

Profitability and Resource Use Efficiency of Handloom Weavers: A Study in Sirajganj District

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**DEPARTMENT OF DEVELOPMENT AND POVERTY
STUDIES**

SHER-E-BANGLA AGRICULTURAL UNIVERSITY

DHAKA-1207

December 2020

**Profitability and Resource Use Efficiency of Handloom
Weavers: A Study in Sirajganj District**

BY

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Registration No. 14-06242

A Thesis

Submitted to the Faculty of Agribusiness Management

Sher-e-Bangla Agricultural University, Dhaka

In partial fulfillment of the requirements

for the degree

of

MASTER OF SCIENCE (MS)

IN

DEVELOPMENT AND POVERTY STUDIES

SEMESTER: JANUARY-JUNE, 2019

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CERTIFICATE

This is to certify that the thesis entitled '**Profitability and Resource Use Efficiency of Handloom Weavers: A Study in Sirajganj District**' submitted to the Faculty of Agribusiness Management, Sher-e-Bangla Agricultural University, Dhaka, in partial fulfillment of the requirements for the degree of **Master of Science (MS) in Development and Poverty Studies** embodies the result of a piece of bona-fide research work carried out by **Nishat Tasnim, Registration No. 14-06242** under my supervision and guidance. No part of the thesis has been submitted for any other degree or diploma.

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Dedicated to
My Beloved Parents

ACKNOWLEDGEMENT

Alhamdulillah, all praises are due to the almighty Allah for His gracious kindness and infinite mercy in all the endeavors which create that opportunity for the author to successfully complete the research work required for the partial fulfillment of the degree of Master of Science.

*The author would like to express her heartfelt gratitude and sincere appreciations to her supervisor **Professor Dr. Mohammad Mizanul Haque Kazal**, Department of Development and Poverty Studies, Sher-e-Bangla Agricultural University, Dhaka, for his valuable guidance, advice, encouragement and support throughout the study. Likewise, grateful appreciation is conveyed to her Co-supervisor **Dr. Md. Sadique Rahman**, Associate Professor, Department of Management and Finance, Sher-e-Bangla Agricultural University, Dhaka, for his constant encouragement, constructive criticisms, and valuable advice to complete the thesis. The author also expresses her heartfelt thanks to **Md. Hayder Khan Sujan**, Assistant Professor, Department of Development and Poverty Studies, SAU, Dhaka, for his valuable guidance and constant support throughout the study.*

*The author would like to express her deepest respect and boundless gratitude to all the respected teachers of the **Department of Development and Poverty Studies**, Sher-e-Bangla Agricultural University, Dhaka, for their valuable teaching, sympathetic co-operation, and inspirations throughout the course of this study and research work.*

*The author is deeply indebted and grateful to her **Parents and siblings** who continuously prayed for her success and without their love, affection, inspiration and sacrifice this work would not have been completed. Lastly, the author wishes to extend her special thanks to her elder sister **Ishrat Jahan Amie** for her heartiest co-operation and encouragement throughout her research.*

***Nishat Tasnim**
December, 2020*

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LIST OF ACCRONYMS AND ABBREVIATIONS

% = Percentage
BBS = Bangladesh Bureau of Statistics
BCR = Benefit Cost Ratio
e.g. = exempli gratia (L), for example
et al. = And others
etc. = Etcetera
GM = Geometric mean
GR = Gross Return
Yr. = Year
Tk. = Taka
J. = Journal
MFC = Marginal Factor Cost
MVP = Marginal Value of Product
No. = Number
P = Probability
SAU = Sher-e-Bangla Agricultural University
GOB = Government of Bangladesh
GDP = Gross Domestic Product

ABSTRACT

Handloom industry, one of largest handicraft industry in Bangladesh, providing the majority of rural employment after agricultural farming. However, empirical studies on handloom weavers are limited in Bangladesh. Therefore, this study aimed to explore the socio-economic characteristics, profitability and resource use efficiency of handloom weaving in Sirajganj district of Bangladesh. Primary data were collected from 90 randomly selected handloom weavers through face-to-face interviews. Data were collected between January and February 2020. Descriptive statistics and double log multiple regression function was used to satisfy the objectives. Most of the handloom weavers had primary level of education. The average annual income of weavers was around Tk. 145 thousand. Among the handloom weavers, gamcha weavers achieved higher profit compared to saree and lungi weavers. On an average, yearly net profit for saree, lungi and gamcha weavers were Tk. 122920, 184543 and 220113 respectively. Weavers of saree, lungi, and gamcha earned a minimum profit of Tk. 54840, 69690, and 39270 a year, respectively. On the other hand, weavers of saree, lungi and gamcha earned a maximum profit of Tk. 426170, 352670, and 434340 every year, respectively. Human labor, yarn cost, colour & chemical cost negatively influenced handloom weaver's profit. Resource use efficiency indicated that most of inputs were overutilized by handloom weavers. Several factors, including high yarn and chemical costs, a lack of bank loans, and insufficient marketing facilities, may hinder the expansion of the handloom weaving sector in the study areas.

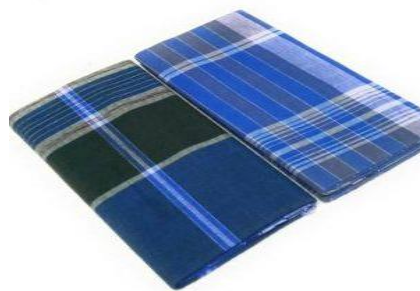
CHAPTER I INTRODUCTION

1.1. Background

Bangladesh has a population of 160 million people, making it one of the world's most populous countries (BBS 2020). Almost 80% of the population of this country lives in rural areas, where agriculture is the primary source of income (Banarjee, Muzib, and Sharmin, 2014). However, agricultural production is always susceptible to seasonal risk and uncertainty, thus it cannot always provide a sustainable livelihood for disadvantaged households. As a result, researchers (e.g., Pitt, 1999; Kevin and Weiss, 2005; Kaija, 2007) have described the potential of non-farm rural sectors in improving the socioeconomic situation of disadvantaged rural households. Seasonal difficulties and other issues are not present in non-farm sectors. It will be more beneficial for economic development if non-farm sectors can be given more priority. The non-farm sector such as handloom industry can play a vital role in improving the livelihood of rural households. The Handloom industry is one of the ancient, the biggest and the important cottage industry of Bangladesh. This sector has a bright future as well as an illustrious past. This industry accounts for a significant portion of the country's GDP (Rahman 2013). Domestic demand for cotton textile in Bangladesh has been steadily increasing over time, as the country's population has grown. Because of the country's large population, it is unable to meet the demand for clothing. The handloom sector has potential to improve in order to meet local demand, and the clothes can also be exported to help the country's economy.



Saree



Lungi



Gamcha

Fig 1.1: Handloom Products (Source: Internet)

1.2. Importance of the work

Handloom industry is the biggest handicraft industry in our country; it is the second largest source of rural employment after agriculture (Ahmad 1999). It has an important role to play in the face of growing unemployment in our country. The industry has high significance in the rural development. Despite many problems, this rural industry is playing a dominant role in the country's rural economy. Like agriculture, the handloom industry uses traditional technology.

For example, handloom units producing fine saree, lungi, gamcha, and chaddar enjoy ready market since majority of the consumers buy such products. This sector has many energetic entrepreneurs who have the substantive inner qualities of business leadership, hard worker and probably thrift. The government at present has given much emphasis on the development of this industry (Islam et al., 2012). Handloom industry is still a very important part of the textile industry of Bangladesh, is responsible for a very high percentage of the nation's economy. Handloom Industry is very important for economic development of Bangladesh especially in rural areas. Because many villagers are employed in this sector and earn their brads.

Almost 80% of the population in this country lives in rural areas whose livelihood is mainly dependent on agricultural occupation (Banarjee et al., 2014). However, agricultural cannot always offer the poor households a sustainable livelihood as the production of agricultural products is always subject to seasonal risk and uncertainties. Therefore, the scholars have described the potential of rural non-farm sectors in improving the socioeconomic status of the poor households in rural areas. This is because non-farm activities provide more income as compared to agriculture and help to avoid the shocks associated with agricultural production. In fact, the expansion of rural non-farm sector is one of the priority poverty reduction plans of the Government of Bangladesh (GOB) as it contributes 36% share in the GDP as reported by BER (2012). Its importance is reflected by the incorporation in the poverty reduction strategy paper called National Strategy for Accelerated Poverty Reduction 11, shortly NSAPR II in Bangladesh (IMF, 2012).

In this respect, handloom weaving sector could be one of the best policy options for the GOB as a mean of reducing poverty. It is the largest traditional cottage industry whose history dates to more than 300 years. It is defined as the manual process of producing the woven fabric through the help of a machine that is made of wood and iron and which does not require any electrical power to be operated. Due to its labor-intensive nature, it solves the unemployment problem of this manpower-based country which is further reflected by the direct and indirect involvement of more than 1.5 million labor force in this occupation. In addition to that, it contributes to 28.1% of total domestic cloth production (BBS, 2003) and thus it meets the demand for one of the non-consumable basic needs of life that is cloth for the vast number of population (Islam and Hossain, 2012). Each year the handloom sector adds a value of nearly 10 billion in the country's export earnings (Liton, et al., 2016). Value addition by the handloom sector to the national economy stands at Tk 12.27 billion. It meets over 40 per cent of domestic textile requirements, accounting for 63 per cent of textile production (BBS 2017). Due to these potentials, the handloom sector is regarded as the most important rural economy next to agriculture.

There are many handlooms in different division. Chattogram Division tops the list having 56.20% (65,200) handloom units among all the divisions in Bangladesh while rest of the seven divisions altogether have only 43.80% (50,806) handloom units. After Chattogram division, Rajshahi division has stood at second position having 16.89% (19,598) handloom units, Khulna division has stood at third position having 12.71% (14745) handloom units, Dhaka division has stood fourth position having 9.88% (11,466) units and Sylhet division has stood at fifth position having 2.78% (3,225). While Rangpur division has located 1.14% (1,320), Barishal division has 0.31% (365) units and Mymensingh division has stood at the lowest position having only 0.07% (87) handloom units (BBS 2018). In Rajshahi division Bogura, Jaypurhat, Naogaon, Natore, Chapainababganj, Pabna, Rajshahi and Sirajganj district have handloom units. Bogura district have 3375 looms, Jaypurhat 818 looms, Naogaon 511 looms, Natore 149 looms, Chapainababganj 1481 looms, Pabna 2833 looms & Sirajganj 9766 looms. So Sirajganj district has largest looms in Rajshahi division. Sirajganj weavers are producing the lion's share of the total demand of the country. Belkuchi, Shahjadpur, Kamarkhanda of Sirajganj and others some part of

Sirajganj district are engaged in handloom sectors. They produced saree, lungi, gamcha, bed sheets and other products but saree, lungi, gamcha are most famous in that area.

The Sirajganj district has huge contribution in handloom sector. In different upazilas lots of people are engaged in this sector. And it has a magnificent past due to excellence and high demand of its products in Indian sub-continent and in Europe as well. Famous Muslin, Jamdani, Benarashi etc. are the renowned products of handloom. Remarkably, industrial revolution and invention of modern technologies have changed the scenario gradually. (BBS 2018).

Even the handloom has a bright historical past in the Indian Sub-continent. So, Bangladesh used to produce the world famous 'Muslin'. Later, 'Muslin' gradually became obsolete. The famous 'Jamdani, Banarase, Tangail Saree, Lungi and few other products are also produced by the handlooms of Bangladesh. So, by proper initiative we get back the Muslin again. It will be helpful to generate income. Even if we can export it, it will take huge impact on income and the remittance will also increase.

Though the total persons engaged has dropped over time the percentage of female participation has significantly increased. The female participation was 44.35% in 1990 and 46.81% in 2003. But the percentage of female engagement has stood at 55.78% in 2018. The handloom industry even increases the employment generation. And the percentage denotes how the female engaging in the industries are increasing. So, for women empowerment the sector will help a lot.

So, for employment generation, keeping our heritage alive, to avoid seasonal risk, to earn remittance handloom industry is very important.

1.3. Rationale of the Study

Handloom industry has prospects. If proper emphasis can be given, then it can flourish like past. Weavers can improve their condition by making variability in their products, improve products design and others. In handloom they do not need electricity but in power loom they need electricity facility, oil that is costly and loss of

energy and power resources. Fewer studies had conducted them to assess the socio-economic condition, present condition and to observe future challenges. But it is important to observe the profitability and observe the factors which influence the factors related to profitability. That's why the present study has given emphasis on the socio-economic condition of weavers, profitability of handloom products, factor influencing the profitability of handloom products, resource use efficiency and observe the constraint associated with the handloom industry. Based on the study, some recommendations will also be generated to overcome the existing problems and for further improvement. The outcomes of this research will be helpful to the planners, policy makers and extension workers for better understanding the current scenario and for taking strategies to accelerate regional development programs specifically in the Sirajganj district of Bangladesh. This study will also be helpful to the academicians and researchers for further conceptualization.

1.4. Objectives

1. To delineate the socio-demographic profile of handloom weavers;
2. To estimate the profitability of the handloom;
3. To identify the factors affecting the profitability of handloom and estimate the resource use efficiency;
4. To find out the constraints of handloom industry in the study area;

1.5. Organization of the Report

The background and importance of handloom sectors, rationale and objectives of the study are described in chapter one. The second chapter comprises the review of literature. The third chapter covers of the research methodology. Chapter four describes the socio-demographic profile of the handloom weavers. Chapter five comprises the profitability of handloom products. Chapter six consists of factors influencing profitability of handloom products and resource use efficiency. Chapter seven describes the constraints associated with handloom industry and suggestions for further improvement and Chapter eight contains summary, conclusion, and recommendations of the study.

1.6. Concluding Remarks

Handloom is a source of livelihood for a significant number of people lived in the Sirajganj district of Bangladesh. A study on the profitability, factors influencing profitability as well as observe constraints associated with the industry can be an important media to initiate and implement a regional development program in Bangladesh. The development of handloom industry can be an important source of livelihood for the people who are related with handloom industry.

CHAPTER II

REVIEW OF LITERATURE

Generally, before conducting an experiment, it is essential to know the information about the previous research works. In this chapter, an attempt was taken to review the past research works which are relevant to the objectives of this study. This was mainly concerned with the review of socio-economic condition, profitability and factors affects profitability of handloom. Further emphasis was given to review find out the constraints of handloom industry in the study area.

Ahmed (1999) in his article attempted to present the socio-economic aspects of employment generation in the handloom industry and its importance in the national economy of Bangladesh. He also found that weaver do not get quality raw materials at right time and right price.

Banarjee et al., (2014) finds out present situation of handloom industry, factors of declining handloom workers, main causes of their migration to India. They also found the raw materials price are increasing, the absence of loan from government, the transportation facility is not enough good, better facilities in India, lack of security in business.

Ghosh (2005) indentified those predominant factors that are moving the wheels of handloom industry slowly. They found that shortage of working capital, high cost of raw material procurement, lack of organizing capability, inadequate technology and efficiency, lack of policy support and major forces, which are bitterly, hit the handloom industry.

Islam et al., (2012) analyze the present scenario as the looms amount, distribution of looms by types, input-output characteristics, industrial support, and problems related with handloom industries. The study found that handloom weaving industry is a promising sector to provide rural employment in the perspective of Bangladesh. Handloom sector is contributing to generation rural employment and income increase, alleviating rural poverty, substituting imports, and increasing potentials for exports.

Islam et al. (2013) analyzed the cost and benefit of handloom weaving units operating in Kumarkhali Upazila of Kushtia District. The cost-benefit analysis found that handloom weaving activity is profitable and profit per-loom for small scale and larger scale units are higher than that of the medium scale units.

Islam et al., (2014) studied the contribution of factor costs to gross return of handloom weaving industry in Kumarkhali Upazila of Kushtia District in Bangladesh. The study found that labor, yarn, and capital costs have significant and positive contribution to gross return. Thus, the study concluded that handloom unit owners can have more gross return by increasing the use of labor, yarn, and capital costs.

Islam et al, (2015) analyzed the technical inefficiency of handloom industry. They have found that education, experience, size of units, and age of owners are significant factors inflowing technical inefficiency of handloom industry.

Parvin et al., (2017) analyzed the livelihood condition. They found that the weaver households in Bangladesh lead a better standard of living with regard to most of the socioeconomic indicators except the education level, the amount of finance received, and the support services from the government.

Raihan (2010) showed how rural poverty in Bangladesh could be reduced through developing the handloom industry. He also found that now the industry is on the decline due to several factors including lack of education and skill, absence of organization of the weavers and smuggling of cloth from India.

Rahman (2013) analyzed the prospects of handloom weaving industry in Pabna district of Bangladesh. The study identified all the internal and external factors that help to understand the present condition of the handloom industry operating in Pabna district. The study found that shortage of working capital, high cost of raw materials, lack of organizing capability, inadequate technology and efficiency, lack of policy support, huge knowledge gap, lack of power supply and shortage of credit facilities are the main features of the handloom units operating in Pabna district of Bangladesh.

2.1. Research Gap of the Study

Several studies have conducted to observe the present scenario and future challenges. And some studies have observed the profitability of handloom products. To the best knowledge of the researcher, no significant studies were carried out to estimate the factors influence the profitability of the handloom sectors and estimated resource use efficiency. This is the research gap of the study. Hence, the researcher carried out the present study to assess the influencing factors of profit of handloom products in several upazila of Sirajganj district of Bangladesh.

CHAPTER III

METHODOLOGY

To attain the objectives of the study, methodology is very essential. The purpose of this chapter is to describe the study area, research design and the procedures used to collect and analyze the data for answering the research questions. The study was conducted based on primary data collected through field survey by using a suitable pre-tested questionnaire from Sirajganj district of Bangladesh during January and February 2020.

3.1. Locale of the Study

Selection of the study area is very important to fulfil the study objectives. Sirajganj district is one of the topmost districts of producing handloom products. The weaving industry is in an area of about 50km of Sirajganj district. The number of weavers in the district 46,403; weaving factories about 14,849; the handloom amount is about 4,05,679. Every year about 200 million meters of textile is produced in this district (UNDP 2020). To serve the purpose of the study Sirajganj district were selected purposively. The map of Sirajganj district has shown in Figure 3.1 and the specific study location namely Belkuchi, Sahzadpur and Kamarkhanda upazila have also been presented in Figure 3.2, Figure 3.3, and Figure 3.4.



Figure 3.1 Map Showing Study Sirajganj District

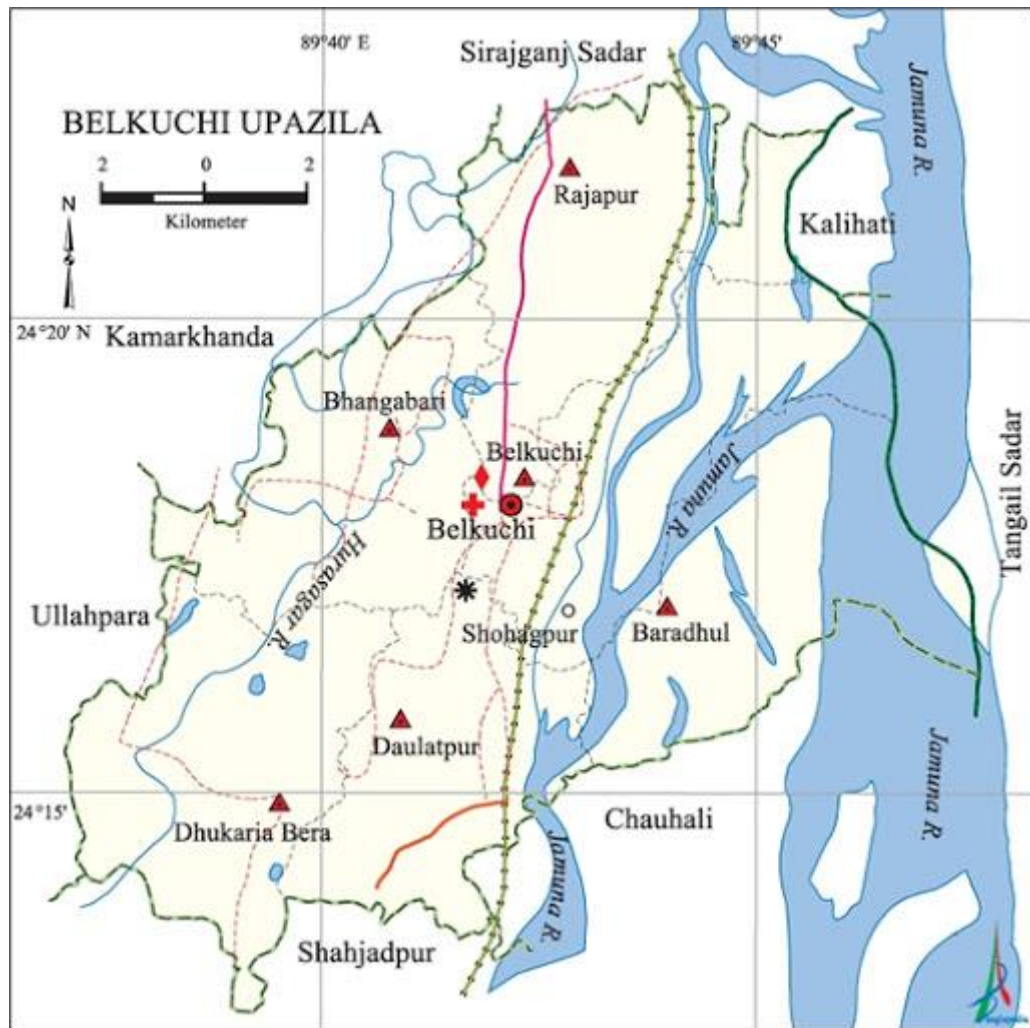


Figure 3.2 Map of Belkuchi Upazila Showing a Part of the Study Area

3.2. Description of the Study Area

3.2.1. Belkuchi upazila

Belkuchi upazila area 164.31 sq. km, located in between 24°13' and 24°22' north latitudes and in between 89°37' and 89°47' east longitudes. It has 42413 households and a total area of 164.31 km². There are two main rivers Jamuna and Hurasagar. Chandni Beel is an important water body. It is known for handloom cottage industries. According to Banglapedia, the features of the cottage industries agriculture at Belkuchi upazila are as follows:

- i. Main sources of income:** Agriculture 22.22%, non-agricultural laborer 5.36%, commerce 19.44%, transport and communication 1.92%, industry 24.38%, service

4.82%, construction 1.07%, religious service 0.26%, rent and remittance 1.15% and others 9.38%.

ii. Ownership of agricultural land: Landowner 41.92%, landless 58.08%; agricultural landowner: urban 24.55% and rural 43.08%.

iii. Cottage industries: Weaving 5032, bamboo work 12, cane work 10, woodwork 226.

iv. Main exports: Paddy, jute, mustard seed, weaving cloths.



Figure 3.3 Map of Shahjadpur Upazila Showing a Part of the Study Area

3.2.2. Shahjadpur upazila

Shahjadpur upazila area 324.47 sq. km, located in between 24°04' and 24°25' north latitudes and in between 89°31' and 89°31' east longitudes. It is bounded by Ullahpara and Belkuchi upazilas on the north, Bera and Santhia upazilas on the south, Chauhali upazila on the east, Faridpur (Pabna) and Ullahpara upazilas on the

west. According to Banglapedia, the features of the agriculture and cottage at the upazila are as follows:

i. Main sources of income: Agriculture 42.73%, non-agricultural labourer 5.90%, industry 17.49%, commerce 16.03%, transport and communication 2.44%, service 4.77%, construction 0.99%, religious service 0.20%, rent and remittance 0.29% and others 9.16%.

ii. Ownership of agricultural land: Landowner 51.78%, landless 48.22%; agricultural landowner: urban 34.31% and rural 54.11%.

iii. Cottage industries: Goldsmith, blacksmith, weaving, potteries, bamboo work, tailoring.

iv. Main exports: Cotton fabrics.

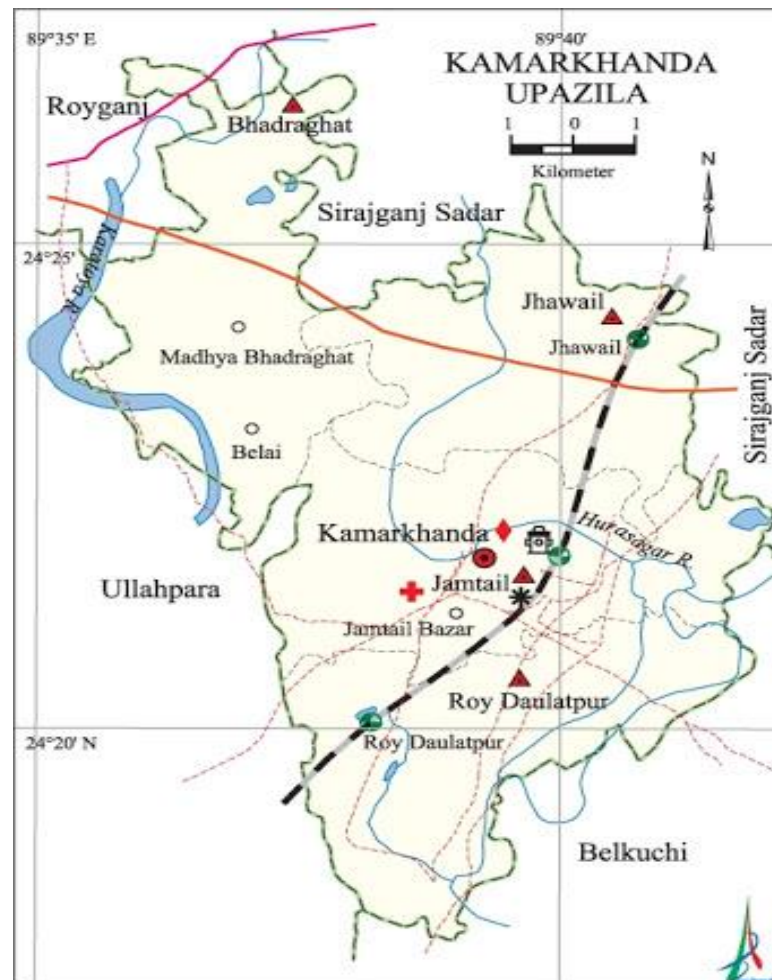


Figure 3.4 Map of Kamarkhanda Upazila Showing the Study Area

3.2.3. Kamarkhanda upazila

The area of Kamarkhanda Upazila is 91.61 sq. km, located in between 24°18' and 24°27' north latitudes and in between 89°35' and 89°42' east longitudes. It is bounded by Sirajganj sadar and Rajganj upazilas on the north, Belkuchi upazila on the south, Belkuchi and Sirajganj Sadar upazilas on the east, Ullahpara upazila on the west. According to Banglapedia, the features of the agriculture and cottage at the upazila are as follows:

i. Main sources of income: Agriculture 47.06%, non-agricultural laborer 4%, industry 1.14%, commerce 16.57%, transport and communication 3.87%, service 8.70%, construction 0.87%, religious service 0.27%, rent and remittance 0.26% and others 17.26%.

ii. Ownership of agricultural land: Landowner 57.74%, landless 42.26%; agricultural landowner: urban 39.18% and rural 59.17%.

iii. Cottage industries: Weaving, potteries, embroidery, bamboo work, cane work.

iv. Main exports: Mustard seed, molasses, vegetables, bamboo, and cane products.

3.3. Population of the Study

All the weavers who weave handloom at Belkuchi, Shahjadpur and Kamarkhondo upazila of Sirajganj district constituted the population of the study. To attain the objectives of the study, the number of weavers were determined approximately by consulting with local area people who knows about them. With the help of them three rough list were prepared for the three upazila comprising the handloom weavers.

3.4. Sample size and sampling procedure of the study

A multistage sampling technique was employed. The details of the sampling technique are discussed as follows:

In the first stage Sirajganj district was selected purposively. As this district has huge contribution in handloom weaving in the country. In the second stage, the study selected 3 Upazilas under Sirajganj District in checking the list of “Bangladesh Handloom Board (BHB)” which is responsible for the overall development, promotion, and expansion of handloom sector in the country. These upazilas have

comparative advantage in finding out small scale weavers. These upazilas are named Belkuchi, Shahjadpur and Kamarkhanda.

In the third stage and final stage, a total of 90 weavers were randomly selected from the list of handloom weavers living under these 3 studied Upazilas.

The sample of the study were 90, from three upazilas by field level survey it was collected.

Table 3.1 Sample of the Study

Name of the district	Name of the upazila	Sample size
Sirajganj	Belkuchi upazila	30
	Shahjadpur upazila	30
	Kamarkhanda upazila	30
Total		90

3.5. Data Collection Methods and Tools

3.5.1. Data collection methods

Different types of data and information are needed to complete a meaningful study. For this reason, primary and secondary information were collected rigorously.

3.5.1.1. Primary data collection

Primary data refers to the firsthand data gathered by the researcher herself. Sources of primary data are surveys, observations, questionnaires, and interviews etc. Individual interviews were conducted in a face-to-face situation with a structured and pre-tested questionnaire for collecting primary data. Interviews were conducted in respondent's house or at the weaving site.

3.5.2. Data collection tools

A structured interview schedule was prepared earlier to attain the objectives of the study. The prepared schedule embodied with both open and closed ended questions. The questions of the schedule were formulated in a simple and unambiguous way and arranged in a logical order to make it more attractive and comprehensive. The instruments were developed in English. The survey tools were initially constructed

based on an extensive literature review. The schedule was pre-tested with 10 randomly selected weavers in the study area. The pretest was helpful in identifying faulty questions and statements in the draft schedule. Thus, necessary additions, deletions, modifications, and adjustments were made in the schedule based on experiences gained from pre-test. The questionnaires were also checked for validity by supervisor and educational experts at Sher-e-Bangla Agricultural University, Dhaka. Finally, based on background information, expert's appraisal, and the pre-test the interview schedule was finalized.

3.5.3. Data collection period

During data collection, necessary co-operation was obtained from local leader and obviously from the respondents. Before going to the respondent's home for interviewing they were informed verbally to ensure their availability at home as per schedule date and time. According to the survey experience in some cases, the respondents felt hesitate to give answer at some aspect of questioning. The primary data were collected during January and February 2020.

3.6. Variables and Their Measurement Techniques

The variable is a characteristic, which can assume varying, or different values in successive individual cases. A research work usually contains at least two important variables viz. independent and dependent variables. There are several factors that influence the profitability of handloom products but among them most important five components for saree and four components for lungi & gamcha were studied to analyze the factors affecting profitability of handloom products. The dependent variable of the study was profitability from handloom products.

3.6.1. Measurement of independent variables

The most important four inputs of handloom i.e., human labor, yarn cost, colored and chemical cost, other input cost were treated as independent variable of the study. The methods and procedures in measuring the independent variables of the study are as follows:

3.6.1.1. Shade Cost

The shade cost was calculated according to the per shade as the weavers has one shade and they do all their production on it.

3.6.1.2. Loom Cost

The loom cost was calculated earlier by taking one loom cost then it was multiplied by the number how much loom they have.

3.6.1.3. Sana Cost

The sana cost was calculated by the number of sana they have with the help of one sana cost.

3.6.1.4. Maku Cost

The maku cost was calculated by taking the number of one maku then it was multiplied by the number of maku.

3.6.1.5. Baa Cost

The baa cost was calculated by the same procedure of sana and maku cost.

3.6.1.6. Doby Cost

The doby is used to operate the loom, it was calcuted by multiplying the number and cost of doby.

3.6.1.7. Human labour cost

Human labor cost was first calculated into how much they earn from one product then it was converted into per day income. Then it was converted how much product they produce per month and how much they earn from it. After that it was taken into annual basis.

3.6.1.8. Yarn cost

The cost of yarn was calculated by taking how much yarn they need for per month production the quantity was taken into pound. Then it was multiplied by cost per pound yarn. Then it was converted into per annum.

3.6.1.9. Colour & Chemical cost

The cost of colored and chemical was calculated by taking how much color and chemical they need for per month production the quantity was taken into pound. Then it was multiplied by cost per pound colored and chemical. Then it was converted into per annum.

3.6.1.10. Others input cost

The cost of other input was calculated by taking how much money they need for one product. Then it was multiplied by how much product they produce per month. After that it was converted into annual basis. The other input cost is required only for saree, but it is not necessary for lungi and gamcha. For lungi and gamcha production it needs only yarn, colored and chemical.

3.6.2. Measurement of dependent variable

The dependent variable of this study was the profit from handloom weaving practices. At first, weaving production of the industry was measured in terms of produced quantity in numbers. Handloom weavers collect products per day. Finally, all the quantity of products was multiplied by price. Thus, the dependent variable was measured.

3.7. Data Processing

After completion of data collection from field, some interview schedules had verified randomly for the sake of consistency and completeness. Bogdan and Biklen (2006) insist that data analysis is also an on-going part of data collection. Editing and coding had done before putting the data in computer. Initially, all collected data were carefully entered in Microsoft Excel. Exported data were checked randomly against original completed interview schedule. All the collected data were summarized and scrutinized to eliminate maximum possible errors. If errors were detected, necessary corrections were made accordingly. The summery tables were made in MS Excel work sheet.

3.8. Data Analysis and Analytical Techniques

Collected primary data from sample surveys were coded where appropriate, entered a database system using Microsoft office software package. Finally, data were exported

from Microsoft Excel program to SPSS 22 statistical software package which offered statistical tools applied in social research. For the sake of statistical analysis for drawing inferences, some qualitative data were converted into quantitative numbers. Descriptive techniques were used to illustrate current situations (socio-economic), describe different variables separately and construct tables. These techniques included: frequency distribution, percentage, range, mean etc. Analytical technique was applied to determine the affecting factors. Cobb-Dauglus production function model was used in this study for making a meaningful inference.

3.8.1. Analysis of profitability

Different parameters of costs and return were analyzed to measure the profitability of handloom products in the study area. The following algebraic equation was used to assess the costs and returns of handloom products.

$$GR_i = \sum_{i=1}^{30} Q_i \times P_i$$

Where,

GR_i = Gross return from handloom products for the i^{th} industry (Tk./firm)

Q_i = Quantity of product produced in i^{th} industry (No./firm)

P_i = Average price of products of the i^{th} industry (Tk./firm)

$i = 1,2,3, \dots, 30$ (number of individual products)

Net return was calculated by deducting all costs (variable and fixed) from gross return. The following equation was used to determine the net return of products:

$$\pi = GR_i - \sum_{i=1}^{30} \sum_{j=1}^n X_{ij} P_{xij} - TFC_i$$

Where, π = Net return (Tk./firm)

GR_i = Gross return from handloom products Tk.

X_{ij} = Quantity of j^{th} input (No./firm)

P_{x_i} = Price of j^{th} input (Tk./firm)

TFC_i = Total fixed cost of i^{th} industry (Tk./firm)

$i = 1,2,3, \dots, 30$ (Number of individual products)

$j = 1,2,3, \dots, n$ (Number of input)

Benefit-Cost Ratio (BCR) analysis

A benefit-cost ratio (BCR) is an indicator showing the relationship between the relative costs and benefits of a proposed project, expressed in monetary or qualitative terms. If a project has a BCR greater than 1.0, the project is expected to deliver a positive net present value to a firm and its investors. BCR for the handloom weaving was measured by the following way:

$$BCR \text{ on } TC = \frac{GR}{TC}$$

Where, GR = Gross return; TC = Total Cost and the decision rules are that when,

BCR > 1, the return from handloom weaving was economically satisfactory.

BCR < 1, the return from handloom weaving was not economically satisfactory;
and

BCR = 1, there exist economic breakeven point of handloom weaving

3.8.2. Factors affecting profitability and resource use efficiency

The Double log multiple regressions were used for functional analysis. The functional form of the regression equation was as follows:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \dots + \beta_n X_n$$

The function was converted to logarithmic form so that it could be solved by least square method

$$\ln Y = \beta_0 + \beta_1 \ln X_1 + \beta_2 \ln X_2 + \dots + \beta_n \ln X_n + U_i$$

The empirical function was the following:

$$\ln Y = \alpha + \beta_1 \ln X_1 + \beta_2 \ln X_2 + \beta_3 \ln X_3 + \beta_4 \ln X_4 + \beta_5 \ln X_5 + U_i$$

Where,

Y = Profitability of handloom (Tk./Yr);

X_1 = Total Sales (Tk./Yr);

X_2 = Labor cost (Tk./Yr);

X_3 = Yarn cost (Tk./Yr);

X_4 = Colour and Chemical cost (Tk./Yr);

X_5 = Other input cost (Tk./Yr);

B_0 = Intercept;

$\beta_1, \beta_2 \dots \beta_5$ = Coefficients of the respective variables to be estimated;

and U_i = Error term.

In case of saree five factors are considered but for lungi and gamcha other input cost is not needed.

To analyze the resource use efficiency, the ratio of marginal value product (MVP) to the marginal factor cost (MFC) for each input was computed and tested for its equality to 1,

$$i.e. \quad r = \frac{MVP}{MFC}$$

Where,

MVP = Value of change in output resulting from a unit change in variable input (Tk.)
and MFC = Price paid for the unit of variable input (Tk.).

Under this method, the decision rules are that, when;

$r > 1$, the level of resource use is below the optimum level, implying underutilization of resources. Increasing the rate of use of that resource will help to increase productivity.

$r < 1$, the level of resource use is above the optimum level, implying overutilization of resources. Reducing the rate of use of that resource will help to increase productivity.

$r = 1$, the level of resource use is at optimum implying efficient resource utilization.

The marginal productivity of a resource represents the additional to gross returns in value term caused by an additional unit of that resource, while other inputs are held constant. When the marginal physical product (MPP) is multiplied by the product price per unit, the MVP is obtained. The most reliable, perhaps the most useful estimate of MVP is obtained by taking resources (X_i) as well as gross return (Y) at their geometric means (Dhawan and Bansal, 1977). Since all the variables of the regression model were measured in monetary value, the slope co-efficient of those explanatory variables in the function represented the MVPs, which are calculated by multiplying the production co-efficient of given resources with the ratio of geometric mean (GM) of gross return to the GM of the given resources, i.e.;

$$\ln Y = \ln \alpha + \beta_i \ln X_i$$

$$\frac{dY}{dX_i} = \beta_i \frac{Y}{X_i}$$

$$\text{Therefore, } MVP(X_i) = b_i \frac{\bar{Y}(GM)}{\bar{X}_i(GM)}$$

Where,

\bar{Y} = Mean value (GM) of gross return in Tk.

\bar{X}_i = Mean value (GM) of different variable input in Tk.

$i = 1, 2, \dots$

MFC is the price of input per unit. If the MFC of all the inputs expressed in terms of an additional taka in calculating the ratio of MVP to MFC, the denominator will always be one, and therefore, the ratio will be equal to their respective

CHAPTER IV

SOCIO-DEMOGRAPHIC PROFILE OF THE HANDLOOM WEAVERS

In accordance with the objectives of the study, the recorded observations have been reported in a systematic way and probable discussion of the findings have done with their justifiable and relevant researches. The findings of the study and their interpretation have been presented from this chapter to onwards.

Various characteristics of the respondent might have significant contribution to the attitude or behavior they do in their entire life. Many of those traits can be discussed to explain the socio-demographic profile of the smallholder handloom weavers. But in this study, five characteristics of the respondents were selected including their age, level of education, family size, occupational diversification, annual household income, that might have great influence on the handloom weavers' activities of the respondents. More or fewer same attributes were studied by Parvin et al. (2017) in their study. These abovementioned attributes are explained in this section of the report.

4.1. Age Distribution of the handloom weavers

The variable age is generally seen as the ability and responsibility of a person to manage the weaving business properly (Parvin et.al 2017). Different ages people are engaged in handloom business. They are engaged in these from their young ages. As in the study area it was observed that they are engaged in this because it is their family business. Considering the recorded age, handloom weavers were classified into three categories 'young', 'middle' and 'old' aged as classified by MoYS (2012). The distribution of the respondents in accordance of their age is presented in Figure 4.1. 4.2. and 4.3.

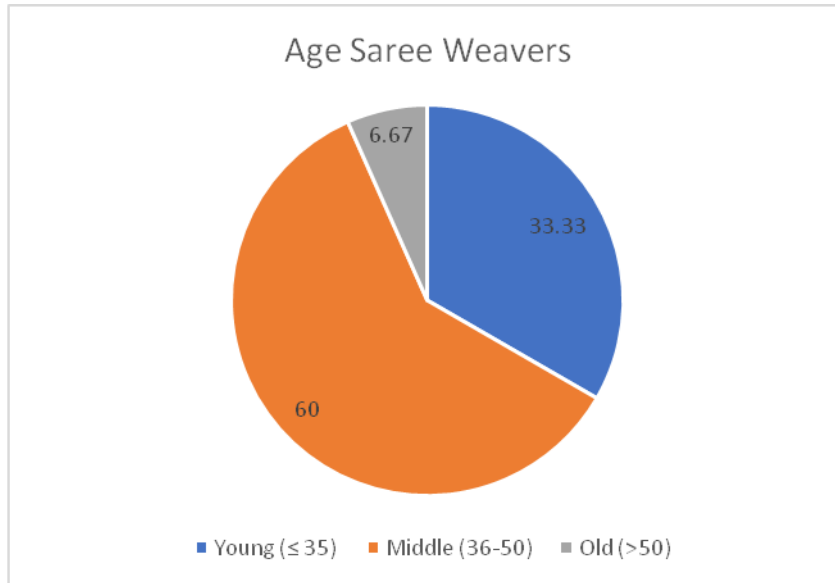


Figure 4.1 Distribution of the Saree Weavers Based on Their Age

Figure 4.1 reveals that the middle-aged weavers comprised the highest proportion (60%) followed by young (33.33%) and old (6.67%) aged category. Results also indicates that the young and middle-aged category constitute 93.33 percent of the total weavers. The result seems that, the young and middle-aged weavers were generally more involved in saree weaving activities.

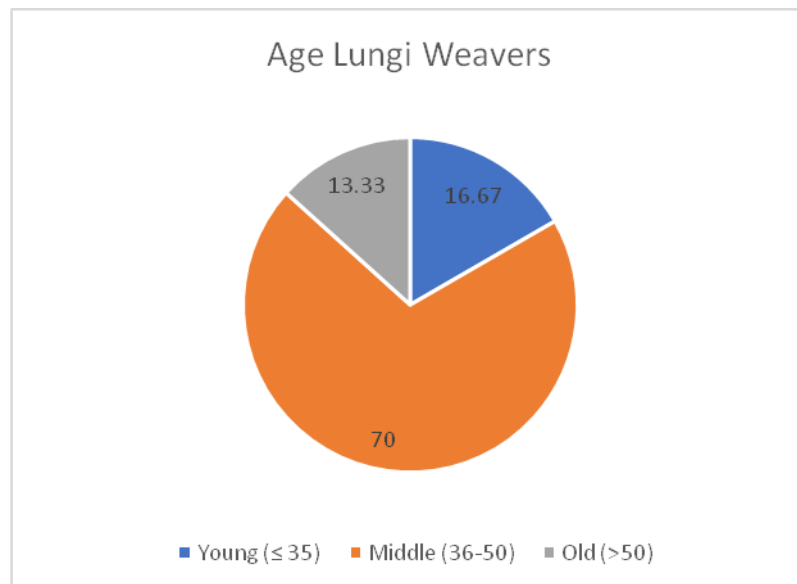


Figure 4.2 Distribution of the Lungi Weavers Based on Their Age

Figure 4.2 reveals that the middle-aged fatteners comprised the highest proportion (70%) followed by young (16.67%) and old (13.33%) aged category. Results also indicates that the young and middle-aged category constitute 86.67 percent of the total

weavers. The result seems that, the young and middle-aged weavers were generally more involved in Lungi weaving activities.

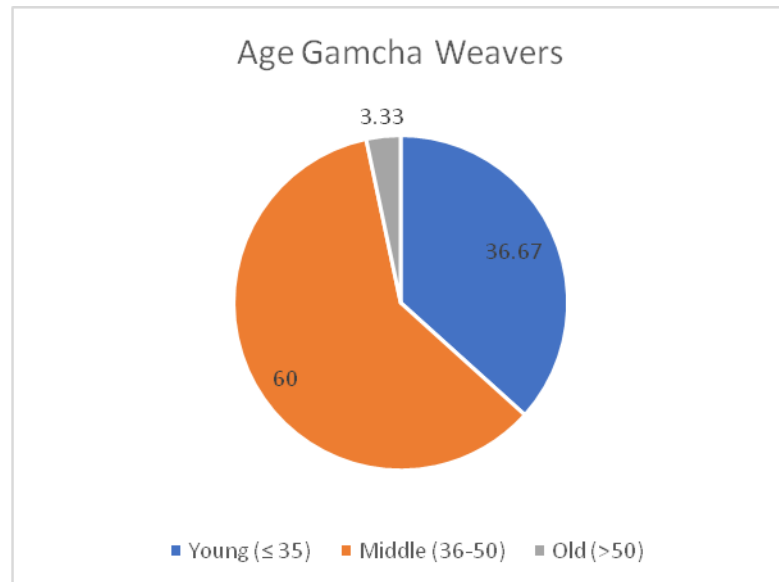


Figure 4.3 Distribution of the Gamcha Weavers Based on Their Age

Figure 4.3 reveals that the middle-aged weavers comprised the highest proportion (60%) followed by young (36.67%) and old (3.33%) aged category. Results also indicates that the young and middle-aged category constitute 96.67% percent of the total weavers. The result seems that, the young and middle-aged weavers were generally more involved in gamcha weaving activities.

4.2. Educational status

The educational level is considered as the key to developing the human capital of a nation. The knowledge and skills obtained by education determine the ability of a person to execute the profitability from their business. This study has classified the studied households under 5 different educational classes. The level has observed from a people can sign or not to graduation and so on. Though the scenario is not as much satisfactory. The same kinds of scenario are shown in case of sari, lungi and gamcha weavers. They are not as much educated what can improve their present condition. If one is educated, then he can easily implement his knowledge on business. In one view that is better for them and for the country to improve their economic condition. In case of saree, lungi and gamcha weavers the primary level of education is higher. Though in saree weavers found some people who has completed degree. But in case

of lungi and gamcha weavers the percentage is zero. It also impacts on their income. As it was found that the saree weavers have online pages. They sell their products through online. But in case of lungi and gamcha weavers it was not found, and they are not aware about the advance technology also. The literacy level in the study area is presented in the table below:

Table 4.1 Literacy level of Handloom Weavers:

Product s	Saree			Lungi			Gamcha		
	Level of literacy	Count	%	Level of literacy	Count	%	Level of literacy	Count	%
01.	Can sign only	0	0	Can sign only	0	0	Can sign only	1	3.33
02.	Primary	19	63.33	Primary	21	70	Primary	28	93.33
03.	Secondary	9	30	Secondary	9	30	Secondary	1	3.33
04.	Degree/ Honors	2	6.67	Degree/ Honors	0	0	Degree/ Honors	0	0
05.	Uneducated	0	0	Uneducated	0	0	Uneducated	0	0
	Total= 30			Total= 30			Total= 30		

Source: Field Survey, 2020

4.3. Family size

The family size is very important measure because the economic solvency depends on it. As if any natural disaster occurs then if the family size is less than it can be easily overcome. But if the family size is bigger than the household cost is higher than it is quite impossible to overcome the situation. Even the study area is very much flood affected. As it is situated besides the Jamuna river on the time of rainy season many weavers must stop their works because of flood. But the bigger family size has just not the disadvantages but also some advantages. If the family size is higher then there is no need to higher labor from the outside, the family member can work as labor mainly to contribute in their household income. But in the study area the number of family member is satisfactory. The number of male and female member is not varying as much. The number of family member and their percentage are given below:

Table 4.2 The number of family member:

Product s	Sari			Lungi			Gamcha		
SI No	No. of family member	Count	%	No. of family member	Count	%	No. of family member	Count	%
01.	4	6	20	4	8	26.67	4	14	46.67
02.	5	11	36.67	5	12	40	5	7	23.33
03.	6	13	10	6	3	10	6	2	6.67
04.	7	7	23.33	7	0	0	7	4	13.33
05.	8	3	10	8	7	23.33	8	3	10
	Total=30			Total=30			Total=30		

Source: Field Survey, 2020

4.4. Occupational diversification

The general nature of rural households in Bangladesh is that they try to find their employment in a mixed economy composed of the farm, non-farm, and off-farm income sources (Parvin & Haque 2017). But the handloom weavers in the study area are apart from it. They are just engaged in handloom business as it was their traditional business. And they were not interested to do others business.

4.5. Annual Household Income of the Respondents

Annual household income of the respondents included all the incomes of the weavers which they earn from weaving industry.

The annual household income of the saree weavers ranged from 108 to 288 thousand taka with an average of 154.67. The annual household income of the lungi weavers ranged from 90 to 240 thousand taka with an average of 145.67. The annual household income of the gamcha weavers ranged from 84 to 240 thousand taka with an average of 138. Based on annual income, the weavers were classified into three categories arbitrarily as 'low', 'medium' and 'high' annual income category. The distribution of the weavers according to their income is presented in Table 4.3.

Table 4.3 Distribution of the Weavers According to Their Annual Household Income (Saree Weavers)

Category	Basis of categorization ('000' Tk.)	Observed range ('000' Tk.)	Weavers		Average household annual income ('000' Tk.)
			Number	Percent	
Low income	≤ 150	108-288	18	60	154.67
Medium income	150-250		10	33.33	
High income	> 250		2	6.67	
Total			30	100.0	

Source: Field Survey, 2020

Result shows that the saree weavers having low annual income constitute the highest proportion (60%), while 33.33% of the weavers have medium annual household income. Thus, a majority (93.33%) of the handloom weavers have low to medium annual family income. Only 6.67% of the weavers have high annual household income.

Table 4.4 Distribution of the Weavers According to Their Annual Household Income (Lungi Weavers)

Category	Basis of categorization ('000' Tk.)	Observed range ('000' Tk.)	Weavers		Average household annual income ('000' Tk.)
			Number	Percent	
Low income	≤ 100	90-240	3	10	145.67
Medium income	100-200		24	80	
High income	> 200		3	10	
Total			30	100.0	

Source: Field Survey, 2020

Result shows that the lungi weavers having medium annual income constitute the highest proportion (80%), while 10% of the weavers have low annual household income. Thus, a majority (90%) of the handloom weavers have low to medium annual family income. Only 10% of the weavers have high annual household income.

Table 4.5 Distribution of the Weavers According to Their Annual Household Income (Gamcha Weavers)

Category	Basis of categorization ('000' Tk.)	Observed range ('000' Tk.)	Weavers		Average household annual income ('000' Tk.)
			Number	Percent	
Low income	≤ 100	84-240	2	6.67	138
Medium income	100-200		25	83.33	
High income	> 200		3	10	
Total			30	100.0	

Source: Field Survey, 2020

Result shows that the gamcha weavers having medium annual income constitute the highest proportion (83.33%), while 6.67% of the weavers have low annual household income. Thus, a majority (90%) of the handloom weavers have low to medium annual family income. Only 10% of the weavers have high annual household income.

4.6. Concluding Remarks

The socio-demographic profile of the handloom weavers indicates the prevalence of medium aged handloom weavers with medium sized family. Most of the weavers had primary level of education. Majority of them earned low to medium annual income from their weaving practices. And they were not interested to do others kind of business than handloom weaving.

CHAPTER V

PROFITABILITY OF THE HANDLOOM

In this chapter researcher made a discussion on the profitability of handloom products in the study area. Before the presentation of extensive explanation on the profitability, the input use pattern was discussed. Sales revenue, fixed cost, raw materials cost, and their minimum and maximum value was discussed afterward. And lastly revenue as well as profitability of the practices was explored and discussed.

5.1. Input Use Pattern of Handloom

Around eleven different types of input for saree and eight for lungi and gamcha were identified by the researcher which had been used for handloom weaving in the study area. These inputs were shade cost, loom cost, sana cost, maku cost, baa cost, doby cost, human labor, wrap cost, weft, polyester etc.

Table 5.1 Input Use Pattern for Saree weaving in the Study Area

SI No.	Items	Min Cost (Tk./yr)	Maximum Cost (Tk./yr)	Average Cost (Tk./yr)
01.	Shade Cost	50000	100000	74333.33
02.	Loom Cost	480000	1200000	648000
03.	Sana Cost	38400	96000	51840
04.	Maku Cost	43200	108000	58440
05.	Baa Cost	21600	54000	29160
06.	Doby Cost	72000	180000	97200
07.	Wrap Cost	220320	864000	383724
08.	Weft Cost	174960	2624400	369684
09.	Polyester Cost	210600	765000	346320
10.	Colour & Chemical Cost	129600	540000	231120
11.	Others input Cost	141120	550800	245952

Source: Field Survey, 2020

Table 5.2 Input Use Pattern for Lungi weaving in the Study Area

SI No.	Items	Min Cost (Tk./yr)	Maximum Cost (Tk./yr)	Average Cost (Tk./yr)
01.	Shade Cost	50000	100000	68000
02.	Loom Cost	480000	1200000	668004
03.	Sana Cost	38400	96000	53439.6
04.	Maku Cost	43200	108000	60120
05.	Baa Cost	21600	54000	30060
06.	Doby Cost	72000	180000	100200
07.	Yarn Cost	576000	1728000	1075680
08.	Colour & Chemical Cost	345600	1209600	722160

Source: Field Survey, 2020

Table 5.3 Input Use Pattern for Gamcha weaving in the Study Area

SI No.	Items	Min Cost (Tk./yr)	Maximum Cost (Tk./yr)	Average Cost (Tk./yr)
01.	Shade Cost	40000	100000	67333
02.	Loom Cost	480000	1200000	716004
03.	Sana Cost	38400	96000	57279.6
04.	Maku Cost	43200	108000	64440
05.	Baa Cost	21600	54000	32220
06.	Doby Cost	72000	180000	106800
07.	Yarn Cost	529920	1324800	849024
08.	Colour & Chemical Cost	172800	691200	345600

Source: Field Survey, 2020

So, for handloom weaving different kinds of inputs were used. Among them for lungi and gamcha the yarn cost is higher and for saree more inputs are needed than lungi and gamcha.

5.2. Cost of Handloom weaving in the Study Area

For determining the cost of handloom weaving products, all the variable costs like cost for yarn, chemical cost, human labour cost, colored cost, polyester cost etc. were calculated per year basis. The fixed cost of handloom weaving included the cost of shade cost, loom cost, sana cost, maku cost, baa cost, doby cost etc. This can be utilized over the time which covers several shifts of handloom weavings. That's why those were the fixed cost for handloom weaving. The total cost included fixed cost and variable cost.

Table 5.4 Cost of Production of Saree in the Study Area

SI No.	Items	Min cost (tk./yr)	Maximum cost (tk./yr)	Average Cost (tk./yr)
A.	Fixed Cost			
	Shade Cost	50000	100000	74333.33
	Loom Cost	480000	1200000	648000
	Sana Cost	38400	96000	51840
	Maku Cost	43200	108000	58440
	Baa Cost	21600	54000	29160
	Doby Cost	72000	180000	97200
B.	Variable Cost			
	Wrap cost	220320	864000	383724
	Weft cost	174960	2624400	369684
	Polyester cost	210600	765000	316320
	Colour & chemical cost	129600	540000	231120
	Others input cost	141120	550800	245952
	Labor Cost	129600	432000	253940
Total Cost (A+B)		1711400	7514200	2759713.33
IOC on Variable Cost for 1 year @10%		100620	577620	180074

Source: Field Survey, 2020

Table 5.5 Cost of Production of Lungi in the Study Area

SI No.	Items	Min cost (tk./yr)	Maximum cost (tk./yr)	Average Cost (tk./yr)
A.	Fixed Cost			
	Shade Cost	50000	100000	68000
	Loom Cost	480000	1200000	668004
	Sana Cost	38400	96000	53439.6
	Maku Cost	43200	108000	60120
	Baa Cost	21600	54000	30060
	Doby Cost	72000	180000	100200
B.	Variable Cost			
	Yarn Cost	576000	1728000	1075680
	Colour & Chemical Cost	345600	1209600	722160
	Labor Cost	72000	288000	147600
Total Cost		1698800	4963600	2925263.6
IOC on Variable Cost for 1 year @10%		99360	322560	194544

Source: Field Survey, 2020

Table 5.6 Cost of Production of Gamcha in the Study Area

SI No.	Items	Min cost (tk./yr)	Maximum cost (tk./yr)	Average Cost (tk./yr)
A.	Fixed Cost			
	Shade Cost	40000	100000	67333
	Loom Cost	480000	1200000	716004
	Sana Cost	38400	96000	57279.6
	Maku Cost	43200	108000	64440
	Baa Cost	21600	54000	32220
	Doby Cost	72000	180000	106800
B.	Variable Cost			
	Yarn Cost	529920	1324800	849024
	Colour & Chemical Cost	172800	691200	345600
	Labor Cost	28800	432000	237020
Total Cost		1426720	4186000	2475720.6
IOC on Variable Cost for 1 year @10%		73152	244800	143164.4

Source: Field Survey, 2020

The total cost for saree, lungi and gamcha production included the fixed and variable cost. The variable cost which included yarn, colored and chemical cost it increases with time.

5.3. Profitability of Handloom Products

The net profit for saree the minimum value 54846.67, maximum value is 426170 and average value was 122920.2 per single year. The net profit for lungi the minimum value 69690, maximum value is 352672.2 and average value was 184543.7 per single year. The net profit for gamcha the minimum value 39278.58, maximum value was 434346.3 and average value was 220113.2 per single year.

Table 5.7 Costs, Revenue and Profit of Handloom Units for a Single Year (‘000 Tk.) (Saree)

Costs, Revenue and Profit	Minimum	Maximum	Average
Total sales (TS)	1296	3780	1911.6
Fixed cost (FC)	11.228	36.171	17.10
Raw material cost (RMC)	955.80	3169.80	1515.61
Labor cost (LAC)	129.60	432	253.94
Total cost (TC)	1195.98	3625.45	1786.66
Net profit	54.84	426.17	124.93
Undiscounted BCR	1.04	1.08	1.06
Total production for thirty saree weavers is 191990 pieces per year			

Source: Field Survey, 2020

Table 5.8 Costs, Revenue and Profit of Handloom Units for a Single Year (‘000 Tk.) (Lungi)

Costs, Revenue and Profit	Minimum	Maximum	Average
Total sales (TS)	1209.60	3456	2149.20
Fixed cost (FC)	12.46	31.11	19.21
Raw material cost (RMC)	921.60	2937.60	1797.84
Labor cost (LAC)	72	288	147.60
Total cost (TC)	1012.70	3136.52	1964.65
Net profit	69.69	352.67	184.54
Undiscounted BCR	1.10	1.19	1.09
Total production for thirty lungi weavers is 229220 pieces per year			

Source: Field Survey, 2020

Table 5.9 Costs, Revenue and Profit of Handloom Units for a Single Year (‘000 Tk.) (Gamcha)

Costs, Revenue and Profit	Minimum	Maximum	Average
Total sales (TS)	1036.80	2592	1695.36
Fixed cost (FC)	2.47	30.38	18.83
Raw material cost (RMC)	702.72	1981.44	1219.39
Labor cost (LAC)	28.80	432	237.02
Total cost (TC)	847.26	2409.54	1475.24
Net profit	39.27	434.34	220.11
Undiscounted BCR	1.22	1.07	1.14
Total production for thirty gamcha weavers is 522680 pieces per year			

Source: Field Survey, 2020

Table 5.10 Net profit for all units per single year (‘000 Tk)

Net Profit	Minimum	Maximum	Average
All units	39.28	434.35	175.86

Source: Field Survey, 2020

A weaver producing all the products saree, lungi and gamcha the minimum profit was 39278.58, the maximum profit 434346.3 taka and the average profit 175859 taka.

Table 5.11 Comparison of net profit for all units per single year (‘000 Tk)

Products	Minimum	Maximum	Average
Saree	54.84	426.17	124.93
Lungi	69.69	352.67	184.54
Gamcha	39.27	434.34	220.11

Source: Field Survey, 2020

The minimum profit for lungi weaver was higher, the maximum profit was higher in case of lungi weaver, the average profit for gamcha weaver was higher.

Similar profit was explored by Islam & Hossain (2018) they observed the minimum, maximum and average profit for the units.

5.4. Concluding Remarks

Among the input factors yarn cost, chemical cost and human labor costs were the main contributor to cost of handloom production. Some fixed cost was shade cost, loom, dooby, joe cost etc. The average profit of handloom product was not so satisfactory.

CHAPTER VI

FACTORS AFFECTING PROFITABILITY OF HANDLOOM AND ESTIMATING THE RESOURCE USE EFFICIENCY

Double log multiple regression model was applied to determine the affecting factors and resource use efficiency of handloom weaving in the study area. Findings of the research are being discussed in this chapter

6.1. Factors Affecting the Profitability of Handloom Weaving

To assess the contribution of different inputs like cost on human labor, yarn cost, colored & chemical cost and other costs for handloom weaving practices, Double log multiple regression model was used. The estimated values of co-efficient and related statistics of Double log multiple regression model have been presented in Table 6.1.

Table 6.1 Estimated Co-efficient and Their Related Statistics of Double Log Multiple Regression Function of handloom weaving (Saree)

Determinants	Coefficients	Std. error	p-value
Sales Revenue (X ₁)	.510***	.253	.004
Labor Cost (X ₂)	-1.058***	.118	.000
Yarn Cost (X ₃)	-4.989***	1.064	.000
Colour & Chemical Cost (X ₄)	5.161***	.946	.000
Other Input Cost (X ₅)	2.310***	.171	.000
Constant	8.091***	1.619	.000
Total observation: 30; Adjusted R-squared: .964;			

Source: Field Survey, 2020

N.B: *** indicate significance at 1%, respectively

Interpretation

Sales Revenue (X₁)

The regression co-efficient of sales revenue was 0.510 which was significant at 1 percent level of significance. It indicates that considering all other factors constant, one percent increment of sales revenue would increase profitability from handloom weaving by 0.510 percent.

Labor Cost (X₂)

The regression co-efficient of labor cost was -1.058 which was significant at 1 percent level of significance. It indicates that considering all other factors constant, one percent increment of labor cost would decrease profitability from handloom weaving by 1.058 percent.

Yarn Cost (X₃)

The regression co-efficient of yarn cost was -4.989 which was significant at 1 percent level of significance. It indicates that considering all other factors constant, one percent increment of yarn cost would decrease profitability from handloom weaving by 4.989 percent.

Colour & Chemical Cost (X₄)

The regression co-efficient of colour & chemical cost was 5.161 which was significant at 1 percent level of significance. It indicates that considering all other factors constant, one percent increment of colour & chemical cost would increase profitability from handloom weaving by 5.161 percent.

Other Input Cost (X₅)

The regression co-efficient of other input cost was 2.310 which was significant at 1 percent level of significance. It indicates that considering all other factors constant, one percent increment of other input cost would increase profitability from handloom weaving by 2.310 percent.

Adjusted R²

The co-efficient of multiple determinations, Adjusted R² of the model were 0.964, which indicates that about 96.4 percent of the variations in profitability of handloom weaving practices have been explained by the explanatory variables included in the model.

Therefore, it can be conceived that handloom owners can secure more profitability by increasing total sales revenue, colored & Chemical cost, other input cost except labor cost & yarn cost.

Table 6.2 Estimated Co-efficient and Their Related Statistics of Double Log Multiple Regression Function of handloom weaving (Lungi)

Determinants	Coefficients	Std. error	p-value
Sales Revenue (X ₁)	9.501***	.712	.000
Labor Cost (X ₂)	-0.808***	.112	.000
Yarn Cost (X ₃)	-6.399***	-6.399	.000
Colour & Chemical Cost (X ₄)	-2.175***	-2.175	.000
Constant	-12.879***	1.280	.000
Total observation: 30; Adjusted R-squared: .938;			

Source: Field Survey, 2020

N.B: *** indicate significance at 1%, respectively

Interpretation

Sales Revenue (X₁)

The regression co-efficient of sales revenue was 9.501 which was significant at 1 percent level of significance. It indicates that considering all other factors constant, one percent increment of sales revenue would increase profitability from handloom weaving by 9.501 percent.

Labor Cost (X₂)

The regression co-efficient of labor cost was -.808 which was significant at 1 percent level of significance. It indicates that considering all other factors constant, one percent increment of labor cost would decrease profitability from handloom weaving by .808 percent.

Yarn Cost (X₃)

The regression co-efficient of yarn cost was -6.399 which was significant at 1 percent level of significance. It indicates that considering all other factors constant, one percent increment of yarn cost would decrease profitability from handloom weaving by 6.399 percent.

Colour & Chemical Cost (X₄)

The regression co-efficient of colour & chemical cost was -2.175 which was significant at 1 percent level of significance. It indicates that considering all other

factors constant, one percent increment of colour & chemical cost would decrease profitability from handloom weaving by 2.175 percent.

Adjusted R²

The co-efficient of multiple determinations, Adjusted R² of the model were 0.938, which indicates that about 93.8 percent of the variations in profitability of handloom weaving practices have been explained by the explanatory variables included in the model.

Therefore, it can be conceived that handloom owners can secure more profitability by increasing total sales revenue except Colored & Chemical cost, labor cost & yarn cost.

Table 6.3 Estimated Co-efficient and Their Related Statistics of Double Log Multiple Regression Function of handloom weaving (Gamcha)

Determinants	Coefficients	Std. error	p-value
Sales Revenue (X ₁)	1.068***	.432	.000
Labor Cost (X ₂)	-.521***	.079	.000
Yarn Cost (X ₃)	.919***	.429	.000
Colour & Chemical Cost (X ₄)	-1.732***	.169	.000
Constant	-6.995***	2.106	.003
Total observation: 30; R-squared: .870;			

Source: Field Survey, 2020

N.B: *** indicate significance at 1% respectively

Interpretation

Sales Revenue (X₁)

The regression co-efficient of sales revenue was 1.068 which was significant at 1 percent level of significance. It indicates that considering all other factors constant, one percent increment of sales revenue would increase profitability from handloom weaving by 1.068 percent.

Labor Cost (X₂)

The regression co-efficient of labor cost was -.521 which was significant at 1 percent level of significance. It indicates that considering all other factors constant, one percent increment of labor cost would decrease profitability from handloom weaving by .521 percent.

Yarn Cost (X₃)

The regression co-efficient of yarn cost was .919 which was significant at 1 percent level of significance. It indicates that considering all other factors constant, one percent increment of yarn cost would increase profitability from handloom weaving by .919 percent.

Colour & Chemical Cost (X₄)

The regression co-efficient of colour & chemical cost was -1.732 which was significant at 1 percent level of significance. It indicates that considering all other factors constant, one percent increment of colour & chemical cost would decrease profitability from handloom weaving by 1.732 percent.

Adjusted R²

The co-efficient of multiple determinations, Adjusted R² of the model were 0.870, which indicates that about 87 percent of the variations in profitability of handloom weaving practices have been explained by the explanatory variables included in the model.

Therefore, it can be conceived that handloom owners can secure more profitability by increasing total sales revenue, yarn cost except labor cost & colored & chemical cost.

Table 6.4 Estimated Co-efficient and Their Related Statistics of Production Function of handloom weaving (All units)

Determinants	Coefficients	Std. error	p-value
Sales Revenue (X₁)	1.744***	.657	.000
Labor Cost (X₂)	-.278**	.148	.038
Yarn Cost (X₃)	-1.337***	.525	.000
Colour & Chemical Cost (X₄)	-.143	.146	.424
Constant	3.529	2.546	.169
Total observation: 90; R-squared: .252;			

Source: Field Survey, 2020

N.B: *** indicate significance at 1%, respectively

Interpretation

Sales Revenue (X₁)

The regression co-efficient of sales revenue was 1.744 which was significant at 1 percent level of significance. It indicates that considering all other factors constant, one percent increment of sales revenue would increase profitability from handloom weaving by 1.744 percent.

Labor Cost (X₂)

The regression co-efficient of labor cost was -.278 which was significant at 5 percent level of significance. It indicates that considering all other factors constant, one percent increment of labor cost would decrease profitability from handloom weaving by .278 percent.

Yarn Cost (X₃)

The regression co-efficient of yarn cost was -1.337 which was significant at 1 percent level of significance. It indicates that considering all other factors constant, one percent increment of yarn cost would decrease profitability from handloom weaving by 1.337 percent.

Colour & Chemical Cost (X₄)

The regression co-efficient for the cost of colour and chemical application was -0.143 which was not significant at desired level of significance.

Adjusted R²

The co-efficient of multiple determinations, Adjusted R² of the model were 0.252, which indicates that about 25.2 percent of the variations in profitability of handloom weaving practices have been explained by the explanatory variables included in the model.

Therefore, it can be conceived that handloom owners can secure more profitability by increasing total sales revenue except labor cost, yarn cost and colored & chemical cost.

6.2. Findings of the Resource Use Efficiency of Handloom Weaving

Resource use efficiency means how efficiently the weavers can use their resources in the production process. Because of the scarcity of resources, its efficient use is important. For calculating resource use efficiency, four input factors for saree and for lungi and gamcha three factors like cost on human labor, yarn cost, colored & chemical and other input costs were considered.

Table 6.5 Resource Use Efficiency of Handloom Weaving (Saree)

Variable	Geometric mean (GM)	$\frac{\bar{Y}(GM)}{\bar{X}_i(GM)}$	Coefficient (β)	MVP (X_i)	$r = \frac{MVP}{MFC}$	Decision rule
Profit of Handloom (Y)	110312.1					
Sales Revenue (X₁)	1812445	0.060	.510	0.036	0.036	Over-utilization
Labor Cost (X₂)	242391.1	0.455	-1.058	-0.481	-0.481	Over-utilization
Yarn Cost (X₃)	958701.7	0.115	-4.989	-0.573	-0.573	Over-utilization
Colour & Chemical Cost (X₄)	214068.4	0.515	5.161	2.657	2.657	Under-utilization
Other Input Cost (X₅)	232910	.473	2.310	1.092	1.092	Under-utilization

Source: Field Survey, 2020

From the Table 6.5, it is evident that the ratios of marginal value products (MVP) and marginal factor cost (MFC) of colour & chemical and other input cost were greater than unity which indicates the under-utilization of those resources. Increment of use of those resources would be helpful to further increase the productivity. Same ratios for sales revenue, labor and yarn costs were less than unity, thereby indicating over-utilization of the said variables. Reduction of use of those resources would be helpful to further improvement of the productivity.

Table 6.6 Resource Use Efficiency of Handloom Weaving (Lungi)

Variable	Geometric mean (GM)	$\frac{\bar{Y}(GM)}{\bar{X}_i(GM)}$	Coefficient (β)	MVP (X_i)	$r = \frac{MVP}{MFC}$	Decision rule
Profit of Handloom (Y)	173723.9					
Sales Revenue (X_1)	2058128	0.08	9.501	0.76	0.76	Over-utilization
Labor Cost (X_2)	138201.6	1.26	-0.808	-1.01	-1.01	Over-utilization
Yarn Cost (X_3)	1025521	0.16	-6.399	-1.02	-1.02	Over-utilization
Colour & Chemical Cost (X_4)	683046.2	0.25	-2.175	-0.54	-0.54	Over-utilization

Source: Field Survey, 2020

From the Table 6.6, it is evident that the ratios of marginal value products (MVP) and marginal factor cost (MFC) of sales revenue, labor cost, yarn costs and colour & chemical cost were less than unity, thereby indicating over-utilization of the said variables. Reduction of use of those resources would be helpful to further improvement of the productivity.

Table 6.7 Resource Use Efficiency of Handloom Weaving (Gamcha)

Variable	Geometric mean (GM)	$\frac{\bar{Y}(GM)}{\bar{X}_i(GM)}$	Coefficient (β)	MVP (X_i)	$r = \frac{MVP}{MFC}$	Decision rule
Profit of Handloom (Y)	197825.6					
Sales Revenue (X_1)	1632973	0.12	1.068	0.12	0.12	Over-utilization
Labor Cost (X_2)	218734	0.90	-0.521	-0.47	-0.47	Over-utilization
Yarn Cost (X_3)	820567	0.24	0.919	0.22	0.22	Over-utilization
Colour & Chemical Cost (X_4)	315730.8	0.63	-1.732	-1.09	-1.09	Over-utilization

Source: Field Survey, 2020

From the Table 6.7, it is evident that the ratios of marginal value products (MVP) and marginal factor cost (MFC) of sales revenue, labor cost, yarn costs and colour & chemical cost were less than unity, thereby indicating over-utilization of the said variables. Reduction of use of those resources would be helpful to further improvement of the productivity.

Table 6.8 Resource Use Efficiency of Handloom Weaving (All units)

Variable	Geometric mean (GM)	$\frac{\bar{Y}(GM)}{\bar{X}_i(GM)}$	Coefficient (β)	MVP (X_i)	$r = \frac{MVP}{MFC}$	Decision rule
Profit of Handloom (Y)	155927.1					
Sales Revenue (X_1)	1826300	0.085	1.744	0.148	0.148	Over-utilization
Labor Cost (X_2)	194229.6	.802	-2.78	-0.222	-0.222	Over-utilization
Yarn Cost (X_3)	930923.5	0.167	-1.337	-0.223	-0.223	Over-utilization
Colour & Chemical Cost (X_4)	358734.5	0.434	-.143	-0.062	-0.062	Over-utilization

Source: Field Survey, 2020

From the Table 6.8, it is evident that the ratios of marginal value products (MVP) and marginal factor cost (MFC) of sales revenue, labor cost, yarn costs and colour & chemical cost were less than unity, thereby indicating over-utilization of the said

variables. Reduction of use of those resources would be helpful to further improvement of the productivity.

So, for all the products the resources were not using properly. By proper utilization the weavers can secure their productivity and earn more profit.

6.3. Concluding Remarks

Among the studied input factors for saree colour & chemical and other input cost and for lungi and gamcha yarn cost were found as the most influential factors of the handloom weaving. Key inputs of that practices like colour & chemical and other input for saree were not fully utilized and for lungi and gamcha over utilization of the inputs happened. The handloom weavers had the opportunity to increase their productivity as well as profitability by proper utilization of these resources.

CHAPTER VII

CONSTRAINTS ENCOUNTERED BY HANDLOOM WEAVERS AND SUGGESTIONS FOR FURTHER IMPROVEMENT

In this chapter researcher discussed about the problems faced by handloom weavers and try to generate some solutions based on the farm level survey. Open ended questions regarding the constraints of handloom weaving were asked to the respondents. The respondents were free to mention all the problems they faced during their handloom weaving practices.

7.1 Constraints faced by handloom weavers:

The handloom weavers face some problem in doing their works. All the problems were ranked based on their priority measured by the higher numbers of mention by the weavers.

Table 7.1 Constraints faced by weavers who weave saree

SI No.	Problem Faced by Weavers	Frequency out of 30	Percent	Rank
01.	Increasing rate of yarn & raw materials price	30	100	1 st
02.	Lack of govt. help	28	93.33	2 nd
03.	Lack of bank loan	23	76.66	3 rd
04.	Lack of organizational problem	20	66.66	4 th
05.	Poor marketing facilities	19	63.33	5 th
06.	Inadequate supply of yarn & dyes	18	60	6 th
07.	Unfair Competition	13	43.33	7 th
08.	High price of accessories	9	30	8 th
09.	Lack of educational facilities	3	10	9 th
10.	Lack of awareness in weaving occupation	2	6.66	10 th

From all the constraints increasing rate of yarn and raw materials (100%), lack of government help (93.33%), lack of bank loan (76.66%) and few other constraints were faced by saree weavers.

Table 7.2 Constraints faced by weavers who weave lungi

SI No.	Problem Faced by Weavers	Frequency out of 30	Percent	Rank
01.	Increasing rate of yarn & raw materials price	27	90	1 st
02.	Lack of govt. help	23	76.66	2 nd
03.	Lack of bank loan	17	56.66	3 rd
04.	Poor marketing facilities	12	40	4 th
05.	Unfair Competition	9	30	5 th
06.	Lack of organizational problem	8	26.66	6 th
07.	Inadequate supply of yarn & dyes	7	23.33	7 th
08.	High price of accessories	6	20	8 th
09.	Lack of awareness in weaving occupation	2	6.66	9 th

From all the constraints increasing rate of yarn and raw materials (90%), lack of government help (76.66%), lack of bank loan (56.66%) and few other constraints were faced by saree weavers

Table 7.3 Constraints faced by weavers who weave gamcha

SI No.	Problem Faced by Weavers	Frequency out of 30	Percent	Rank
01.	Increasing rate of yarn & raw materials price	30	100	1 st
02.	Lack of govt. help	28	93.33	2 nd
03.	Lack of organizational problem	16	53.33	3 rd
04.	High price of accessories	14	46.66	4 th
05.	Lack of bank loan	10	33.33	5 th
06.	Poor marketing facilities	9	30	6 th
07.	Lack of product diversification	8	26.66	7 th
08.	Unfair Competition	3	10	8 th
09.	Lack of awareness in weaving occupation	1	3.33	9 th

From all the constraints increasing rate of yarn and raw materials (100%), lack of government help (93.33%), lack of organizational problem (53.33%) and few other constraints were faced by saree weavers

So, in case of sari, lungi and gamcha all the weavers mentioned increasing rate of yarn and raw materials price was the main constraints for them. Even day by day the price is increasing but the buyer was not agreeing to pay increasing rate for products. Other's problem was also issue for them to continue the business. In second ranking lack of government help had marked. For saree and gamcha it is 93.33% and for lungi it was 76.66%. Other constraints were also ranked based on the percentage. Similar constraints were observed by (Liton et, al, 2016). They also observed

price of raw materials was higher, weavers were not getting materials on time, there is inadequate technology etc.

7.2 Suggestions for the Improvement of handloom weaving in Bangladesh:

Different problems faced by handloom weavers during their weaving discussed in the above section. The weavers also proposed some suggestions to overcome those barriers as well as to harness the productivity and profitability of this practices. Those suggestions are being discussed in this section of the research paper. Among the proposed suggestions arranging more training, providing training by low interest, creating export facility were mostly mentionable.

Table 7.4 Suggestions for the Improvement of handloom weaving in Bangladesh (in case of saree)

SI No.	Suggestions for the Improvement	Frequency out of 30	Percent	Rank
01.	Arrange training in locality	30	100	1 st
02.	Provide credit by low interest	29	96.66	2 nd
03.	Create export facility	27	90	3 rd
04.	Band promotion of the products in nationally and internationally	24	80	4 th
05.	Adoption of new technology	20	66.67	5 th
06.	Arrange exhibition	16	53.33	6 th
07.	Enhance education facilities	11	36.67	7 th
08.	Increase awareness in weaving occupation	10	33.33	8 th

Table 7.5 Suggestions for the Improvement of handloom weaving in Bangladesh (in case of Lungi)

SI No.	Suggestions for the Improvement	Frequency out of 30	Percent	Rank
01.	Provide credit by low interest	18	60	1 st
02.	Arrange training in locality	17	56.66	2 nd
03.	Create export facility	16	53.33	3 rd
04.	Arrange exhibition	15	50	4 th
05.	Increase awareness in weaving occupation	12	40	5 th
06.	Enhance education facilities	9	30	6 th
07.	Band promotion of the products in nationally and internationally	8	26.66	7 th
08.	Adoption of new technology	6	20	8 th
09.	Improve marketing facilities	1	3.33	9 th

Table 7.6 Suggestions for the Improvement of handloom weaving in Bangladesh (in case of Gamcha)

SI No.	Suggestions for the Improvement	Frequency out of 30	Percent	Rank
01.	Arrange training in locality	25	83.33	1 st
02.	Provide credit by low interest	24	80	2 nd
03.	Adoption of new technology	22	73.33	3 rd
04.	Band promotion of the products in nationally and internationally	13	43.33	4 th
05.	Create export facility	12	40	5 th
06.	Enhance education facilities	10	33.33	6 th
07.	Increase awareness in weaving occupation	9	30	7 th
08.	Arrange exhibition	7	23.33	8 th
09.	Improve marketing facilities	3	10	9 th

To overcome the problem the weavers who weave saree mentioned if training can arrange for them (100%) then they can improve their products design and others. In case of lungi they want credit in low interest (60%). And in case of gamcha they also want training facilities (83.33). Others suggestion was ranked depending on the demand of the weavers.

7.3. Concluding Remarks:

Handloom weavers of the study areas were encountered by some inevitable constraints like lack of awareness in weaving occupation, lack of educational facilities, lack of government help and others. To overcome the problems and further improvement, different suggestions were proposed by the weavers. Among them arranging more training, increasing the availability of loan with low interest rate, create export facility were mostly mentionable.

CHAPTER VII

SUMMARY, CONCLUSION AND RECOMMENDATIONS

This chapter presents the summary of findings, conclusions, and recommendations of the study. The summary of the study shows the findings in brief. By conclusion, the main points of the report can be identified quickly. Recommendation draws the attention of the respective authority to implement some strategy for improving the situation of the handloom weavers.

8.1. Summary

Sirajganj district is one of the leading handlooms weaving area of Bangladesh. Shahjadpur, Belkuchi and Kamarkhanda upazila of this district produced most of the handloom weaving products of the country. That's why the upazilas were selected as the study area of this research to delineate the sociodemographic profile of the handloom weavers, to estimate the profitability, factors affecting profitability and estimating resource use efficiency, constraints of handloom weaving and some possible suggestion.

Besides extensive study on all the secondary sources, 90 handloom weavers were randomly selected for conducting field level survey to collect primary data. A structured interview schedule was developed based on the background information, expert's appraisal, and pre-test questionnaire.

Data obtained by administering interviews with the respondents were coded appropriately and entered a database system using Microsoft Excel. Finally, obtained dataset were analyzed using MS Excel and SPSS 22 statistical software. Descriptive statistics (percentage, mean, range etc.) were used to describe the socio-demographic variables and double log multiple regression models was used to analyze the resource use efficiency.

The socio-demographic profile of the handloom weavers reveals that the highest (60%) proportion of the saree weavers were middle-aged people followed by young (33.33%) and old aged category (6.67%) for lungi weavers the highest (70%)

proportion was middle-aged people followed by young (16.67%) and old aged category (13.33%) and for gamcha weavers the highest (60%) proportion was middle-aged people followed by young (36.67%) and old aged category (3.33%). Among the respondents an overwhelming 63.33% of saree weavers, 70% of lungi weavers and 93.33% of gamcha weavers had at least primary education.

For saree weaver family member sized five (36.67%) was more prevalent for lungi weaver family member sized five (40%) was more prevalent and for gamcha weaver family member sized four (46.67%) was more prevalent. Handloom weavers were not interested to do diversified job. Most of the weavers engaged in this business because it is their family business. And they like to continue it. The saree weaver has low level of annual income more (60%) but the lungi and gamcha weaver have higher level of medium level of annual income (80% and 83.33%). So, the annual income of handloom weavers has low to medium level of income.

Profitability analysis of the study shows that around eleven different inputs were used for saree weaving and eight different kinds of inputs were used for lungi and gamcha weaving. The major fixed cost for saree, lungi and gamcha were shade cost and loom cost. The major variable cost for saree, lungi and gamcha were yarn cost. The minimum total cost for saree weaving was 1195989 taka per year and maximum total cost was 3625450 taka per year. The minimum total cost for lungi weaving was 1012700 taka per year and maximum total cost was 3136520 taka per year. The minimum total cost for gamcha weaving was 847262.8 taka per year and maximum total cost was 2409540 taka per year. The minimum sales revenue for saree weaving was 1296000 taka per year and maximum sales revenue was 3780000 taka per year. The minimum sales revenue for lungi weaving was 1209600 taka per year and maximum sales revenue was 3456000 taka per year. The minimum sales revenue for gamcha weaving was 1036800 taka per year and maximum sales revenue was 2592000 taka per year. The minimum net profit for saree weaving was 54846.67 taka per year and maximum net profit was 426170 taka per year. The minimum net profit for lungi weaving was 69690 taka per year and maximum net profit was 352672.2 taka per year. The minimum net profit for gamcha weaving was 39278.58 taka per year and maximum net profit was 434346.3 taka per year.

To estimate the influential factors of profitability of handloom weaving, the major influential factors like sales revenue, human labor cost, yarn cost, colour & chemical cost and other input cost of handloom weaving were studied. The estimated co-efficient for human labor cost for saree was -1.058 with 1% level of significance implying 1% increment of labor cost would decrease the profit by 1.058%, remaining other things constant. The co-efficient for colored & chemical and other input cost were 5.161 and 2.310, respectively with 1% level of significance. Adjusted-R² of the estimated production function were 0.964. The estimated co-efficient for human labor cost for lungi was -0.808 with 1% level of significance implying 1% increment of labor cost would decrease the profit by 0.808%, remaining other things constant. The co-efficient for colored & chemical and other input cost were -6.399 and 2.175, respectively with 1% level of significance. Adjusted-R² of the estimated production function were 0.932. The estimated co-efficient for human labor cost for gamcha was -0.521 with 1% level of significance implying 1% increment of labor cost would decrease the profit by 0.521%, remaining other things constant. The co-efficient for colored & chemical and other input cost were 0.919 and -1.732, respectively with 1% level of significance. Adjusted-R² of the estimated production function were 0.870.

Resource use efficiency of handloom weaving for saree weavers shows that colored & chemical cost and other input cost were under-utilized. On the other hand, sales revenue, yarn cost and labor cost for saree weaving were over-utilized. Resource use efficiency of handloom weaving for lungi weaver's sales revenue, yarn cost, colored & chemical cost and labor cost were over-utilized. Resource use efficiency of handloom weaving for gamcha weaver's sales revenue, yarn cost, colored & chemical cost and labor cost for lungi weaving were over-utilized.

Constraints faced by the handloom weavers and suggestions for improvement were explored by offering open ended questions regarding the constraints of handloom weaving and suggestions for improvements.

Among the different constraints mentioned by the weavers, for saree weaving increasing rate of yarn and raw materials was the major problem and about 100% of the weavers mentioned this problem. Besides, 93.33% of the respondents claimed on the lack of government help. In addition, lack of bank loan (76.66%), lack of

organizational problem (66.66%), poor marketing facilities (63.33%) and inadequate supply of yarn and dyes (60%) and few other problems were mentioned by saree weavers. For lungi weaving increasing rate of yarn and raw materials was the major problem and about 90% of the weavers mentioned this problem. Besides, 76.66% of the respondents claimed on the lack of government help. In addition, lack of bank loan (56.66%, poor marketing facilities (40%) and unfair competition (30%) and few other problems were mentioned by lungi weavers. For gamcha weaving increasing rate of yarn and raw materials was the major problem and about 100% of the weavers mentioned this problem. Besides, 93.33% of the respondents claimed on the lack of government help. In addition, lack of organizational problem (53.33%), lack of organizational problem (66.66%), high price of accessories (46.66%) and lack of bank loan (33.33%) and few other problems were mentioned by saree weavers.

Among the different suggestions proposed by the handloom weavers of saree weaving arranging training in locality, provide credit by lowest interest, create export facility, band promotion of the products in nationally and internationally, adoption of new technology was mostly mentionable. Among the different suggestions proposed by the handloom weavers of lungi weaving provide credit by lowest interest, arranging training in locality, create export facility, arranging exhibition, increasing awareness in weaving occupation were mostly mentionable. Among the different suggestions proposed by the handloom weavers of gamcha weaving arranging training in locality, provide credit by lowest interest, adoption of new technology, band promotion of the products in nationally and internationally, create export facility were mostly mentionable.

8.2 Conclusion

Based on the findings it can be concluded that handloom weaving is profitable in the study areas. The handloom weavers may have the opportunity to increase their income and thus, improve their livelihood status. There is ample opportunity to increase the productivity of handloom by proper utilization of resources. Handloom weavers also facing some several constraints. Availability of capital through credit, arranging skill development trainings, and awareness buildings programs can improve the situation to some extent.

8.3. Recommendations

Based on experience, observation and conclusions drawn from the findings of the study some recommendations have been given to the concerned authorities, planners and policy makers. These recommendations are-

- The government should take initiative to decrease the price of yarn and chemical. Then the weavers can produce their products in cheap price and can improve their profitability,
- Sometimes the weavers do not get raw materials in proper time. So, there should be a monitoring facility to solve this problem.
- The weavers are suffering from inadequate technology, the authorities should take proper steps to get acquainted with them new technology.
- There is lack of proper training facilities and the weavers are interested to take training to improve their design and qualities. The handloom board should take initiative to provide them training facilities.
- Handloom weavers of the study area were inefficient to use their resources on labor cost, yarn use, colored and chemical used due to inadequate knowledge on handloom weaving. Respective authority can arrange program to improve their knowledge regarding this. More extension service should be provided by the respective authority.
- Majority of the weavers want loan facilities with low interest rate. The government can take initiative regarding this.
- Handloom industry faces competition from power loom and other mill, there can be created quota system for handloom weavers.
- The fund allocation should also create to repair the existing looms, as they are using it for several years, it needs repair to protect the ancient industry.

8.4. Limitations of the Study

Considering the time of respondents, transportation facilities and other necessary resources available to the researcher and to make the study meaningful, it became necessary to impose certain limitations as mentioned below-

- i. The study was confined to Shahzadpur, Belkuchi and Kamarkhondo upazila of Sirajganj district which may fail to represent the actual scenario of the whole situation as people develop their strategies according to the concrete situation they face.
- ii. Only five important inputs were studied for saree and four for lungi and gamcha to determine the affecting factors and four for saree and three for lungi and gamcha to estimate resource use efficiency, but weavers may use few other inputs.
- iii. Data can also be collected on the time of flood because on that time most of the loom goes under water then the new type of constraint of handloom weaving may come forward but it was not possible for shorter period of research time and the pandemic situation also hindered to research,

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APPENDIX
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Profitability and Resource Use Efficiency of Handloom Weavers: A Study in Sirajganj District

Part 1: Socio-demographic profile

1. Types of establishment: i. Premised based ii. Factory based

2. Name & address of the establishments:

(a) If premised based

(b) If factory based

Name of the proprietor

Name of the establishment

Village/ Mahalla

Name of the proprietor

Post office

Post office

Union/ ward

Union/ Ward

Upazila/ Thana

Upazila/ Thana

3. Ownership of the establishment: i. Single ownership ii. Partnership iii. Cooperative

4. Main occupation: i. Handloom ii. Others

5. Number of Household:

SI No	Relation with the informer	Sex	Age	Marital status	Education	Duration of schooling	Occupation	
							Main	Secondary

***Code:**

Relation: Weaver= 1, Husband/Wife= 2, Son/Daughter=3, Father/Mother= 4, Brother/ Sister= 5, Others= 6, Sex: Male= 1, Female= 2

Marital status: Unmarried= 1, Married= 2, Widow= 3, Divorced= 4, Others= 5

Educational qualification: Signature=1, Primary=2, Secondary=3, Higher Secondary=4, Degree/honors= 5, Uneducated= 6 **Occupation:** Weaving= 1, Farming= 2, Fish cultivation= 3, Labor= 4, Business= 5, Others=6

6. Sources of Income (annual / yearly)

Income source	Type	Amount (Monthly)	Amount (yearly)	Income (Annual)
Agriculture	Crop & vegetables			
	Fisheries			
	Livestock			
Service				
Business				
Others				

7. Expenditure

Type of Expenditure	Source and Amount		Remarks
	Weaving income	Other income	
Food (Monthly)			
Cloth (Annual)			
Education (Annual)			
Health (Annual)			
Festival (Annual)			
Others			

Part 2: Profitability & Factor analysis

8. Description of looms:

Looms by type	Pit	Frame (Pit)	Komar (Waist)	Semi Auto/Japani	Benarasi	Jamdani
Currently operational						
Currently non-operational						
Non-operational for one year & over						

9. Monthly cloth production per loom (yard):

Variety of cloth	Pit	Frame (Pit)	Komar (Waist)	Semi Auto/Japani	Benarasi	Jamdani
Plain cloth						
Design cloth						

10. Fixed assets (at present value)

Types of assets	Number	Present value (Tk)
Shade/Factory house & other structure		
Loom		
Sana		
Maku		
Baa		
Doby		
Other accessories & equipments		

11. Consumption & requirements of yarn & Dyes by types (per month)

Variety of types	Quantity (lb)	Value (Tk)
Cotton		
Art silk		
Silk (Resam)		
Polyester		
Jari		
Colored		
White		
Dye		
Chemicals (Costic, Hydrous)		

12. Persons engaged in handloom units/factories

Persons engaged by types	Full time (per month)	Part time (per month)	Salary (full time/ month)	Salary (part time/ month)
Family member				
Non family member				
Hired worker				
On piece rate				
Child labor				

13. Value of the products:

Products (per/Tk)	Weavers	Piker	Retailers	Consumer
Sharee				

Part 3: Capital, loan & sales distributive trade

14. Loan received during the last two years: i. Yes ii. No

15. If required more loan: i. Yes ii. No

16. Statement on capital & loan

Types of capital	Capital formation by source (Tk)				Requirements of loan (Tk)	
	Interest free loan		Interest bearing loan		Fixed	Current
	Own	Relatives	Mahajan	Financial Inst.		
Fixed capital						
Current capital						

17. Loan received by sources (during last two years)

Loan received/ repaid (Tk)	Sources						
	Tant Board	Bank	Tanti Samity	Cooperative Society	Relatives	Mahajan	Paiker
Loan received							
Repaid							

18. Modes of sales

i. Wholesale ii. Mohajan iii. Tanti Samity iv. Cooperative society v. Retail vi. Others

19. Required training on growing efficacy: i. Yes ii. No

20. Required training for developing design: i. Yes ii. No

Part 4: Constraints & Possible solutions

21. Constraints faced by weavers (Multiple choice)

- I. Increasing rate of yarn & raw materials price
- II. Lack of govt. help
- III. Lack of Bank loan
- IV. Poor marketing facilities
- V. High price of raw materials
- VI. Lack of organizational Problem
- VII. Inadequate supply of yarn and dyes
- VII. Lack of product diversification
- VIII. Unfair competition
- IX. Lack of awareness in weaving occupation
- X. Lack of educational facilities
- XI.
- XII.

22. Possible Suggestions:

- I. Provide credit by low interest
- II. Arrange training in locality
- III. Create export facility
- IV. Arrange exhibition
- V. Increase awareness in weaving occupation
- VI. Adoption of new technology
- VII. Band promotion of the products in nationally & internationally
- VIII. Enhance education facilities
- IX. Improve marketing facilities
- X. Direct monitoring of government
- XI.
- XII.