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COST-BENEFIT ANALYSIS OF HANDLOOM WEAVING INDUSTRY IN KUMARKHALI UPAZILA OF KUSHTIA DISTRICT, BANGLADESH

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Abstract: The Handloom industry is the biggest and the most important cottage industry of Bangladesh. It plays important role in the economy of Bangladesh and on the livelihood of the rural people. The present study is an attempt to analyze the cost-benefit of handloom weavers operating in Kumarkhali Upazila of Kushtia District. The study is mainly based on primary data. The data used in this study were collected through structured questionnaire from handloom industry owners in the study area. A total of 57 handloom units were randomly selected for the study. Collected data have been analyzed using mathematical and statistical techniques. The cost-benefit analysis approach enabled us to assess the profitability of the handloom industries. The major findings of the study show that handloom weaving activity is profitable and per-loom profit for small scale and large scale units is higher than that for the medium scale units.

Keywords: Handloom, Cost-benefit, Profitability, Bangladesh.

Introduction

The small and cottage industries are playing significant role to reduce poverty by increasing households' income and generating employment in Bangladesh. Among all small and cottage industries handloom has occupied the most important position and historically it has got its predominance and heritages in Bangladesh. The tradition of weaving cloth by hand constitutes one of the richest aspects of Bangladesh culture and heritage. The level of artistry and intricacy achieved in handloom fabrics are unparallel and unique. In the early 17th century the handloom sector of the Indian sub-continent and

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more particularly of the areas presently comprising Bangladesh gained a high degree of efficiently for producing quality product. The products were highly praised and admired throughout the world and use to be expected all over the world. It provides *Sharee, Lungi,* Bedsheet, Wrapper, *Gumchha* and others. The handloom industry is the largest cottage industry in Bangladesh. It has an important role to play in the face of growing unemployment in our country and has high significance in rural development. Handloom sector in Bangladesh consists of more than 0.183 million units with 0.505 million looms and about 1 million weavers of which about 50% are female worker. A manpower of about one million weavers, dyers, hand spinners, embroiderers and allied artisans have been using their creative skills into more than 0.30 million active looms to produce around 687 million meters of fabrics annually (BHB, 2003).

Handloom industry has also been meeting up the large portion of demand for cloth of the people in our country. But in Bangladesh handloom weaving activities are shrinking day by day and many weaving units were closed down due to several problems. Therefore, it is necessary to investigate whether the activity is profitable or economically viable to the weavers and owners. Thus, the objective of the present study is to perform a cost-benefit analysis of handloom weaving activities in Kumarkhali Upazila of Kushtia District and to investigate whether the activity is profitable.

Literature Review

Extended studies have been done on different aspects and issues on handloom weaving industries. Some of the studies are analyzed in this section. Chowdhury (1990) did a cost-benefit analysis of weaving by handlooms, power looms, and mills in Bangladesh. He calculated financial and economic internal rates of return (IRRs) of these three alternative techniques of production. He found that handlooms are economically a more efficient technique in terms of IRR in border prices, than either power loom in cottage factories or large weaving mills for the weaving of every single type of fabric. Rahman (1980) examined the relative economic efficiency of weaving on handloom, the power loom and the mill. He found that handloom is more efficient than power loom and mill. Chowdhury (1981) recomputed the relative measures of economic efficiency using prices that were regarded as better representing social opportunity costs. He also found that handlooms are economically more efficient than power looms. Wasow et al. (1989) examined the relative efficiency of handloom and power loom. The data for this particular study did not stem from a sample survey but from one case study where data were taken from technical alternatives of weaving of polyester shirting- handlooms and power looms. The handloom case study was modeled on a *karkhana* with 50 semi- automatic looms. The authors

concluded that among all three techniques of providing polyester shirting handloom project is found to perform as well as or better than power loom project. Jaforullah (1999) found that the technical efficiency of handloom industry of Bangladesh is only 41% and its technical efficiency might improve by increasing its male and female labor ratio and decreasing its hired/family labor ratio and labor/capital ratio.

Methodology

Selection of the Sample and Study Area

The present study mainly depends on primary data collected from the owners of handloom units of three villages of Kumarkhali Upazila. There are many handloom concentrated areas in Kumarkhali Upazila. This Upazila has 11 unions and the headquarter. First of all three unions from the 12 unions are selected randomly (the head quarter was also considered as a union). In the next stage one village from each union is selected randomly. The selected villages are Khoddo Tarapur, Hasimpur, and Kundupara. For selecting the respondents' first the list of total handloom owners of the study area has been collected from Bangladesh Handloom Board (BHB), Kumarkhali branch. Then the respondents are selected from the list randomly and they are interviewed during the period of data collection. For the present study data have been collected from 57 owners and all of the respondents are male. Among them 21 owners are interviewed from the village Khoddo Tarapur, 21 from Hasimpur and 15 from Kundupara.

Analytical Techniques

To perform the cost-benefit analysis an activity budget was made to assess the profitability of handloom weaving industry. To this end the gross return, net return, average return, and per-loom profit of handloom units were calculated. The calculation encompasses the following items.

Gross Costs of Handloom Industry

There are two types of cost of producing cloths by handloom: (a) fixed cost (capital cost) and (b) variable costs (input cost). Fixed cost includes wooden made machine, which is called handloom. In the case of activity budget analysis the rate of interest on operating capital is considered as capital cost. The fixed cost also includes the cost of tools and equipment. The fixed costs varied from one unit to another, but the average figure represents more or less the real world situation. Let the total fixed cost = TFC, capital cost = X_1, and tools and equipment cost = X_2.

Thus, the total fixed cost (TFC) = $X_1 + X_2$

Variable costs included the cost of labor, cost of yarn, cost of other inputs such as rice powder, maize*, karosin,* starch etc. The variable costs also varied from one handloom unit to another like fixed costs, but the average figure represents more or less the real world situation. Let the total variable cost = TVC, labor cost = X_3, yarn cost = X_4 and others input cost = X_5.

Thus, the total variable cost (TVC) = $X_3 + X_4 + X_5$

Thus, the gross cost of handloom weaving industries (GC)

= Total fixed cost (TFC) + Total variable cost (TVC)

= $(X_1+X_2) + (X_3 + X_4 + X_5)$

Average Fixed Cost and Average Variable Cost

The total fixed costs divided by total number of establishments or units is considered as average fixed cost but on the other hand total variable costs divided by total number of establishments or units is called average variable cost.

Thus, Average fixed cost = (TFC÷N)

Average variable cost = (TVC÷N) [Where, N = total no. of establishment].

Gross Return, Gross Margin, Net Return, Average Return, and Per-Loom Return or Profit

The gross return of handloom industries was derived from the sells revenue of cloth. The average return is considered as total return divided by total number of establishments or units and per-loom profit is considered as net return divided by total number of looms.

Thus, Gross return (GR) = Q×P [Where, Q = total production and P = Price of per unit cloth],

Gross margin = GR-TVC),

Net return = (GR–GC),

Average return = (GR ÷ N),

Per-loom profit = (Net profit ÷ M) [Where, M = Total number of loom].

Discussion of Results

Profitability Analysis of Handloom Weaving Industry

The purpose of this section is to asses per year costs and returns of producing cloth under handloom units. Accordingly, an activity budget has been made taking into account the real world situation and presented in Table 1. In this section average gross return, average gross margin, and average net return are calculated to find the profitability of handloom weaving industry.

Table 1: Costs and Returns of the Handloom Units (all units)

Items	Costs and Returns Per Year (Tk.)
A. Average gross return (sells revenue from cloth)	**1749081**
B. Average variable costs	
Average labor cost	389628.9
Average yarn cost	1113656
Average others input cost	53789.47
Total average variable cost	1557074.37
Average gross margin (A-B)	**192006.63**
C. Average fixed costs	
Average capital cost (interest on operating capital)	1254.386
Average tools and equipment cost	707.8947
Total average fixed costs	1962.281
D. Gross average costs (B+C)	1559036.651
E. Average net return (Profit) (A-D)	**190044.349**

Source: Author's own calculation

From Table 1 it is observed that the average gross return of handloom units in the study area is Tk. 1749081 per year. This result indicates that the handloom owner earn Tk.1749081 per year from selling their products. The average gross margin of the owner is Tk. 192006.36 per year which means that the owner earns this amount after paying all types of operating or variable costs. The owners are to pay also some amount of money for using capital such as wooden made machine and 'tools and equipment'. The amount of income which the owners earn after paying variable and fixed cost is called net return. From Table 1 we found that the average net return of the owner is Tk. 190044.349 per year. Thus from Table 1 we found that average gross return, average gross margin and average net return of the owners are positive. Therefore, these results clearly support that cloth production under handloom units is profitable.

Profitability of Handloom Weaving Units by Size of Unit

Profitability of handloom weaving units is not same for units of all sizes. It changes due to size of unit. The profit of small unit and large unit are different. In this section the total samples of unit is divided into six groups and the profitability of different groups is analyzed here. First group contains 1-2 looms, second group contains 3-4 looms, third group contains 5-7 looms, fourth group contains 8-9 looms, fifth group contains 10-12 looms and group six contains 13-16^{+} looms.

Profitability of Units Containing 1-2 Looms

This group contains 14 units with 25 looms. We analyze the benefit and cost of this group to assess the profitability. The costs and returns of the units are shown in below Table 2.

Table 2: Profitability of Units Containing 1-2 Looms

Items	Total Costs and returns (Tk.)	Average cost and return (Tk.)	Per loom profit (Tk.)
A. Gross return	7644000	546000	32902
B. Total variable cost	6794000	485285.7	
C. Gross margin(A-B)	850000	60714.29	
D. Total fixed cost	27450	1960.714	
E. Total gross cost(B+D)	6821450	487246.43	
F. Net return or profit(A-E)	822550	58753.57	

Source: Author's own calculation

From Table 2 it is observed that the gross margin and average gross margin of this group are Tk. 850000 and Tk. 60714.29 per year. Again, the net return or profit is Tk. 822550 per year and average profit per year is Tk. 58753.75.

From Table 2 it is also found that the per-loom profit of this group is Tk. 32902 per year. Since, the net, average and per loom returns are positive, so the handloom unit of sizes 1-2 is profitable.

Profitability of Units Containing 3-4 Looms

This group consists of 15 units with 49 looms. Table 3 shows that the gross margin and average gross margin of this group are Tk. 995840 and Tk. 66389.33 per year. Again, net return and average net return of this group are Tk. 966380 and Tk. 64425.33 per year. It is also found that the per-loom profit of this group is Tk. 19722 per year. So, the handloom units' of this group are profitable. And the per-unit profit of this group is lower than first group.

Table 3: Profitability of Units Containing 3-4 Looms

Items	Total Costs and returns (Tk.)	Average cost and return (Tk.)	Per loom profit (Tk.)
A. Gross return	12852600	856840	19722
B. Total variable cost	11856760	790450.7	
C. Gross margin (A-B)	995840	66389.33	
D. Total fixed cost	29460	1964	
E. Total gross cost (B+D)	11886220	792414.7	
F. Net return or profit (A-E)	966380	64425.33	

Source: Author's own calculation

Profitability of Units Containing 5-7 Looms

The total number of unit and looms of this group are 10 and 60. The Table 4 indicates that the gross margin and average gross margin of this group are Tk. 940980 and Tk. 94098 per year. Again the net return, average return, and per-loom profit of this group are Tk. 921930 Tk. 92193 and Tk. 15365.5 per year. Therefore, the handloom units of this group are profitable.

Table 4: Profitability of Units Containing 5-7 Looms

Items	Costs and returns (Tk.)	Average cost and return (Tk.)	Per loom profit (Tk.)
A. Gross return	13617000	1361700	15365.5
B. Total variable cost	12676020	1267602	
C. Gross margin (A-B)	940980	94098	
D. Total fixed cost	19050	1905	
E. Total gross cost (B+D)	12695070	1269507	
F. Net return or profit (A-E)	921930	92193	

Source: Author's own calculation

It is also observed that although the average return of this group is higher than first and second group, but the per-loom profit of this group is lower than first and second groups.

Profitability of Units Containing 8-9 Looms

This group holds 5 handloom units with 42 looms. It is observed from Table 5 that the net return, average return, and per-loom profit of this group are Tk. 1592150 Tk. 318430 and Tk. 37908.33 per year. It is also observed that the gross margin and average gross margin of this group are Tk. 1601610 and Tk. 320322. Here, the average profit and per-loom profit are higher than first, second and third groups.

Table 5: Profitability of Units Containing 8-9 Looms

Items	Costs and returns (Tk.)	Average cost and return (Tk.)	Per loom profit (Tk.)
A. Gross return	11800000	2360000	37908.33
B. Total variable cost	10198390	2039678	
C. Gross margin (A-B)	1601610	320322	
D. Total fixed cost	9460	1892	
E. Total gross cost (B+D)	10207850	2041570	
F. Net return or profit (A-E)	1592150	318430	

Source: Author's own calculation

Profitability of Units Containing 10-12 Looms

This group consists of 9 units with 96 handlooms. It is observed from the Table 6 that the net return, average return, and per-loom profit this group are Tk. 4076390 Tk. 452932.2 and Tk. 42462.40 per year. The gross margin and average gross margin of this group are Tk. 4094700 and Tk. 454966.67. Here, average return and per-loom profit are higher than first, second, third and fourth group.

Table 6: Profitability of Units Containing 10-12 Looms

Items	Costs and returns (Tk.)	Average cost and return (Tk.)	Per loom profit (Tk.)
A. Gross return	32184000	3576000	42462.40
B. Total variable cost	28089300	3121033	
C. Gross margin (A-B)	4094700	454966.67	
D. Total fixed cost	18310	2034.444	
E. Total gross cost (B+D)	28107610	3123068	
F. Net return or profit (A-E)	4076390	452932.2	

Source: Author's own calculation

4.2.6 Profitability of Units Containing 13-16^{+} Looms

This group is considered as large unit group. It contains 4 units with 60 looms. It is observed from the Table 7 is that the net return, average return, and per loom profit of this group are Tk. 2453080 , Tk. 613270 and Tk. 43884.67 per year. Here, the average profit and per loom profit are higher than all groups.

Table 7: Profitability of Units Containing 13-16^{+} Looms

Items	Costs and returns (Tk.)	Average cost and return (Tk.)	Per loom profit (Tk.)
A. Gross return	21780000	5445000	43884.67
B. Total variable cost	19138800	4784700	
C. Gross margin (A-B)	2461200	615300	
D. Total fixed cost	8120	2030	
E. Total gross cost (B+D)	19146920	4786730	
F. Net return or profit (A-E)	2633080	658270	

Source: Author's own calculation

Therefore, the result clearly support that the handloom units of this group are more profitable than all others mentioned groups.

Comparison of Results of Profitability Analysis of Different Groups

The study analyzed the costs and benefits of all owners to assess the profitability of handloom weaving industries and analyzed the profitability by dividing all data set into six groups to justify the variability of profits of different industries of different sizes. The obtained results are compared in below Table 8.

Table 8: Comparison of Results of Profitability of Different Groups (in Tk.)

Group	Gross margin (Tk.)	Average gross margin (Tk.)	Net profit (Tk.)	Average net profit (Tk.)	Per loom profit (Tk.)
First Group (1-2 looms)	850000	60714.29	822550	58753.57	32902
Second Group (3-4 looms)	995840	66389.33	966380	64425.33	19722
Third Group (5-6 looms)	940980	94098	921930	92193	15365.5
Fourth Group (7-9 looms)	1601610	320322	1592150	318430	37908.33
Fifth Group (10-12 looms)	4094700	454966.67	4076390	452932.2	42462.40
Sixth Group (13-16looms)	2461200	615300	2633080	658270	43884.67

Source: Author's own calculation.

From the above Table 8 it is observed that the average net profit has gradually increased from first group to sixth group. It indicates that the

profitability has increased due to increase in the size of unit. So, from the average result we can conclude that the profits of large units are higher than small units. But when the per-loom profits of different groups are considered then different insights are obtained. From Table 8 it is found that the per-loom profit of first group is Tk.32902 per year which is greater than the per-loom profit of second (Tk.19722) and third (Tk. 15365.5) groups. Again, the per-loom profit of sixth group is Tk. 43884.67 per year which is greater than the per-loom profit of fourth and fifth groups. So, the per-loom profit of both small and large units is more than medium units.

Conclusion

The present study analyzed the profit of handloom weaving industries in the study area. It is found that average gross return, average gross margin, average net profit, and per-loom profit of handloom weaving industry are positive. Therefore, handloom industry in the study area is profitable. The average net profit has gradually increased from small to large industries. It indicates that the profitability has increased due to increase in the size of unit. So, from the average result we can generalize that the profits of large units are higher than small units. But when the per-loom profit of different groups is considered then different insights are found. From the results of per-loom profit it is observed that the per-loom profit of small and large scale units are higher than that of medium scale units. It might be a fact that the small handloom units get the facilities from cottage industry characteristics and the large handloom units get benefits from scale effect. But the medium handloom units do not get either the facilities of cottage industry or the facilities of scale effect.

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