaller sized rural units would have either moved to the urban locations or have upgraded themselves to the establishments and some of them may also have ceased to exist.

Table: 6 Absolute Job Gains/Losses in Traditional and Modern Sectors of Unorganised Manufacturing Sector India (in 00s)

	OAMEs		NDMEs		DMEs		All Enterprises	
	Traditional	Modern	Traditional	Modern	Traditional	Modern	Traditional	Modern
	Rural							
1994-95 to 2000-01	30496	930	905	1247	(-)1848	6510	29556	8686

2000-01 to 2005-06	(-)7543	(-)11258.92	2327	4510.77	3185	1473	(-)2030	(-)5274.15
2005-06 to 2011-12	-43115	-4969	Traditional: - 8326 Modern: 6966				-51441	1997
	Urban							
1994-95 to 2000-01	16323	4884	4454	8116	2671	3167	23447	16166
2000-01 to 2005-06	196.44	-2481.14	-409.91	-2332.7	564.77	3708.93	352.3	-1107.87
2005-06 to 2011-12	14295	5398	Traditional: 7785 Modern: 6570				22079	11964
	All India							
1994-95 to 2000-01	46820	1222	5358	10285	828	9650	53006	21154
2000-01 to 2005-06	-7347.3	-13739.1	1919.11	2178.11	3750.38	5181.93	-1677.81	-6380.02
2005-06 to 2011-12	-28820	425	Traditional: -542 Modern: 13536				-29362	13961

Source: calculated from NSSO (51st, 56th, 62nd and 67th Rounds).

Further, in terms of output also, we can observe the changes in performance of the traditional and modern sectors of production. Since, over the period of time the number of enterprises in each activity type has changed, therefore, the changes in productivity are computed in terms of per unit (i.e. per enterprise). Table 7 shows the GVA per enterprise in traditional and modern sectors of the unorganised manufacturing sector in rural as well as urban areas. We can observe that the productivity of the traditional enterprises is lower than the modern ones (except in case of rural OAMEs); it is lower for all type of rural enterprises than those in urban locations and it is lowest for the own account enterprises than the establishments i.e. the NDMEs and the DMEs. It can also be observed that the productivity in each type of enterprise and activity has been increasing since 1994-95 but obviously the same has increased in modern enterprises at a greater rate than the traditional ones. As a result, the proportion of the productivity in traditional enterprises to that of the modern enterprises, (which can be seen as a simple measure of relative productivity) has declined. This decline is sharper for the rural enterprises than the urban ones. During 1994-95, the gross value added per enterprise in traditional enterprises was about 55 per cent of the same in the modern enterprises but this ratio fell to merely 38 per cent by the year 2011-12. The relative productivity of the traditional enterprises in rural areas has declined from about 78 per cent to only 38 per cent as compared to 67 per cent to 34 per cent in urban areas. Interestingly, the relative productivity of traditional OAMEs in rural areas is higher than their urban counterparts. Moreover, during the year 2011-12, the relative productivity has increased as compared to the year 2005-06 but this increase is due

to the improvement in urban enterprises - both own account enterprises as well as establishments.

Table 7: Per Enterprise Gross Value Added in Unorganised Manufacturing Sector of India (at 2004-05 prices)

	Rural				Urban				Rural +Urban			
	OAME	NDME	DME	all	OAME	NDME	DME	all	OAME	NDME	DME	all
	1994-95											
Traditional	13042.24 (1.15)	42098.33 (0.77)	106080.13 (0.41)	17751.30 (0.78)	25905.70 (0.75)	100271.13 (0.96)	290935.82 (0.77)	66829.71 (0.67)	15177.29 (0.86)	67935.82 (0.74)	190361.25 (0.57)	27826.77 (0.55)
Modern	11324.40	54606.97	256485.73	22737.31	34616.25	104445.65	376678.44	100128.83	17638.25	91930.64	337169.87	50386.36
	2000-01											
Traditional	17132.06 (0.79)	61662.00 (0.68)	192497.99 (0.44)	21816.41 (0.45)	24996.02 (0.68)	110708.28 (0.80)	359801.35 (0.82)	60211.09 (0.53)	18877.33 (0.70)	88789.60 (0.70)	292037.20 (0.67)	31729.26 (0.41)
Modern	21718.79	91051.19	436555.71	48492.88	36774.28	138290.12	440096.20	113881.86	27040.90	127031.81	439000.01	77934.79
	2005-06											
Traditional	15399.92 (0.68)	73296.46 (0.69)	345884.44 (0.53)	24105.76 (0.38)	22190.41 (0.60)	119628.84 (0.73)	409372.96 (0.48)	61894.93 (0.34)	16897.61 (0.62)	97524.14 (0.67)	380475.36 (0.51)	33701.82 (0.30)
Modern	22576.21	107040.50	647167.42	63611.13	36714.05	163667.79	850523.71	180750.06	27321.84	144908.34	754004.68	114184.40
	2011-12											
Traditional	21351.58 (0.68)	143121.64 (0.48)		30390.92 (0.36)	32641.24 (0.65)	245544.43 (0.76)		74439.08 (0.47)	25290.87 (0.63)	206179.45 (0.65)		47030.49 (0.38)
Modern	31319.93	296778.39		83408.33	50645.29	324482.21		158771.56	40170.25	315979.84		123260.78

Source: calculated from NSSO (51st, 56th, 62nd and 67th Rounds).
Figures in bracket show the ratio of productivity of traditional sector to that of the modern sector.

Lower productivity in traditional enterprises, especially those located in rural areas can be due to low-skilled labour as well as low capital intensity of the traditional enterprises. These differences can be traced by finding the relative labour as well as capital productivity. This can be indicated as the ratio of gross value added per unit of capital as well as per unit of labour in traditional sector to that of the modern sector. The labour productivity in the traditional sector had little difference from the modern sectors in 1994-95 while the relative capital productivity was very low but over the period, the labour productivity in the traditional sector vis-a-vis the modern sector deteriorated while we can see the signs of improvement in case of capital productivity. The declining values of relative labour productivity show that, the increase in output has been slower than not only the increase in employment within the traditional sector itself but also per worker output in the modern sector while the increasing values of relative capital productivity may indicate that the fixed investment in the traditional sector has grown at a slower rate than the output and/or it may also mean that the output per unit of capital has increased at a higher rate than that of its modern counterparts. Interestingly, during the year 2011-12, the traditional sector in general has shown improvement in relative labour as well as capital productivity while in case of OAMEs, the relative capital productivity has declined in rural as well as urban areas.

Table 8: Relative Labour and Capital Productivity (represented as ratio of traditional sector to modern sector)

Year	Relative Labour Productivity				Relative Capital Productivity			
	OAME	NDME	DME	all	OAME	NDME	DME	all
	Rural							
1994-95	1.03	0.99	0.92	0.99	0.07	0.07	0.14	0.09
2000-01	0.86	0.72	0.68	0.63	0.91	0.78	0.79	0.87
2005-06	0.75	0.67	0.76	0.53	0.77	0.77	0.83	0.75
2011-12	0.75	0.88		0.62	0.76	0.73		0.77
	Urban							
1994-95	0.93	0.97	0.93	0.92	0.23	0.26	0.47	0.33
2000-01	0.73	0.84	0.81	0.69	1.00	1.26	1.12	1.14
2005-06	0.63	0.72	0.51	0.47	1.11	1.04	0.69	0.83
2011-12	0.65	0.80		0.66	0.96	0.94		0.90
	All India							
1994-95	0.99	0.96	0.91	0.93	0.13	0.19	0.36	0.22
2000-01	0.75	0.74	0.79	0.58	0.99	1.18	1.01	1.08
2005-06	0.67	0.67	0.60	0.43	0.98	0.97	0.78	0.84
2011-12	0.69	0.84		0.60	0.92	0.88		0.86

Source: calculated from NSSO (51^{st}, 56^{th}, 62^{nd} and 67^{th} Rounds).

Thus, we can see that the labour in traditional enterprises is much less productive than that employed in the modern sectors and moreover as the fixed investment in these enterprises is also not keeping pace with the increase in output, it seems more of the workers are being employed with relatively smaller units of additional investment. This has resulted in decline in relative capital labour ratio (the capital labour ratio can be seen in appendix Table A1) and declining labour efficiency index. The labour efficiency index is actually measured as the difference between the actual growth of labour productivity $(Q/L)^a$ and the standard or the desired growth of labour productivity $(Q/L)^d$ (Ahmed, 1981). If the actual growth is higher the labour efficiency index is positive and has a negative value if the former is lower than the latter. As already discussed that labour productivity is measured as the GVA per worker and so the actual growth of labour productivity is indicated by the growth in observed values of the GVA per worker. On the other hand, the desired growth of labour productivity, in general accounting practice is measured as a combination of growth of two important determinants which are - growth of capital labour ratio (K/L) and growth of GVA per unit of capital (Q/L). Hence, the desired growth of labour productivity $(Q/L)^d$ can be expressed as:

$$(Q/L)^d = \text{growth of } (K/L) + \text{growth of } (Q/K)$$

The labour efficiency index (LEI) can be calculated as:

$$LEI = (Q/L)^a - (Q/L)^d$$

If the value of LEI is close to zero then it means that the labour is as efficient as it should be, given the technical coefficient of the production units; a value greater than zero shows that the labour is more productive than the expected rate while a value less than zero shows inefficiency in the use of labour inputs given the capital-labour ratio and the capital productivity in the production unit.

Following the above mentioned formula, it has been observed that the desired as well as the actual growth of labour productivity has been increasing in the traditional sectors while a decline in the same can be noticed in the modern sector (see figures in the

Appendix) but the gap between the two has been narrowing down in the modern sectors but increasing in the traditional sectors. Table 9 throws light on the index of labour efficiency in traditional and modern unorganised manufacturing sector of India.

Table 9: The Index of Labour Efficiency in Unorganised Manufacturing Sector of India

	Rural				Urban				Rural +Urban			
	OAME	NDME	DME	all	OAME	NDME	DME	all	OAME	NDME	DME	all
	1994-95 to 2001-02											
Traditional	0.01	-0.03	0.04	0.06	-0.03	0.03	-0.21	-0.02	-0.01	0.03	-0.12	0.01
Modern	-22.54	-16.64	-10.78	-18.62	-8.47	-7.66	-4.23	-6.31	-16.23	-10.06	-5.02	-10.69
	2000-01 to 2005-06											
Traditional	-0.04	-0.07	0.34	-0.04	-0.04	-0.04	0.01	-0.02	-0.05	-0.04	0.06	-0.03
Modern	0.21	0.80	1.19	0.87	0.75	0.33	0.17	0.60	0.56	0.20	0.75	0.72
	2005-06 to 2011-12											
Traditional	-0.44	-0.76		-0.58	-0.59	-0.28		-0.42	-0.71	-0.45		-0.61
Modern	-0.38	-0.33		-0.48	-0.22	-0.29		-0.30	-0.49	-0.26		-0.38

Source: calculated from NSSO (51st, 56th, 62nd and 67th Rounds).

The Table shows that the during the period 1994-95 to 2000-01, labour productivity in the traditional sector was growing at a little higher rate than the desired one while the performance of the modern sector was far from being efficient. But during the period 2000-01 to 2005-06, though the labour productivity in the traditional sector grew at a little lower rate than the desired one, the labour in the modern sector improved its efficiency considerably and it grew at a rate higher than the desired one resulting in to a positive value of labour efficiency index. Further, during the period 2005-06 to 2011-12, we can see inefficiency in every type of enterprise in modern as well as traditional manufacturing but it is severer in traditional sector than the modern ones. Within the traditional sector, the inefficiency is the highest for the establishments and the lowest for OAMEs while in the modern sector, it is highest for the OAMEs and lowest for the establishments. Thus, we can say that apart from the type of activity, the size of the enterprise as well as the technical coefficient have an important impact on the labour productivity. This can be observed from a broader picture of the relative efficiency of the small sized enterprises in the unorganised manufacturing sector taken as a whole. Following Sarkar and Mishra (2000) and Bhalla (2003), the trend in the efficiency of OAMEs and NDMEs relative to that of the DMEs can be established, using the regression model set out below:

$$\log (Q/L) = \log A + b.\log K/L + \sum_{i=1}^{n} \beta_i . SZ_i$$

Where Q is value added, L is employment and K is fixed capital. SZi are size dummies, where OAMEs are defined as the smallest size group, NDMEs the next largest, and DMEs the largest. The dummy for the DMEs is excluded from the set of explanatory variables. The exponential of the coefficients of the size dummies becomes the relative efficiency level of the specified size group with respect to the omitted size dummy. b and β are the coefficients of respective variables.

The results of the determinants of labour productivity and the relative efficiency

levels of the OAMEs and NDMEs with respect to DMEs are given in the Table 10. The table shows that the capital intensity of an enterprise, shown by the capital-labour ratio always had a significant positive impact on the labour productivity and this impact seems to be strengthening over the period of time. It can also be observed that the smaller enterprises (vis-à-vis DMEs) reduce the labour productivity and this negative coefficient is higher for the smallest size group i.e. OAMEs as compared to the NDMEs. The Table also shows that the relative efficiency of the OAMEs was 73.2 per cent that of the DMEs in 1994-95, it improved to 76.1 per cent by the year 2000-01 and then declined to 70.4 per cent in 2005-06 and further down to 63.1 per cent of combined productivity of the establishments in the year 2011-12. In case of NDMEs, the relative efficiency to DMEs has been consistently declining, though it is better than that of the OAMEs. The relative efficiency in NDMEs was 92.5 per cent of the DMEs in 1994-95 which declined to 83 per cent by the year 2005-06. Thus, we have observed that the DMEs are the most productive enterprises in the unorganised manufacturing sector of India and OAMEs are the worst performers in this regard.

Table: 10 The Determinants of Labour Productivity and Relative Efficiency in Unorganised Manufacturing Sector of India

Year	Constant	Capital labour Ratio	Size Dummy for OAMEs	Size Dummy for NDMEs	R^2
1994-95	2.794***	0.326***	-0.312*** (0.732)	-0.0784* (0.925)	0.710
2000-01	2.55***	0.420***	-0.273*** (0.761)	-0.113** (0.893)	0.653
2005-06	2.497***	0.466***	-0.351*** (0.704)	-0.186*** (0.830)	0.776
2011-12	2.501***	0.468***	-0.461*** (0.631)		0.761

*** 1 per cent level of significance
** 5 per cent level of significance
* 10 per cent level of significance
Figures in bracket show the relative efficiency of the OAMEs and NDMEs with respect to DMEs while during the year 2011-12, it shows the relative efficiency of OAMEs with respect to establishments.

VI. Summing Up:

To sum up, we can say that the unorganised manufacturing sector in India is dominated by small scale rural enterprises which belong to the traditional manufacturing sector and their contribution to employment is immense. But the average level of productivity is also very low in these enterprises. Although, we can see an increase in share of urban and bigger sized enterprises but still the overall manufacturing in the unorganised segment is dominated by low productive enterprises. This raises the doubts upon the reliance of the future growth strategy on rural manufacturing. But the internal dynamics of the unorganised manufacturing sector show that the modern segment of the unorganised manufacturing sector is showing the signs of improvement in terms of employment as well as productivity. Though, the inefficiency of labour is all pervasive in the unorganised manufacturing sector of India but the labour in traditional sector has greater inefficiency

than its modern counterparts and within the modern sector, the OAMEs are more inefficient while in the traditional sector, the OAMEs are least inefficient. Further, we find that the capital labour ratio positively influences the labour productivity in every enterprise type. This points towards the need of policy attention towards the provision of credit facilities to each type of enterprise in the unorganised manufacturing sector. Moreover, greater emphasis should be given to the modern enterprises in urban areas and assistance should be provided to them to increase their size of operations as the labour efficiency and overall productivity is higher in bigger sized enterprises than the own account category within the modern sector of urban areas. This will ensure generation of more of decent employment opportunities within the unorganised manufacturing sector of India. Apart from it, the tiny rural traditional units should also be promoted as we have seen that the inefficiency of labour is the least in own account enterprises within the traditional sector. Thus, the policy of rural industrialisation should aim at development of tiny units in the traditional sector and that of establishments in the modern sector. Apart from the provision of adequate amount of capital other steps such as helping them in marketing as well as improvement in rural infrastructure can also be helpful in this regard. The NSSO reports (56^{th}, 62^{nd} and 67^{th} Rounds) clearly show that a big majority of them face the problems like availability of power, raw materials, marketing of products, infrastructure and availability of capital. So, for rural development these problems should be adequately addressed so that decent jobs can be created outside agriculture. This would not only improve the standard of living of the rural workers but also give boost to the rural economy.

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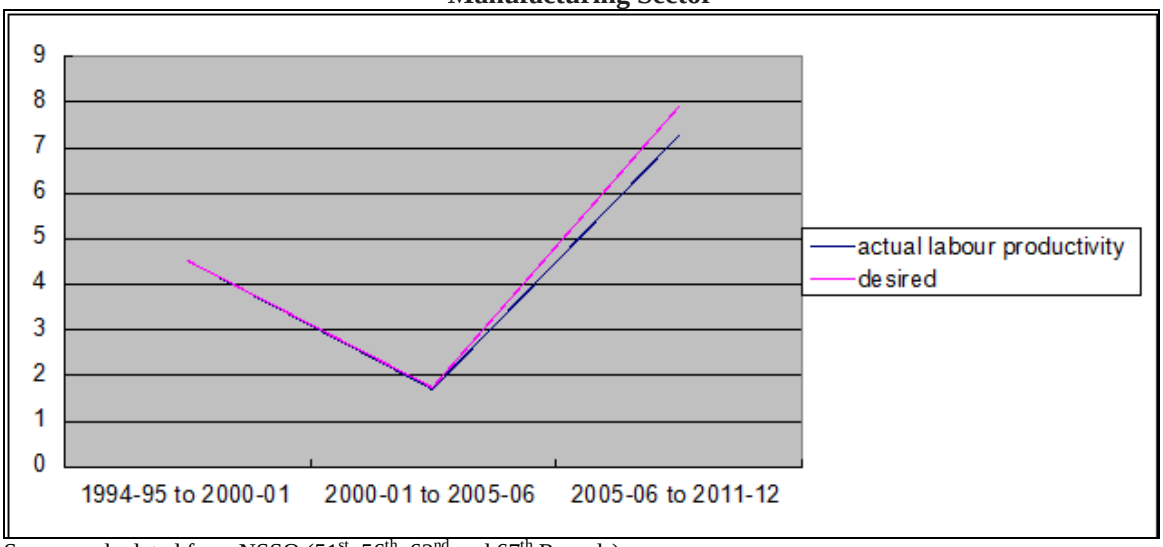
Appendix

Table A1: Capital-labour Ratio in Unorganised Manufacturing Sector of India (at 2004-05 prices)

	Rural				Urban				Rural +Urban			
	OAME	NDME	DME	all	OAME	NDME	DME	all	OAME	NDME	DME	all
	1994-95											
Traditional	7196.86	25665.88	18853.02	9935.25	16204.09	37200.88	34339.23	26776.12	8730.65	31723.46	26745.93	14441.33
Modern	524.35	1827.08	2954.10	949.10	3973.22	9825.73	17412.37	9638.55	1144.17	6343.28	10670.36	3474.46
	2000-01											
Traditional	10498.23	24634.78	23773.79	12562.11	19981.80	40330.68	50718.74	32058.92	12504.93	33630.50	39300.99	18450.02
Modern	11083.84	26691.63	27536.52	17334.64	27167.68	61006.56	70452.75	53018.03	16503.75	53222.86	49841.81	34722.84
	2005-06											
Traditional	11448.48	30004.05	33585.96	15161.70	21278.18	46072.66	53077.08	34699.49	13616.82	38542.75	43998.48	21125.21
Modern	11749.45	34302.93	36318.09	21755.39	37102.15	66352.10	72617.41	60596.61	19985.39	56032.09	57860.43	41033.03
	2011-12											
Traditional	22404.49	58189.91		29208.55	44057.15	79129.56		61484.83	30956.44	71697.80		43272.34
Modern	22423.25	48493.85		36492.42	65015.42	92547.12		83828.16	41536.08	74898.75		62133.02

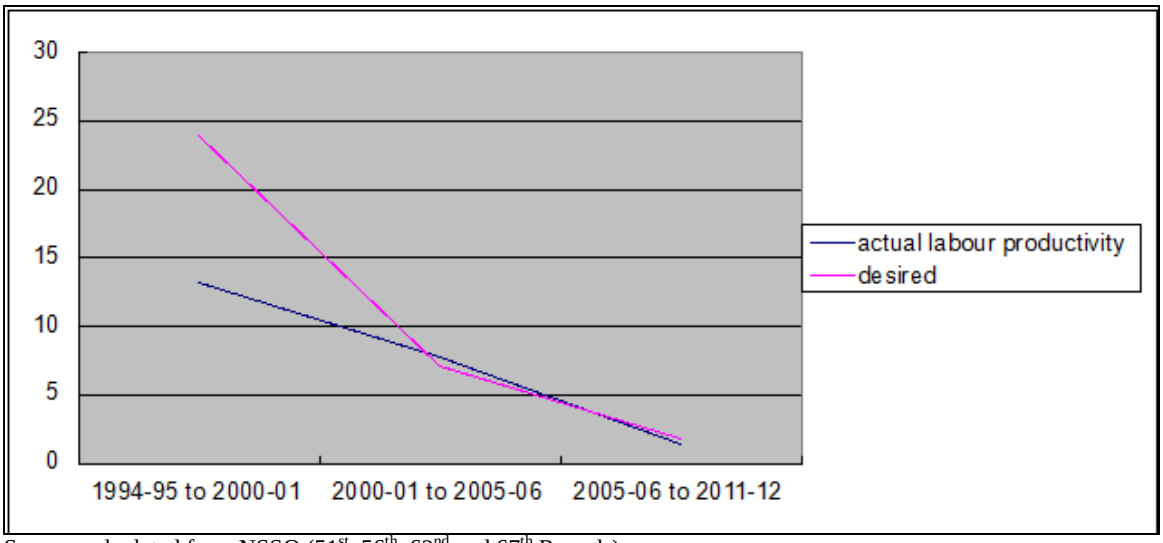
Source: calculated from NSSO (51st, 56th, 62nd and 67th Rounds).

Figure 1A: Actual and Desired Growth of Labour Productivity in the Traditional Unorganised Manufacturing Sector



Source: calculated from NSSO (51st, 56th, 62nd and 67th Rounds).

Figure 2A: Actual and Desired Growth of Labour Productivity in the Modern Unorganised Manufacturing Sector



Source: calculated from NSSO (51st, 56th, 62nd and 67th Rounds).