# **Economics of Handloom Weaving: A Field Study in Andhra Pradesh**

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Based on fieldwork, this paper examines the problems and prospects of the handloom sector in Andhra Pradesh. One major finding is that the growth performance of cooperatives determines the growth of other institutions — the master weavers, middle men and independent weavers. Well-performing cooperatives are the best safeguard for the handloom sector, as they protect the weaver and also provide a counterbalance to the master weaver. Competition from powerlooms is an obvious threat, but this can be countered if the sector produces high value, unique (brand value) products or medium value products which can be marketed locally or abroad, as distinct from powerloom products.

The economics of handloom weaving is shrouded in a web of contradictions between subjective perceptions and objective realities. For policymakers, handloom weaving is a holy cow, too reminiscent of nationalist ideals to be rejected. At the same time, it is seen as inherently unviable in competition with the modern sector, and while many policy statements were made to support the handloom sector after independence, these have not been implemented with any degree of success. After liberalisation, textile policy is more openly slanted towards higher productivity (the powerloom sector) and export potential, implicitly relegating the handloom sector to a secondary status. The more widespread perception is that handloom weaving is an activity in deep crisis, caught in a vicious circle of low productivity and wages unable to retain a competitive edge in the face of competition from powerlooms, rising costs of inputs and production, shrinking markets and lack of adequate state support. This, in fact, is the perception of the various stakeholders in handloom weaving itself. Yet, at the macro level, the handloom sector has maintained a steady 20 to 25 per cent share of total textile production, notwithstanding the increase in the number of powerlooms across the country. Thus, while the secondary data also indicate a decline in the number of looms and workers between 1985-86 and 1995-96 (Census of Handlooms), it would seem that output has not been affected.

# 1 Introduction

In order to reconcile the questions, that arise out of these contradictory perceptions and secondary information, this study tries to analyse the present situation of the handloom sector in Andhra Pradesh (AP). The state has always been a major producer of handloom textiles, and has the second highest number of looms and workers among all the states, next only to West Bengal. Yet, though the powerloom sector is relatively small in the state accounting only for about 2.8 per cent of the total powerlooms in the country, the handloom weavers themselves feel that they are in an activity, that is in crisis, for the same reasons mentioned above. Cases of suicides among weavers in the last few years strengthen this perception. This paper therefore sets out to find out whether handloom weaving is facing a crisis, if it is, is it uniform across all handloom centres in the state and what, if any, is the impact of powerlooms on handloom weaving.

# 1.1 Sample Design

The study adopts a four stage stratified purposive sampling design. Districts and clusters (group of villages where there is

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concentration of handloom weaving) form the first and second stage; weavers and institutions form the third and fourth stage. The districts have been selected from the five agro-climatic regions of the state - north and south coastal Andhra, north and south Telangana and Rayalaseema - on the basis of the maximum and smallest decline in loomage between 1987 and 1995. From north coastal Andhra, Vijayanagaram, which had the highest decline, and Visakhapatnam that shows an actual increase in loomage have been chosen. In south coastal Andhra, Prakasham, Guntur and Krishna districts have been selected on the basis of decline in loomage. In Rayalaseema, the worst affected districts in terms of loomage - Chittoor and Cuddapah - have been included in the sample. In the Telangana region, besides Karimnagar, which accounts for 34 per cent of total powerlooms in the state, Medak and Nalgonda districts, which have also experienced a decline in loomage, have been chosen. From each district, one handloom cluster has been selected for fieldwork. The criteria used for the selection of clusters include product diversification, existence of different institutional structures and the extent of linkages of the cooperative societies with the Andhra Pradesh Handloom Weavers' Cooperative Society (APCO).

The villages in the cluster were selected on the basis of discussions with the officials of the office of the additional director, handlooms and textiles department in the respective districts and the key informants. Apart from the main village in which the cluster was situated, three surrounding villages were selected – one with a good society preferably with shed weavers, a second village with a bad cooperative not less than 10 km from the main village and a third village which is preferably beyond 10 km from the cluster (to capture the impact, if any, of middlemen).¹ In addition, information was also collected from the key informants (weavers, cooperatives, master weavers and middlemen) on the various institutional structures and working systems, and three major products woven in these villages.

# 1.2 Data Collection

The study adopts survey and non-survey methods. Survey method includes administering of structured household questionnaires to the selected sample of weavers. Focused group discussions and strategic interviews were conducted with various stakeholders: weavers both within and outside the cooperative fold and with independent weavers to collect first hand information about

their working and living conditions; and with the stakeholders in the powerloom sector in these districts/clusters wherever they are in operation, to capture the working and living conditions of the weavers in the sector. Discussions were also held with officials and others involved in supply of inputs to the handlooms sector.

### 2 Organisation of Handloom Weaving

The individual weaver, working from home with his own loom, continues to be the basic unit of production in handloom weaving. However, though there are a few independent weavers, production and marketing are generally organised under two institutional

structures – cooperatives and master weavers. In some areas there are also a few middlemen who are generally promoted and controlled by the master weaver. This section assesses how these different institutional structures have grown and performed over time, and how their growth and performance have been influenced by both internal (management) and external (government policy, market conditions, competition from powerlooms) factors. A longitudinal database is required to analyse the above issues. As this is not available for all the parameters, the analysis is based on the secondary data available and primary data collected through the survey conducted for this study.

# 2.1 Performance of Handloom Cooperatives

The cooperative movement always had a strong base in Andhra Pradesh, even in the years prior to independence. The momentum of setting up more cooperatives continued till the 1980s, and the number rose to 2,115 by 1982-83. But since many of the cooperatives were either defunct or running at a huge loss, as a remedial measure the government reorganised the cooperatives by a process of mergers and liquidation, bringing their number to 825 by the end of 1983. In all, 61 per cent of the societies were liquidated

Table 1: Number of Idle and Active Members in the Sampled Societies

	Begi	nning					
Active	Idle	Total	% Idle	Active	Idle	Total	% Idle
1,000	0	1,000	0	35	137	172	79.65
600	600	1,200	50	420	190	610	31.15
300	0	300	0	30	110	140	78.57
200	0	200	0	250	396	646	61.30
60	0	60	0	156	78	234	33.33
50	0	50	0	400	233	633	36.81
210	0	210	0	80	976	1,056	92.42
28	0	28	0	120	289	409	70.66
120	35	155	22.58	25	140	165	84.85
NA	NA	NA	NA	160	690	850	81.18
500	69	569	12.13	188	164	352	46.59
18	45	63	71.43	75	162	237	68.35
60	0	60	0	150	29	179	16.20
45	0	45	0	208	31	239	12.97
NA	NA	NA	NA	95	32	127	25.20
NA	NA	NA	NA	20	94	114	82.46
340	60	400	15	47	92	139	66.19
120	0	120	0	80	76	156	48.72
1,000	0	1,000	0	150	1,125	1,275	88.24
170	30	200	15	70	10	80	12.50
170	0	170	0	30	24	54	44.44
	1,000 600 300 60 50 210 28 120 NA 500 18 60 45 NA NA NA 340 120 1,000	Active Idle 1,000 0 600 600 300 0 200 0 60 0 50 0 210 0 28 0 120 35 NA NA 500 69 18 45 60 0 NA NA NA NA NA NA NA NA O NA	Active         Idle         Total           1,000         0         1,000           600         600         1,200           300         0         300           200         0         200           60         0         60           50         0         210           28         0         28           120         35         155           NA         NA         NA           500         69         569           18         45         63           60         0         60           45         0         45           NA         NA         NA           NA         NA         NA           10         40         40           120         0         120           1,000         0         1,000           170         30         200           170         0         170	Active         Idle         Total         %Idle       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1,000         0         35           600         600         1,200         50         420           300         0         300         0         250           60         0         200         0         250           60         0         60         0         156           50         0         50         0         400           210         0         210         0         80           221         0         221         0         80           120         35         155         22.58         25           NA         NA         NA         NA         160           500         69         569         12.13         188           18         45         63         71.43         75           60         0         45         0         208           NA         NA         NA         NA         95           NA         NA         NA         15         47           120         40         15         47	Active         Idle         Total         Widle         Active         Idle           1,000         0         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    Widle         Active         Idle         Total           1,000         0         1,000         0         35         137         172           600         600         1,200         50         420         190         610           300         0         300         30         110         140           200         0         200         250         396         646           60         0         60         0         156         78         234           50         0         50         0         400         233         633           210         0         210         0         80         976         1,056           28         0         2210         0         80         976         1,056           28         0         228         0         120         289         409           120         35         155         22.58         25         140         165           NA         NA         NA         NA         160         690         850           50         569         15.13         188         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WCS= Weavers' Cooperative Society, NA = not available.

ource : Field survey

in the process. But, contrary to expectations, such arbitrary reorganisation, in fact, adversely affected even the viable societies. Even after this period there was a steady decline in the number of cooperatives in the state which came down to 755 by 2003-04 (GOAP). According to the latest information, as on March 31, 2005, only 540 of the 783 officially listed cooperative societies in AP were active (GOAP). The pattern was not uniform across the different regions of the state, and some regions actually show an increase in the number of societies. It must also be borne in mind that the fact that a society is officially listed does not mean that it is actually a functioning society.

The number of weavers in the cooperatives has declined from 3,56,250 in 1985-86 to 1,32,291 by 2003-04, recording a decline of 63 per cent for the state (GOAP). There has been a decline across all the regions, varying from 46 per cent (south coastal) to 77 per cent (south Telangana). In Rayalaseema and south Telangana, where the number of societies increased, there has been a decline in member coverage. The mere fact that weavers continue to be enrolled in a society also cannot be taken to indicate the status of the cooperative. Most often weavers continue to be members on the rolls, but do not receive work from the society for long periods of time. This has been observed in many of the sampled societies in AP. For instance, there are societies in Chittoor,

Table 2: Loom Status in Sampled Cooperatives

District		Beg	inning		Present					
	Active	Idle	Total	% Idle	Active	Idle	Total	% Idle		
Narayanavanam WCS, Chittoor	1,000	0	1,000	0	35	137	172	79.65		
Kamalapur WCS, Karimnagar	600	600	1,200	50	420	190	610	31.15		
Maripallegudem WCS, Karimnagar	300	0	300	0	30	110	140	78.57		
Choutuppal WCS, Nalgonda	200	0	200	0	250	396	646	61.30		
Kuntlagudem WCS, Nalgonda	60	0	60	0	156	78	234	33.33		
Koyyalagudem WCS, Nalgonda	50	0	50	0	400	233	633	36.81		
Sivaji WCS, Prakasham	210	0	210	0	80	894	974	91.79		
Sri Venkateswara WCS, Prakasham	28	0	28	0	120	289	409	70.66		
Abhyudaya WCS, Prakasham	155	0	155	0	25	140	165	84.85		
Chirala WCS, Prakasham	NA	NA	NA	NA	160	690	850	81.18		
Sri Uma Maheswara WCS, Vijayanagaram	500	69	569	12.13	188	164	352	46.59		
Payakaraopeta WCS, Visakhapatnam	18	45	63	71.43	75	162	237	68.35		
Sri Sambamoorthi WCS, Visakhapatnam	60	0	60	0	150	29	179	16.20		
Polavaram WCS, Krishna	45	0	45	0	208	31	239	12.97		
Rayvaram WCS, Krishna	NA	NA	NA	NA	95	32	127	25.20		
Sri Ramalingeswara WCS, Krishna	NA	NA	NA	NA	20	94	114	82.46		
Saraswathi WCS, Guntur	NA	NA	NA	NA	47	92	139	66.19		
Harijana WCS, Guntur	80	0	80	0	40	NA	40	NA		
Jogipet WCS, Medak	950	NA	NA	NA	NA	NA	NA	NA		
Upparpalli WCS, Kadapa	170	30	200	15	70	10	80	12.50		
Madhavaram WCS, Kadapa	100	50	150	33.33	30	24	54	44.44		

WCS = Weavers' Cooperative Society, NA = not available.

Karimnagar, Prakasham, Nalgonda, Visakhapatnam, Krishna and Guntur where 60 per cent or more of the members are idle (Table 1, p 44). Weavers continue their membership in the hope that the societies may begin to improve.

The performance of cooperative societies is reflected in the number of active looms as against total number of looms. As on March 31, 2005, of the 90,168 looms under cooperatives in AP, only 37 per cent were active, while nearly 63 per cent are dormant. Across the different regions the percentage of dormant looms ranged between 40 per cent (Rayalaseema) and 74 per cent (south Telangana) and 72 per cent and 74 per cent in the south coastal districts. In Prakasham (92 per cent), West Godavari (88 per cent), Khammam (84 per cent) and Nalgonda (81 per cent) districts the proportion of dormant looms was very high (GOAP). In the field sample, in the districts of Chittoor, Karimnagar, Prakasham, Nalgonda, Visakhapatnam, Krishna and Guntur there were societies where 60 per cent of the looms were idle (Table 2). These figures indicate the extent of underutilisation of capacity in the cooperative sector. This also makes it clear that an increase in the number of cooperatives and membership in societies (as indicated by some of the census data) cannot be considered positive indicators when a large percentage of looms continue to be idle. This only means that societies continue to exist and weavers continue to be members of these societies in spite of not being able to get work on a regular and continuous basis.

# **Cooperative Coverage**

Another indicator of the performance of the cooperative sector is its total output. The quantity of cloth produced in the cooperative sector in the state declined from 923.06 lakh metres in 1985-86 to 225.76 lakh metres in 2003-04, a 77.3 per cent decline. The de-

cline was more pronounced after 1995. The extent of decline varied from 68 per cent (south coastal Andhra) to 79 per cent (Rayalaseema and north Telangana). The only exception was south Telangana, which showed an increase in output by 24 per cent. On the whole, with the exception of East Godavari, Prakasham, Medak, Khammam and Nalgonda, all the districts in the state showed a decline in output in the cooperative sector. The decline was more than 90 per cent in Srikakulam, Vizianagaram, Krishna, West Godavari, Anantapur, Cuddapah, Nellore, Nizamabad and Warangal districts (GOAP).

The problems for the cooperative sector in AP begin with the apex society, or APCO, which has the sole responsibility of promoting and assisting the handloom weaving societies in the state, especially in marketing the cloth produced by the primary societies. In the initial years APCO functioned quite well, with sales reaching Rs 128.41 crore during 1992-93. But there has been a steady decline since then, and in 2000-01 the total sales of APCO amounted to only Rs 20.38 crore (data supplied by APCO). Internal factors, especially relating to management are clearly the main factors in the poor performance of APCO.

The trends in terms of number of societies, number of members, number of looms and productivity indicate the decline in activity and cooperative coverage during the postliberalisation period. It is evident that the cooperatives have failed to fulfil their basic responsibility of promoting and assisting handloom weaving in the state. Various internal and external factors have affected the performance of these institutions. Politicisation, lack of autonomy in functioning, financial and management problems, mismanagement of funds, weaver alienation in decision-making, lack of infrastructure facilities and lack of skill development programmes are some of the internal factors contributing to the overall poor performance of these institutions. These findings come out of the field survey, as well as earlier studies [IRMA 1995; Mukund and Syamasundari 2001]. Handloom weaving also faces external problems such as hostile input and output market conditions. The non-availability in time of inputs like yarn and dyes and their rising cost have severely affected the cooperatives. The failure of APCO has led to piling up of stocks and the heavy dues pending for long periods of time and has further contributed to increasing sickness among cooperatives.

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#### 2.2 Master Weavers

Since there is no secondary data on master weavers, the assessment is based on the present survey based on the recall method. In order to examine the impact of policy changes, we have obtained data for the last two decades covering pre-reform (before 1985) and post-reform (1985 to 2004) periods. Our survey shows

Table 3: Cost Structure, Value Added and Profitability of Weaving Activity under Different Institutional Structures in the Sampled Districts

Description of the Parameters	All Districts												
		Well Function	-		Poorly Function	-							
		Cooperativ			Cooperativ								
	Cooper- ative	Master Weaver	Inde- pendent	Cooper- ative	Master Weaver	Inde- pendent							
A Weaver and loom details	ative	vvcavci	pendent	ative	Weaver	pendent							
1 Sample no of institutions	9	12	43	12	12	47							
2 No of active weavers per institution	n 237.44	52.25	1.44	443.92	17.75	2.68							
3 No of sample weavers under institu	ution 125	118	43	109	85	47							
4 Total weavers under institutions	2,137	627	62	5,327	213	126							
5 Total no of looms under institution	2,440.01	670.74	78.92	5,105.04	312.07	207.64							
6 Prop of HH weavers to total weaver	rs 0.86	0.83	0	0.89	0.69	0							
B Cost of production to produce Rs 1,00	00 worth o	foutput (in	Rs per moi	nth)									
1 Raw material	426.47	505.64	516.42	507.93	241.63	591.43							
Per cent of operational cost	56.72	53.44	81.44	63.14	39.6	88.83							
2 Wages	274.23	382.95	59.95	261.15	351.19	44.79							
Per cent of operational cost	36.47	40.48	9.45	32.46	57.55	6.73							
3 Interest on working capital	7.42	9.24	6.15	7.89	5.97	6.48							
Per cent of operational cost	0.99	0.98	0.97	0.98	0.98	0.97							
4 Other expenses	43.71	48.23	51.56	27.44	11.42	23.08							
Per cent of operational cost	5.81	5.1	8.13	3.41	1.87	3.47							
5 Administrative cost	0.06			0.01									
6 Total operational cost per Rs 1,000 worth of output	751.82	946.07	634.07	804.41	610.21	665.78							
C Value added													
1 Value of output (in Rs per month)	17,26,929	3,23,284.8	9,312.51	33,01,626	1,33,817	25,771.87							
2 Net value added as % of output	52.6	45.12	43.2	46.61	74.67	38.55							
D Profitability													
1 Fixed capital (in Rs)	9,19,634.4	83,315.3	8,372.13	8,42,065.5	23,006.322	4,034.75							
2 Net income (in Rs per month)	4,34810.9	2,2052.73	3,464.97	6,76,667.4	52,924.17	8,780.36							
3 Net profit ratio	0.7	0.48	0.69	0.59	1.24	0.58							
4 Capital turnover ratio	0.53	0.26	0.9	0.26	0.17	0.93							
5 Overall profitability	0.37	0.12	0.62	0.15	0.21	0.55							
6 Income net of OP cost (in Rs per month)	4,46,236.7	24,429.43	3,584.29	6,97,440.2	53,881.53	9,073.84							
7 Income net of raw material, interes working capital, other expenses an	d												
depreciation (in Rs per month)	8,95,481.1	1,42,769.3	3,868.56	15,12,822	99,100.53	9,748.33							

that nearly 50 per cent of the master weavers in the sample have been master weavers for the last two and half decades. There are cases of household weavers, weavers from the cooperative sector and independent weavers who have become master weavers. Interestingly, changes are also taking place in the organisation of production by master weavers in terms of shifting from engaging weavers working from home to weaving sheds. This has obviously been resorted to in order to reduce the cost of production in view of the unfavourable policy environment and more particularly the threat from powerlooms. This indicates that master weavers are able to negotiate the negative effects of the shifts in policy, unlike cooperative societies in which mortality rates and the proportion of idle looms have increased over time and especially during the reform period. Master weavers have continuously

been changing the product mix by shifting from general to specific textiles with brand name value, from saris to dress material and furnishings and thereby from low value products to high value products, and by fine-tuning their designs in response to the requirements of the consumers. Further, some of the master weavers are also purchasing finished products from

other weavers and selling them at a profit that serves as an additional source of income.

Unlike cooperatives, the managerial cost of master weavers was found to be very low, which is also one of the main reasons for their resilience. The master weavers are able to maintain their overall profitability despite a lower profit margin, by optimum use of fixed capital even in the prevalence of unfavourable input and output market conditions and stiff competition from powerlooms, which are the manifestations of the policy environment. Thus, the master weavers are able to sustain themselves by suitably responding to the internal and external factors that constrain their functioning. Recently, a new form of organisation of production has emerged. The master weavers employ middlemen or commission agents, who act as a bridge between the trader-cum-master weaver and the weaver, especially in remote villages in the cluster. This facilitates the master weavers to supervise more effectively as well as help the individual weaver avoid the transaction costs such as loss of productive hours for travelling to the residence of the master weavers. The middlemen, however, siphon off a percentage of wages given by the master weaver as his commission or margin and pay the rest to the weaver.

# 2.3 Independent Weavers

The Census of Handlooms for 1987-88 and 1995-96 shows that at the all-India level as well as in Andhra Pradesh, the proportion of independent weavers has increased by 6 per cent [Census of Handlooms 1987-88 and 1995-96]. Nonetheless, field level observations in the course of study reveal that independent weaving is highly seasonal in nature.

During peak seasons such as festivals and marriages, the relatively better off weavers take up independent weaving to enhance their income through optimum use of family labour. Moreover, this quintessential form of organisation is not widespread across the districts as well.

# 2.4 Performance of Institutional Structures

The study has been designed to assess the economic performance of master weavers and independent weavers who are functioning alongside the good/bad cooperative societies, apart from making a comparative assessment of the two categories of cooperatives. Economic performance has been assessed in terms of cost of production for producing Rs 1,000 worth of output, the cost structure, net value added as percentage of value of output,

Source: Field survey

reward for the management of entrepreneur/cooperatives, profit margin, capital turnover and overall profitability.

According to the field survey, the cost of production for Rs 1,000 of output is the highest (Rs 946) for the master weavers, followed by the cooperatives (Rs 752) and the independent weaver (Rs 634) in the sample sites where the cooperatives are working well. However, in locations where the cooperative societies are not working well, the cost of production was highest for cooperatives (Rs 804) followed by the independent weaver (Rs 666) and the master weaver (Rs 610) (Table 3, p 46). This indicates that the good cooperatives compared to the bad are able to optimise the cost of production whereas the master weavers are able to optimise the cost of production wherever the cooperatives perform badly. This also points to the fact that cooperative societies and master weavers complement each other in the handloom sector.

In handloom production, raw material cost is the major component in the cost of production, accounting for 81 per cent, 57 per cent and 53 per cent of the total cost in the case of independent weavers, cooperatives and master weavers respectively, where the performance of cooperatives is good. The corresponding figures are 88, 63 and 40 per cent, where the cooperatives are performing badly. The variations in the cost of raw material across these institutions are due to two factors: the variations in the composition of raw material obtained from different market channels and the proportion of credit through different sources, given the composition of products produced. The cooperatives are entitled to acquire yarn from the National Handloom Development Corporation (NHDC), which waives the excise duty thereby supplying at a lower price. However, it was observed that insufficient working capital and bureaucratic procedures does not enable the cooperatives to access this facility. On the other hand, master weavers were able to procure the yarn through more efficient channels of procurement. The formation of mutually aided society of master weavers in Chirala is a case in point.

Wages account for only about 8 per cent of the cost for independent weavers while it ranged between 41 and 59 per cent in the case of master weavers and 32 and 36 per cent for cooperatives (Table 3). The wage bill is low for independent weavers because of the predominant use of family labour (in the study, the wages of the family members have not been imputed). The proportion of wages under master weavers is higher as compared to cooperative societies because the weavers are weaving higher value products. This is true both when cooperative societies are performing well or badly. It should be noted that this is contrary to the popular view that the share of the wages under master weavers is less as compared to the share of wages in cooperative societies.

# **Improving Cooperatives**

The proportion of net value added in the value of the output is the highest in the cooperatives (53 per cent) followed by master weaver (45 per cent) and the independent weaver (43 per cent), when the performance of cooperatives is good. The corresponding figures are 47 per cent, 75 per cent and 39 per cent, when the

cooperatives are performing badly. This shows that the contribution of labour to the value of output is high in the good cooperatives and low in the bad cooperatives. Further, it is evident that the contribution of labour is high for the master weavers in the sample sites where cooperatives are performing badly and low in the sample sites where cooperatives are working well. The entrepreneur residual is the reward for the risk taken by the entrepreneur and also indicates the growth potential of these institutional structures. As per this, the good cooperatives and the master weavers in the locations where cooperatives are performing badly have high potential for growth (Table 3).

The profit margin, capital turnover and hence the overall profitability are higher for the good cooperative over the master weaver. On the other hand, the master weavers in the sample sites where the cooperatives are performing badly have higher overall profitability than the cooperative societies, despite their low capital turnover. Interestingly, independent weavers could perform well in the presence of both good and bad cooperatives, but they could put up a relatively better performance in places with good cooperatives. Thus, the good cooperatives, the master weavers in places where cooperatives are performing badly and the independent weavers (whether the cooperatives are performing well or not) all show a high potential for growth.

It is clearly evident that the growth performance of master weavers and independent weavers is determined to a significant extent by the performance of cooperatives. Hence, there is a need to improve the performance of bad cooperatives. This calls for the identification of the best practices of good cooperatives in order to replicate them to improve the performance of bad cooperatives and the weaving community at large. These good practices include: production of fabrics that are different from those produced by powerlooms; continuous endeavour to improve designs to respond to the market; diversification of product profile over time; connecting to multiple market channels including local markets in addition to APCO; and accessing credit largely from formal institutions.

### 2.5 Impact of Powerlooms

There are no powerlooms in seven of the 10 sample districts. In Nalgonda, Karimnagar and Chittoor, powerloom as well as handloom weaving are carried on. In these districts, powerlooms have adversely affected even the good cooperatives. The cost of production for Rs 1,000 worth of output was Rs 786.45 in these districts, as compared to Rs 675.46 in the other districts. The share of wages also went up from 41.5 per cent in the

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non-powerloom districts, to 48.15 per cent in these three districts, without any increase in the contribution to the value of output. The net profit ratio correspondingly also came down from .90 to .78, as did overall profitability. The bad cooperatives too are affected by the powerlooms, which is seen in the decrease in overall profitability. But, the cost of production has come down for these cooperative societies because there has been an increase in the contribution of labour to the value of production (field survey data). This indicates that the badly performing cooperatives have increased their efficiency in utilising labour to minimise the impact of powerlooms, though this might have caused distress to the weavers.

# 3 Employment Channels

The ultimate test of the efficiency of production and marketing institutions in the handloom sector lies in the incomes earned by the weavers working under different institutional structures. Though some institutional agencies have responded to the changing policy environment so as to sustain themselves the issue that needs to be examined is whether the effect of the negative policy framework has been transferred to the weavers, and how weavers have responded to ensure their level of earnings. More specifically, this section addresses itself to the question of what factors influence the decisions of weavers on working for the cooperatives or master weavers, and between working from home (the putting out system) or in sheds? How do the wages, employment and earnings of weavers differ across the institutions, and different working systems? To what extent are weavers able to access government programmes?

The socio-economic characteristics of the weavers considered for the analysis include: age, gender, migrant status, type of residence, use of residence for weaving activity, the period of stay in the place of residence, fixed capital status, whether they have accessed government programmes, and poverty status. Older weavers are generally members of cooperatives. This is because they had become members in earlier years, whereas more recently there has been a restriction on membership for new entrants. A larger proportion of weavers in cooperatives have accessed government programmes, which benefit them, which is also one of the reasons why they continue their membership. However, the fact that a considerable proportion of weavers working with the master weavers could also access the government programmes indicates that members of cooperatives also work with the master weavers.

This is because the quantum of work provided by the cooperatives is inadequate, which leads to underutilisation of capacity at two levels – at the general level, many looms under cooperatives are idle, and for the individual weaver, who does not get enough orders from the cooperative society to keep his loom working throughout the year. Despite this, the incidence of poverty is low among weavers who are with cooperatives. The relatively better access to modern technology (in terms of possession of frame looms, dobby, chain dobby and jacquard which enables product diversification and thus fetches better incomes) is probably a factor, which has enabled the weavers under cooperatives to escape from poverty (Table 4).

# **Working for Master Weavers**

On the other hand, though the economic status of the weavers working with the master weaver is relatively better in terms of possessing a "pucca" house that facilitates weaving at home, lower rate of decline in looms, lower underutilisation of looms and less unemployment, the incidence of poverty is higher among these weavers (Table 4). This indicates that the master weaver underpays the weavers, which is possible because the bargaining capacity of the weavers working with the master weaver is weak. This is partly due to the fact that among these weavers high proportion are migrants with relatively short duration of stay at the

place of work who also depend on the master weaver for credit. This is true even in the case of non-migrant weavers, as they have to depend on the master weaver for work. Thus, it is evident that the weavers are more likely to work for master weavers when the cooperatives fail to provide adequate work for the member weavers. Moreover, younger weavers have no choice but to work for master weavers, as their membership in cooperatives is restricted. The relatively younger age of the weavers working with the master weaver supports this inference (Table 4).

The possibility of weavers keeping away from cooperatives and working for master weavers

Table 4: Socio-economic Characteristics of the Weavers World	king under Different	t Institutional Structures in the Sampled Districts
Description of the Socio-economic Characteristics of the Weavers	All Districts	Districts Where Only Districts Where Both Powerlooms

Description of the Socio-economic Characteristics of the Weavers		All District	S		icts Where ndlooms E	, ,	istricts Where Both Powerlooms and Handlooms Exist			
	Cooper- ative	Master Weaver	Inde- pendent	Cooper- ative	Master Weaver	Inde- pendent	Cooperative	Master Weaver 53 42	Inde- pendent	
No of sample households	236	245	119	133	192	85			34	
Average age of the weavers (in years)	48	42	46	45	42	48			41	
Percentage of migrant weavers	19	30	27	25	30	31	11	30	18	
Duration of stay at the present place (in years)	11	4	5	19	4	6	2	5	3	
Percentage of weavers possessing pucca house	32	36	32	47	40	27	13	21	44	
Percentage of weavers using house for weaving purpose	61	73	88	68	73	86	51	74	94	
Percentage of weavers possessing looms	74	74	98	80	73	98	65	75	100	
Percentage of weavers reporting decline in loomage overtime	21	10	12	23	11	14	18	4	6	
Percentage of weavers reporting possessing of dobby, Jacquard and chain dobby	1	0	2	0	0	2	2	0	0	
Percentage of weavers reporting frame looms	30	10	9	17	12	13	48	2	0	
Percentage of weavers accessing government programme	s 90	42	43	86	39	38	94	53	56	
Percentage of weavers reporting unemployment	71	67	68	61	64	67	83	79	71	
Percentage of weavers reporting underutilisation of looms	6	5	8	4	4	2	8	9	21	
Percentage of weavers reporting underutilisation of looms	4	8	9	4	4	6	5	21	18	
Percentage of BPL weavers	58	62	11	43	70	15	64	32	0	
Percentage of weavers reporting dependency for credit on master weaver	0	11	0	0	6	0	0	26	0	

Jource. Freid Juli Fe

increases in the sample sites where handlooms and powerlooms coexist. The higher proportion of weavers under master weavers who are accessing government programmes in the sample powerloom districts corroborates this observation. The incidence of poverty among weavers working for the master weaver is lower, and indicates that the master weaver has to pay a higher and more competitive wage to the workers in order to attract them from the powerlooms. In general, powerlooms have adversely affected the handloom cooperatives where both coexist, directly and indirectly (Table 4). The direct adverse impact is seen in sites like Chittoor, where the powerlooms produce the same textiles as the cooperatives. The indirect impact of powerlooms on the cooperatives is through attracting younger generation weavers (who are not members of cooperatives) by offering higher wages and by promoting the putting out system which enables even middle-aged men and women to work from home, thereby leaving no weaver to work on handlooms in the long run. But the strong cooperatives which are producing high value, distinctive textiles with brand identification, which are different from those produced by powerlooms could retain their competitive edge, as can be seen in the case of cooperatives in Nalgonda. On the other hand, the cooperatives, which are producing low value products even though they are not produced by powerloom sector could not face even indirect competition from the powerloom sector, as has been the experience in Karimnagar. Our field survey has also reported that household powerloom weavers are producing textiles similar to those produced by the cooperatives, though these were not covered in our samples. This indicates that proper enforcement of the Handloom Reservation Act would clearly protect and benefit the handloom sector.

**Work Choices** 

Weavers generally prefer not to work for master weavers in places where the cooperatives are strong. They choose to take up work under master weavers only when they perceive that they can be better off by this, which is quite clear from the disaggregated field data. On the other hand, the relatively better-off among the weavers opt to be independent in production and marketing arrangements. This is clearly evident from the high proportion of weavers among the independent weavers who possess looms and undertake weaving at home and the low incidence of poverty among them as compared to weavers

working under other institutional structures. The poorest class of weavers who are predominantly homeless, without looms and below the poverty line work in sheds (Table 4). This is very noticeable in the sample sites where the handloom and power-loom sectors coexist.

The above analysis clearly indicates that the restrictions on new members and providing insufficient work for the current members have encouraged some members of the cooperatives to take up work under master weavers. But, at the same time, weavers working for master weavers seem to be in a disadvantageous position due to their weak bargaining power as well as lack of adequate work. It is also clear that all the weavers of cooperatives are not turning to master weavers and at the same time all the weavers under master weavers are not in cooperatives, in spite of the disadvantages they face with master weavers. There are thus a variety of work choices made by the weavers about taking up work either with the cooperatives or under master weavers. Some may be working for both simultaneously and some may be completely changing from cooperative to master weaver and vice versa. The same may be true in case of working systems. A comparison has been made of the socio-economic characteristics of the two groups of weavers - those who have changed their institutions/working system; and those who have not - to identify the factors contributing to their choices; and the changes have been captured over time, covering the pre-policy reforms as well as post-policy reform periods to assess broadly the impact of policies on these changes.

# 3.1 Shifts in Employment Patterns

The field survey shows that the proportion of weavers changing their employers as well as working systems has been increasing over time (Table 5). The rate of change has accelerated in the post-reform period (1985-2005), leading to the inference that reforms have been a contributory factor. The fact that a higher proportion of weavers have shifted to a different employer or to a different working systems in the sample sites where both handloom and powerloom weaving is carried on, as compared to areas where only handloom weaving exists strengthens this inference (Table 5). It is also interesting to note that the weavers are changing not only from cooperatives to master weavers but also from master weavers to cooperatives. This indicates that reforms have affected not only the cooperatives but also the master

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Table 5: Changing Employment Choices of Weavers Over Time in Sampled Districts

								Changes o	ver I ime								
All Districts						Districts Where Only Handlooms Exist					t Districts Where Both Powerlooms and Handlooms Exis						
Before	1985-	1990-	1996-	After	All	Before	1985-	1990-	1996-	After	All	Before	1985-	1990-	1996-	After	All
1985	89	95	99	2000	Periods	1985	89	95	99	2000	Periods	1985	89	95	99	2000	Periods
694	694	694	694	694	694	488	488	488	488	488	488	206	206	206	206	206	206
25	35	61	36	101	258	12	28	42	33	59	174	13	7	19	3	42	84
							No	ot Availa	able								
4	3	7	22	8	9	0	4	10	21	12	11	8	0	0	33	2	4
8	9	10	8	21	14	17	11	12	6	20	14	0	0	5	33	21	13
20	9	11	6	14	12	33	11	14	6	12	13	8	0	5	0	17	11
0	6	23	44	36	26	0	7	29	45	42	31	0	0	11	33	26	17
28	54	13	3	6	16	17	57	17	3	3	16	38	43	5	0	10	15
28	6	21	11	9	14	17	4	7	12	7	8	38	14	53	0	12	25
	1985 694 25 4 8 20 0	1985 89 694 694 25 35 4 3 8 9 20 9 0 6 28 54	Before 1985- 1990- 1985 89 95 694 694 694 25 35 61  4 3 7 8 9 10 20 9 11 0 6 23 28 54 13	Before 1985- 1990- 1985         1990- 99         1996- 99           694         694         694         694           25         35         61         36           4         3         7         22           8         9         10         8           20         9         11         6           0         6         23         44           28         54         13         3	Before 1985- 1990- 1985         1990- 99         After 2000           694         694         694         694         694           25         35         61         36         101           4         3         7         22         8           8         9         10         8         21           20         9         11         6         14           0         6         23         44         36           28         54         13         3         6	Before 1985- 1990- 1985         1990- 99         After 2000 Periods         All 2000 Periods           694         99         10         8         21         14<	Before 1985- 1990- 1995- 1985         1990- 99         After 2000 Periods 1985         Before 2985- 1995           694         694         694         694         488           25         35         61         36         101         258         12           4         3         7         22         8         9         0           8         9         10         8         21         14         17           20         9         11         6         14         12         33           0         6         23         44         36         26         0           28         54         13         3         6         16         17	Before 1985- 1990- 1996- 1985- 1985 1985         1990- 2000 Periods 1985 1985         1985- 89           694         694         694         694         488         488           25         35         61         36         101         258         12         28           4         3         7         22         8         9         0         4           8         9         10         8         21         14         17         11           20         9         11         6         14         12         33         11           0         6         23         44         36         26         0         7           28         54         13         3         6         16         17         57	No.   No.	Before 1985- 1990- 1996- 1985 1990- 1996- 1985 1990- 1996- 1985 1990- 1996- 1985 1985 1990- 1996- 1985 1985 1985 1990- 1996- 1985 1985 1985 1985 1985 1985 1985 1985	Before   1985   1990   1996   After   All   Before   1985   1990   1996   After   1985   1985   1990   1996   2000     694   694   694   694   694   694   488   488   488   488   488     25   35   61   36   101   258   12   28   42   33   59	Before   1985   1990   1996   After   All   Before   1985   1990   1996   After   All   1985   1985   1990   1996   After   All   1985   1985   1990   1996   2000   Periods   1985   1985   1985   1995   1996   2000   Periods   1985	Before   1985   1990   1996   After   All   Before   1985   1990   1996   After   All   Before   1985   89   95   99   2000   Periods   1985	Before   1985-   1990-   1996-   After   All   Before   1985-   1980-	Before 1985- 1985- 1990- 1985 89         1990- 1995- 99         After All 1985- 1985- 1990- 1996- 1985- 1985- 1985- 1980- 1985-	No.   No.	Before 1985- 1985- 1990- 1996- 1996- 1996- 1985- 1990- 1985- 1985- 1990- 1985- 1985- 1985- 1990- 1996- 1985- 1985- 1985- 1990- 1996- 1985-

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weavers. In general, weavers who are poor with low bargaining capacity continue to stay with the same employer and working systems. But, weavers who are relatively better off are able to adopt a flexible strategy of changing employers and working systems.

Weavers are more inclined to shift to cooperatives from other employers where the cooperatives are working well. Equally, they move away from cooperatives wherever they are weak. The shifts in employment choices of weavers are frequent in the sample sites where the cooperatives are weak and are highly pronounced at two points of time, i e, 1990-95 and after 2000. These are the two periods of policy reform regimes of trade liberalisation and public disinvestment, which have indirectly affected the handloom sector also.

# 4 Earnings of Weavers

The average monthly income of weavers is generally lower when they work for cooperatives as compared to master weavers and also of the independent weavers.<sup>2</sup> But weavers who are taking up work under the putting out system are earning a higher income as compared to their weavers who work in sheds under all employers. The lowest income is, thus, in the sheds (Table 6, p 51). Interestingly, the middlemen is ensuring more incomes to the weavers working in sheds as compared to weavers working in sheds in cooperatives, which are found in Visakhapatnam, Guntur, Karimnagar and Medak. This is because, except in Guntur, the societies in the other districts primarily produce low value fabrics when compared to the middlemen. It should also be noted that

master weavers and middlemen are sometimes independent of each other, and that middlemen invariably do not work for the local master weaver.

The monthly income of the household weaver working under a cooperative ranges from Rs 585 in Karimnagar to Rs 4,121 in Nalgonda. For shed weavers, it ranges between Rs 448 in Medak and Rs 2,398 in Guntur. The incomes of household weavers under master weavers range from Rs 856 in Medak to Rs 3,582 in Nalgonda while among shed weavers the figures range between Rs 827 in Medak and Rs 2,017 in Guntur. The incomes are higher for the weavers who are involved in the production of high value products irrespective of the employer and working systems. The presence of stronger cooperatives has contributed to relatively higher wages under master weavers also, given the composition of products produced, which can be seen in Krishna and Guntur (field survey).

As a broad generalisation, it can be stated that the wage rates under master weavers are lower than in cooperatives. This indicates that the weavers under master weaver have to work for more hours/days than weavers under cooperatives for getting the same level of income (Table 6). This has also been corroborated by the key informants in the districts and the weavers during focused group discussions. Interestingly, the presence of powerlooms has contributed to a rise in the wages of handloom weavers. Weavers working from home under the putting out system get higher wages than weavers working in sheds under the master weaver, but they have to bear the

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depreciation and maintenance cost of their looms and accessories, which cuts into their wages. Weavers also report that health hazards are very high in weaving, and as a result, expenditure on healthcare accounts for a considerable proportion

of their income. The income net of the healthcare cost leaves only a very small amount for the weaver to meet other needs. This is one of the main reasons why there is high incidence of poverty among the weavers, and especially among weavers working sheds. The percentage of weavers below poverty line ranges between 52 and 64 per cent in the shed weaving and between 42 and 48 per

(All Districts) Description of Variables Total Family Income Cooperative Society Master Weaver Middle Men Inde-Shed Shed pendent a Income from weaving 1,190.76 2,033.63 1,286.85 1,871.17 (Rs per month) 1.995.77 1.549.57 b Income from other source

Table 6: Incomes of Weaver Households under Different Institutional Arrangements and Working Systems

2,591.16 160.16 (Rs per month) 410.50 396.69 183.00 107.69 212.07 275.71 Total Income (Rs per month) 2,406.27 1,587.44 2,216.63 1,447.00 1.978.86 1,761.64 2.886.87 d Proportion of income from weaving 0.92 0.89 0.93 0.87 0.86 0.69 0.97e Percentage above poverty line 56.88 37.14 58.33 36.21 52.31 48.28 60.17 Percentage below poverty line 43.13 62.86 41.67 63.79 47.69 51.72 39.83 g Wage rate per day (Rs per month) 49.98 47.77 47.60 34.84 42.13 29.54 84.21 h Work available days in last month 29.51 26.97 30.41 33.31 31.13 34.47 29.57 Active working days in last month 26.66 23.95 30.53 27.64

0.90

0.90

0.90

0.88

0.91

Source: Field survey.

Proportion of active working days

cent for household weavers under different employers.<sup>3</sup> This is also the reason why some of them commit suicide. Though many weaver families have been trying to augment their income by taking up other activities, this has not enabled most of them to move above the poverty line.

## **5 Conclusions**

This study based on extensive fieldwork indicates that though handloom weaving has many strengths and can be competitive under specific conditions, the seeds of crisis are inherent in the sector. These can be traced to two major factors – the poor performance of the cooperative sector, and the poor economic condition of the weavers. It is clear that the two major institutional structures in handloom weaving, viz, cooperatives and master weavers, are closely interrelated, as is their growth performance. A good performing cooperative is the best safeguard for the handloom sector, as this protects the weaver and also provides a counterbalance to the master weaver.

The economic condition of the weaver is the other point of crisis. The average income of a weaver is rarely more than Rs 50 per day. While it is true that becoming an independent weaver would give better returns, the large difference in the

average earnings of independent weavers across the districts (Table 6) clearly shows that only those who are already quite well placed can be independent of the other institutional structures. Wages are lower and the incidence of poverty higher for weavers

under the master weaver. But, the weavers are paid well where the cooperatives strong and provide adequate work for the weavers. In general, weavers also prefer the cooperatives to the master weaver, if the cooperatives are strong. So, the best way to regulate the functionof master

weavers is to strengthen the functioning of the cooperatives, and the master weaver can complement the cooperatives in providing work to the weavers.

0.88

0.94

Competition from powerlooms is obviously a major threat, but, this can be countered when the sector produce high value, distinctive (brand value) products or medium value products which can be marketed locally or abroad that are different from powerloom products. If the provisions of protective legislation like the Handloom Reservation Act and Hank Yarn Obligation Order are implemented, it would help strengthen the handloom sector. In addition, setting up of decentralised spinning mills and reeling units or opening of yarn depots by the NHDC within handloom clusters would enable in overcoming the scarcity of yarn as well as arrest the resultant spiralling of prices of hank yarn. In the current policy environment, however, the focus of the initiatives should be to improve the functioning of the sector, especially the cooperatives. Lessons learnt from the management practices of the good cooperatives, especially to improve marketing through better designs and product diversification, accessing multiple market channels and accessing working capital from formal institutions would improve the performance of the cooperatives and benefit handloom weavers as a whole.

# NOTES

- 1 A good society has been defined as one with 50 per cent or more members working whereas a bad society is one with more than 50 per cent of the members inactive. This classification is in conformity with the perceptions of the weavers. It should be noted here that though 28 cooperative societies were covered, weavers could be canvassed only in 21 societies because the other cooperatives were not functioning.
- 2 For weavers working under cooperatives and master weavers, the wages they get for the product woven is considered as their income after deducting wages for hired labour for weaving and pre-loom processes, if any in addition to income from other sources. For further analysis, we have deducted
- other expenses (such as repair and maintenance of machinery) and depreciation from this income. For independent weavers, we have arrived at their income after deducting all costs cost of raw materials, other expenses, and cost of hired labour both for pre-loom processing as well as weaving from the value of output. Another of variant income is also calculated which is net of health cost in total income after depreciation.
- 3 This inference is based on sample weavers only. This has not been estimated for the entire weavers in the state and hence should not be generalised.

### REFERENCES

Government of Andhra Pradesh: Annual State Administrative Report, reports from 1977 to 2005,

- Directorate of Handlooms and Textiles, Hyderabad.
- IRMA (1995): 'A Study on Problems of Weavers' Cooperatives in Andhra Pradesh', report submitted to NABARD, Anand, IRMA.
- Mukund, Kanakalatha and B Syamasundari (2001): Traditional Industry in the New Market Economy – The Cotton Handlooms of Andhra Pradesh, Sage Publications, New Delhi.
- NCAER: Census of Handlooms in India 1987-88, National Council for Applied Economic Research, New Delhi.
- (2004): Joint Census of Handlooms and Powerlooms 1995-96, National Council for Applied Economic Research, New Delhi.