Incidence of Part Time Workers in the Unorganised Manufacturing Sector in India: 1984-85 to 2015-16

Mousumi Mitra
Assistant Professor, Department of Economics
Seva Bharati Mahavidyalaya, Jhargram,West Bengal
Mail: mousumi.mitra07@gmail.com

Abstract

The Unorganised Manufacturing Sector (UMS) in India consists of a large number of workers who work in different sub-sectors within it either on 'full time' or on 'part time' basis. The main purpose of this paper is to study the incidence of 'part time' workers, separately for male and female workers, across different subsectors of the UMS in India for three sub-periods, viz., 1984-85 to 1994-95, 1994-95 to 2005-06 and 2005-06 to 2015-16. For that purpose the unit-level data of National Sample Survey Organisation of various rounds have been used. Broadly, it is found that the incidence of 'part time' workers is quite high among the female workers engaged in the Own Account Manufacturing Enterprises, the tiniest sub-sector of the UMS over the years. It is also found that the sector, in general, experienced a significant increase in the incidence of 'part time' workers during the sub-period of 1994-95 to 2005-06, which is characterised by intensifying competition along with implementation of various promotional policy measures taken by the Government. Finally, an econometric exercise is conducted by using the unit-level data files of 2015-16 that identified some determinants of the incidence of 'part time' workers in the UMS in India.

JEL Classification: J21, J46, J48, J82

Keywords: unorganised manufacturing sector, India, unit-level data, part time workers, determinants, policy.

1. Introduction

The unorganised manufacturing sector (UMS) in India is considered as one of the largest employment generating segment of the economy. According to the National Sample Survey Organisation (NSSO), the UMS is comprised with three categories of enterprises - the Own Account Manufacturing Enterprises (OAMEs), that run without any hired worker fairly on a regular basis and two categories of Establishments – the Non-Directory Manufacturing Establishments (NDMEs), that employed less than six total workers with at least one hired worker and the Directory Manufacturing Establishments (DMEs) that employed six or more workers with at least one hired worker. In the OAMEs, there are two kinds of non-hired workers, viz., the owner worker, who run the production process besides dealing with the tasks of marketing and other family workers who help the owner worker in the production process. On the other hand, the establishments utilise both hired as well as non-hired workers (owner workers and other family workers). The ratio of hired workers to other family workers in two categories of establishments would primarily depend upon their capital base. Clearly, the enterprises with higher capital base would prefer using skilled hired workers instead of semi-

skilled family workers. Different kinds of workers mentioned above engaged in three different categories of enterprises of the UMS work either on full time or on part time basis. The categorisation of the workers as full time and part time is done on the basis of their working hours. According to the NSSO, full time workers are those who work in an UMS enterprise for more than half of the period of normal working hours of the enterprise fairly on a regular basis while part time workers are those who work in an UMS enterprise for less than or equal to half of the period of normal working hours of the enterprises fairly on a regular basis. In different survey rounds of the NSSO, it was found that the proportion of part time workers to total workers was not negligible. It has some serious implications as higher proportion of part time workers to total workers in an enterprise suggests absence of regularity of work and thereby income insecurity for a considerable number of workforce (NCEUS, 2009). The UMS, comprised with such a varying categories of workers, faced two major policy regimes viz., 'protectionist' and 'liberalised', in last three decades or so. During the protectionist policy regime, till about mid-1980s, the restrictive trade policies of the government protected the UMS from the foreign competition, while reservation policy protected them from their counterpart in the domestic organised sector. On the contrary, during the era of liberalisation, the restrictive trade policies were gradually withdrawn in one hand, while de-reservation policies were implemented, on the other. Thus the UMS had to face strong competition from the domestic as well as foreign industries in the organised sector. Literatures suggest that the changes in the policy environment from 'protectionist' to 'liberalised' had significant impact on the employment size as well as the employment composition of the UMS. The studies analyzing the growth performance of the UMS with respect to employment, number of enterprises and gross value added reported that the sector experienced low/negative growth rates with all three indicators mentioned above till about mid-1990s, although its performance in this regard improved from late 1990s (Kundu et al., 2001; Chadha 2003; Mukherjee, 2004; Rani and Unni, 2004; Chadha and Sahu, 2006; Kathuria, et al., 2010). As we know that at the beginning of 1990's, the UMS faced opening up of the economy in 1991, which forced the tiny units within it to compete with the foreign industries in domestic market. As a consequence, it was observed that a large number of workers in the UMS lost their jobs during 1989-90 to 1994-95 (Unni and Rani, 2003; Mukherjee, 2004; Chadha and Sahu 2006). The level of competition increased further for such enterprises when the Indian Government started to implement de-reservation policies since 1997 following the suggestion of the Expert Committee on the Small Enterprises (Government of India, 1997). In order to cope with the competitive environment the UMS recruited part time workers more proportionately as compared to full time workers in order to attain the flexibility of workforce and thereby to improve their competitiveness during 1994-95 to 2000-01 (Unni and Rani, 2003). However, this indicates that the level of employment of the UMS expanded during this period; although the employment quality got worsened (Chadha and Sahu 2006). Most of the studies discussed the issues of the composition of employment for the UMS up to the period of 2000-01. However, this paper seeks to provide an up-to-date account of the employment compositions in the UMS in India by analysing more recent data. It is important as post –2000 periods is vital for the UMS as the government came up with a number of policy initiatives for this sector, in a regular interval, after recognising the challenges faced by them during the newly competitive business environment. The Comprehensive Policy Package was announced in 2000 for the small scale industries so as to facilitate the provisions of credit, infrastructure, technology, and marketing (Government of India, 2000). It was followed by a number of policy initiatives/modifications of existing policies by the Government from time to time so as to improve the competitiveness of such enterprises as well as the workers engaged in it. In these regards, more focused policy approach was recommended by the National Commission for Enterprises of Unorganised Sector in 2009. The Commission emphasised on the importance of a de-centralised training system to the district and the block

level keeping in mind the demand of the workers who live and work at grass-root level. It also recommended different strategies to increase the availability of credit, which included the revision of Priority Sector Lending Policy in favour of more needy sections and generation of a Fund that especially targeted to provide loans to financially weaker enterprises, defined in terms of investment in plant and machineries of unorganised manufacturing/service sector. The commission also recommended various policies for expanding the marketing facilities for this sector by considering different typologies of the markets in the UMS based on specific marketing parameters such as volume of transactions and value of sales (NCEUS, 2009). Under such circumstances, it can be said that if the UMS units obtained the benefits of such policies taken by the government, their competitiveness will surely improve that help them to increase their production and generate full time employment. In this context, it should be mentioned that there are various factors that might determine the proportion of full time/part time workers in the UMS enterprises. Existing literature found that the proportion of part time workers were more prominent among the women workers especially those from the states with low PCNSDP (Mukherjee, 2005). Insufficient demand/requirement for full-time worker and preference of the employers to offer part-time work were identified as two other reasons of higher incidence of part time workers (Srivastav, 2016). Against this backdrop, this paper primarily attempted to study how the proportion of full time and part time workers across various categories of the UMS changed over the years as a response to various policy initiatives taken by the government. In specific, the objectives of the present study are (i) to provide a brief overview of the UMS in India during 1984-85 to 2015-16, (ii) to examine the employment composition in the UMS in terms of the incidence of part time workers (i.e., proportion of part time workers to total workers) during the same period and (iii) to identify a few factors that determine the incidence of part time workers in the UMS. It is to be mentioned here that the entire period of this study was subdivided into three sub-periods – 1984-85 to 1994-95, 1994-95 to 2005-06 and 2005-06 to 2015-16, each having almost a span of ten years. While the period of 1984-85 to 1994-95 captures the primary effect of increasing competition faced by the UMS under an emerging liberalised business environment, the period of 1994-95 to 2005-06 is likely to capture the impact of varying promotional measures taken for the UMS which were expected to help them to survive in the competitive era. The latest period of 2005-06 to 2015-16, on the other hand, is characterised by intensifying competition as a consequence of adoption of more liberalised trade policies and adoption of more focused policies for this sector that are expected to raise their levels of competitiveness. The paper is divided into five sections. Apart from this present introductory section, Section II briefly discussed the data sources and methodology adopted for data analysis. Section III provides a brief overview of the industry of unorganised manufacturing sector in India. In section IV, we discussed the distributions of full time and part time workers in the UMS in India in a disaggregated manner. Section V identifies the factors determining the incidence of part time workers. The final Section VI provides main conclusions of this study.

2. Data Base & Methodology

This study is based on the NSSO data for four survey rounds. These are surveys on the "Unorganized Manufacturing Sector" for 40th (1984-85), 51st (1994-95) and 62nd (2005-06) Rounds, and the survey on the "Unincorporated Non-agricultural Enterprises (Excluding Construction)" for 73rd Round (2015-16). While we used data available from the published report for the 40th round, the unit-level data have been used for the remaining three rounds to generate comparable data tables to understand performance of the UMS during our study period. It is to be mentioned here that as no data are available on Directory Manufacturing

Establishments (DMEs) from the published report of the NSSO for the year 1984-85, we used the data available from the 'Directory Manufacturing Establishments Survey' for 1984-85, published by the Central Statistical Office (CSO). Another important point to note in respect of our data set is that the coverage of the 40th, 51st, and 62nd Rounds of survey was somewhat different from the coverage of the 73rd Round survey. First, while the NSSO in its 40th, 51st, and 62nd Rounds surveys considered the unorganised manufacturing sector alone at the time of data collection, for the 73rd Round survey it collected data for the unorganised manufacturing, trade and other services sectors together. To overcome this problem, we extracted the data for the unorganised manufacturing sector from the unit-level data files for the 73rd Round (i.e., excluded the data on trade and other services sector enterprises) by using the NIC-2008 table. Secondly, the surveys for the 40th, 51st, and 62nd Rounds had excluded those manufacturing units which were registered under sections 2m(i) and 2m(ii) of the Factory Act 1948, and also bidi and cigar manufacturing units which were registered under the Bidi and Cigar Workers (Conditions of Employment) Act 1966. However, the 73rd Round survey additionally excluded those ownership categories of manufacturing units which were government and public sector enterprises, cooperatives as well as those which were not registered under the Companies Act 1956. Thus, the coverage of unorganised manufacturing sector survey was higher in the 40th, 51st, and 62nd Rounds as compared to the 73rd Round. However, a detailed inspection of the 40th, 51st, and 62nd Rounds data revealed that the shares of enterprises that were either government/public sector enterprises or cooperatives were negligible. Further, the shares of registered units in the 40th, 51st, and 62nd Rounds surveys were found to be negligible. Again, to obtain a comparable dataset we have made two more adjustments. First, in its 40th, 51st and 62nd survey Rounds, the NSSO collected information separately for three subsectors of the UMS, viz., the OAMEs, and two categories of Establishments – the NDMEs, that employed less than six total workers with at least one hired worker and the DMEs that employed six or more total workers with at least one hired worker. However, in its 73rd Round survey, the data have been compiled for two establishments (NDMEs and DMEs) together apart from the OAMEs. Thus, using the unit-level data of 73rd Round, we generated separate information for the NDMEs and the DMEs by following their respective definitions. Second, it should be mentioned that the NSSO used different versions of National Industrial Classifications (NICs) in the three surveys under consideration. They used NIC-1970, NIC-1987, NIC-2004 and NIC-2008 in their 40th, 51st, 62nd and 73rd round surveys respectively. Therefore, to bring in inter-temporal comparability, we made necessary adjustments to data by considering data at two/three/four digit level and converted the entire database in order of NIC-1987[1].

In this study, we have used descriptive data tables to analyse the performance of the UMS in India. To compute the growth rates of some of the variables, we applied the formula used to calculate Annual Compound Growth Rate, which follows from the following expression:

$$Y_t = Y_0(1 + r)^t$$

From here, annual compound growth rate (*r*) of a variable (*Y*) may be obtained as

$$r = \left\{(Y_t|Y_0)^{(1/t)} - 1\right\}^* 100$$

where, Y_t = the value of the variable at the end period, Y_0 = the value of the variable at the initial period, *t* = the difference between two time points. Apart from this we have applied the multiple regression technique to identify the determinants of the incidence of part time workers in the UMS.

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[1] For this purpose, we used the concordance table (see Appendix Table 1A) separately for each of the three subsectors.

3. Overview of the UMS in India

In 2015-16, the UMS in India was comprised of 20.45 million units – 11.75 million in rural areas and 8.7 million in urban areas (Table 1). In the same year, these units provided jobs to 37.19 million people of whom 19.08 million were from the rural areas and 18.11 million were from the urban areas. Although the rural UMS was bigger than that of its urban counterpart in terms of the number of units and workers employed, it generated Rs. 355.58 billion of gross value added (GVA) which for its urban counterpart is more than double (Rs. 788.58 billion). The size of the UMS (measured in terms of the number of enterprises, employment as well as GVA at constant 1993-94 prices), in combined areas, expanded over past 30 years or so (1984-85 to 2015-16). The main contributor in such a growth process has been the urban segment of the UMS. During this period, 4.45 million additional units entered into the urban UMS that created additional employment of 8.79 million and generated additional GVA of Rs. 652.45 billion. On the other hand, for the rural UMS, although the GVA expanded by Rs. 238.7 billion during the period of 1984-85 to 2015-16, it suffered from reduction in the number of enterprises as well as employment. Almost 1.7 million units have been closed in rural UMS, while 5.88 million workers lost their jobs during the entire period of our study. The relative weights of the rural and urban areas in total number of enterprises, employment, and GVA of the UMS may also be understood in terms of Table 1. It is clear that the shares of the rural and urban areas in the industry of UMS (on the basis of the indicators like number of enterprises, employment and GVA) did not change much between 1984-85 and 1994-95. At both the time points, the industry, as a whole, appeared to be overwhelmingly rural, especially when we consider the number of enterprises and employment. However, as regards the GVA, the share of the urban areas is comparatively higher than that of its rural counterpart in 1984-85 as well as 1994-95. During 1994-95 to 2005-06 the rural areas lost its share to some extent, especially with respect to the number of enterprises and employment. However, the sector experienced significant decline as regards the share of the rural areas in the UMS with respect to all three indicators mentioned above during the subsequent period of 2005-06 to 2015-16. Overall, it appears that there has been a tendency of relative weight of the rural segment of the UMS declining over time, and hence the relative share of the urban segment improving.

Table 1: Absolute Numbers of Enterprises, Employment and Gross Value Added (in constant 1993-94 prices) of the UMS in India

Location	1984-85	1994-95	2005-06	2015-16
Number of Enterprises (in millions)				
Rural	13.45 (75.99)	9.52 (75.86)	12.13 (71.06)	11.75 (57.46)
Urban	4.25 (24.01)	3.02 (24.06)	4.94 (28.94)	8.7 (42.54)
Rural+Urban	17.7	12.55	17.07	20.45
Number of Persons Employed (in millions)				
Rural	24.96 (72.81)	20.8 (69.4)	23.46 (64.4)	19.08 (51.30)
Urban	9.32 (27.19)	9.17 (30.60)	12.98 (35.63)	18.11 (48.70)
Rural+Urban	34.28	29.97	36.43	37.19
Absolute Figures of Gross Value Added (in billion Rs.)				
Rural	116.88 (46.22)	105.94 (42.20)	228.92 (41.87)	355.58 (31.08)

Urban	135.98 (53.78)	145.09 (57.80)	317.78 (58.13)	788.4 (68.92)
Rural+Urban	252.86	251.03	546.7	1143.99

Notes: (1) GVA expressed at 1993-94 constant prices. (2) Figures in parentheses represent share of rural/urban areas in total (rural+urban) UMS of the relevant item.

Sources: (1) NSSO, Reports on 'Unorganised Manufacturing Sector in India, 1984- 85'. (2) CSO, Report on 'Directory Manufacturing Establishment Survey, 1984-85; Summary Results'. (3) NSSO, unit-level data on 'Unorganised Manufacturing Sector in India', 1994-95 and 2005-06, (4) NSSO, unit-level data on 'Unincorporated Non- agricultural Enterprises (Excluding Construction) in India, 2015-16'.

Table 2 represents the growth rates experienced by the UMS in different periods under consideration. As regards the growth pattern of the UMS as a whole we found that the sector recorded negative growth rates with respect to number of enterprises and employment during the period of 1984-85 to 1994-95, both in rural and urban areas. However, as regards the GVA, although the UMS recorded negative growth rate (-0.98 per cent per annum) in rural areas during this period, it experienced low but positive growth rate (0.65 per cent per annum) in urban areas. However, we observed a dramatic turnaround with respect to the growth rates of number of enterprises, employment as well as GVA of the UMS during 1994-95 to 2005-06. The sector grew appreciably as regards all three indicators mentioned above during this period in both rural and urban areas of the UMS. Compared to 1994-95 to 2005-06, the UMS as a whole grew at a slower rate with respect to the number of enterprises and employment during 2005-06 to 2015-16. However, the growth rate of GVA improved marginally during the later period as compared to the earlier period.

Table 2: Growth rates of number of enterprises, employment and gross value added of the UMS in India during 1984-85 - 1994-95, 1994-95 - 2005-06 and 2005-06 - 2015-16

Location	Period	Growth rate of		
		No of enterprises	No. of persons employed	GVA
Rural	1984-85 - 1994-95	-3.39	-1.81	-0.98
	1994-95 - 2005-06	2.22	1.10	7.26
	2005-06 - 2015-16	-0.31	-2.04	4.50
Urban	1984-85 - 1994-95	-3.36	-0.16	0.65
	1994-95 - 2005-06	4.57	3.21	7.39
	2005-06 - 2015-16	5.81	3.39	9.51
Rural+Urban	1984-85 - 1994-95	-3.38	-1.34	-0.07
	1994-95 - 2005-06	2.84	1.79	7.33
	2005-06 - 2015-16	1.82	0.21	7.66

Source: Same as in Table 1.

The trend followed by the rural and urban areas of the UMS during the latest period of 2005-06 to 2015-16 is somewhat different. In rural areas, the growth rate of the number of enterprises as well as employment in the UMS not only declined during 2005-06 to 2015-16 as compared to 1994-95 to 2005-06, but also turned negative during the later period. On the other hand, the growth rate of the GVA of the rural UMS although declined during 2005-06 to 2015-16 (7.26

per cent per annum) as compared to 1994-95 to 2005-06 (4.50 per cent per annum), it is found to be positive in both the periods. In contrast to the rural UMS, the urban UMS recorded higher growth rate with respect to all three indicators mentioned above during 2005-06 to 2015-16 as compared to 1994-95 to 2005-06. Overall it appears that the UMS in India faced difficulties to expand during the initial period of economic reforms (1984-85 to 1994-95). Sudden increase in competition in the domestic market, in one hand, and inability of the UMS to upgrade its production technology due to lack of finance on the other, were considered as the reasons behind the negative growth of value added and employment of this sector till mid-1990s (Rani and Unni, 2004). However, the sector, irrespective of its location of operation, is found to overcome the difficulties and expanded with respect to number of enterprises, employment and GVA during next 10 years or so (1994-95 to 2005-06). The promotional policy initiatives taken by the government towards the small scale industries of expanding their capacities and raising their investment limits possibly help them to compete appreciably during this period (Rani and Unni, 2004). Broadly, the sector continued to expand in the latest period of 2005-06 to 2015-16. However, it needs to be noted that the rural UMS experienced negative growth rates with respect to number of enterprises and employment during this period. This indicates that several units in rural UMS closed during 2005-06 to 2015-16. It seems that a portion of workers engaged there found some other secured job opportunities rather than to earn their living by working in the UMS. It can be supported by the existing literature that suggests the changes in sectoral composition of employment in rural non-agricultural sector in favour of construction, transport, storage and communication against manufacturing, trade and other services during post-2004 period (Bhaumik, 2013).

4. Distributions of Full time and Part time Workers in the UMS in India

This section looked into the distributions of full time and part time workers in the UMS in India separately for male, female[2] and total workers engaged in the UMS, to the extent data permit[3]. Table 3 shows the incidence of part time workers for the UMS for various survey years, decomposed on the basis of sex of the workers and location of the enterprises. It is found that although vast majority of the workers of the UMS in India worked as full time employees at all four time points (1984-85, 1994-95, 2005-06 and 2010-11), the proportion of part time workers to total workers has not been negligible. This is true for both the rural and urban areas, and especially for the female workers. Again, it is observed that the corresponding proportion experienced three different trends during three periods of our study. During the earlier period of economic reforms of 1984-85 to 1994-95 the proportion of part time workers to total workers did not change much. In 1984-85, the corresponding proportion of the UMS as a whole was 11.9 per cent, which reduced marginally to 11.5 per cent in 1994-95. However, comparison of rural and urban areas of the UMS as regards the changes in the proportion of part time workers to total workers during 1984-85 to 1994-95 reveals two opposite pictures. While the incidence of part time workers increased marginally from 13.4 per cent in 1984-85 to 14.5 percent in 1994-95 in rural areas, it declined from 7.7 per cent in 1984-85 to 4.8 per cent in 1994-95 in urban areas. Disaggregation of the UMS at subsector level revealed that, in general, the OAMEs, the tiniest but most dominant segment of the industry (in terms of its share in total

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[2]Percentage of female workers in the UMS in aggregate as well as the subsector level is shown in Appendix Table 2A. Significantly high share of female workers in the UMS over the years validated analysing the data gender-wise.

[3]In 1984-85, the NSSO did not collect any information regarding the gender of the workers engaged in the UMS. Consequently, we are unable to make gender-wise decomposition of total workers for this survey round.

employment[4] of the UMS), experienced highest incidence of part time workers, followed by the NDMEs and the DMEs. In 1984-85, the incidence of part time workers was moderate (14.2 per cent) for the OAMEs, while the same being low for the NDMEs (6.5 per cent) and for the DMEs (3.6 per cent) in combined areas. Examining the changes in the incidence of part time workers at subsector level separately in rural and urban areas revealed that during the period of 1984-85 to 1994-95, both the establishments (NDMEs and DMEs) experienced marginal decline in this regard in both rural and urban areas. However, for the OAMEs, while the corresponding proportion in rural areas increased to some extent (from 15 per cent to 16.9 per cent), the same for the urban OAMEs decreased (from 10.9 per cent to 6.8 per cent).In contrast to 1984-85 to 1994-95, the UMS as a whole witnessed a considerable increase (11.5 per cent to 18.1 per cent) in the proportion of part time workers to total workers during 1994-95 to 2005-06. In rural areas, while the same increased from 14.5 per cent in 1994-95 to 21.4 per cent in 2005-06, the urban UMS experienced an increase in the incidence of part time workers from 4.8 per cent to 12.1 per cent over the same period. Looking at the subsector level, it is found that the proportion of part time workers to total workers increased for all three subsectors of the UMS separately for rural and urban areas during 1994-95 to 2005-06. In this regard, a sharp rise is experienced by the OAMEs, where the proportion of part time workers improved from 16.9 per cent in 1994-95 to 25 per cent in 2005-06 in rural areas and 6.1 per cent in 1994-95 to 21.5 per cent in 2005-06 in urban areas. Decomposition of total workers into male and female workers revealed that in general, the proportion of part time workers is much higher among the female workers as compared to their male counterpart. As regards the changes in the proportion of part time workers to total workers during 1994-95 to 2005-06, it is observed that the corresponding proportion increased much rapidly among the female workers as compared to their male counterpart in both the locations. In rural areas, while the corresponding proportion among the female workers increased from 20.2 per cent to 30.4 per cent, in urban areas, the same is increased from 10.4 per cent to 30.4 per cent. On the other hand, the incidence of the part time workers is increased among the male workers of the UMS comparatively at a slower rate in both rural (10.8 per cent to 14.3 per cent) and urban areas (3.4 per cent to 5.3 per cent) during the same period. Let us now analyse the incidence of part time workers separately for the male and female workers at subsector level of the UMS during 1994-95 to 2005-06. The corresponding proportion is observed to increase sharply (more than 10 percentage points) among the female workers for all three subsectors irrespective of their location of operation. On the other hand, among the male workers, although the corresponding proportion increased in all three subsectors in both rural and urban areas it increased comparatively at a slower rate (less than 5 percentage points). This indicates that significant improvement in the proportion of part time workers to total workers during the period of 1994-95 to 2005-06 is a common phenomenon across the male and female workers of the UMS, however, the observed trend is much prominent among the females compared to their male counterpart. Overall it indicates that although the UMS experienced a significant expansion with respect to employment during 1994-95 to 2005-06 the employment quality became worsened. In face of rising competition in one hand, and ineffective implementation of the direct policy initiatives taken for the SSIs (ISID, 2004; Papola, 2004; Damodaran, 2008; NCEUS, 2009) on the other, might force the UMS enterprises to use part time workers proportionately at a higher rate to reduce the cost of production and thereby to survive in the competitive era. In contrast to the period of 1994-95 to 2005-06, we observed a decline in the proportion of part time workers to total workers of the UMS, in combined areas, during the period of 2005-06 to 2015-16. For the UMS, as a whole, the proportion of part time workers to total workers declined from 18.1 per cent in 2005-

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[4]OAMEs shared more than 75 percent employment in rural UMS over the years and around 50 percent employment in urban UMS in most of the years (see Appendix Table 3A).

06 to 7.9 per cent in 2015-16. Both the rural and urban UMS experienced the same declining trend in this regard during this period. Looking at the subsector level, we observed that all three subsectors of the UMS followed the broad trend. However, a sharp fall is experienced by the OAMEs in both rural (25 per cent in 2005-06 to 12.4 per cent in 2015-16) and urban areas (21.5 per cent in 2005-06 to 8.5 per cent in 2015-16). Decomposition of total workers into male and female workers also revealed that the incidence of part time workers has declined among both the male (10.5 per cent to 4.3 per cent) and female (30.4 per cent to 13.8 per cent) workers engaged in the UMS during this period, in combined areas. Looking into the sub-sectoral level, we observed that the declining trend of the incidence of part time workers among the male and female workers during the period of 2005-06 to 2015-2016, is visible separately for all three subsectors of the industry in both rural and urban areas. In 2005-06, the incidence of part time workers was found to be around 30 per cent among the female workers separately for rural and urban areas of the NDME and the OAMEs. The corresponding proportion declined sharply and become 8.3 per cent in rural NDMEs, 7.4 per cent in urban NDMEs, 16 per cent in rural OAMEs and 13.5 per cent in urban OAMEs in 2015-16.

Table 3: Incidence of Parttime Workers Separately for Female, Male, and Total Workers in the UMS and its Subsectors in 1984-85, 1994-95, 2005-06 and 2015-16

Category of Enterprises	Location	Type of Workers	1984-85	1994-95	2005-06	2015-16
OAMEs	Rural	Females	-	21.8	31.9	16.0
		Males	-	13.1	18.0	8.3
		All	15	16.9	25.0	12.4
	Urban	Females	-	10.9	32.7	13.5
		Males	-	4.4	10.1	3.6
		All	10.9	6.8	21.5	8.5
	Rural + Urban	Females	-	20.0	32.1	15.1
		Males	-	11.3	16.1	6.4
		All	14.2	15.0	24.2	10.9
NDMEs	Rural	Females	-	15.0	30.4	8.3
		Males	-	5.5	7.3	3.6
		All	7.3	6.8	10.6	4.1
	Urban	Females	-	11.8	27.1	7.4
		Males	-	3.6	3.9	2.1
		All	5.8	4.1	5.6	2.6
	Rural + Urban	Females	-	13.7	29.0	7.7
		Males	-	4.3	5.2	2.5
		All	6.5	5.2	7.7	3.0
DMEs	Rural	Females	-	5.3	15.1	6.3
		Males	-	2.8	5.7	3.3
		All	3.6	3.5	8.3	4.2
	Urban	Females	-	7.6	17.5	4.6
		Males	-	2.4	2.7	1.2
		All	3.6	2.9	4.3	1.7
	Rural + Urban	Females	-	6.0	15.9	5.5
		Males	-	2.5	3.9	1.9
		All	3.6	3.2	6.1	2.6
ALL	Rural	Females	-	20.2	30.4	15.0
		Males	-	10.8	14.3	6.6
		All	13.4	14.5	21.4	10.4
	Urban	Females	-	10.4	30.4	12.1

	Males	-	3.4	5.3	2.4
	All	7.7	4.8	12.1	5.3
Rural + Urban	Females	-	18.4	30.4	13.8
	Males	-	8.0	10.5	4.3
	All	11.9	11.5	18.1	7.9

Note: Gender-wise break up of total employment is not available for 1984-85.

Sources: Same as Table 1.

On the other hand, the incidence of part time workers is found to be around 15 per cent among the female workers separately in rural and urban segments of the DMEs in 2005-06, which declined to 6.3 per cent in rural DMEs and 4.6 per cent in urban DMEs in next ten years or so. Among the male workers although the incidence of part time workers is found to be quiet low as compared to their female counterpart, especially for the NDMEs and the DMEs irrespective of their location of operation in two previous years of 1994-95 and 2005-06, it declined further and became very low (below 4 per cent), in 2015-16. Again, the corresponding proportion among the male workers of the OAMEs although found to be moderately high (18 per cent in rural areas and 10.1 per cent in urban areas) in 2005-06, declined considerably (8.3 per cent in rural and 3.6 per cent in urban) in next 10 years or so. In general, the incidence of part time workers to total workers recorded considerable fall during the latest period of 2005-06 to 2015-16, in which the UMS continued to expand, however, at a slower rate as compared to the previous period of 1994-95 to 2005-06. This is undoubtedly a positive phenomenon for the UMS as it represents an improvement in the quality of employment along with the expansion of the sector. However, the proportion of part time workers to total female workers of the OAMEs which is considered to be the most vulnerable segments of the UMS is still found to be fairly high.

5. Determinants of the Incidence of Part time Workers in the UMS

In this section, using the unit-level data from the NSSO survey of the latest round of 2015-16, we seek to identify some determinants of the incidence of part time workers in the UMS in India. For this purpose, we carry out a multivariate regression exercise with incidence of part time workers (PROPPTW) as the dependent variable and following explanatory variables[5].

1) PROPFW: Proportion of female workers to total workers in an enterprise.
2) PROPSKW: Proportion of skilled workers to total workers in an enterprise.
3) KLR: Capital-labour ratio defined as value (in Rs.) of investments in plants and machineries per unit of worker in an enterprise.
4) SECTOR_D: Sector dummy whose value is '1' if the enterprise is located in rural areas and '0' if it is in urban areas.
5) ENT_D1, ENT_D2: These two are enterprise dummies. The value of ENT_D1 is '1' for an OAME and '0' otherwise; ENT_D2 takes value '1' for a DME and '0' otherwise. Thus, NDME is considered as the reference category.
6) NATURE_D1, NATURE_D2: Dummies that represent the nature of operation of an enterprise. NATURE_D1 is '1', if the enterprise is a Perennial Enterprise[6] and '0',

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[5]The choice of explanatory variables here is governed by availability of data from the NSSO unit-level data files.

[6] NSSO defined perennial enterprises as those which usually operate more or less regularly throughout the year.

otherwise; NATURE_D2 is '1' if the enterprise is a Casual Enterprise[7] and '0', otherwise. Thus Seasonal Enterprise[8] is considered as the reference category.

7) STATE_RANK: It represents the state rank obtained on the basis of Per Capita Net State Domestic Product (PCNSDP) at constant prices of 2011-12 for the year 2015-16. The state with Rank 1 has the highest PCNSDP in 2015-16, and the state with Rank 33 has the lowest PCNSDP in the same year.

The results of regression are summarised in Table 4. It is found that the estimated coefficient of PROPFW is positive and statistically significant. This implies that the proportion of part time workers increases for the enterprises that have higher proportion of female workers. The reason is obvious. As the females are required to give attention to the domestic works, it is natural that in the enterprises dominated by them, they would work more as part time workers. Again, Table 4 showed that the estimated coefficient of PROPSKW is negative as well as statistically significant. This indicates that higher will be the incidence of skilled workers lower will be the incidence of part time workers. Lack of skills possibly prevents the workers to get full time employment in the UMS. The relation between our dependent variable and KLR is negative and statistically significant implying that the proportion of part time workers decreases in the enterprises with higher capital intensity in relation to labour. It is quite possible that the enterprises having higher investment in plants and machineries would like to produce optimally so as to maximise their profits which necessitate employing more of full time workers to avoid any disruption in the production cycle. The estimated coefficient of ENT_D1 is positive and statistically significant which implies that the proportion of part time workers is higher in the OAMEs as compared to the NDMEs. On the other hand, the estimated coefficient of ENT_D2 being negative and statistically significant implies that the proportion of part time workers is higher in the NDMEs in comparison to the DMEs. Thus, the smaller manufacturing enterprises (OAMEs/NDMEs), which have lower scale of production as compared to DMEs are having higher incidence of part time workers. This might be due to the reason that many of the workers working in comparatively smaller units possibly get involved into multiple activities to augment their earning levels. Again, the incidence of part time workers is statistically significantly higher for the enterprises that are located in rural areas. As compared to their urban counterparts, the rural workers are more likely to be involved in multiple activities that combine works in the agriculture and non-agriculture (including manufacturing) sectors. Hence the incidence of part time workers is higher among the workers in rural UMS. The estimated coefficient of NATURE_D1 is negative and statistically significant which implies that the proportion of part time workers is lower in the perennial units as compared to the seasonal units. On the other hand, the estimated coefficient of NATURE_D2 being positive and statistically significant implies that the proportion of part time workers is higher in the casual units in comparison to the seasonal units. This indicates that the more the irregularity of operation, the higher will be the incidence of part time workers. Low production scale of the units which operate on irregular basis forced the workers engaged to practice working in multiple activities for their survival. Hence the incidence of part time workers is higher among the casual units compared to the seasonal units and the seasonal units compared to the perennial units of the UMS. The relationship between the dependent variable and State_RANK is positive and statistically significant. This indicates that the lower the PCNSDP of the states, the higher will be the incidence of part time workers. The reason is

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[7] NSSO defined casual enterprises as those which operate occasionally (may be disjoint periods of time throughout the year) but total number of days operated in the last 365 days is 30 days or more.

[8] NSSO defined seasonal enterprises as those which are usually run during a particular season or fixed months of a year.

obvious. The low PCNSDP implies the state is poor. In such poor states, the workers engaged in the UMS might find it difficult to earn their living by working in a single activity. Hence they need to engage themselves in multiple activities for their survival.

Table 4: Multivariate Linear Regression Results of the Determinants of the Incidence of Part time Workers in the UMS

Dependent Variable: Share of Part time Workers in Total Workers (PROPPW)			
Explanatory Variables	**Estimated Coefficients**	**t- value**	**P-Value**
PROPFW	0.0567	37.83	0.00
PROPSKW	-0.0358	-22.03	0.00
KLR	-0.0001	-6.09	0.00
ENT1	0.0133	10.11	0.00
ENT2	-0.0086	-3.84	0.00
SECTOR_D	0.0068	5.90	0.00
NATURE_D1	-0.0191	-4.45	0.00
NATURE_D2	0.0694	7.22	0.00
STATE_RANK	0.0006	9.60	0.00
No. of observations		87058*	
Adjusted R-Squared		0.0334	
F Statistics		335.41	
Probability>F		0.0000	

Note: * We extracted the data on manufacturing enterprises from the unit level data files of NSSO on Unincorporated Non-agricultural Enterprises (Excluding Construction) of 2015-16 following NIC-2008.

Sources: Same as Table 1

6. Conclusions

The UMS in India is expanded with respect to number of enterprises, employment and gross value added over past 30 years or so (1984-85 to 2015-16). However, the growth experience of the sector is not uniform if we divide the entire period of our study into three sub-periods. The sector faced a decline with respect to the number of enterprises, employment and gross value added during the period of 1984-85 to 1994-95 that captures the initial impact of economic reforms in terms more competitive business environment for the UMS. The sector experienced a turnaround and expanded as regards the growth rates of all three indicators mentioned above in the next sub-period of 1994-95 to 2005-06, in which the competition has been exaggerated although the Government introduced varying policy initiatives for this segment of the economy. Broadly, the sector continued to expand in the latest period of 2005-06 to 2015-16, which is characterised by intensifying competition along with more focused policy approach by the Government. However, we found a significant decline in the number of enterprises and employment in rural UMS during 2005-06 to 2015-16. This indicates that there must be some difficulties that the workers engaged in the rural UMS faced during this period which forced them to change their occupation. Looking into the incidence of part time workers separately for three subsectors of the UMS, we found that in general, the OAMEs experienced highest incidence of part time workers followed by the NDMEs and the DMEs. Gender-wise disaggregation of total workers further revealed that the incidence of part time workers is found to be quite high among the female workers as compared to the male workers in all three subsectors of the UMS, irrespective of their location of operation. Examining the

changes in the incidence of part time workers of the UMS during three sub-periods under consideration, we found that in general, the incidence did not change much during 1984-85 to 1994-95. However, the period of 1994-95 to 2005-06 experienced significant increase in the incidence of part time workers across different subsectors of the UMS. Gender-wise disaggregation further revealed that the incidence increased rapidly among the females compared to their male counterpart. In contrast to the period of 1994-95 to 2005-06, the incidence recorded an appreciable decline in the UMS during 2005-06 to 2015-16. However, it is important to note that the proportion of part time workers to total workers is found to be fairly high among the female workers engaged in the OAMEs in both rural and urban areas. As the female workers engaged in the OAMEs, the tiniest segment of the UMS, are considered to be one of the most vulnerable segments of the UMS, this finding deserves the attention of policy makers. We used NSSO unit-level data for 2015-16 to carry out a multiple regression exercise to find out some important determinants of the incidence of part time workers in the enterprises of the UMS in India. Our finding here is that the incidence of part time workers is statistically significantly higher for the enterprises that have higher proportion of female workers, have lower proportion of skilled workers, have lower capital-labour ratio (i.e., less capital intensive), located in rural areas and operated from the states with low PCNSDP. In addition, we found that the proportion of part time workers is higher for the OAMEs compared to the NDMEs, and for the NDMEs compared to the DMEs. Again, the incidence of part time workers is found statistically significantly higher for the casual units as compared to the seasonal units and seasonal units as compared to the perennial units in the UMS. Broadly, this indicates that the incidence of part time workers is a distress phenomenon. The people engaged in comparatively weaker segment of the UMS are more likely to work on part time basis. Working in a single activity of the UMS is possibly inadequate to them for survival. Consequently, they need to work in multiple activities to augment their income. In light of the above findings, the following policy suggestions may be put forward: First, efforts should be made to ensure positive growth rate of employment of the rural UMS. Unless, the Manufacturing Plan in India (GOI, 2013) that targeted generation of 100 million additional employments in manufacturing sector by 2025 seems to be quite over-ambitious. In this regard, it is recommended that the government should take steps to increase the marketing facilities by providing incentives to the industries in the organised sector so that they will be interested to subcontract with their counterparts in the unorganised sector. It is expected that better access to markets would encourage the UMS units to expand their scales of production and thereby to generate more employment. Second, in order to reduce the incidence of part time workers, which persists especially among the female workers of the OAMEs, it would be necessary to create more opportunities of full time employment. As these workers represent the most vulnerable segment of the UMS workers, specific attention needs to be focused to improve their levels of skills as well as general level of education. Efforts should be made to encourage or incentivize these workers to participate in the training programmes which they had been avoiding in the past (Damodaran, 2008; NCEUS, 2009). In addition, the information and procedures of getting the benefits of the existing policies need to be communicated to the enterprises or the workers engaged in it in a more convincing way.

APPENDIX TABLES

Table 1A: Concordance Table for Adjustment of Data over Various Rounds of the NSSO

Description	National Industrial Classification			
	1970	**1987**	**2004**	**2008**
The activity of food products	20+21+315	20+21	151+152+153+154	10
Beverages, tobacco and related products	22	22	155+16	11+12
Cotton textile, wool, silk, man-made fibre textile, jute and other vegetable fibre textile	23+(24-244)+25	23+24+25	171+01405	131+01632
Textile products including wearing apparel	26+244	26	172+173+181	139+141+143
Wood and wood products; furniture and fixture	27	27	20+361	16+31+9524
Paper and paper products and printing, publishing and allied industries	28	28	21+22	17+18+5811+5812+5813+5819+59202
Leather and products of leather, fur and substitutes of leather	29	29	182+19	142+15
Basic chemicals and chemical products	31-315	30	24	20+21+2680
Rubber, plastic, petroleum and coal products; processing of nuclear fuels	30	31	23+25	19+22
Non-metallic mineral products	32	32	26	23
Basic metals and alloys industries	33	33	27+371	24+3830
Metal products and parts except machinery equipments	34	34	2811+2812+289	2511+2512+259+3311
Machineries and equipments other that transport equipments	35+36	35+36+(39-394-398)	2813+29+30+31+32	2513+28+27+2610+2620+2630+2640+3312+3314+3320+9512+9521+2520
Transport equipments and parts	37	37	34+35	29+30+3315
Other manufacturing	38	38	33+369	2651+2652+2660+2670+32+3313+3319

Source: Central Statistical Organisation, Ministry of Statistics and Programme Implementation, Government of India, New Delhi.

Table 2A: Percentage of Female Workers in Total Workers of the UMS in 1994-95, 2005-06 and 2015-16

Categories of Enterprises	Rural			Urban			Rural+Urban		
	1994-95	**2005-06**	**2015-16**	**1994-95**	**2005-06**	**2015-16**	**1994-95**	**2005-06**	**2015-16**
OAME	44.1	50.6	53.0	369	50.3	49.6	42.8	50.5	51.7
NDME	14.0	14.4	10.9	6.6	7.6	8.4	9.7	10.4	9.2
DME	28.4	27.8	28.4	10.6	10.9	14.4	18.5	18.3	19.5
ALL	39.8	43.9	45.2	20.5	27.3	30.2	33.9	38.0	37.9

Sources: Same as Table 1

Table 3A: Percentage share of three subsectors in Total Workers of the UMS in 1984-85, 1994-95, 2005-06 and 2015-16

Categories of Enterprises	Rural				Urban				Rural+Urban			
	1984-85	1994-95	2005-06	2015-16	1984-85	1994-95	2005-06	2015-16	1984-85	1994-95	2005-06	2015-16
OAME	83.06	80.34	76.84	76.01	50.21	41.88	43.68	49.34	74.13	68.54	65.01	63.02
NDME	9.01	7.93	10.15	10.96	22.32	25.52	26.12	26.74	12.63	13.31	15.86	18.65
DME	7.93	11.73	13.01	13.03	27.47	32.61	30.20	23.92	13.24	18.15	19.13	18.33

Sources: Same as Table 1

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