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### Sustainability of Handloom Value Chain- A Case Study of Nadia District in West Bengal

Vandita Mishra<sup>1</sup> and Mahua Bhattacharjee<sup>2</sup>

<sup>1</sup>PhD Scholar, Amity School of Economics

<sup>2</sup>Associate Professor, Amity School of Economics

#### ABSTRACT

The handloom industry in India is the flagbearer of ancient Indian history, giving employment to 14% poor (second only to agriculture) and contributing to 10% share in total textile exports each year. However, with mechanization this beautiful hand woven craft on looms is at jaws of death. This paper studies the challenges faced by handloom weavers by giving a complete picture of the handloom industries value chain. With the field study in Shantipur and Phulia towns in Nadia district of West Bengal, the sustainability of value chain is analysed. Cost Benefit analysis tool is used at every stage of handloom value chain. Focus is given on Jamdani, Shantipuri, Baluchari and Tangail saris value chain. Difference in short run profit and long run profit is obtained between two groups of weavers viz. co-operative society weavers and independent weavers is studied. It is seen that in short term independent weavers' profits is 50% higher than co-operative weavers, but in long term they are at loss. The results reflect that for handloom industry to be sustainable the independent weavers' market has to be expanded and organized.

**Keywords :** Handloom, Value Chain, Weavers, Sustainability. "Our problem being to form the future we can only form it on the materials of the past; we must use our heredity instead of denying it" - T. S. Elliot

#### 1. INTRODUCTION

Handloom Industry is the epitome of rich culture and heritage of India. It is the only industry which has preserved and maintained the ancient craft even today. It is an extraordinary industry and stands out from other industries in multitude of ways. Its presence is imperative as it caters to, the livelihood of poor and down trodden, to the large share in Indian exports and the fact that it is a pioneer of Golden India. Handloom industry is unique in its own ways. It does not require any form of energy such as electrical, solar, coal or biomass. It works purely on mechanical energy of the skilled human hands.

### 1.1. Mechanism of Handloom

Handloom fabric is woven by entwining the warp (length-wise thread) and weft (width-wise thread) which in layman lingual is called *tana bana*. The warp threads move vertically in up-down motion to form shed. The shuttle passes through the horizontal thread and the movable comb type frame beats the woven fabric. The heddle then shifts which sets the warp in the opposite direction and this binds the weft. The *loom* is the basic equipment of hand weaving. Two kinds of looms are used viz. pit looms and frame looms. Pit looms are used in making coloured fabrics such as towels bed-sheets handkerchiefs etc. Frame looms on the other hand are used to make designed fabrics such as heavy woven bed-sheets, striped and checked material, gauze cloth etc.

### 1.2. Evolution of Handloom Industry

Its evolution rolls back to the excavations of Indus Valley Civilization when dyed cotton fabric was obtained in Mohenjo Daro. A western Gazeteer once said that India has been the oldest producer and exporter of cotton on this planet. The origin of handloom industry dates back to the Mughal period in 700 AD. Plethora of fabrics such as *Makhmal*, *Jamawar*, *MulmalKhas* (King's Cloth), *Jamdani* (silk muslin), *Rumal* and *Phulkar* to name a few adorned the diversity of ancient Indian handloom market. It is as old as human civilization itself. The noble art of hand spinning has been handed down to generations on end. The British in 1800s curbed cotton production and India had to import cotton from England. The British also chopped the hands of the handloom weavers to prevent any production however even this couldn't prevent the brave heart weavers to keep the ancient tradition alive.

### 1.3. Progress of Handloom Sector

The industry ranks second only to agriculture in term of employment. Over the years in post liberalization period, several schemes for handloom sector have been launched by government. For the purpose of productivity enhancement, schemes for clusters was launched for handloom weavers in small scale industrial areas to provide training, easy credit or loans at low rate of interest. The Integrated Handloom Development Scheme (IHDS) has launched for the availability of easy and cheap credit. The WCC (Weavers' Credit Card) Scheme was launched to provide adequate help from banks to the weavers. The Government of India launched the Mill Gate Price Scheme to make yarn available to the weavers at affordable prices. Thus several schemes aimed at helping the weavers to sustain the diversity of this art and to keep it alive over the years.

## 2. OBJECTIVE AND METHODOLOGY

### 2.1. Objective

The objective of this paper is to study the sustainability of Handloom Industry Value Chain in the short and long time period.

- To identify the various actors in the handloom industry value chain.
- To perform microscopic and detailed study of the value addition in each stage of the handloom saris value chain.
- To assess the cost structure in each stage beginning from thread dyeing to weaving and starching of saris.

## 2.2. Methodology

### 2.2.1. Framework

Value addition by opportunity cost and marginal benefit tool was adopted to study the sustainability of marginal weavers in the handloom industry. This tool has been provided by UK Department for International Development (DFID) in their tool book about making value chain analysis. The equations used were

$$\text{Total Cost} = \text{Variable Costs} + \text{Fixed Costs}$$

Total cost defines the gross expenditure made in all stages of production to manufacture a product.

$$\text{Net Margin} = \text{Net Income}/Q$$

Net margin is the net income per product. This is obtained by dividing the net income of the producer by the total number of products manufactured.

$$\text{Net Profit Margin} = \text{Unit Profit}/\text{Unit Price}$$

Net profit margin is generally expressed in percentage form.

### 2.2.2. Tools

Both Qualitative and Quantitative tools were used in the study. Information was collected by holding interviews, focused group discussion and questionnaire method. Quantitative study was done using the framework and tool given by DFID. The sample comprised of 200 respondents which were selected via purposive sampling method. 50 independent weavers and 50 weavers working under master weavers were questioned. The respondents were as given in Table 1. Key informants were the master weavers of the co-operative samity (society) *i.e.* the owners of looms in a weaver shed.

**Table 3.1**  
**Distribution of Respondents**

<i>S.No.</i>	<i>Respondents</i>	<i>Number</i>
1.	Weavers	50
2.	Dyer	10
3.	Designer	10
4.	Raw material supplier	15
5.	Head loader	15
6.	Master Weavers	50
7.	Independent Weavers	50

**Source:** Author

### 2.2.3. Data

Primary and secondary data is used to study the sustainability issues in the handloom value chain.

#### 2.2.3.1. Data Sources

The location selected for primary field study is the state of West Bengal in India. Area of study is Nadia district of West Bengal. Two municipalities in this district viz. Shantipur and Phulia are purposively selected.

#### 2.2.4. District and city Profile

The rural belt of Shantipur and Phulia in Nadia district was chosen for the field survey. Nadia district has a population of approximately 46 million people with nearly 50% male to female ratio. Nearly 80% of the population resides in rural area. People are involved in agriculture, handloom industry, and food and fruit processing industry.

Shantipur was a small town and has been declared a city recently. Shantipur is the largest cluster and hub of handloom production in India with more than 70,000 looms. Migrated weavers from Dhaka, Bangladesh reside here. It has a population of roughly 2 lakh . Around 70% population form the working class. Nearly 80% of the residents are involved in weaving and allied activities.

Phulia is town/village 11 Km away from Shantipur has around 45000 looms with a population of approximately 60,000 according to the 2001 Census report. Majority of the population in this village is involved in weaving and allied activity.

#### 2.2.5. Selected Product of Study

The handlooms of Shantipur and Phulia manufacture hand woven saris viz. *Jamdani, Baluchari, Tangail and Shantipuri* etc ; shawls, stoles, handkerchiefs, dhotis, kurtas, etc. The saris constitute 80% of the gross production. Hence in this study four main varieties of saris' value chain was analysed viz. *Shantipuri, Baluchari, Jamdani and Tangail*.

## 3. HANDLOOM INDUSTRY: MACRO PERSPECTIVE

The industry is imperative not only for the employment it provides but it is also a savior of the oldest heritage of India which has been running since time immemorial and carries the legacy of socio-cultural Indian traditions. This makes this industry crucial for the growth of the Indian economy. According to 2010 Census report by Ministry of Textiles, 79.5% of total handloom production occurred in rural India, while only 20.5% of production accounted for in the urban regions. The 2010 annual report of the Indian Textile Ministry reported that approximately 14% of total cloth production came from handloom. Niranjana (2004) stated that low socio economic status of weavers, provision of multitude of raw material in handloom and growth of domestic market were the pillars of handloom sector. The 2004 report from Ministry of Textiles gave total production figures of handloom in India to be around 5500 million square meters.

### **3.1. Handloom Clusters in India**

The handloom industries are present as clusters of working zones in quite a many states of India. The policy of IHCDP (Integrated Handloom Cluster Development Programme) in India is to facilitate, empower and support sustainable development of weavers in a cluster to create self sustaining market competitive business units. Government of India has had provisions in the ninth and tenth plan of the planning commission with policies regarding development of co-operatives in handlooms. The clusters can be big or small but the success of each cluster lies in its organizational structure. Clusters are often unorganized, some of the organized clusters include Primary Weaver Co-operation(PWC) or Self Help Groups (SHG). According to Schimtz (1999), a cluster by utilizing the technology and marketing goals could create a healthy symbiotic relationship by proper interaction amongst weavers, raw material suppliers, traders and other firms through horizontal and vertical integration. Porter (1998) has spoken of importance of organized market structure as the driver of Competitiveness.

### **3.2. Handloom Industry in India: Growth and International Trade**

The EXIM report (2001) stated that textiles contribute around 36% to India's total share of exports of which 11% share is that of handloom. Since the beginning of 1961 and up to the end of 1994 the gross production of handloom was 22%, however after 1995 the production has declined to 12.8% approx and has been constant since then. The major importing countries are USA, Europe and UK. The Indian handloom has global reach in the form of dhotis, dresses, saris, towels, bed-sheets, stoles, shawls etc. The textiles export was a whopping US \$ 40 Billion in Financial Year 2015-16 (Economics Survey, 2016-17).

#### **3.2.1. Foreign Direct Investment**

The textile industry has attracted huge investments in the past five years. The period between end of March 2000 to December 2016 acquired FDI worth US \$ 2.4 Billion(Economic Survey 2016-17). There have been other major investments especially in handloom sector such as Khadi and Village Industries Commission KVIC (has joined hands with Raymond, an apparel company to sell ready-made Khadi fabric at Raymond stores all over India. Gujarat's latest 'Farm-Factory-Fabric-Fashion-Foreign' Textile policy has undertaken a project by signing an MOU with Welspun India Ltd to strengthen new spinning value chain at Anjar, Gujarat.

### **3.3. Handloom Demographics**

In India 87% of weavers are rural while 13% are urban. India's manpower of weavers is over four million. The whole textile industry employs about 40 million workers and 60 million workers in allied activities. The weavers dividend ratio as defined by the 2010 census is such that, among 88 % of the adult weavers, approximately 50% belong to the age range of 18 to 34 years, 20% lie within 35 to 46 years, 14% are in the range 47 to 61 years and remaining 4% are beyond the age of 61. The gender gap in handloom sector has been quite high comprising 80% males and 20% females among the adult weavers.

### **3.4. Government Initiative**

The Union Budget 2017-18 has laid plans to boost the textile sector by increasing the allocation of funds to Mudra Bank from US \$ 20 Billion to US \$ 37 Billion. Government has initiatives to upgrade the unskilled or low skilled by workers and allotted US \$ 300 Million for this purpose. In ‘Vibrant Gujarat’ 2017 summit an MOU worth approx US \$ 1 billion was signed for the creation of textile parks, machinery and technology upgradation. Government of India has begun advertising and promoting the ‘India Handloom’ through social media, radio and television to curb the downfall of this ancient art.

### **3.5. Handloom Industry: Challenges**

With industrialization striking India in mid-nineteenth century, handloom growth has transformed and declined to certain extent. The advent of Powerloom has made handloom a dying industry. Weavers have migrated from labour based work schedule to technology based. The decline rate of number of weavers in the country has been 7% over the past years. This has further lead to disruptions in the already unorganized handloom clusters. Narsaiah and Krishna (1999) analysed the loopholes in handloom industry. They found that financial assistance given to weavers was not stable over the years, as a result the demand and supply of yarn (thread) required fell short. The price of yarn kept rising over the years. Roy(1999) in his study about problems prevalent in handloom cluster obtained that the problem could be solved if there is more demand for the traditional products and provision of government aid to weavers. Tripathy (2009) studied the handloom core industry of Orissa and stated that low skill, illiteracy of workers, excess cost management and ever fluctuating yarn price were the evils of mismanagement. Varghese and Salim (2015) analysed the challenges faced by the Kerela handloom sector and suggested skill development program initiative to be undertaken by government to train the large percentage of unskilled labour in Kerela handloom. Gurumoorthy and Rengachary (2002) have argued low working capital, insufficient raw material and over stocking of inventory to be the main issues plaguing the handloom industry. In spite of the growth prospects handloom in West Bengal is haunted by several problems and challenges.

## **4. HANDLOOM INDUSTRY: MICRO PERSPECTIVE**

West Bengal has had an old tradition of Handloom Weaving since time immemorial. It is a part of its culture. The textile products of Bengal have witnessed huge demand both within and outside India. West Bengal’s handloom has demand in national and international markets which proves its timeless legacy. The exportables are mainly sold in UK and USA. Handloom industry is a huge employer of rural sector people in Bengal. Approximately 4 lakh handlooms exist in West Bengal according to the latest count (2010 Census).

### **4.1. Handloom – A Heritage of West Bengal**

In Bankura district, Bishnupur, in district of Nadia – Shantipur and Phulia, in Hoogly district Begampur, and in Burdwan district Samudragarh, are the main handloom industrial areas in West Bengal. ‘Jamdani’ and ‘Tangail’ are two main saris in the heritage handloom products of Bengal. The word ‘Tangail’ actually originated from Tangail, the name of a district in present Bangladesh. Earlier Tangail was titled as “Begum Bahar”. That time only cotton weft was used. Later, they used cotton warp along with cotton weft. Jamdani sari style has had its birth during the rule of Kings in Bengal. Jamdani is considered to be of the finest

quality among all. This style was much in vogue since then and flourished throughout India. The weavers of these type are descendents of the ‘BASAK’ community who originated from Tangail district before India-Bangladesh partition and settled in Samudragarh, zone in the district of Burdwan. It is considered as a textile of excellence for its super fine quality which stands out remarkably.

The study concentrated on two types of weaver communities. One was the weavers’ co-operative society in Shantipur run by the traders and other consisted of the Independent Weavers in Phulia which relied on self or external financing for production activities.

#### 4.2. Handloom Value Chain

The organizational structure (as shown in Figure 1) within the cluster for handloom making group comprises of master weavers, independent weavers, weavers, dyers, raw material suppliers, designers and traders. In the first official handloom census conducted in 1978-79 the criteria for including the weaver household defined a weaver who has worked on a loom for a period of seven days or more. In the third census conducted in 2010 the eligibility criteria was widened. It included “workers who pursued weaving and other such allied activity even if just for a single day in the year prior to the year in which survey was conducted”. The purpose was to estimate the weavers and looms (both working and idle). This gave numbers of weavers who had looms but kept it either working or idle for any reason. The Handloom Industry defines “A weaver or a weaver household who has worked on a loom for one or more day in the year preceding the year of survey. Whereas an “idle loom household is defined as a household which has a loom but none of the adult members have engaged in any weaving activity for a minimum period of a year.”

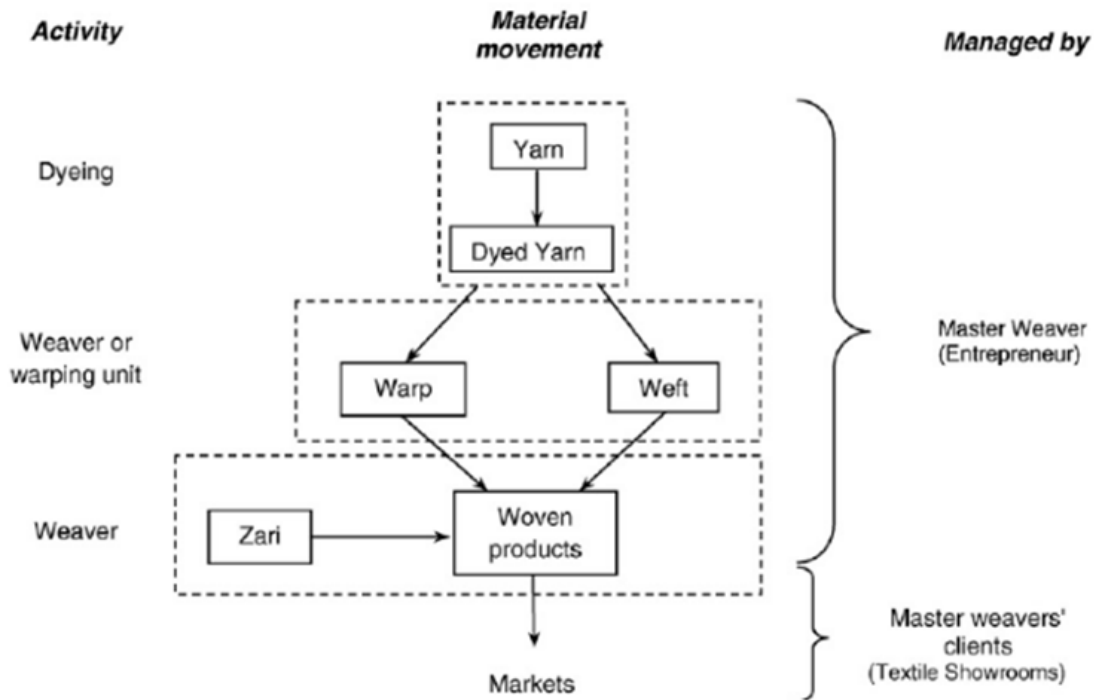


Figure 3.1: Handloom Value Chain

Source: (Bhagavatula et al.,2010)

### 4.3. Age Distribution

The profile of weavers in Shantipur and Phulia in Nadia district was distinct. 64% of young weavers of total questioned in Shantipur were found to be between the age 20-40 and only 21% existed in the middle age group. Age demographics in Phulia was quite same in young and middle age grouped weavers. Migration was predominant in Phulia (48%) with low or unskilled workers migrating from surrounding areas such as Cooch Bihar, North Dinajpur, Shantipur and Shantiniketan to Phulia and Shantipur handloom clusters seeking employment while in Shantipur 20% migration was noted.

**Table 3.2**  
**Age Distribution (in percentage)**

<i>Age/Migration</i>	<i>Shantipur</i>	<i>Phulia</i>
20-40	64%	38%
40-60	21%	39%
60 - above	15%	23%

**Source:** Author

## 5. FINDINGS

### 5.1. Average Cost of Production

Jamdani, Baluchari, Tangail and Shantipuri are the costly high end saris made in Shantipur and Phulia regions. Shantipuri sari has its origin from the place Shantipur itself. Phulia has maximum production of Tangail though. The average cost of production of these four saris was calculated in value chain process.

**Table 3.3**  
**Average cost of production**

<i>Value chain of making of sari</i>	<i>Type of Saris (in Rs/ sari)</i>			
	<i>Tangail</i>	<i>Jamdani</i>	<i>Shantipuri</i>	<i>Baluchari</i>
Warp	68.75	80.00	75.00	70.00
Border	27.68	35.00	26.75	39.00
Design Art( in Silk)	55.00	75.00	62.00	50.00
Weft	66.00	82.00	75.00	65.00
Yarn	75.00	110.00	90.00	130.00
Starch	80.00	85.00	76.00	80.00
Wages of Weaver (in Rs per sari)	725.00	800.00	750.00	825.00
Processing Cost (electricity, social overhead capital, dyer)	80.00	90.00	100.00	105.00
Total (round off)	1100	1360	1255	1364

**Source:** Author



The average cost of making of each type of sari shows that the yarn or thread used in making it is an important factor for price difference. With ever changing price of yarn the cost of saris is gravely affected. It takes around 4 days or more to make one sari. Wages are paid on per sari basis to the weavers by the heads of co-operative society.

### 5.2. Income of the weavers

The time duration to make one sari completely takes approximately 4 days. Likewise a weaver makes 1.5 saris per week hence 6 saris in a month. Thus a weaver approximately earns Rs. 4200 per month.

**Table 3.4**  
**Income Distribution (in Rs)**

<i>Categories of Weavers (N = 50)</i>		
<i>Under Co-operative Society (50%)</i>		<i>Independent Weavers (50%)</i>
	Monthly Income	
Greater than 2000	26%	22%
2000- 3000	30%	59%
3000- 4000	10%	18%
4000-5000	15%	1%
5000- 6000	5%	0%

**Source:** Author

The opportunity cost of the weavers working under the co-operative society is higher than those of the independent workers. It is seen that around 20% of the weavers under the co-operative society earn more than Rs. 4000, whereas the percentage of Independent weavers earning that amount is as low as 1%. The weavers working in a co-operative society have no other input costs apart from the wages that they generate. The independent weavers on the other hand have set up their own looms by either getting small financial loan from the government or self capital investment.

The handloom value chain apart from weaving has several other operations such as dry cleaning, processing, packaging, transport etc. The market price of the handloom made sari is therefore dependent on several factors. The cost of making of a sari, followed by dry cleaning, packaging, headloader cost, transport costs, warehouse rent, warehouse manager and labour expenses and freight costs. Retailers also include the shop rent and electricity costs. The table 5 gives the general value chain operations cost in average.

**Table 3.5**  
**General Value Chain Operations Cost(inRs/Sari)**

<i>Value Chain Operations</i>	<i>Cost (in Rupees)</i>
Dry Cleaning	5.00
Packaging	6.00
Transporting	7.50
Stocking(Rent)	8.00
Labour(Godown Manager Headloader)	22.00
Freight Cost	35.00

**Source:** Author

### 5.3. Net Profit

The final price of a sari thus becomes more than the weaving cost and the average cost and selling price of all the actors in the handloom value chain is calculated.

**Table 3.6**  
**Short Term Profit Earned per Sari(in Rs/Sari)**

<i>Average</i>	<i>Cost Price</i>	<i>Selling Price</i>	<i>Profit</i>	<i>Profit %</i>
Independent Weaver	950	1450	500	50%
Master Weaver	1100	1210	110	10%
Trader/Mahajan	1210	1392	182	15%
Retailer	1392	1880	488	35%
Exporter	1880	3102	1222	65%

**Source:** Author

It is seen that the independent weavers make the highest profit of 50% (Rs. 500) per sari as opposed to the weavers working under co-operative society whose monthly earning lies between Rs. 1500-6000. The whole sellers make a profit of 15% while retailers churn out a solid 35% profit rate. The manufacturers or entrepreneurs, own the society and under them an approximate group of 30 weavers work. The manufacturers keep the least profit of 10% with themselves to make the highest sales. However it's the Exporters value added which is the highest. The exporter makes 65% profit before tax.

The selling price of master weaver, trader, retailer and exporter were calculated by adding tax, overhead costs(transport, rent, packaging, electricity etc) and profit at each stage of product movement in the value chain. The independent weaver makes a profit of 50% per sari while the master weaver who owns several looms and pays wages to the weavers adds only 10% profit per sari. These profit earnings are on per sari basis and the number of sales defines the long run profit made by each of the value chain participants.

**Table 3.7**  
**Long term profits**

	<i>Average Earnings of Independent Weavers (per year)</i>	<i>Average Net Profit (per year)</i>
Weaver	500x4x12 = 24,000	750x6 x12 = 54,000
Master Weaver	-	110 x 120 x 12 = 158400
Trader/Mahajan	-	188 x 120 x 12 = 270720
Retailer	-	488 x 120 x 12 = 702720

**Source:** Author's Calculations

In the short run, the independent weavers who are self manufacturers and entrepreneurs make net profit on an average of Rs. 500 per sari. Whereas the weavers working in the co-operative society value chain (the wage earners) are given Rs. 750 wage for every sari they make. The independent weavers can make a maximum of 4 saris per month as it takes nearly 6 days to make one sari, given that the master weavers are self supporting themselves with all the resources and activities in their home production. On the other hand a co-operative society weaver makes 6 or more saris per month. Therefore in the long run an independent weaver earns on an average Rs. 24,000 ((Average price per sari Rs. 500 x 4( average number of saris sold in a month) x 12 (months in a year) =18000). Similarly when calculated for co-operative weavers or the organized value chain participants it is seen that each weaver taking part in the value chain, earns on an average Rs. 4000 per month hence making nearly 50, 000 per annum which is 50% more than the independent weavers. Thus, in gross terms in the long run the independent weavers earn 66.6% lesser than those working under the master weavers. Whereas on per sari basis the weavers are the gainers by 50% more earnings ((750 x 6(number of saris made per month) x 12 (number of months) = 54,000). On an average 20 weavers are employed under master weaver in a co-operative hence (20 x 6 = 120) approximately 120 saris are sold by master weaver of each co-operative society. Hence the average annual net profits of master weaver calculates to (110 x 120 x 12 = 158400 ). Assuming that the whole seller and retailer also on an average sell 120 saris per month, the average annual net profits are Rs. 270720 and Rs. 702720 of trader and retailers respectively.

## 6. CONCLUSION

Therefore in the short term the independent weavers earn approximately 50% more than the value chain workers on per sari profit earned. In gross terms, however, the average yearly earnings of the independent weavers is approximately 66.6% lesser than those participating in the organized co-operative value chain. Hence it is seen that in the static state the independent weavers do not earn more than the co-operative society based value chain weavers. But in the dynamic state, the independent weavers are not able to capture a good share of the market. The independent weavers show a highly imperfect monopoly market, whereas the weavers under the master weavers are working in a more perfectly synced market economy. Resource allocation and resource mobilization in value chain is better hence dynamic results of net gross earnings of the weavers in the better organized co-operative value chain over years exceeds those of the independent weavers.

There is a general misappropriation of resources in macroeconomic context. The workers who do not take part in the organized value chain hence run an imperfect market which is not sustainable in the long run. Organized Value chain implementation has benefits of better resource mobilization, greater employment, competition in the market is asymptotic towards a perfectly competitive market structure, the goods move smoothly in intra-value chain and wider market reach is achieved-both national and international.

## 7. SUGGESTIONS

The government of West Bengal and the Ministry of Textiles should set up groups to educate the rural poor masses of Phulia village. They are living in the dark, ignorant of the actual market size and market potential of the organized handloom co-operative societies. They make meager living, carrying their family traditions without any up gradation in skill, management, organization or proper financial support. Financial

assistance in the form of mobile ATMs need to be reached. The weavers need to be educated about the standard that handloom holds in India, to incite them to sell their craft at a higher price than the present. Government could take policy initiatives to acknowledge the presence of independent weavers in the large scale market, social and television media to expand the market size for the unorganized groups. This would not only uplift the poor rather culminate in long term pro-poor sustained growth.

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