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## **Profit disparities in handloom industry: A unit level analysis**

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### **Abstract**

Historically Bengal was a renowned place of handloom production. It was the main source of world famous finest fabric, Muslin. Besides bringing fame, handloom was an essential source of employment and income for a large number of weavers. But, due to numerous reasons it started to decline at the late nineteenth century. Available research on handloom industry found that handloom in Bangladesh still faces various problems that make handloom activity marginally profitable. In addition, all handloom households do not get equal share of earning profit, indeed, there exists a huge discrimination where a large number of small scale handloom units exploited by small number of large scale units. Thus, the study is design to estimate unit level profitability due to exploring profit disparities among handloom units. For pursuing the study, required data is collected from 53 handloom units operating in Tangail district of Bangladesh. Using conventional statistical techniques, the study found that handloom weaving activity is still a profitable business, though marginally. Further, due to operating large number of handlooms, per unit profit is higher in case of larger units group compared to that of smaller units group. In addition, economies of scale benefited large scale units in ensuring more profitability in larger units group compare to smaller units group. All these factors resulted significant profit disparities among handloom units that poses threats to small scale units for survival.

**Keywords:** disparities, profit, handloom weaving units, Bangladesh

### **1. Introduction**

Bangladesh, one of the most populous countries in the world, has a population more than 161 million (BBS 2018). Most of them (64%) are lived in rural areas of Bangladesh and depend on agriculture. In spite of practicing agriculture based economy, Bangladesh cannot ensure sustainable livelihood, in terms of employment and income, for these rural people. Therefore, many villagers find scope of non-firm activities for enhancing a better livelihood. In this regard, handloom weaving industry plays a significant role by providing a supplementary source of income from long past (Islam and Elahi 1991) <sup>[4]</sup>. According to various reports, more than one million people are directly engaged in handloom weaving industry in Bangladesh through various tasks e.g. weaving, dying, spinning, cutting etc. In addition, another half million people are engaged in related works e.g. transporting and marketing (BBS 2005, Liton *et al.* 2016, Islam and Hossain 2013) <sup>[9, 5]</sup>. According to latest estimation in 2003, currently 0.51 handloom in Bangladesh, operated in 0.18 million units, produces 687 million meters fabrics annually that constitutes 28% of local cloth production and meets 36% of local demand (BBS 2005).

Tangail, one of the traditional handloom concentrate areas, is the second largest handloom clustered area in Bangladesh in terms of number of units. Handloom units in the district (6476) operates 37222 handloom and produce various types of handloom products especially Sharee. Tangail Sharee, previously known as Begum Bahar, is well recognized in home and abroad for its niche design and pattern. In addition, handloom industry in Tangail also produces Lungi, Gumcha,

and Three pieces though in small amount. In addition, the industry plays a significant role in local economy in terms of employment and income (Islam *et al.* 1991). According to available report (BBS 2005), handloom industry in Tangail employed 95316 persons directly among which almost 50% are women. Besides, another fifty thousand people are engaged indirectly. Though handloom industry contributes rural economy significantly, due to numerous reasons, the industry set back in recent decades. These reasons includes lack of capital, lack of yarn, high production cost, low demand, high competition from power loom and mill sector, and lack of policy support from the government. Previous research on this issue showed that these reasons make handloom industry less competitive and less profitable. Even, many respondents of the study mention that profit is so marginal that they cannot continue their business and if the situation continued, they will close down their weaving activity. Further, there exists huge profit earning gap among handloom units. Therefore, it is very essential to do a profitability analysis of handloom units located in the district. Hence, the aim of the study is to explore profit disparities through analyzing unit level profitability of handloom weaving activities in Tangail district of Bangladesh. First section of the article introduces the issue and second section discusses previous studies on the issue. Third section briefly discusses the scenario of handloom industry in Bangladesh. Fourth section explores the methodology which is used for analyzing collected data and fifth section discusses the results. Finally last section of the study summarizes the whole study.

## 2. Literature Review

Several previous studies work on handloom industry and now it becomes a grave issue to research. Islam and Elahi (1991)<sup>[4]</sup> showed that handloom is an important source of supplementary employment and additional income for small farmers of Tangail district of Bangladesh. In addition, handloom industry is an important source of employing family members including women and children where they can work throughout the year and contribute in family income (Sobhan 1989)<sup>[12]</sup>. Due to needs small capital, rural poor people can easily own a handloom and by operating it they can eliminate their poverty (Raihan 2010)<sup>[11]</sup>. Therefore, rural poor people take handloom either main or supplementary occupation from long past. Previous studies reveal that due to innovation of modern technology handloom faces high competition from its competitors and becomes less economic viable compare to other weaving techniques and other occupations. Islam and Hossain (2013)<sup>[6]</sup> found handloom industry in Kumarkhali upazila of Kushtia district as a profitable business and, small and large scale units are more profitable compare to medium scale units in terms of per loom profit. Using more family members makes small scale units more profitable and economy of scale contributes in ensuring more profitability in large scale units. Rahman (2013)<sup>[10]</sup> found that due to economy of scale production cost for per unit product is lower in large scale units than small scale units that make large scale units more profitable.

Chowdhury (1990)<sup>[3]</sup> found handloom industry economically more efficient than other weaving techniques i.e. powerloom and mill sector though still handloom industry cannot achieve sufficient level of efficiency in production. Islam and Hossain (2015)<sup>[7]</sup> found average technical inefficiency 0.245 in

handloom units in Kumarkhali upazila of Kushtia district and identified that education, experience, size of units, and age of owners' significantly influence technical efficiency of handloom industry. Jaforullah (1999) also found inefficiency in handloom industry in Bangladesh. By using data of handloom census 2003 he found only 41% efficiency in handloom industry that can be increased by increasing yarn-capital ratio and family-hired labor ratio. This inefficiency makes handloom industry less competitive compare to other weaving techniques.

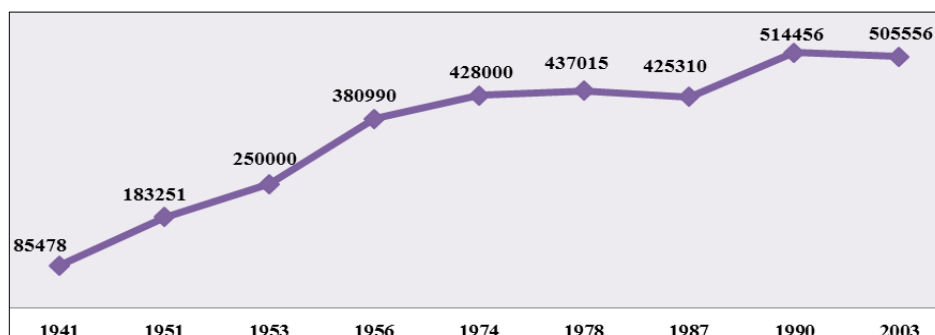
In addition, lack of yarn, lack of capital, high price of inputs, low price of products, high competition from competitors, in adequate technology, lack of policy support makes handloom industry less profitable (Liton *et al.* 2016)<sup>[9]</sup>. Therefore, many weavers leave their parental occupation and migrate to other occupation and sometimes other places.

## 3. Handloom Industry in Bangladesh

Handloom weaving industry of Bangladesh has a glorious past and a rich history. Historically Bengal was a recognized area for cloth production. Bengal weavers had been started handloom weaving activity during the reign of Sultan Qutbuddin Aibock (around 1210 AD) in Dhaka district and some surrounded areas. During Mughal era handloom received patronage from emperors and nobilities. Therefore, it was expanded all over the region.

### 3.1 Statistics of Handlooms in Bangladesh

It is observed from Figure 1 that number of loom increased up to 1990, though due to high competition with powerloom and mill sector during following years it decreases.



Source: Bangladesh Bureau of Statistics (2005).

Fig 1: Number of Looms in Bangladesh in Different Years

Currently handloom industry contains more than 0.18 million handloom units with 0.51 handlooms. In addition operational rate also decreases after 1987. According to BBS (2005) among 0.51 million handloom 61.7% are operational while the rate was 73% in 1978 and 68.5% in 1990. A number of reasons are responsible for existing huge number of non-operational loom in Bangladesh. According to handloom census 2003, around 80 non-operational looms closed their activities because of financial crises. Due to low price and low demand weavers are unable to sale their hole production at the end of the week. In maximum cases they stock their products for occasions and sale at a reasonable price. Therefore, weavers face financial crisis for paying labor cost and yarn cost.

Another about 12% units shut down their activities due to lack of yarn. In addition, sales problem, labor problem, transportation problem are also responsible for remaining large number of non-operational handloom in Bangladesh.

### 3.2 Features of Handloom in Bangladesh

Handloom industry is considered as family based rural industry. Table 1 reveals that around than 92% handlooms are located in rural areas operating in around 90% units. On contrast, 10% units having only 8% handlooms located in urban areas. In addition 95.3% handlooms are operated in family based private units and only 4.7% non-family units.

**Table 1:** Location of Handloom Units

Location	Units (%)	Looms (%)
Rural	90	92
Urban	10	8
Total	100	100

Source: Author’s own calculation by using data of BBS (2005).

Handloom industry is recognized as cottage industry. It is generally operated by family members and in some cases hired workers. Maximum cases handloom units are located in the house. According to handloom census 2003 around 93% of handloom units are premise based that operates around 77% of total looms in Bangladesh and rest 7% factory based units

**Table 2:** Size of Employment by Sex

Sex	1986		1987		1990		2003	
	Number	%	Number	%	Number	%	2003	%
Male	648865	73	443135	55	571765	56	472367	53
Female	244160	27	362565	45	455642	44	415748	47
Total	893034	100	805700	100	1027407	100	888115	100

Source: Ministry of Textile (MOT) and Bangladesh Bureau of Statistics and cited in BBS (2005).

There are two types of weavers in handloom industry in Bangladesh namely family worker and hired worker. Although handloom industry in Bangladesh is traditionally a family based rural industry, it employs a large number of hired workers. Among 0.88 million weavers engaged in handloom industry 53.41% comes from family and 46.59% non-family source. Therefore, handloom is an important source of rural employment.

**4. Methodology**

**4.1 Theoretical Background**

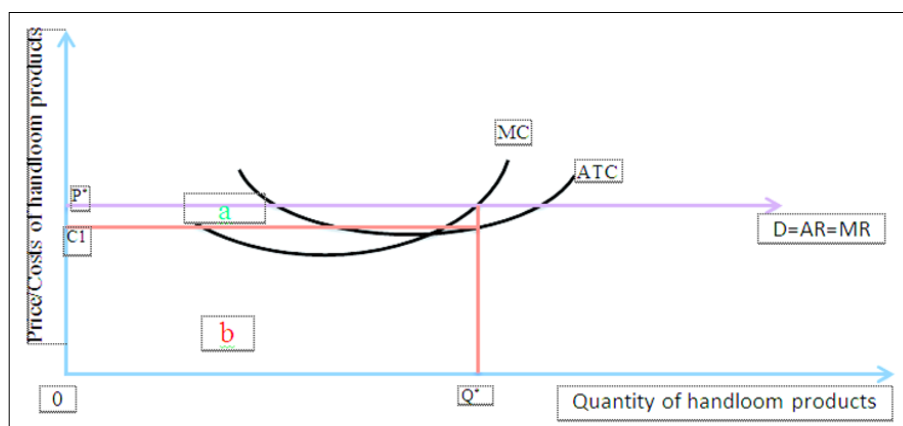
Profit is ultimate goal of a business. Entrepreneurs operate

operates 23% looms. More than 57% handlooms operated in small units having maximum 5 looms. While 28.92% looms are operated in medium size units having 6-19 looms and 14.05% are operated in large units having more than 20 looms.

**3.3 Employment Scenario of Handloom Industry**

A large number of rural labor forces are engaged in handloom industry in Bangladesh. It is observed from Table 2 that 0.89 million weavers are directly employed in handloom industry. Among them 53.19% are male and 46.79% female which were 72.66% and 27.34% respectively in 1986 and 55.65% and 44.35% respectively in 1990.

their business for earning maximum profit. It is the measure of efficiency. Generally due to decreasing production cost efficient firms are more profitable helps in surviving long run. Profit is calculated in two terms. One is accounting profit that is calculated by subtracting transaction cost (explicit cost) from total revenue. Other is economic cost that is calculated by subtracting both implicit and explicit costs from total revenue. As economic profit considers all costs, it is called *pure profit* while accounting profit is known as *gross profit*. The study calculates the economic profit in its analysis. And profitability is the profit-revenue ratio multiplied by 100. Graphically-



**Fig 2:** Profitability in Handloom Units

In the figure ATC and MC are average variable cost and marginal cost curve respectively; both are 'U' shaped. Because of competitive market, average revenue, marginal revenue market price become equal and the curve becomes horizontal. In the figure, rectangular area 'b' is total cost and rectangular area 'a' is profit earned by respective units. Thus, total revenue is 'a+b'. Therefore, profitability becomes  $\left(\frac{a}{a+b}\right) * 100$ .

**4.2 Study Area and Data Collection**

The present study mainly based on primary data. It uses a multi stage sampling technique. At first the study selects Tangail district as the study area purposively. Then it selects two handloom concentrate upazila Tangail Sadar and Delduar to collect required data. Finally 53 respondents are selected randomly and interviewed with a structured questionnaire that covered all required information. In addition, secondary data is

collected from various reports of Bangladesh Handloom Board (BHB), Bangladesh Bureau of statistics (BBS), published article and magazines.

### 4.3 Analytical Technique

The study calculates the unit level profitability of handloom industry in Tangail district of Bangladesh. Unit level profit ( $\Pi$ ) is calculated by subtracting gross costs ( $X_2$ ) from gross return ( $X_1$ ). That is:

$$\Pi = X_1 - X_2 \tag{1}$$

Where, gross return ( $X_1$ ) indicates sales revenue of the products and gross cost ( $X_2$ ) is obtained by summing up total fixed cost ( $X_3$ ) and total variable cost ( $X_4$ ). That is:

$$X_2 = X_3 + X_4 \tag{2}$$

Opportunity cost of building price ( $X_5$ ) and opportunity cost of loom price ( $X_6$ ) constitutes total fixed cost ( $X_3$ ) while labor cost ( $X_7$ ), yarn cost ( $X_8$ ), other input costs e.g. costs for small tools, electricity cost, kerosene cost, wax cost etc. ( $X_9$ ) constitutes total variable cost ( $X_4$ ). Therefore,

$$X_3 = X_5 + X_6 \tag{3}$$

$$X_4 = X_7 + X_8 + X_9 \tag{4}$$

Thus, net return or profit ( $\Pi$ ) is calculated as:

$$\Pi = X_1 - (X_5 + X_6 + X_7 + X_8 + X_9) \tag{5}$$

That is, the economic profit of handloom units is the surplus of total revenue over total transaction cost and opportunity costs. However, the study calculates profitability by following formula that is also followed by Islam and Hossain (2018)<sup>[7]</sup>.

$$Profitability = \left( \frac{Total\ Revenue - Total\ Cost}{Total\ revenue} \right) * 100 \tag{6}$$

That is profitability is the percentage share of total profit in total revenue. The study classified all responding units into four classes. Single units operate only one loom in their units while small units operate 2-5 looms. Units operate 6-19 looms are classified into medium size units whilst large units operate at least 20 handlooms.

## 5. Discussion of Results

### 5.1 Economic Viability of Handloom Units

In the phase of intense competition with powerloom and mill sector profitability of handloom units mainly depends on production cost. Production cost of this traditional weaving technique is highly depends on variable costs that is shown by Table 3. Variable cost comprises 98.89% of total operational cost of handloom units. In addition, yarn cost and labor cost comprise main part of variable cost (49% and 45%).

**Table 3:** Monthly Profit Earnings of Handloom Units

Revenue/Costs	Total costs and return (Tk.)	Average cost and return (Tk.)	Per loom profit (Tk.)	Profitability (%)
A. Gross return	5538700	104503.8		
B. Total variable cost	4831841	91166.81		
C. Gross margin (A-B)	706859.2	13336.97	1828.288	11.78
D. Total fixed cost	54160.42	1021.895		
E. Total gross cost (B+D)	4886001	92188.7		
F. Net return /profit (A-E)	652698.8	12315.07		

Source: Authors own calculation by using data of field survey.

It is observed from Table 3 that handloom weaving activity is profitable although marginally. Handloom units in the study area earned Tk.12315 per month having Tk.1828 per loom profit. This is so little to maintain their family. Average profitability in the study area is 11.78%.

### 5.2 Profit Analysis

#### 5.2.1 Profit Earns by Handloom Units

It is evidenced from earlier discussion that handloom industry in the study area is dominated by small size units. Most of handloom units (53.83%) lies in this group although operates a small share of handlooms (25.45%). Contrast, 7.55% large units operates 43.98% looms in the study area.

**Table 4:** Profit Earned by Various Size Groups of Handloom Units (Monthly)

Type of Unit	Maximum (Tk.)	Minimum (Tk.)	Average profit (Tk.)
Single	2395.83	810.83	1479.63
Small	11560.00	2102.08	7085.31
Medium	22441.67	9367.50	14871.81
Large	262531.70	51293.33	65632.92
All	262531.70	2395.83	12315.07

Source: Authors own calculation by using data of field survey.

It is observed from Table 4 that per unit profit changes in the same direction with unit size. Although per unit profit varies from Tk.810.83 to Tk.262531.70, generally smaller units earn

less profit than larger units. It is because of operating more handlooms in large scale units compare to small scale units. Moreover, due to economies of scale large scale units get more

advantages in purchasing inputs and selling outputs.

### 5.2.2 Distribution of Handloom Units by Earning Profit

It is clear from above discussion that all handloom units operating in the study area do not earn equal profit.

**Table 5:** Distribution of Handloom Units by Earning Profit

Profit (Tk.)	Units	%
<5000	17	32.08
5000-10000	17	32.08
10001-20000	12	22.64
>20000	7	16.98
Total	53	100.00

**Source:** Authors own calculation by using data of field survey.

It is observed from Table 5 that among 53 handloom units 17 units earn less than Tk.5000 per month. Another 32.08% units earn Tk.5000-Tk.10000. Therefore, 64.16% handloom units in the study area earn less than Tk.10000 per month. While a small share of handloom units (16.98%) earn more than Tk.20000 per month. That explores that most of the handloom owners earn marginal profit from their business that is insufficient for maintaining their family.

### 5.2.3 Profit Disparities in Handloom Industry

It is explored by above discussion that handloom units earn marginal profits from its operation. In addition the study found

**Table 7:** Profitability in Handloom Units

Type of Unit	Maximum (%)	Minimum (%)	Ave. Profitability (%)
Single	13.16	7.16	10.32
Small	17.32	6.61	11.03
Medium	18.92	8.65	12.12
Large	12.88	10.80	12.28
All	18.92	6.61	11.78

**Source:** Authors own calculation by using data of field survey.

It is explored in Table 7 that although having a fluctuation in maximum and minimum values of profitability larger units are more profitable compare to other size group. That means in case of larger units, larger share of revenue becomes profit compare to in case of smaller units. Advantages of economy of scale may be responsible for this direction of profitability.

### 5.3.2 Distribution of Handloom Units by Profitability

Due to economy of scale profitability varies among handloom units. This section categorizes handloom units in three groups: low profitable (profitability <10%), Medium profitable (profitability between 10%-15%) and high profitable (Profitability >15%).

**Table 8:** Distribution of Handloom Units by Profitability

Profitability	Number of Units	%
Low	15	28.30
Medium	29	54.72
High	9	16.98
Total	53	100.00

**Source:** Authors own calculation by using data of field survey.

high disparity in profit distribution. It is observed from Table 6 that 50.94% units get less than 17% profit while 49.06% get more than 83% profit.

**Table 6:** Profit Received by Different Size Groups

Type	Units (%)	Profit received (%)
Single	16.98	2.04
Small	52.83	30.4
Medium	22.64	27.34
Large	7.55	40.22

**Source:** Authors own calculation by using data of field survey.

A small number of large handloom units (7.55%) receive maximum of total profits (40.22%). Contrast, 70.81% small and single units got only 32.08%. Most vulnerable situation exists in case of single loom units where almost 17% handloom units earn around 2% profit. Variation in unit size, number of operational loom, product quality, input combination and economies of scale may be the key reasons for existing high disparity in profit distribution.

### 5.3 Profitability Analysis

#### 5.3.1 Profitability in Handloom Units

Due to difference in unit size, input combination, types of product, variable and capital costs profitability varies among different size group.

It is observed from Table 8 that more than 83% small and medium scale handloom units earn less than 15% profitability while only 16.98% large scale units can ensure more than 15% profitability.

### 6. Conclusion

Handloom, a hereditary industry of Bangladesh, is very essential for developing rural economy of Bangladesh. It contributes rural economy significantly in terms of employment and income. It also contributes in eliminating poverty. Due to numerous reasons the industry becomes marginally profitable. In addition, there exists high disparity in profit earnings among handloom households. Due to operating a few looms, owners of single and small scale units received a small share of profit. Moreover, smaller units can ensure a small share of total revenue as their profit. Thus, handloom owners of single and small handloom units, the larger parts of handloom owners, were in the fringe of social existence and lead a miserable livelihood. As a result many weavers migrate to other occupations. Therefore, government should take necessary steps for reviving glorious history of handloom industry.

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