

## The Technical Inefficiency of Handloom Weaving Industry: A study in Tangail Sadar

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**ABSTRACT:** The handloom industry in Tangail sadar is decreased day by day because they did not get enough profit to carry the business. They could not able to maintain the efficiency of production. This paper analyzes the technical inefficiency of handloom weaving industry in Tangail sadar. This study is mainly based on primary data. About 73 entrepreneurs are selected to collect the primary data. A questionnaire is prepared and the data is collected through personal interview. Cobb-Douglas production function model is used to obtain the technical efficiency of handloom units and then technical inefficiency index is calculated from the obtained efficiencies. Tobit Model is employed to run the regression. There exists technical inefficiency in handloom weaving industry in Tangail. There many factors behind this technical inefficiency. The variables including capital labor ratio, education, experience and age of owners have significant impacts on technical inefficiency of handloom unit.. Low capital labor ratio increases the technical inefficiency in handloom weaving industry. The existence of technical inefficiency in handloom industry in Tangail causes the declining of handloom industry. The study also examined the socio economic condition of the handloom weavers in Tangail. Lower levels of education, low living standard, and inadequate loan facility are common here.

**KEYWORDS:** Handloom industry, Tobit model, Technical inefficiency, Socio economic condition, Tangail.

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### I. INTRODUCTION

Handloom is the traditional industry of Tangail. The handloom industry of Tangail has a top most influence on the employment and earning opportunity of the rural people of Tangail district. But the entrepreneurs are not efficient enough to use the raw materials and labor in efficient way. So the question of inefficiency is raised here. The traditional handloom weavers specially the weavers of tangail have a great reputation as well as huge demand of handloom product like tangailsharee within and outside of the country from historical ages. Many people of Tangail live on Handloom. This industry plays an important role to the economic development of this area by creating employment opportunities and providing them basic needs of cloth. The people of this area are engaged with this industry traditionally from long years ago. The weavers of Tangail especially Karatia and Pathrail areas are very expert to produce tangailsharee. They produce various types of sharee like soft silk, baluchuri, half silk, toshor silk, hybrid, dengu, dabacort, jamdani, gas, etc. Karatiasharee market is one of the famous sharee markets for buying and selling tangailsharee throughout the country. The local people are known this market as karatia hat. Most of the weavers sell their sharees to this market. The whole sale traders buy the sharee from this market at wholesale price and supply them to different shopping malls and fashion houses. Not only the traders but also high official's business person and elite class customers buy sharees from this local market. Dhaka and other divisional cities have more customers of this market. Many entrepreneurs take order from different fashion houses like arong, shareekutir, nabarupa, tat polli, tangailshareeghar etc. and sell the sharee at a fixed price. Handloom sharee of tangail is of different prices, but people can afford them. Handloom product of Tangail is also exported in Kolkata. According to the religious view there are two types of weavers like muslim weavers and hindu weavers. Muslims weavers are known as 'karigar'. These weavers are mostly live at Dhulatia, Belta, Karatia, Garashin, BirNahali and Charanchal in Tangailsadar. There are also many muslim weavers in Kalihati, Delduarand, Gopalpur and Bashail. We also

came to know that title of hindu weavers are ‘boshak’. They are mostly living in Bajitpur, Pathrail, Nalsunda and Chandi village. At the present day, the condition of Handloom is not so good because the demand of handloom product is decreasing day by day. Main causes behind this decreasing demand are the change of people test. Today people of our country follow the western culture. And this people normally wears three pieces, sharee of modern industry because these product cost is less than the Handloom product. As a result the demand of Handloom product is decreasing day by day for the increasing demand of modern dress. In this situation, the influence of government is needed to save this industry from decay. As this industry plays a vital role for the employment of the peoples of Tangail district.

The problems faced by the entrepreneur are competing in the global markets, illiteracy, low level of income, poor health condition, poor market price of the final commodity, high price of raw material, and lack of labor force and influences of power loom. Above the reasons the traditional handloom industry are falling an uncertainty day by day. So the government should give an attention towards the up falling condition of traditional handloom industry and take initiatives to remove their deteriorating condition.

In this situation, different policy should be taken to the improvement of Handloom industry. Handloom has a reputation and we need to sustain this reputation. To sustain this reputation, we need government assistance to make the continuity of Handloom in Tangail district.

## **II. LITERATURE REVIEW**

Extended studies have been done on different aspects and issues of handloom weaving industries. Several studies have been conducted on handloom industries in the context of technical inefficiency and employment generation.

Rahman (1980) estimated the relative economic efficiency of weaving on handloom and power loom. He concluded that handlooms are more efficient than that of power looms and mills. Wasowet al. (1984) analyzed the relative efficiency of handloom and power loom. He concluded that the handlooms perform as well as or better than power looms. Ahmed (1999) examined the socio-economic aspects of employment generation in the handloom industry and its importance in the national economy of Bangladesh. He concluded that the production of Handloom is decreased day by day and weavers and owner leave this business. Raihan (2010) examined in his paper how rural poverty in Bangladesh could be reduced through improving the handloom industry. He concluded that the industry is on the decline due to lack of education and skill, absence of organization of the weavers and shortage of finance. Latif (1989) in his study examined the quantity of Handloom production in our country and estimated the supplies of cloth by taking into account domestic production and imports. Ghosh (2005) in his study found some factors that are moving the wheels of handloom industry slowly. And he concluded that shortage of working capital, high cost and major forces, which are impediment in the development of handloom industry. McKay (1984) analyzed the comparative efficiency of handloom and power loom techniques on the basis of the computation of internal rates of return. He concluded that the comparative efficiency of handloom is higher than that of power loom. Jaforullah (1999) analyzed the technical efficiency of handloom weaving industry in Bangladesh. He showed that technical efficiency of handloom industry of Bangladesh is being decreased day by day. Sehgal H. K. (2009) has studied that the garment export sector is concerned and Handloom product on a great threat. He found that garment product had a negative impact on the production of Handloom product and it causes to decrease in Handloom production. Prachi (2010) has examined that Handloom products is increasing popularity in India and they also admire the people who are deals on Handloom production. But Handloom production is decreasing day to day because new production method wipes out the product of Handloom. So government intervention should be needed to the development of Handloom. IANS (2011) has emphasized that the thinking of the consumers should be changed, they should be satisfied on their own products and they should be reduced the products of the foreign country. Rahman (2013) studied on the socioeconomic condition of Handloom and he find that the demand of Handloom products is decreasing day by day and may weavers and owner of the Handloom become unemployed. Islam and Hossain (2014) examined the contribution of factor costs to gross return of handloom weaving industry. He concluded that handloom unit owners can have more gross return by increasing the use of labor, yarn and capital costs. Islam et al. (2013) studied the cost and benefit of handloom weaving units operating in Kushtia District. It found that handloom weaving activity is profitable and profit per-loom for small scale and large scale units are higher than that of the medium scale units. Dr. SrinivasaRaoKasisomayajula (2012) showed that the Socio-economic analysis of handloom industry in Andhra Pradesh is a study on the selected districts. He examined the socio economic analysis of handloom industry in Andhra Pradesh, he found that Handloom product faces a great threat and the production of Handloom products are decreasing day by day. Kumudha, M.Rizwana (2013) studied on the socioeconomic condition of Handloom and he find that the demand of Handloom products is decreasing day by day and may weavers and owner of the Handloom become unemployed. Venkateswaran. A (2014) studied the Socio Economic Conditions of Handloom Weaving: A field study in Kallidaikurichi of Tirunelveli District. He concluded that the Handloom industry on threat of decay and

the weavers become unemployed. Sobhan (1989) studied the development of handloom industry in social context. The study indentified the importance of the industry in meeting the clothing needs of the people of the country.Dharma Raju P. (2006) studied Marketing in Handloom Co-operatives and expressed his view and found that the experience of handloom co-operatives has been a mixed one. He concluded that excessive control by master weavers and local power groups, politicization are some factors that have created obstruction for the development of Handloom. D.Narasimha Reddy (2008) is of the opinion that, the government influences that can be helped to develop the Handloom industry and it are helped to obtain the goals of Sustainable Development Goals. Due to larger support from consumers and being a livelihood option for millions of weavers, Handloom sector can be developed. Mathiraj and Rajkumar (2008) studied on Handloom product's production and marketing. In this study they examined the production related problems of the Handloom Weavers. It was found in their study that the societies are facing wide range fluctuation in yarn price, lack of skilled labor force and high price of labor. They concluded that the production pattern, sales design may be formulated and it can be increased the handloom products in the market.ShijinaShiji (2009) showed that the weaving process is central to the quality of the rug. Handloom products are old fashioned it need to be modernize otherwise it should be faced a great threat. So the production procedure and design should be modernized.

### **III. OBJECTIVES OF THE STUDY**

Following are the main objective of the study.

- The main aim of the study is to estimate the level of technical inefficiency exists in the handloom weaving units in Tangail sadar.
- To examine the socioeconomic condition of handloom entrepreneurs in Tangail Sadar.

We also evaluate how the condition can be improved for the entrepreneurs of the Handloom.

### **IV. METHODOLOGY**

To estimate the technical inefficiency in handloom weaving unit and to describing the socio-economic conditions of hand loom entrepreneurs of studying area, the study follows a quantitative and qualitative approach for collecting information about the target group (handloom entrepreneurs). A questionnaire survey is undertaken to collect key information such as the age, family size, religious status, income, income sources, type of product, selling etc. Qualitative and quantitative information is collected to acquire an understanding of the overall functioning of the value chain in concern and to understand the reason of finding of the study. The study is mainly based on primary data and we also used secondary data. The primary data is collected from respondents by using a structured and open ended questionnaire and through personal interview method. Simple random technique is used here to select the sample. The main sources of primary data are the entrepreneurs who are engaged with handloom industry. We selected 73 entrepreneurs to collect the primary data. The data is collected through personal interview. The study area is Tangail sadar and the most of the entrepreneurs from Dhulutia and Pathrail village.

We employed Cobb-Douglas production function model within the framework of Stochastic Frontier approach to estimate the technical efficiency of handloom units in Tangail sadar. And then the method used by Featherstone et al. (2004) was followed to compute the technical inefficiency indices by subtracting the technical efficiency estimates from 1. Finally we use Tobit Model to estimate the technical inefficiency in handloom unit Tangail sadar.

We express the model as

$$TFI_i = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + u_i \dots \dots \dots \quad (1)$$

Where

$TFI_i$  = Technical inefficiency in handloom weaving industry in Tangail sadar

$X_1$  = capital labor ratio

$X_2$  = family members of owners

$X_3$  = age of owners

$X_4$  = education

$X_5$  = experience

$X_6$  = wage of labor

$X_7$  = loan facility and  $u_i$  is random error term.

### **V. FINDINGS**

In this section, we analyses the regression results of the Tobit Model estimated. The maximum likelihood estimates of the marginal effects of the explanatory variables on technical inefficiency of handloom weaving industry in Tangail district are presented in Table-1. In this paper we show that capital labor ratio, age of owners, education, and experience are significant factors influencing technical inefficiency of the handloom

weaving. Among these factors capital labor ratio, education and experience have negative impact on technical inefficiency and only age of owners has positive impact on technical inefficiency of handloom weaving. The variables including family members of owners, wages of labor and loan facility are statistically inefficient.

The variable capital labor ratio has negative impact on technical inefficiency of handloom unit and it is highly significant at 5% level of significance. The coefficient of capital labor ratio is -0.073 which indicates that the marginal effect would reduce inefficiency by 7.3% if the owners increase capital labor ratio at 100%.

**Table 1 Regression results of the Tobit Model**

Variables	Marginal Effects	Std. Error	t-ratio
Capital labor ratio	-0.073***	0.012	-6.083
Family members of owners	-0.017	0.023	-0.739
Age of owners	0.062**	0.015	4.133
Education	-0.041*	0.019	-2.157
Experience	-0.087**	0.023	-3.782
Wages of labor	0.004	0.013	0.307
Loan facility	-0.011	0.038	-0.289
Constant	0.198***	0.046	4.304
Likelihood ratio test	21.364***		

Note. \*\*\* p<0.001, \*\* p<0.01, \* p<0.05

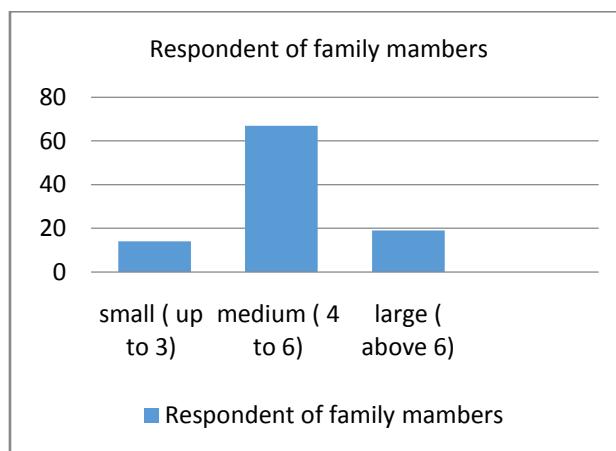
The variable age of owners has positive impact on technical inefficiency of handloom unit and it is significant at 5% level of significance. The coefficient of age of owners is 0.062 which indicates that the marginal effect would increase inefficiency by 6.2% if the owner's age is increased by one more year. This results is surprisingly ambiguous, this may be happen the capacity of mans work is being decreased as the man getting older and older.

As a person receive more education, the person become more effective. So education is positively related to the efficiency of work. The variable education has negative impact on technical inefficiency of handloom unit and it is significant at 5% level of significance. The coefficient of education is -0.041 which indicates that the marginal effect would reduce inefficiency by 4.1% if the owners receive one year education.

As a person become more experience, the person become more efficient. So experience would reduce the inefficiency of handloom production. The variable experience has negative impact on technical inefficiency of handloom unit and it is significant at 5% level of significance. The coefficient of experience is -0.087 which indicates that the marginal effect would reduce inefficiency by 8.7% if the owners experience is increased by one more year. The likelihood ratio test is highly significant which implies that all the explanatory variables are jointly significant.

### Descriptive Studies

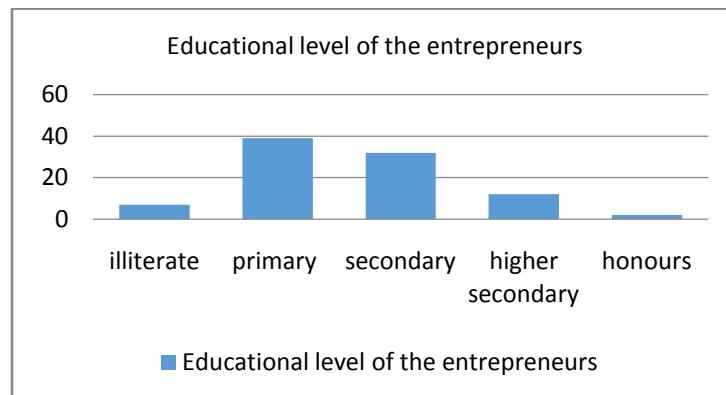
**Family size of the respondents:** The family size of the entrepreneurs is mostly medium in this area. In the study area the family size is classified into three categories according to the number of the family members. Here up to 3 members is assumed to be a small family, between 4 to 6 members is medium family and above 6 members is large family. Most of the family of the entrepreneurs is medium. The percentage of the large family among the entrepreneurs is 14%. The percentage of the medium family among the entrepreneur is 67% and the percentage of small family is 19%. In the study area it is shown that the average number of male and female members in the family is almost same. The female members perform the preliminary activities of production.



**Figure 1 : Family size of the respondent**

#### **Educational level of entrepreneur:**

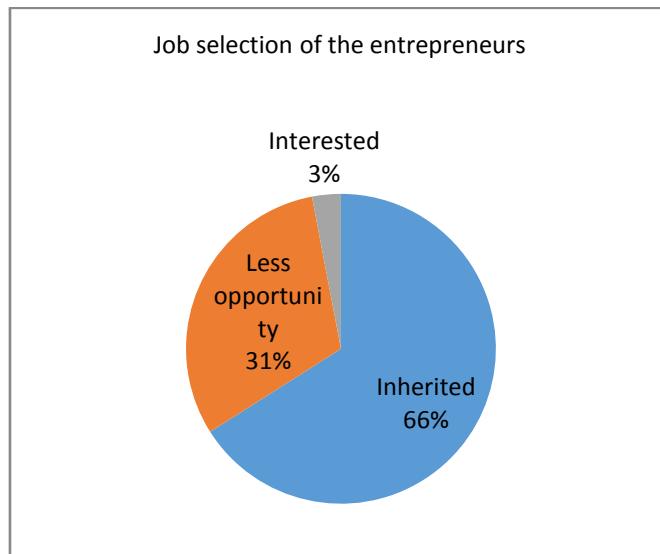
The illiterate entrepreneur in the area is 7%. These type entrepreneurs do not write their address properly. The percentage of primary level completed entrepreneurs is 39%. The secondary level educated entrepreneur is 32%, higher secondary entrepreneur is 12% and Hon. Level is 2%. Here it is shown that higher educated entrepreneur is very few.



*Figure 2: Education level of the entrepreneurs*

#### **Job selection of entrepreneur:**

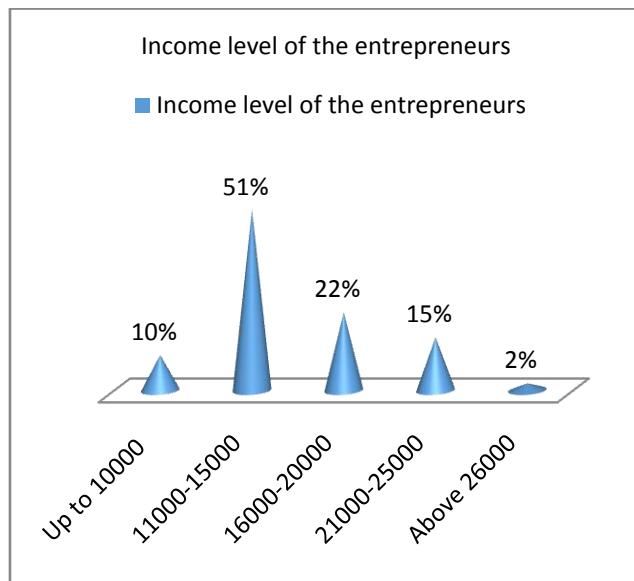
Most of the entrepreneurs have been engaged with this job by born. Many of them comes this profession without getting other job opportunity. In the study area there is a tendency to the people to earn money in childhood. So they are not willing to take higher education and give their study in primary or secondary level. As a result they tend to this industry. Here the 66% entrepreneur come this industry by born and they get it from parents. A noticeable percent as like as 31% come this industry without getting job. But there is a few numbers of entrepreneurs who come to this industry interestedly. It is only 3%. From their childhood they help their family in handloom activities.



*Figure 3: Job selection of the entrepreneurs*

#### **Monthly income of the respondent:**

The income of the respondents varies depending on the number of products they produce and sell. It also depends on the number of handlooms they have or the size of the business. Since most of the entrepreneurs operate handloom, number of products they can produce is low and also the price is also low due to the quality. That result in low income. To show the monthly income of the respondents of the study, there assumed different income levels. The income levels

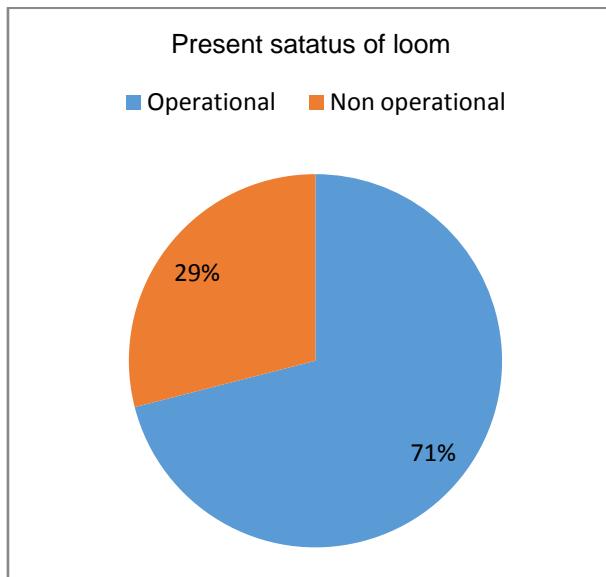


**Figure 4: Income distribution of the entrepreneurs**

are up to 10000, 11000 to 15000, 16000 to 20000, 21000 to 25000, above 26000 (in thousands). In the figure up to 10000 income level entrepreneurs are 10%. Most of the entrepreneur income level is 11000 to 15000. In percentage it is 51%. The entrepreneurs who have 16000 to 20000 income level are 22%. Only 15% entrepreneurs have 21000 to 25000 income level. Above 26000 incomes level is 2%. Here it is shown that most entrepreneurs have less income.

#### **Operational and nonoperational loom:**

Due to the availability of power loom the demand for handloom is decreasing day by day. In power loom production cost of sharee is cost incentive. Almost every type of sharee can be produced in power loom.



**Figure 5: Present status of loom**

In hand loom the cost of production is very high because of high wage rate. Old machines and tools are used in hand loom industry so productivity of this industry is very low. For this reason entrepreneurs can not afford to run their total looms. So there prevail many nonoperational looms. In percentage 71% is operational and 29% is nonoperational loom.

## VI. CONCLUSION

In this study we found that most of the entrepreneurs are engaged in this work by born. In this study we mainly focus on the existence of the technical inefficiency of the handloom weaving. The empirical data analyses found that technical inefficiency exists in production among the handloom weaving units operating in Tangail sadar in Bangladesh. We estimate the factors determining technical inefficiency existing in the handloom industry. The variables including capital labor ratio, education, experience and age of owners have significant impacts on technical inefficiency of handloom unit. So we should careful about these factors to take any policy action. The government should come forward to take action against this technical inefficiency. So entrepreneurs get rid of this technical inefficiency and they can make profit.

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