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State of Fabric Producing Units in India

JATINDER S BEDI, RADHESHYAM VERMA

The estimates in the government-funded surveys of the handloom and powerloom sectors of the number of units, looms and employment are not reliable since they are especially designed to identify units eligible for sector-specific schemes. The unit-wise Annual Survey of Industries and the National Sample Survey Organisation 62nd round data for 2005-06 cover the entire manufacturing data, but the results derived for variables such as value added, output, fabric production, etc, are also not considered reliable as the small units have a tendency to under-report their production in order to retain the benefits of small-scale sector tax incentives. This paper presents an analysis of the National Council of Applied Economic Research sample survey, which was designed to estimate the weighted per unit ratios for various size classes of units belonging to the handloom, powerloom/mill and knitting sectors.

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The Indian textile and clothing industry continues to have an important place in the national economy as regards employment, income generation and export earnings. It is estimated to provide employment to more than 16.98 million workers as per the National Sample Survey (NSS) 61st round July 2004-June 2005 and 12.6 million as per the Annual Survey of Industries (ASI) and NSSO data on unorganised manufacturing sector, 62nd round, 2005-06,¹ contribute to 11.6% of manufacturing value added during 2006-07 (GOI 2008c), and 13.8% of total export earnings during 2007-08 (Compendium of Textile Statistics). The share of clothing in total expenditure of households is estimated at 6.65% in 2004-05 at the all-India level (365 days as reference period, NSS, 61st round), while the expenditure on clothing account for more than 4.02% of total private consumption expenditures during 2006-07 (GOI 2008c).

The industry is dominated by small, fragmented, non-integrated units with the only exception being the spinning sector. The spinning is dominated by large units and major modernisation process in this sector goes back to the 1990s. The main factors which led to modernisation in spinning sector include lowering of custom duties and other restrictions on imports of machinery and equipment and lowering of restrictions on imports and exports of raw cotton and yarn. However, the weaving, dyeing and garment sectors lag behind in the process. The reservation of small-scale sector for garment sector till recently was one main factor responsible for demand of fabrics in smaller lots, which was conducive for the production of fabrics in small-scale powerloom sector and small-scale dyeing units. It is also true that the policies pursued till lately related to various taxes, labour and other regulations were favourable for the growth of small-scale, labour-intensive enterprises and discriminated against large-scale,² capital-intensive firms³ in weaving, processing and garment sectors.

Since weaving takes place primarily in the unorganised sector, the estimates of this sector are not properly accounted for. It is thus important to make an assessment of the contributions made by various size classes of units in the handloom, powerloom/mill and knitting sectors to the overall employment, output, value addition, fabrics production, etc.

This analysis is divided into five parts. Section 1 is devoted to the sampling design framework adopted in this study. The National Council of Applied Economic Research (NCAER) sample survey has been designed from different kinds of clusters during 2008-09, which takes care to represent units from different size classifications. The information related to size and number of units is collected from local associations, district offices and from secondary data and is used for listing/sampling survey design. Section 2 estimates the number of units working on looms partially or

completely. The unitwise ASI and NSSO data on unorganised manufacturing sector, 62nd round, 2005-06 is used in which industries at National Informatics Centre (NIC) five-digit are reviewed. ASI unitwise data for 2005-06 was not available at the time of this analysis, but NIC four-digit was published. We split it into the NIC five-digit level, using ratios derived from the unitwise ASI, 2004-05 data. It has also been found that several units were misclassified in the original data source. This study attempts to reclassify these into own account manufacturing enterprise (OAME), non-directory manufacturing establishment (NDME) and directory manufacturing establishment (DME), small to medium, medium and large sector units.⁴ The medium size units are defined here as those employing workers in the range of 26 to 50, with the aid of power and 36 to 50 workers, without the aid of power. Small to medium units are thus defined as those employing 20 to 35 workers in units running manually and 10 to 25 workers in power-driven units. Units with more than 50 workers are treated as large size units. The information derived using ASI and NSSO 62nd round data is some times supplemented with information from primary sources, where some discrepancies are found in secondary data.

Units spending more than 1% of their total output value on electricity are taken in this study as units running with the aid of power (powerloom/mill and mechanised knitting units) and others as hand-driven units (handlooms and manual knitting units). One per cent share is taken to segregate units consuming power merely for the purpose of running fans, bulbs and other routine consumption from those units running machines on power. This becomes especially important as it is not always easy to segregate the handloom and powerloom units on the basis of NIC classification, even if one goes by five-digit classification.⁵

ASI and NSSO 62nd round data on variables such as value added, output, fabrics production in square metres are not considered reliable as units, especially small ones, have a tendency to under-report their production activity to hide their true size. Questionnaires were carefully designed to ensure the possibility of cross-checking and special care was taken in this regard during the survey and further accuracy was ensured by comparing the information with standard ratios.

In Section 3, the per unit ratios such as looms, fabrics production and value added per square metre, etc, are estimated for various size units using survey data. The per unit ratios for various size classes of units are weighted according to sample and population size in each cluster/population from which the NCAER sample was drawn. The weighted ratios are then applied on the number of units for various size classes across various sectors, namely, handloom and powerloom in the country, using secondary information supplemented with primary information to derive the contributions made by various sectors in terms of production, employment and value added, etc, in Section 4.

Though the NCAER survey was undertaken during 2008-09, the data on the number of units for entire universe of manufacturing units is available only for 2005-06, using ASI and NSSO 62nd round data. The per unit ratios in quantity terms are not likely to be much different from 2005-06 to 2008-09, but the number of textile and clothing units are likely to be different. The estimates so derived can be treated as close to the 2005-06 estimates and not for 2008-09.

The NCAER sample survey was specially designed to estimate weighted per unit ratios for various size classes. These ratios are then multiplied by their respective number of units derived using ASI and NSSO 62nd round data.

Section 5 analyses the major characteristics of surveyed clusters across different sectors such as handloom, powerloom, knitting and hosiery in India.

1 Analysis of NCAER, 2008-09 Survey Data

1.1 Sampling Procedure

- A two-stage sampling procedure has been adopted for the selection of textiles and clothing industrial clusters and also for artisanal clusters (handloom units) therein.
- The statewide list of industrial clusters, in all, contained 65 industrial clusters spread across 14 states, namely, Andhra Pradesh, Delhi, Gujarat, Haryana, Karnataka, Kerala, Maharashtra, Madhya Pradesh, Orissa, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh and West Bengal. The selection of different types of industrial clusters was done on pro rata basis, and thereafter, the clusters were selected randomly. Due precautions were taken to ensure representation of industrial clusters of all types, i.e., powerloom, ready-made garments, hosiery, cotton-woven and cotton textile products, etc. Out of the total 65, 40 industrial clusters were selected for the survey. The total numbers of powerloom clusters selected were 21 out of the total 39 clusters. Except Delhi, the powerloom clusters are spread across all states in which industrial clusters are located. Around one-half of the powerlooms units are located in Maharashtra and Tamil Nadu only.
- While selecting industrial clusters, proper care was taken to ensure that the clusters having different characteristics such as large size, units having centred/vertical/horizontal/both integration; units having potential for technology upgradation and export facilities, etc, so as to enable to capture diverse units to the maximum possible extent.
- The selection of textile units within a selected cluster was done by stratifying the large, medium and small⁶ units by taking into account the key indicators such as total output, employment, etc. The units were selected randomly within the strata in order to ensure due representation of units falling across the three categories.⁷ The listing of units in each selected cluster was obtained from the representative associations in the cluster or from the state headquarters, and at times, supplemented with secondary data.
- However, due to non-availability of requisite information and also lack of desired level of cooperation at a few places, there were instances where some deviations from the standard procedure had taken place. Nevertheless, such cases have not disturbed the overall pattern of results.
- The number of powerloom units selected from these clusters were 363. The powerloom units surveyed in the cotton and synthetic units alone were 336 units (Table 3, p 65).
- There are about 300 artisanal clusters spread across 17 states, namely, Andhra Pradesh, Assam, Delhi, Gujarat, Haryana, Himachal Pradesh, Jammu and Kashmir, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Orissa, Punjab, Rajasthan, Tamil

Nadu, Uttar Pradesh and West Bengal. About 10% of these clusters were selected, i.e., numbering 31 by selecting roughly 10 units per clusters. While doing so, it was ensured that all the states are given due representation.

- A total of 337 handloom textile units were visited. The number of cotton and synthetic handloom units selected from these clusters was 231.

The handloom and powerloom units selected above are classified as OAME, NDME, and DME, medium and large units (Table 3).

2 Cotton and Synthetic Fabrics Producing Units

The ASI and NSS 62nd round data at five-digits NIC, 2004 classification was scrutinised to identify the units performing at least part of their activity on looms and/or knitting processing to produce cotton and synthetic products. It has been observed that the total number of woven and knitted units run manually in India is estimated at 11.29 lakh (handloom and hand-knitted units) and those run with power are estimated at 5.02 lakh (powerloom/mill and hand-knitted units), out of total 16.39 lakh cotton and synthetic fabrics producing units.⁸ The OAME units account for 14.35 lakh, out of which 10.57 lakh are running manually and 3.78 lakh are power-driven. The woven and knitted units, which should have been a part of ASI segment, but are listed in NSS unorganised manufacturing data, are estimated at 57,756. Among the woven units, handloom accounts for 11.24 lakh and powerloom/mill 4.92 lakh out of total 16.16 lakh woven units. This is one crucial finding as there has been lots of controversy surrounding the exact number of handloom and powerloom units existing in the country.

The comparison of statewide estimates of various types of units derived, using secondary sources (NSS data on unorganised manufacturing sector and ASI data), is quite matching with the information collected from the survey/primary sources and other secondary sources except in case of a few states. For example, in the case of Delhi, the powerloom units are banned, but the data available from ASI and NSSO 62nd round shows the existence of powerloom units in Delhi. This is because the analysis from the secondary sources may not always provide a true picture, especially for the states in which the number of surveyed units belonging to a

particular industry (NIC classification at five-digit level) is small. Thus, a few adjustments are made on the data derived using ASI and NSS 62nd round data on the basis of information available from the field survey.

3 Per Unit Ratios for Units Producing Fabrics

Powerloom, Hosiery and Mill Sector Units: The number of looms installed per unit varies from average size of 1 to 90 in units running with power and employment from 1.5 to 63. The weighted value added⁹ per square metre of fabrics is estimated at Rs 7.42 for OAME units, Rs 15.77 for DME unit and Rs 4.58 for large size unit. The profit margin taken is about 5% for OAME units as most of the benefits are enjoyed by intermediary, 10% for NDME, 20% for medium and 25% and for large size units on the basis of feedback from survey. The weighted average production per unit on the basis of sample design is estimated and varies from 14,136 sqm for an OAME unit to 43.2 lakh for large size units (Table 1). Thus, the production depends on the workers per unit, which in turn, depend upon the number of looms installed per units. Thus, an analysis of these units as per the size is very crucial for finding the exact number of looms, employment, production and value added estimates.

Handloom and Manual Knitting Units: The per unit estimates have been worked out on the basis of NCAER, 2008-09, field data. The per units loom installed varies from an average size of 1 to 94 in the units running without power, employment from 1.5 to 94, weighted value added per sqm of fabrics from Rs 9.80 for OAME units to Rs 21.30 for NDME units, annual production per units from 2,500 sqm in OAME units to 2,93,233 sqm for large size units (Table 2, p 64). As in case of powerloom units, the profit margin taken varies in the range of 5% to 25% for various categories of units.

4 Estimates of Production, Employment, Looms

Powerloom, Mill and Hosiery Units: For deriving the estimates at the all-India level, the weighted productions per units derived from the analysis of survey data are then multiplied by the

Table 1: Number of Units and Looms, Employment, Production and Value Addition

	OAME	NDME	DME	OAME, NDME, DME	Small to Medium Unorganised	Small to Medium ASI	Medium	Large	Total
Powerloom, mill and hosiery sector									
No of units	3,79,103	59,508	41,775	4,80,386	25,550	174	1,474	2,315	5,09,899
% share in total units	74.3	11.7	8.2	94.2	5.0	0.0	0.3	0.5	100.0
Per unit looms	1	3.3	8		15	15	32	90	
Installed looms and knitting machines									
Installed looms and knitting machines	3,79,103	1,96,376	3,34,200	9,09,679	3,83,250	2,610	47,168	2,08,350	15,51,057
% share in total looms	24.4	12.7	21.5	58.6	24.7	0.2	3.0	13.4	100.0
Employment per unit	1.5	3.3	8		13	13	25	63	
Employment	5,68,655	1,96,376	3,34,200	10,99,231	3,32,150	2262	36,850	1,45,845	16,16,338
% share in total employment	35.2	12.1	20.7	68.0	20.5	0.1	2.3	9.0	100.0
Production/unit/year in sqm	14,136	40,450	2,32,167	2,86,753	7,04,693	7,04,693	15,50,325	43,20,000	75,66,464
Total production (mn sqm)	3,483	1,685	7,759	12,927	15,304	104	2,057	9,501	39,893
% share in total production	8.7	4.2	19.4	32.4	38.4	0.3	5.2	23.8	100.0
Value added/sqm	7.42	10.5	15.77		6.61	6.61	5.46	4.58	
Value added (million Rs)	25,846	17,692	1,22,360	1,65,898	1,01,161	689	11,229	43,513	3,22,491
% share in total value added	8.0	5.5	37.9	51.4	31.4	0.2	3.5	13.5	100.0

Source: Primary survey conducted by NCAER in 2008-09 and unitwise ASI data for year 2004-05 applied on, ASI 2005-06 and NSS 62nd round data.

number of units in each category at all-India level. However, care needs to be taken as the ratios derived using survey data are mainly of such units, which are primarily engaged in weaving activity. But, the numbers of units derived using NSS 62nd round data are estimated for units engaged in weaving activity either fully or partially. Thus, care has to be taken to factor in this, while applying ratios on the number of units.

In addition to this, several units remain closed and non-working throughout the year, which also need to be factored in. On the basis of experience gathered from survey observations and experts' opinion to factor in these among units running with power, OAME units are multiplied by 65%, NDME units by 70%, DME units by 80%, small to medium size units by 85%, medium units by 90% and large units by 95%. The ratio for small units is low because of their high vulnerability.

In case of units running manually, these factors are factored in by multiplying OAME units by 40%, NDME units by 50%, DME units by 80%, small to medium by 85%, medium by 90% and large by 95%.

Those units which produce around 38.4% of fabrics, which should be considered as a part of factory sector, are shown as under the unorganised manufacturing sector in the NSS 62nd round data. These units clearly under-report and hide their true worth clearly to avoid any kind of binding imposed by the government rules and regulations.

The estimated value added in the powerloom sector is Rs 3,22,491 million. DME units account for 37.9% share, small to medium sector 31.4% and large sector 13.5% share of the total value addition in powerloom sector.

The estimates of employment in powerloom sector are worked out as 1.62 million. OAME units account for large share of 35.2%, DME units 20.7%, large units 9.0% and NDME units 12.1%.

Units Running without Power (Handloom and Hand-knitting Units): From our sample survey, it is estimated that overall production of fabrics from manually-run units is 3,460 million square metres (mn sqm) per year. If the knitted goods produced on units run manually are excluded, the woven handloom fabrics production is estimated at 3,145 mn sqm during 2005-06 (Table 2).

This is quite low as compared to the textile committee estimates of 6,100 mn sqm during 2005-06, but is comparable with the estimates of 2,624 mn sqm derived in the NCAER (2009) study on the basis of the estimates of revised conversion rates and hank yarn diversion. Thus, the official estimates of production of fabrics in the handloom sector are widely overestimated and mandatory obligations on hank yarn serving no purpose to sustain the handloom sector.

The value added in the fabrics producing units run manually is estimated at Rs 44,493 million. NDME units constitute 23.84%, OAME units 23.21% and large-scale units 11.0% of its share. The share of large size units is high even in the handloom sector due to the existence of large cooperatives. The medium-sized units account for 3.43%.

The estimates of employment in the units run manually (handloom and hand-knitting sector) are worked out at 2.21 million in this study. OAME units alone account for 71.5% of the total employment generated in handloom sector. It is estimated that 1.68 million looms and hand-knitting machines are installed in handloom and hand-knitting sector, which are higher than the looms installed in the powerloom/mill and power-driven knitting units.

All Fabrics Producing Units: The total number of powerloom, hosiery, mill and handloom units adds up to 1.64 million looms and knitting machines 3.23 million and employment 3.8 million. The share of handloom and hand-knitted units is 68.9% in terms of numbers, 52.1% in terms of looms and knitting machines and 57.8% in terms of employment.¹⁰

There exists a wide difference in the estimates of production of fabrics in quantity terms derived in this study of 43,353 mn sqm, when compared to the official estimates of 48,808 mn sqm for 2005-06. But, the derived estimates in this study are very close to the estimates of 43,392 mn sqm derived in NCAER (2009) study on the basis of revised conversion rates and delivery of yarn to various sectors after taking into account diversion of hank yarn.

The value added to produce fabrics and made-ups is estimated at Rs 3,66,983 million for the cotton and synthetic products, which is 10% lower than the NAS estimates of Rs 4,09,310 million

Table 2: Number of Units and Looms, Employment, Production and Value Addition

	OAME	NDME	DME	OAME, NDME, DME	Small to Medium Unorganised	Small to Medium ASI	Medium	Large	Total
Handloom and hand-knitting sector									
No of units	10,53,750	48,419	17,428	11,19,597	6,256	222	1,753	1,715	11,29,543
% share in total units	93.3	4.3	1.5	99.1	0.6	0.0	0.2	0.2	100.0
No of loom per unit	1	3.5	7.5		17	17	34	94	
Number of looms and hand-knitting machines installed	10,53,750	1,69,466.5	1,30,710	13,53,927	1,06,352	3,774	59,602	1,61,210	16,84,865
% share in total looms	62.5	10.1	7.8	80.4	6.3	0.2	3.5	9.6	100.0
Employment per unit	1.5	3.5	7.5		17	17	34	94	
Employment	15,80,625	1,69,467	1,30,710	18,80,802	1,06,352	3,774	59,602	1,61,210	22,11,740
% share in total employment	71.5	7.7	5.9	85.0	4.8	0.2	2.7	7.3	100.0
Production/ unit/ year (sqm)	2,500	20,568	45,052	68,120	89,384	89,384	1,96,645	2,93,233	7,36,766
Total production (mn sqm)	1,054	498	628	2,180	475	17	310	478	3,460 (3,145*)
% share in total production	30.5	14.4	18.2	63.0	13.7	0.5	9.0	13.8	100.0
Value added/ sqm	9.8	21.3	14		13.14	13.14	10.98	10.24	
Value added (million Rs)	10,327	10,606	8,794	29,727	6,246	222	3,407	4,892	44,493
% share in total value added	23.2	23.8	19.8	66.8	14.0	0.5	7.7	11.0	100.0

* Production of only handloom units.

Source: Primary survey conducted by NCAER in 2008-09 and unitwise ASI data for year 2004-05 applied on, ASI 2005-06 and NSS, 62nd round data (see Gol 2008a).

Table 3: Mill, Powerloom, Hosiery and Handloom Sector

	OAME	NDME	DME	OAME, NDME, DME	Small to Medium Unorganised	Small to Medium ASI	Medium	Large	Total
Total no of units	14,32,853	1,07,927	59,203	15,99,983	318,06	396	3,227	4,030	16,39,442
Handloom and hand-knitted share	73.5	44.9	29.4	70.0	19.7	56.1	54.3	42.6	68.9
Installed looms	14,32,853	3,65,843	4,64,910	22,63,606	4,89,602	6,384	1,06,770	3,69,560	32,35,922
Handloom and hand-knitted share	73.5	46.3	28.1	59.8	21.7	59.1	55.8	43.6	52.1
Employees engaged in these sectors in India	21,49,280	3,65,843	4,64,910	29,80,032	4,38,502	6036	96,452	3,07,055	38,28,077
Handloom and hand-knitted share	73.5	46.3	28.1	63.1	24.3	62.5	61.8	52.5	57.8
Production in mn sqm	4,537	2,183	8,387	15,107	15,779.5	121	2,367	9,978.5	43,353
Handloom and hand-knitted share	23.2	22.8	7.5	14.4	3.0	13.9	13.1	4.8	8.0
Value added (million Rs)	36,173	28,298	1,31,154	1,95,625	1,07,406	911	14,636	48,406	3,66,983
Handloom and hand-knitted share	28.5	37.5	6.7	15.2	5.8	24.3	23.3	10.1	12.1

Source: Primary survey conducted by NCAER in 2008-09 and unitwise ASI data for year 2004-05 applied on, ASI 2005-06 and NSS 62nd round data (see Gol 2008a and 2008b).

for the textiles sector (all fibres) for 2005-06. On the basis of a one to one comparison, it could be established that value added estimates in this study are on the higher side. The explanation is that value added per unit derived from survey results are for the 2008-09 prices. This is because per unit ratios derived based on the NCAER 2008-09 survey are applied on the number of units estimated from the secondary data for 2005-06. Per unit ratios in quantity terms are unlikely to differ much for the period 2005-06 to 2008-09, but these ratios in value terms are at least going to be higher by the margin of inflation during the period.

5 Major Characteristics of Surveyed Clusters

Powerloom Sector: The powerloom clusters are located in diverse geographical boundaries and are mainly the outgrowth of handlooms centres, where handlooms were unable to compete with the mill sector. Easy availability of raw material and skilled labour, proximity to dyeing, bleaching and processing kind of ancillary units are crucial in determining the location of the powerloom clusters. Powerloom units are not as labour-intensive as handloom, especially at the higher scale.

An average worker (a weaver or a helper or any other assistant) can operate one-loom/knitting machine in small units engaging less than 10 looms and 2-3 looms/knitting machines, simultaneously in the middle to large size units with modern technology. The wages are linked to the piece production per worker/loom, skill and the quality of fabrics produced, scarcity of labour and the presence of trade unions in the cluster. The wage rates in Ichalkaranji and Malegaon (Maharashtra) powerloom clusters are lower compared to Sircilla in Karimnagar district of Andhra Pradesh and Panipat in Haryana because of absence of trade unions. The wage cost to produce per square metre of a cotton saree in West Bengal is Rs 2.51 as the labour is unionised compared to Rs 1.10 in Tamil Nadu. The power rate and the kind of loom/knitting machine used are other important factors explaining the wide variations in these variables and overall cost per square metre of fabrics production across states.

The benefits enjoyed by the small and marginal unorganised sector include lower power cost per unit, lower labour cost (as several labour laws are not applicable), lower overhead costs, tax saving/evasions, etc. These led to the growth of small- and medium-sized powerloom units. The average size of the surveyed units varies between three, four and six looms, respectively in

Uttar Pradesh, West Bengal and Madhya Pradesh compared to around 40 looms in Tamil Nadu and Maharashtra. For other states, it varies between these two limits.

Most of the powerloom units operate round the clock throughout the year in two shifts of 12 hours each in the state of Tamil Nadu and Gujarat, and in Punjab, Uttar Pradesh and Orissa in one shift of around 12 hours a day. Profit margin/overhead costs vary in the range of 5% to 35% across clusters. This is subject to the market conditions and the order received from the buying party.

Tamil Nadu, Andhra Pradesh, Karnataka and Gujarat provide power subsidy to small size units. It was noticed during the survey that a few big corporate houses run many small- and medium-sized powerloom units in different workshops and under different banners across the clusters to enjoy this benefit. In Tamil Nadu, the connection for lower horse power (up to 10 HP) is easy to get and is charged at Rs 2.30 per unit consumption compared to Rs 4.90 for connection higher than 10 HP. The Government of Andhra Pradesh follows similar power policy in 2001, and Rs 0.87 were charged per unit for connection up to 5 HP compared to Rs 1.74 for connection more than 5 HP.

To produce a cotton dhoti, the average cost of electricity consumption in Uttar Pradesh is Rs 0.91, Tamil Nadu Rs 0.70 and Maharashtra Rs 1.05 per sqm. The power shortage/cuts are severe and more frequent in northern states as compared to southern states. The power is not available even for six hours continuously in the states like Uttar Pradesh and Punjab. Small and household powerloom units cannot even afford to install generator sets.

The various kinds of varieties of fabric (suiting, shirting, made-ups, long cloth, etc) are manufactured in these clusters. In manufacturing grey cotton fabric per square metre, the cost of yarn is estimated at Rs 3.87 in Maharashtra, Rs 5.07 in Gujarat, Rs 14.94 in Haryana and Rs 16.74 in Rajasthan, respectively. The purchase price of yarn is likely to be low in case it is purchased from powerloom and handloom cooperatives rather than from the master weavers or middlemen or retailers. If the yarn is procured in bulk directly from spinning mills or wholesalers, it costs less and if it is purchased in small quantities from wholesalers/retailers it costs more as latter often indulge in speculative practices. The types of fibre (yarn) used and the level of modernisation are other important factors in this regard.

Fabrics produced from a shuttleless loom are of much greater width and of superior quality as compared to from an automatic

or semi-automatic loom. The weft insertion rate is also very high in case of shuttleless looms and is one of the important factors to explain the weight of fabrics, and thus, the yarn cost per square metre. Many operations are performed manually in most of the small units in most of the clusters which lead to a variation in the quality of different pieces. This leads to an increase in rejections in the export consignments.

The condition of dying and processing in clusters belonging to Uttar Pradesh, Orissa and Madhya Pradesh is in a pathetic condition due to the redundant dying and bleaching techniques, inadequate technology upgrading, poor yarn quality testing facilities, poor quality of water, inadequate water supply, etc. But Tamil Nadu and Punjab are better placed in this matter due to strict observance of effluent treatment laws. Many dyeing units have been closed down by the state pollution control boards, as they are not able to purchase and maintain costly water treatment plants. This has created a shortage of infrastructure for the time being and also raised the cost of dying of woven and knitted fabrics.

In this regard, the textile upgradation fund scheme (TUFs) has not been as successful towards small units as compared to large units. The modalities for availing TUFs are better suited for large- and medium-size units compared to small size units. These need to be taken into consideration as small-scale sector seems to have a definite edge in the textile and clothing sector.

The cooperatives are running effectively in Tamil Nadu, Maharashtra, Madhya Pradesh and Kerala. In Tamil Nadu, the powerloom weavers' cooperative societies mainly produce the cloth required under the scheme of free supply of saris, dhoties and uniforms to schoolchildren as per the directives of the state government. In Madhya Pradesh, the powerloom cooperative societies have to supply bedsheets and other made-ups to state government hospitals and government offices. The handloom cooperatives operate on same lines and function well in Tamil Nadu and Kerala. The handloom cooperatives procure yarn from the National Handloom Development Corporation and a few other agencies. The marketing of this product and payment is ensured and made immediately. But in Orissa, the cooperatives are not functioning effectively and payment is a problem. The handloom owners in such states have to take recourse to local buyers or middlemen for making their needs.

In clusters like Jabalpur (Madhya Pradesh), the supply of yarn units is entirely dependent on the Madhya Pradesh State Powerloom Weavers Cooperative Federation. But the cooperative is not able to timely supply yarn to the units in adequate quantity and the alternative sources are very costly. In Somanur cluster of Coimbatore, the powerloom units complain the non-availability of yarn in the local market at reasonable price due to excessive exports of yarn. The smaller size units suffer more due to lack of storing capacity.

A large number of so-called handloom cooperative units in Delhi are actually managed by single individual/family owners. The other registered cooperative members remain dormant or work as labourers in the same unit under one shed, but units enjoy all the benefit of cooperatives. Some of these handloom units even own a showroom in which various items actually produced in the powerloom sector are sold as handloom products.

A few household units in the state of Tamil Nadu graduated to work independently after acquiring the trade secrets and enjoying the benefits of cooperatives initially for a few years. This change provides operational freedom as units could undertake a job work, but acquiring loan becomes difficult.

Knitted and Hosiery Sector: Hosiery broadly refers to the garments made from knitted fabrics. Most of the knitting and hosiery production activities take place in three clusters, namely, Tirupur, Ludhiana and Kanpur. The average size of the units is the highest in Tirupur, followed by Ludhiana and Kanpur. Most of the units in Tirupur and Ludhiana produce both knitted fabrics and garments, mainly on a job work basis, but units with entire value chain operation, from knitting to packaging of garments, are rare. A few integrated units exist with entire value chains, but even these are not homogeneous in terms of operation, size and scale.

Most of firms in Tirupur are either single proprietorship or partnership owned by people mainly from local or adjoining areas. Tirupur accounts for 80% of the country's cotton hosiery exports, and Ludhiana 70% of the woollen garment exports. The Kanpur cluster is not well-developed, but concentrates on domestic markets with targets on lower end segment. Ninety per cent of units in Tirupur are export-oriented units.

In Ludhiana, a handful of spinning mills supply yarn to knitting units often through their agents. Hosiery units frequently complain that prices are often raised and rates are even renegotiated during the period between placing order and delivery of yarn by the yarn mills depending upon the opportunity. In Kanpur, the grey hosiery yarn is imported from other states through traders/brokers and non-availability of yarn locally is a major constraint.

In Tirupur and Ludhiana, most of the knitting is done on imported modern circular and flat knitting machines with a large diameter. Knitting in these units is very capital-intensive and one worker can run up to three knitting machines simultaneously. The yarn wastage is low and knitting is done mostly in three shifts. In contrast to Tirupur and Ludhiana, in Kanpur, the units have old conventional knitting machines with low speed and productivity.

The average cost per kilogram of knitted cotton fabric is lowest in Kanpur at Rs 176.59 and the highest in Tirupur at Rs 182.78. The average yarn cost at Rs 151.72 in Tirupur is also the highest due to better quality of knitted fabric produced mainly for exports. Wages per kilogram of fabric is lower in Tirupur compared to Ludhiana, but are higher than Kanpur.

In contrast to knitting units, garment units work 10-12 hours a day and run only in one shift. Manual or semi-mechanised cutting operation is mainly performed in garment units. Fully mechanised cutting machines are used rarely. A worker with no previous work experience in this sector, first, has to work as a helper for a few years and then as a tailor or a supervisor.

Each piece goes through different stitching processes and to put accessories on various power-aided stitching machines. The capacity utilisation of the machine is tricky. The single and multiple-needle machines can be fully utilised, while the utilisation of the overlock machine, cauze machine, button machine, etc, depend upon the kind of fabrics produced.

The medium and large garment units are mainly engaged in assembly line work such as the stitching of various garment parts together and fixing accessories on these, and hence, production per machine/labour is high in such units. The small units mainly perform slow labour-intensive work.

All stitched clothes need to go through a checking process. Dyeing/printing and/or embroidery are done after stitching in some high value garments as per order. Labelling, ironing and packaging need to be undertaken on garments before dispatching them to the buying/export houses.

Many large units have a separate designing department and get support from institutions like the National Institute Fashion Technology (NIFT). These larger units use Computer Added Design (CAD) and Computer Added Manufacturing (CAM) to improve the quality of their garments. Some other units rely on internet for getting modern designs. Medium and small units mainly depend on buyers for supply of design.

The average fabric cost in making a T-shirt is estimated at Rs 64 per piece in Tirupur compared to Rs 35 in Ludhiana. In case of undergarments, the average fabric cost is estimated at Rs 5 in Tirupur compared to Rs 10 per piece in Kanpur. In preparing a vest, the average fabric cost varies from Rs 6 in Tirupur to Rs 11 in Kanpur. The fabric cost of T-shirt is higher in Tirupur as most of the surveyed units are engaged in exports for which they need superior quality fabric. Fabric cost per piece depends on the quality and weight of the fabric.

Woven Garments: Barring a few cluster-specific exceptions, there are similarities in features and problems of the woven and knitted garment segment. However, there are contrasts as well. The Indian woven garment segment is more focused towards the domestic market. The fabric and garment activities are done in independent units and woven garment units face stiff competition from the custom tailoring segment even presently as were found during the survey of Noida, Guragaon, Okhla, Bangalore and Madurai garment units. The de-reservation of garment units and other reforms after 2000 have caused a significant growth in the woven garment segment at the cost of custom tailoring segment.

Handloom Sector: This sector historically enjoyed a special status in India as it requires relatively less investment, provides individuals with gainful employment at their place of residence, self-sufficiency and preserves centuries of accumulated artisanal skills of weavers dispersed across the country. One main weaver per loom is required. The production per loom depends mainly upon the quality and skill of the main worker. At least one supplementary worker is also required per loom for pre- and post-loom activities.

Some of the surveyed clusters were found to specialise in specific products, e.g. Nuapatna (Orissa) and Pochampally (Andhra Pradesh) in Ikat sarees, Karur (Tamil Nadu) and Bijnore (Uttar Pradesh) in home furnishings, Panipat (Haryana) in Khes, Amritsar (Punjab) in woollen furnishings, Chennimalai-Erode (Tamil Nadu) and Nalbari (Assam) in silk sarees.

The saris, bedsheets, table mats, table linen, curtains, dusters, and other made-ups are the main items produced in handloom

sector. The powerloom sector could not maintain its complete supremacy in these products as in case of yardage materials (long cloth). These are end products of very small lengths and it requires frequent stoppage to produce these on high-speed powerlooms and even then the finish is not entirely same as in case of handloom products. However, even skilled weavers are finding it hard to meet their both ends due to stiff competition from the powerloom sector. The handloom weavers at least do not want their children to inherit this profession, and hence, skills are not passing on to children as was the case in the past. The handloom sector has started engaging female weavers and helpers due to a scarcity of male weavers at prevailing wages. This helps it to cut cost. A large variation in the wage rate has been observed across states and quite often in terms of piece rate payments. The estimated wage rate is found to be Rs 116 per day in Tamil Nadu, Rs 80 per day in Orissa and Rs 50 per day in Andhra Pradesh on the basis of surveyed clusters. Apart from yarn cost and wages, warping, dyeing, processing, packaging cost are the other costs in handloom fabrics production.

The production per loom for cotton and cotton-synthetic blended fabric is generally high compared to silk and wool fibres. Average production of silk sari per loom a day is found to be 7 sqm in state of Tamil Nadu and Gujarat and that of cotton sari 19 sqm and 13 sqm in West Bengal and Maharashtra, respectively. The wages per sq m of woollen and silken products are also high compared to cotton products. The former require more time and skill.

The handloom units work around 8-10 hours a day, which can be stretched to 12 hours at times. It is not a regular phenomenon in rural areas during the agricultural season. In Ernakulam (Kerala), it was found out that the weavers run handlooms only when they are not able to find any alternative work.

In recent years, cheap availability of imported silk yarn from China, which is better suited for production in powerloom sector has further caused stiff competition to handloom silk producers. In addition, the cheap silk fabric from China is also imported, which on an average costs \$1.15 per metre compared to the Indian handloom costs of \$2.5-4 per metre.

The stiff non-tariff barriers imposed by developed countries are major problems faced by the export-oriented handloom clusters. The buyers make frequent objections to even use of family child labour, livestock rearing near the location of looms in household units on the suspicion that it can affect quality.

Problems and Policy Implications

The government's efforts to help the handloom sector by imposing restrictions to produce hank yarn and other schemes are not yielding desired results. The government can at best provide assistance to weavers so that they can repackage the limited products in which the handloom sector has a chance of survival. There is a need to increase the varieties of designs and modernise the dyeing and processing activities. In the Karur cluster in Tamil Nadu, durries and curtains are being produced by combining cotton yarn and khas (a plant product) together. Similarly, dusters, *gamachhas*, etc. are produced in the handloom sector which are difficult to be produced in the powerloom sector.

It is also required to strengthen the handloom cooperatives and remove the loopholes in the government schemes in the states where it is not properly functioning. Special schemes for modernisation of the small-scale sector are needed, which can include strengthening the cooperatives self-help group model of microfinance in clusters, etc. The government should facilitate the sale (mela), seller-buyer interaction and help development of new varieties/products, and technology, create infrastructure and research and development.

For handloom units, the TUF scheme which provides 25% capital subsidy on purchase of new machinery and equipment is not suitable as technology in this sector is hardly changing and most of the units are not aware of this scheme. Even in the powerloom sector, many units are unable to avail of the TUFs as they work on a job work basis. Most of them do not maintain proper books of account, and thus, fulfilling the accounting requirements of bankers for loans is difficult. The small-sized units also do not qualify for the working capital availability requirement of banks. The requirement to contribute 35% of the project cost for getting the TUFs loan is also not easy to satisfy.

To mitigate the power problem in the short-term, small powerloom units in a cluster can pool their resources to establish a captive power plant or a common generator set on a shared basis. In

this collaborative effort of the units, government can provide some financial and technical help. But in the medium to long term, the government will have to invest in the power infrastructure enormously to make the existing firms competitive internationally and attract new firms in the industry.

A few products are exempted from sales tax, which acts as a disincentive to enlarge the product mix towards more value added products. This anomaly in the fiscal system needs to be removed.

Many units reported in Tirupur and Ludhiana hosiery clusters that they have in general 20-30% of labour supply shortage compared to their labour demand. Thus, many units are constrained to expand their scale of operations. The problem of accommodation is also partially associated with labour availability. Despite unemployment in the proper hinterland, the clusters are unable to attract workers because of a lack of proper accommodation facility. Lack of training centres for workers is another problem.

Lack of proper infrastructure, e.g. water, roads, rail, drainage, residential facilities, etc, is also a major problem. In the Tirupur hosiery cluster, the capacity of the cluster has outgrown so much during the last two decades that the infrastructure has not been able to keep pace with it. Infrastructure such as hostels and training institutes can be developed on a public-private partnership module on sustainable basis involving both large and small units.

NOTES

- 1 Employment multiplier for textiles, leather and rubber as derived using the 23*23 India input output table for 2003-04 is estimated at 1.4378 and output multiplier at 2.4745. It implies that Rs 1 lakh output of textiles, leather and rubber creates man years of employment of 1.4378 and generates a cumulative output of Rs 2.4745 including the Rs 1 lakh output.
- 2 There exists 0.47 million powerloom units in which 2.1 million looms are installed. 3.89 million looms are installed in handloom sector (Ministry of Textiles, Compendium of Textile Statistics). There also exists 176 composite and 179 weaving mills in which 56,000 and 15,000 looms are installed, respectively. Despite several reforms and reduction in duties, the taxation on goods made from synthetic fibres remains high relative to cotton goods.
- 3 Despite several reforms and reduction in duties, the taxation on goods made from synthetic fibres remains high relative to cotton goods.
- 4 OAME is a manufacturing enterprise, which runs without any hired worker employed on a fairly regular basis. NDME is a manufacturing establishment employing less than six workers (household and hired workers taken together). DME is a manufacturing establishment employing six or more workers (household and hired workers taken together) with power and six to 19 workers without power. Factory sector or organised sector means unit employing 10 or more workers and are/were working on any day proceeding 12 months with the aid of power or 20 or more workers without the aid of power.
- 5 NSS 62nd round analysis of textiles and clothing units is based on sample survey of 27,423 units at all-India level and units using electricity in this accounts for 14,971. Thus, the number becomes small at the disaggregate NIC five-digit level, especially when an analysis needs to be undertaken at state level.
- 6 Small sector consists of OAME, NDME and DME units.
- 7 The information related to number of medium and large units is obtained prior to selecting the sample size from each cluster, which is available from the district headquarters as well as secondary

sources. This information is used as a base for selecting the sample size from each cluster.

- 8 The number of textiles and clothing units account for 5.78 million. An attempt is made to identify units belonging to cotton and synthetic segment and those using looms or knitting machines to produce at least part of their production. A few industries such as weaving of cotton textiles on handloom and embroidery work by hand, etc, are easily identifiable. However, identification is not easy in case of products such as manufacture of other textiles/textile products net and manufacture of nets (except mosquito net) even on the basis of analysis at five-digit level. Even in products in which it is possible to identify the sector of production such as embroidery work by hand, it is not easy to find whether this product is merely value addition after weaving stage or weaving is also covered in this. The information collected from the field and experts' opinion is sought to identify the industries in which weaving is an activity undertaken partially or fully.
- 9 Value added is estimated by subtracting the cost of inputs from the value of output. In this imputed value of family workers is also included. The weighted averages within each category is derived and vary considerably across size and looms installed in unit.
- 10 Bedi and Cororaton (2008) estimated employment of 6.56 million for the entire cotton and synthetic textile sector during 2005-06. In case all fibres are taken into account, the employment for entire textile sector (all fibres) is estimated at 7.65 million using ASI and NSS 62nd round data. NSS 61st round data on employment-unemployment show estimates of 9.64 million employment generation in textile sector (all fibres) during 2004-05. Employment estimates using household survey information from NSS data on employment-unemployment are generally higher compared to the unitwise data (NSS data on unorganised manufacturing sector and ASI data). This is because the purpose is different and the workers who work only part time in a unit and remain ideal during the remaining part of the year are even counted as workers in employment-unemployment data.

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