Empowering Women through Handicraft Industry:
A Case Study of Rangpur

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Abstract

Most of the handicraft workers in Bangladesh are rural women. Engaging with this informal sector can help these women gaining access to and control over economic resources through spending and earnings for the household. The current study aims to estimate the impact of women's employment and earnings from the handicraft sector on their economic empowerment. Conducted in Rangpur, this research has employed both qualitative as well as quantitative methods based on both primary and secondary data. Using a multistage sampling design, primary data is collected from 200 sampled respondents. A multiple logistic regression is used to estimate the likelihood for economic empowerment of respondents. The regression result shows that seven out of eight independent variables including handicraft employment, working hours, and monthly income affect the economic empowerment of women significantly in the study area.

Keywords: Handicraft, Employment, Women Empowerment, Economic Empowerment

1. Introduction

Women's empowerment has been an important priority area for development organizations and governments across the world. It is acknowledged that women likely to encounter discrimination in various forms, even in developed countries (Debnath et al., 2019). Sarumathi and Mohan (2011), claim that gender discrimination increases poverty, stems economic growth, hampers good governance, and lowers living standards. Indeed, gender disparity or women's poor status has been considered as an impediment to equality and inclusive growth. Women empowerment, on the other hand, is hailed as one of the most significant achievements in the progression of women, with a focus mainly on their well-being (Sen 2001). Hence, women empowerment, especially in developing countries, is important (Khan & Noreen, 2012).

Women's involvement in economic activities can promote economic development and gender empowerment (Rahman et al., 2015). Therefore, engaging with activities like entrepreneurship can champion the cause of women empowerment. However, in Bangladesh, women's participation in entrepreneurship remains low. According to the

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2016 survey by the International Finance Corporation (IFC), micro and small and medium enterprises (MSMEs) account for 99.93 percent of Bangladesh's nearly 8 million enterprises with women owning only 7.2 percent of them.

Among the MSMEs, female workforce dominates the handicraft sector. This sector creates income generating opportunities for poor rural and urban women. As a consequence, women could gain more access to and control over economic resources. It assists women to contribute towards household expenditure and in the intra-household allocation of power (Rahman, et.al. 2016). Hence, engagement in the handicraft sector likely to empower women.

Given this context, the main research question in this study is: Does women's involvement in handicraft industry either as a worker or entrepreneur empower them? To address this query, the paper examines the present socio-economic status of the women handicraft workers and measures the impact of women's employment and earnings from the handicraft sector on their economic empowerment. The research is conducted in Rangpur district of Bangladesh.

1.1 Handicrafts Sector in Rangpur

The Bangladeshi handicraft sector consists of small production units, mainly in rural area, operated either by the owner or by a small workforce of 10 to 20 individuals. The industry has a total workforce of roughly three million people, with textile, jute, wood, leather, cane, and bamboo hired more than three-fourths. (The Monthly Textile Today, Bangladesh, 2018). Most of the handicrafts in Rangpur are now manufactured, traded, and exported by large NGOs and private businesses. The export of artisan handicrafts to other countries has been carried out among them by Karuponno Rangpur, Rangpur Sataranji Ltd, Lebu Staranji Ltd, RDRS satranji crafts and Sataranji Village Creation, and Pioneers (Islam, 2015).Around four thousand men and women are involved in various sataranji villages including Nisabetganja, darakapara, sheikhpara, sataranjipara, damodorpur, sheikhpara, binntari, gilabari etc. (Rahman, et.al. 2016).

As per the data provided by Bangladesh Small and Cottage (BSCIC) Industries, at least 150 entrepreneurs in Rangpur Division are now producing jute products, such as travel bags, bags of vanity, wallets, sandals, pen-stands, mats, curtains, and various kinds of showcases. Most manufacturers make jute goods in their own manufacturing facilities and deliver them to Dhaka and elsewhere in the nation. Some firms serve their contractual craftsmen's homemade jute goods (The Daily Star, 2011). These handicrafts firms are not only creating income-generating activities for themselves but also for other poor male and female labor forces. The majority of the workers in these handicrafts are women who are creating eye-catching handicraft products. Considering the facts above, the study will be carried out whether employment and self-earnings through handicrafts can play any role in women empowerment in Rangpur.

2. Literature Review

There are a considerable number of studies on women's empowerment and handicrafts. Women empowerment is a wider issue that is measured by different

dimensions in the existing literature. Some of the important studies are mentioned here.

Women empowerment is defined in a number of ways. Malhotra et al. (2002) divided women's empowerment into six aspects, including economic, social and cultural, household, legal, political, and psychological empowerment.

As per Jejeebhoy (2000), empowerment may depend on many factors, such as the decision-making process for women in the family, free movement, authority, and asset access. Haque et al. (2011) have noted that the empowering status of women in Bangladesh is determined by women's education and employment, control over their own income, freedom of movement, household decision-making, and choice on the use of contraceptives.

Empowered women able to take part in socio-cultural, social, economic, and political system as equal partners. It is the context in which women can make their own decisions and shine as equals in society (Wiklander, 2010)

The economic opportunities for women arising from entrepreneurial activities encourage other forms of women's empowerment in a community, leading to the elimination of gender discrimination (Sharma and Varma, 2008).

Khatun and Kabir (2014) indicate the women's role as SME entrepreneurs in ensuring empowerment for women, the level of awareness of women about their rights, and challenges experienced by women entrepreneurs.

Handicraft is a handmade skill or incompetent handwork that more usually describes visual arts that are handcrafted and related to the use of garments or decorations in the residence. In a context, handicraft could be entirely compatible with arts and crafts in particular those handmade and machine practiced arts (Encyclopedia Britanica, 1963). Through the involvement in the handicraft industry rural, less educated women can accumulate assets for empowering themselves (Nawaz,2010).

The local handicraft industry is the most important way to offer local women a chance of earning some money. This is a straightforward way to help women to build personality, to feel important to society, and to be a good example for their children. The study shows that this example leads to women's economic empowerment (Liana, 2016).

The handicraft industry is one of the sectors where women entrepreneurs are ensuring their economic status. 7.5% of women entrepreneurs are engaged in the handicraft sector of the Rangpur area (Rahman and Mottaleb, 2016).

Indeed, an important factor for employment is the handicraft industry. There are nearly 4 million existing employees mostly females in this sector, many of whom have taken on handicraft as a way of living (Easnin, 2015). Although a body of research papers is available on women empowerment through SME development from a national and international perspective, to the best of knowledge, studies on women empowerment through the development of handicrafts with a particular geographic concentration are limited. Especially no empirical study is conducted in Rangpur district regarding the empowerment of women through their involvement either as an entrepreneur or worker of handicrafts. So this study will be carried out to fill up this research gap.

3. Methodology

3.1 Data Collection and the Study Area

Rangpur is one of the districts in the country with some favorable advantages for handicrafts sector such as, cheap and abundant labor, and rich agriculture (Islam, 2016). A significant number of women are working in various handicraft industries located in different *upazilas* of Rangpur. In the study sample, the women involved in the handicrafts are entrepreneurs or workers/employees for a period of not less than one year This study conducts both qualitative and quantitative methods and is based on both primary and secondary data. A secondary source of data is the Bangladesh Bureau of Statistics (BBS).

3.2 Sampling Process

A multi-stage sampling concept is followed for the collection of primary data, but respondents are broken up into two strata: Female workers and Women entrepreneurs of handicrafts. In the first stage, two of the eight Upazilas in Rangpur district have been chosen by random selection, and then the second stage selects two unions from each of the Upazilas. Generally, handicrafts organizations are scattered. In order to discover the real scenario of the women handicraft business persons and workers, two villages are selected purposively from each of the selected unions in the third stage based on secondary data. Finally, 180 handicrafts female workers and 20 handicrafts women entrepreneurs are interviewed purposively from various handicraft concentrated areas of selected villages. In my study, the data was gathered using the direct interview method, as it has the benefit that the less educated or illiterate respondents provide real and desirable information.

3.3 Analytical Framework

In this research, tabular technique through univariate and bivariate analysis is used to explain the overall socio-economic characteristics of the sampled women who are involved in the handicraft industry. For tabulation purposes, using the Social Science Statistical Package (SPSS) and the Microsoft Excell-2010, collected data are scrutinized and summarized. Econometric model such as multiple logistic regression is used to estimate the impact of socioeconomic characteristics including women's involvement and earnings from the handicraft sector on the possibility of their economic empowerment.

3.4 Econometric Model

The model used in this study is a binary logistic model which predicts the economic women empowerment effects of the regressors. Assuming p = E (Y|X), the only probability of Y is 1, given some X regressor value. The logistic probability model is then provided:

$$Ln\left[\frac{P}{(1-P)}\right] = b_0 + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + b_6X_6 + b_7X_7 + b_8X_8 + u_i$$

The logistic model evaluates the likelihood of a woman empowering themselves, which is $Y_i = 1$, and the likelihood of a female not empowered, which is

$Y_i = 0$. The incidence of empowered women varies according to the explanatory variables. The model is supposed that the natural log of the odds $\frac{P}{(1-P)}$ is a linear function of the independent variables. Since the log odds ratio is difficult to illustrate, it is natural to report logistic regression outcomes as odds ratios. To do this, we simplified the regression by taking exponential in both sides of the logistic regression equation which looks like this:

$$\frac{P}{(1-P)} = d_0 \times (d_1)\, X_1 \times (d_2)\, X_2 \times \dots \times (d_8)\, X_8$$

We have the odds on the left part and the odds ratios on the right side: $d_1 = \exp(b_1)$, $d_2 = \exp(b_2)$, etc. Notably in this research we have used the Maximum Likelihood (ML) method, the most frequently utilized approach, for estimating the parameters.

3.4.1 Dependent Variable

Women's economic empowerment has many dimensions and somehow specific to the context under consideration. 'The empowerment of women is a comparatively complicated idea that is hard to define and evaluate' (Islam &Mahmud, 2016). Among the many dimensions of women's empowerment, this study considers vital issues like the economic empowerment of women. The dependent variable economic empowerment ranges from 0 to 1 where there are two extreme points : 0 (not empowered) and 1 (empowered). Thus, greater values point toward a greater possibility of having economically empowered women and vice-versa. A brief approach to measuring the economic empowerment of women is as showed Table-1.

Table-1: Description of indicators for measuring empowerment of women

Description of Indicators/sub-variables	Measurement scale for Women Empowerment sub-variables	Coding	Final measurement scale for women empowerment
Decision on how to spend respondents own income	i= Respondent Alone		If the sum of the measurement scale of sub-variables is 3, final economic empowerment is coded as 1 (economic empowered), and if the sum of the measurement scale of sub-variables is 0, final economic empowerment is coded as 0 (not having economic empowered at all)
	ii= With husband/Head of the family/others	i,ii= 1 (Empowered) iii= 0(Not empowered	
	iii=Someone else		
Decision on purchasing respondents' cloths and other personal items	i= Respondent Alone		
	ii= With husband/Head of the family/others	i,ii= 1 (Empowered) iii= 0 (Not empowered	
	iii=Someone else		
Decision on large purchase for the family	i= Respondent Alone		
	ii= With husband/Head of the family/others	i,ii= 1 (Empowered) iii= 0 (Not empowered	
	iii=Someone else		

Source: The author's formulation is based on Yasmin et al. study (2016).

3.4.2 Independent Variables

The independent variables are related to the socio-economic characteristics of a respondent. Here, the average monthly income of the respondents (from handicraft work) is considered as the main determinant of economic empowerment. Other socio-economic characteristics of the respondents include- age, education, marital status, income of the family head, head of the family status, family size and average working hours per day. These independent variables are specified as

X_1=Age of the respondents in years.

X_2= Marital status of the respondents. (1=Married, 2=Unmarried, 3= Otherwise).

X_3=Number of family members of the respondent.

X_4=Educational status of the respondents (1=Illiterate, 2= Primary, 3= SSC, 4= HSC, 5= Degreeor above)

X_5= Head of the family (1= Respondent herself, 0= Otherwise)

X_6=Average total working hours in a day.

X_7= Average monthly income of the family head.

X_8= Average monthly income of the respondent (In Taka).

We have included these socioeconomic significant variables based on studies like Alonge, (2014), Shajli & Munir (2014), Islam (2015), and Abshoko et.al (2016). The study assumes that the probability of women being economically empowered depends on these independent variables. Regarding age, we predict a positive link between the economic empowerment and the age level since older women are more likely able to make an economic decision alone or with other counterparts (Islam, 2016). However, the age level is also negatively linked to economic empowerment when the women are the oldest member in the family. In this paper, women handicraft workers comprised of both married, unmarried as well as widow or divorced women. Irrespective of their different family status, this study considers their possibility of economic empowerment as a result of their involvement in handicraft sector. We anticipate that an unmarried or widow or divorced women are relatively free in making decision for spending their own income. Whereas, married women, on the whole, have less decision-making power and rely heavily on males and/or husband in familial decision-making. Jan and Akhter (2008) have found the highly significant differences between married and unmarried women in the context of their empowerment in India.

We also expect a negative association between women empowerment and family size since the number of the family member is positively linked with fertility rate and the fertility decline is assumed as the result of the improvement in women's empowerment. Moreover, a working woman can give birth to fewer children for much time allocation in the job.

Females are in general family head as a result of break ups or divorces and when the whole family depends on their earnings. So if a woman is family head, she has more possibility of empowerment over economic affairs in the family.

Family head income is also important for women empowerment in some cases. Family head has the higher possibility for dominating in decision making if his or her income is high enough to afford total expense of the family. So when husbands or other male member are family head, it has possibility of the less women empowerment. Average working hours is also related with women empowerment as working hours is positively associated with earnings that help women to empower themselves. Similarly, respondent's self-income also helps for empowerment when they independently make decision on spending from their own income. Regarding education, it is anticipated that women with higher education are more likely to be economically empowered than women with no education or who are illiterate since educated women have greater opportunities to engage in income-generating activities, and they have more scope of earning much money and more possibility to take part in economic decision making in the family.

3.4.3 Diagnostic Test of the Logistic Model

Among the most important assumptions, first one is that the multicollinearity would not be high. Another important assumption is - there will be no extreme outliers in the outcome. Third assumption is the linearity in log odds space for independent variables. There may arise the issues of violating assumptions of binary logistic regression model. We can test for these assumptions using some diagnostic tools. Multicollinearity is tested by generating and illustrating collinearity diagnostics using SPSS software. More clearly, this assumption is checked based on the values of correlation matrix among the predictors and variance inflating factor (VIF). A general rule of thumb is the possibility of high- inter correlation between independent variables, if the bivariate correlation coefficient is higher than 0.70. The most common test tool of multicollinearity is variance inflating factor (VIF) which indicates high collinearity when VIF is more than 10. We have a binary dependent variable and also independent variables. Three variables are categorical and four variables are continuous. For categorical variables, outlier is not crucial however one needs to find outlier in the continuous cases. There are a number of ways of measuring extreme distance or outliers. We use Mahalanobis distance to measure the existence of outliers. Mahalanobis distance and corresponding P-value for each observation are generated using SPSS software. Any p value less than 0.001 would be considered as outlier. Finally, to check the last assumption, we generate an interaction term of a continuous variable with its natural logarithm, and then estimate the binary logistic model considering that interaction term as well as other eight predictor variables. When the coefficient of the interaction term is significant ($p<0.05$), it indicates that linearity assumption is violated.

In logistic regression, homoscedasticity (residuals at each level of the predictor have the same variance) is not an assumption. The binary output in logistic regression, on the other hand, is heteroscedastic (0 or 1), therefore a relevant estimate must be compatible with it.

The correlation matrix table (See Appendix, Table B.1) reveals that none of the bivariate correlation coefficient is high which means there are no inter-correlations

between independent variables. Looking at the result of the Table B.2 (See Appendix) showing variance inflating factor (VIF), it is also clear that collinearity problem does not exist in the model since every independent variable's VIF is below 10. We can see from Table-C (See Appendix) that there are a quite few observations where corresponding P-value from Mahalanobis distance are less than 0.001 which indicate the existence of outliers. However, p-values in the most of the cases are above 0.001. This study is assumed to have the minimal effect of outlier as we have mostly expected outcome and minimum disturbance in the estimated outcome. The linearity assumption is not violated since the coefficient of the interaction term not significant ($p>0.05$) (See Appendix, Table-D).

4. Results and Discussions

4.1 Analysis of Descriptive Statistics

4.1.1 Socio-demographic Profile of the Respondents

Socio-economic characteristics play a catalytic role to affect the economic empowerment of women through their participation in income-generating activities in the handicraft sector.

Table- A.1 (see Appendix) shows the age composition of the respondents. It is observed that only 1.5 percent of respondents lie in the range of below 20 while 31 and 17 percent respondents in the range of 20-29 and 40-49 respectively. It shows that a major (44.5%) proportion of female workers belong to the working-age group 30-39. In terms of religion, about 94.5% of respondents are Muslim and the rests are Hindu.

In regards to the marital status, 89% of the respondents are married whereas 8.5 percent are still unmarried and 2.5% are widow or separated. Table- A.1 (see Appendix) also demonstrates that 64% of respondents belong to a family which lies in the range of 4-6 persons whereas 30.5 % and 5.5 % of respondents have a family size range of 1-3 and above 6 members respectively. The level of education encourages the empowerment of women. It is seen from Table A.1 (see Appendix) that 35% of respondents are illiterate or having the inability to signature. About 11% of respondents are literate but did not complete their primary education whereas 29.5% and 14.5% of respondents completed primary and Secondary School respectively. About 5.5% of respondents have HSC and 4.5% have a degree or more than degree-level education.

Table-A.1 (see Appendix) also depicts that about 94.5 % of respondents are not their family head. Being a family head is very important for women's empowerment. The monthly Income of the major (52.5%) family head of the respondents is in the range of 4001-6000 taka. About 25% respondents' family head earns about 6001-10000 taka and 8.5% family head earns more than 10000 takas in a month on average.

4.1.2 Analysis of Survey Findings of Women Empowerment Indicators

Over time both males and females are being aware of their fashion or clothes and other personal required items. They could more be satisfied if they can purchase clothes or personal items by their choice. Most handicraft workers or entrepreneurs

are not exceptional to the above-stated norms. It is seen from table-2 that 38% of respondents alone make the decision on purchasing cloths and other personal items. The majority (43%) of the respondents jointly decide with husbands or others whereas 19% of respondents having no decision, their husband or family head only can take a decision on purchasing clothes and other personal items.

Table 2: Decision on purchasing clothes and other personal items

Decision on purchasing cloths and other personal items	Frequency (N=200)	Percentage
Respondent Alone	76	38
With husband/Head of the family/others	86	43
Only husband/head of the family/others	38	19
Total	200	100

Source: Field Survey-2019

It is clear from various research findings that having access to the wealth or earning capacity of female persons could empower them economically. Many of them can independently make a decision about the spending of their own income.

Table 3: Decision on how to spend respondents' own income

Decision on how to spend respondents own income	Frequency (N=200)	Percentage
Respondent Alone	68	34
With husband/Head of the family/others	110	55
Only husband/Head of the family/others	22	11
Total	200	100

Source: Field Survey-2019

Table-3 depicts the decision on how to spend respondents' own income. The majority of the respondents (55%) can make decisions jointly with the husband or family head or another person of the family where a significant number of respondents (34%) can

make the decision alone and for the rest of the respondents (11%), only husband or head of the family take a decision on how to spend respondents own income. Where Haque et al. (2011) show in their study that respondent alone can take decision is 48 percent.

Table 4: Decision on saving/borrowing/use of loan

Decision on saving/borrowing/use of loan	Frequency (N=200)	Percentage
Respondent Alone	46	23
With husband/Head of the family/others	98	49
Only husband/Head of the family/others	66	33
Total	200	100

Source: Field Survey-2019

Generally, females have more saving tendency than male counterparts of their family. Women of the poor family mainly borrow from different NGOs located in their community but the decision on the use of saved or borrowed money is not always independently taken by female borrowers or savers. It is clear from table-4 that most of the respondents (49%) jointly make a decision on saving or borrowing money use whereas 23% of respondents can take the decision alone about the use of their savings or borrowings. But in the case of 33% of respondents, only the husband or head of the family would decide on saving or borrowed money use issue.

Table 5: Decision on Buying livestock/large purchase for family

Decision on Buying livestock/large purchase for family	Frequency (N=200)	Percentage
Respondent Alone	26	13
With husband/Head of the family/others	126	63
Only husband/head of the family/others	48	24
Total	200	100

Source: Field Survey-2019

Buying livestock or large purchase is one of the big decision-making issues for the poor family. Table 5-reveals that 13% of respondents alone take a decision on buying livestock or large purchase for the household where the majority (63%) can make a decision on large purchases for the household jointly with husband/head of the family and 24% cannot participate in taking a decision on large purchases or buying livestock for the household. Where Haque et al. (2011) depict in their work that joint decision is 35.8 percent.

4.2 Quantitative Analysis

4.2.1 Interpretation of Regression Result

A multiple logistic model is estimated to examine the research hypothesis about the association between the probability of women's economic empowerment and socio-economic characteristics of respondents including employment and earnings from the handicraft sector.

Table 6: Regression Result of Logistic Model for Women Empowerment

Variables	Odds Ratio	Standard Error	Wald
(Constant)	2.625	0.708	13.746
X_1(Age Level)	0.306**	0.119	6.612
X_2(Marital Status)	-0.263**	0.113	5.417
X_3(Family Size)	-0.186*	0.097	3.677
X_4(Education)	0.313*	.171	3.360
X_5 (Head of the family)	1.063***	0.187	32.311
X_6 (Average working hours per day)	0.286**	0.123	5.406
X_7 (Family head Income)	-0.129	0.099	1.697
X_7 (Respondent's Income per month	0.385**	.166	5.367

Note: Dependent Variable is Women's Economic Empowerment

Sample Size(N)=200   Nagelkerke R^2 = 0.59

***, **, * indicate significant at 1%,5%, and 10% levels, respectively

Source: Authors' Calculation using SPSS

The result of the estimated logistic regression model for economic empowerment of women is briefly discussed in table-6. The estimated results show that variables like Age (X_1), Education (X_4), Average total working hours per day (X_6), Head of the family (X_5), and Average monthly income of the respondent (X_8) have a statistically positively significant impact but family size (X_3) and Marital status (X_2) have statistically negative effect on the possibility of economic empowerment of women at various level of significance (α =1%, 5% & 10%). While the income of the family head (X7) is reported as negative and insignificant.

Economic empowerment is negatively associated with family size, and marital status at 10% and 5% significance respectively. Accordingly, a one-unit increase in family size decreases the likelihood of economic empowerment of women by 0.186 keeping the other variables constant. An unmarried or divorced women have an almost 0.263 times higher probability of being economically empowered. Since married women (at least an initial period) are mostly dominated by their husbands or other family members. However, unmarried or divorced women, who have own income, enjoy more freedom from their family in case of decision making on their own income. Moreover, after marriage, women are generally dependent on the decision of their husband or sons. Jan, and Akhter (2008) observed that there are a significant difference between married and unmarried women in the context of women empowerment.

According to the regression result, the log odd of economic empowerment of women is positively related to the age of the women at a 5% level of significance. Indicating that the older the woman the more likely to make an economic decision alone or with others. That is a one-unit increase in woman's age increases the likelihood of economic empowerment of women by 0.306 other things remaining constant. Since Age has an effect on the status of a woman in the family. A traditional Bangladeshi system indicates that a daughter –in- law can be responsible for domestic work; however, the mother has the power to decide household matters. Similarly, the research findings show that older participants are more empowered (Haque et al. 2011).

With regards to the effect of education, it is found that the log odds of economic empowerment of women increase by 0.313 as the respondent are more educated other things remaining constant. Women with more education have a higher probability of being economically empowered, compared to women with no education or illiterate. A similar result is found in the study of Yeasmin, et. al (2016).

Table-6 also shows that the log odds of economic empowerment are significantly influenced by a change in average working hours, and average per month income with 5% statistically significance respectively. The log odds of the likelihood of being economically empowerment of women increases by 0.286 as average working hours of the respondent increases and the probability of economic empowerment increases by 0.385 when the income of the respondent rises other things remaining constant. Concerning these, women who work more hours, and earn higher are more economically empowered compared to those with fewer working hours, and smaller income respectively. Since women with higher income have more possibility to take part in the economic affairs of the family.The coefficient of the variable 'head of the family is 1.063 which indicates that the log odds of economic empowerment of women are positively related to whether the respondent is family head or not. When women themselves are head of their family, the probability of being economically empowered is 1.063 times higher than that of those respondents whose family head are their husband or brother. However, family head income is not significantly associated with their economic empowerment as shown in the regression result. That indicates that poor or rich families head has not significant impact on the empowerment of women.

5. Summary and Conclusion

The paper aims to explore whether involvement in the handicraft industry can help women to be empowered economically in Rangpur. In the descriptive analysis, the paper has attempted to assess the socio-economic profile of the women who are engaged in the handicraft industry. The result shows that the socio-economic background of the respondents is not good in the study area. The regression results of the logistic model suggest that seven out of eight socio-economic characteristics including employment, working hours, and per month income level would possibly affect the economic empowerment of women significantly in the study area. The likelihood of economic empowerment of women is increased in a significant way when Age, Education, Average total working hours, Head of the family, and Average monthly income of the respondent -are changed positively. But number of family members and marital status – affect economic empowerment negatively in the study area. While the family head income is not a significant determinant.

Based on the current scenarios, it may be argued that the development of the craft industry needs the creation of common centers to provide training, marketing, market intelligence, links to financial institutions, supply raw materials, and supply managerial inputs. Besides to develop the handicraft industry in Rangpur in favour of the female entrepreneurs and workers, there are some other. specific recommendations based on the survey findings: Education, especially training and skill development programs are important for handicraft workers.In order to raise income or profit margin of the handicraft entrepreneurs, government as well as NGO should help more in getting raw materials, financial assistance at reasonable rate. Government and NGO should come forward more in exporting and promoting handicrafts in foreign and local market respectively so that this sector can generate more women employment and thereby lead to higher women empowerment.

References

Alonge, S. K. (2014). Determinants of Women Empowerment among Theljesa of Southwestern Nigeria. Developing Country Studies, 4(24), 23-29.

Abshoko, A. D., Terye, N. D., &Shamenna, A. T. (2016). Determinants of Socio economic Empowerment of Married Women: Evidence from Ethiopia. Humanities and Social Sciences, 4(3),66-75. doi:10.11648/j.hss. 20160403.11

BBS (2020).Bangladesh Bureau of Statistics. Report of the household income and expenditure survey, 2018. Dhaka: Bangladesh Bureau of Statistics.

Chung, B., Kantachote, K., Mallick, A., Polster, R., & Roets, K. (2013). "Indicators of Women's Empowerment in Developing Nations'. A publication of University of Wisconsin-Madison. USA. Retrieved fromhttps:// www.lafollette.wisc.edu/images/publications/workshops/2013women.pdf (Accessed on 27 November 2019)

Debnath, D., Rahman, M., Acharjee, D. C., Latif, W. U., & Wang, L. (2019). *Empowering women through microcredit in Bangladesh: an empirical study. International Journal of Financial Studies, 7(3),* 37.doi:10.3390/ ijfs7030037

Easnin, A. (2015). Handicrafts and human resource development for alleviating poverty *in rural Bangladesh: a study on thanapara swallows. GE-International Journal of Management Research (GE-IJMR), 3(6) (JUNE 2015) if-4.316 ISSN: (2321* 1709)

Encyclopedia Britanica,(1963).Available at https://www.britannica.com/topic/ Encyclopaedia-Britannica-English-languagereference-work/Fourteenth-edition

Haque, M., Islam, T. M., Tareque, M. I., &Mostofa, M. (2011). Women empowerment or autonomy: A comparative view in Bangladesh context. Bangladesh e-journal of Sociology, 8(2), 17-30.

Islam, M., & Mahmud, A. (2016). Influence of Social, Economic and Individual Factors on Entrepreneurship Development in Rangpur.Journal of Business Research, 2(1):121-134.

IFC Report on Financing Bangladesh's MSME (2016).https://www.ifc.org

Islam, M.R.(2016). Women economic empowerment with Handicraft activities: A study on Karupannya Rangpur Limited. World Vision, 10 (1):56-69.

Islam, S. (2015). Sataranji Palli in Rangpur. An unpublished thesis, Department of Geography and Environmental Studies, Degum Rokeya University, Rangpur Available at https://www.scribd.com/doc/286971029/Satranji Handicraft-Industry-Rangpur-Bangladesh

Islam, A. (2015).Small and Medium Enterprises and Women Empowerment: A Study of Women Entrepreneurs in Dhaka City.An unpublished thesis of Masters, Department of Sociology, University of Dhaka, available at repository.library.du.ac.bd/xmlui/bitstream/handle/.../640/Aminul%20Islam .pdf?

Jan, M., & Akhtar, S. (2008).An analysis of decision-making power among married and unmarried women. Studies on Home and Community Science, 2(1), 43-50. DOI - 10.1080/09737189.2008.11885251

Jejeebhoy, S. J. (2000). Women's autonomy in rural India: Its dimensions, determinants, and the influence of context. In Women's Empowerment and Demographic Processes: Moving Beyond Cairo. Harriet Presser and Gita Sen, eds. New York: Oxford University Press

Keller, B., & Mbewe, D. C. (1991). Policy and planning for the empowerment of *Zambia's women farmers. Canadian Journal of Development* Studies/Revue canadienned'études du development, 12(1), 75-88.

Khan, R. E. A., & Noreen, S. (2012). Microfinance and women empowerment: A case study of District Bahawalpur (Pakistan). African Journal of Business Management, 6(12): 4514_4521.

Khatun, F., & Kabir, A. T. M. F. (2014). Women SME Entrepreneurs in ensuring women *empowerment in Bangladesh: A Study on Women SME Entrepreneurs in Bangladesh. American international journal of research in humanities, Arts and* social sciences, 5(1), 61-65.

Liana, A. (2016). From handicraft to local council - women empowerment in *Armenia.Public goods & governance, 1(2), DOI 10.21868/PGnG.2016.2.6*

Malhotra, A., Schuler, S. R., &Boender, C. (2002, June).Measuring women's empowerment as a variable in international development. In background paper prepared for the World Bank Workshop on Poverty and Gender: New Perspectives (Vol. 28).

Nawaz, F. (2010). Nexus between women entrepreneurship development and empowerment: Bangladesh context. Nepalese journal of public policy and governance, 26(3), 62-74.

Rahman, M., &Mottaleb,M.A.(2016). "Contribution of Women Entrepreneurship to Poverty Alleviation in Rangpur District of Bangladesh'.Journal of Business Research, 2(1): 73-90.

Rahman, M. W., Luo, J., Hafeez, A. S. M., & Sun, T. (2015). A comprehensive review of microfinance impacts, sustainability and outreach. Asian Journal *of Agricultural Extension, Economics & Sociology, 6(2), 64-76.*

Sarumathi, S., & Mohan, K. (2011). Role of Micro Finance in Women's Empowerment (An Empirical study in Pondicherry region rural SHG's). Journal of Management and Science, 1(1), 1-10.

Sen, A. K.(2001). Development as Freedom.Oxford: Oxford University Press.

Shazli, T., &Munir, A. (2014). Female Work Participation in Handloom Industry A Case Study of Mubarakpur Town, Azamgarh District, UP. Journal of Education and Social Policy, 1(1), 76-83.

Sharma, P., &Varma, S. K. (2008). Women empowerment through entrepreneurial *activities of Self Help Groups. Indian Research Journal of extension* education, 8(1), 46-51.

The Daily Star, (April 24, 2011), available at https://www.thedailystar.net/news-detail 182875

The Monthly Textile Today Bangladesh, August (2018).Textile Handicrafts and its Prospect in Bangladesh. Available at https://www.textiletoday. com.bd/textilehandicrafts-and-its-prospect-in-bangladesh/

Wiklander, J. (2010). Determinants of women's empowerment in rural India: an intra-household

study.An unpublished master's thesis, Department of Economics, Lund University, Retrievedfromhttp:/ /lup.lub.lu.se/luur/download?func=downloadFile&record Old=16666&fileOld=1666649(Accessed on 28 November 2019)

Yasmin, F., Sultana, N., &Rayhan, M. I. (2016). Women Empowerment in Bangladesh: A *Rural-Urban Development Nexus. Global Journal of Quantitative Science, 3(2):1-8*

Appendix

Table: A.1-Socio-Demographic Profile of Women Participating in Handicraft Industry

Characteristics /variables	Categories	Frequency	Percentage
Age range	Less than 20	3	1.5
	20-29	62	31
	30-39	89	44.5
	40-49	34	17
	50 to above	12	6
Religion	Islam	189	94.5
	Hinduism	11	5.5
	Buddhism	0	0
	Cristian	0	0
Marital status	Married	178	89
	Unmarried	17	8.5
	Divorced/others	5	2.5
Family size	1-3 persons	61	30.5
	4-6 persons	128	64
	Above 6 persons	11	5.5
Education level	Illiterate	70	35
	Literate	22	11
	Primary	59	29.5
	SSC	29	14.5
	HSC	11	5.5
	Degree or above	9	4.5
Head of the family	Respondent herself	11	5.5
	Otherwise	189	94.5
Average monthly income of the family head	Below 2000	0	0
	2000-3000	1	0.5
	3001-4000	16	8
	4001-5000	53	26.5
	5001-6000	52	26
	6001-10000	50	25
	Above 10000	17	8.5

Source: Field Survey-2019

Table B.1: Correlation Matrix

Variables	Age of the respondent	Marital Status	Family Size	Education	Are you Family head?	Average working hours	Average income of family head per month	Respondent own income per month
Age of the respondent	1	-.106	.078	-.216	-.238	-.100	.011	.044
Marital Status	-.106	1	.039	.172	-.350	.156	-.090	.023
Family Size	.078	.039	1	.082	.050	-.111	.010	-.002
Education of the respondent	-.216	.172	.082	1	.051	.349	.343	.454
Are you Family head?	-.238	-.350	.050	.051	1	-.125	.435	.010
Average working hours	-.100	.156	-.111	.349	-.125	1	.103	.301
Income of family head per month	.011	-.090	.010	.343	.435	.103	1	.287
Respondent own income	.044	.023	-.002	.454	.010	.301	.287	1

Table B.2: Variance Inflating Factor(VIF)

Variables	VIF
Age of the respondent	1.219
Marital Status	1.131
Family Size	1.050
Education of the respondent	1.597
Are you Family head	1.367
Average working hours	1.247
Average income of family head per month	1.476
Respondent own income	1.381

Table C: Mahalanobis Distance and Corresponding P- value

Mahalan obis distance	P-value	Mahala nobis distance	P-value	Mahalan obis distance	P-value	Mahalan obis distance	P-value	Mahala nobis distance	P-value
93.58401	0.00000	2.54858	0.00246	.82661	0.00213	.47290	0.00458	.22778	0.00768
56.51775	0.00001	2.53769	0.00203	.81474	0.00348	.47290	0.00458	.22778	0.00768
56.51775	0.00001	2.53769	0.00203	.80669	0.00268	.47190	0.00458	.20189	0.00813
46.44126	0.00003	2.31901	0.00158	.77782	0.00337	.46688	0.00437	.20071	0.00812
46.44126	0.00003	2.30415	0.00204	.76221	0.00374	.46433	0.00498	.19952	0.00817
40.09013	0.00007	2.30415	0.00204	.76053	0.00328	.44267	0.00474	.19952	0.00817
40.09013	0.00007	2.29087	0.00147	.74847	0.00268	.44267	0.00474	.17512	0.00805
27.70939	0.00108	2.26110	0.00168	.73759	0.00358	.42495	0.00408	.16787	0.00837
27.70939	0.00108	2.01409	0.00158	.72490	0.00304	.38469	0.00403	.16787	0.00837
26.69276	0.00104	1.97724	0.00111	.72490	0.00304	.38333	0.00409	.15018	0.00968
23.74053	0.00105	1.85234	0.00111	.72413	0.00298	.38333	0.00409	.15018	0.00968
18.70583	0.00111	1.84725	0.00128	.71760	0.00113	.37849	0.00001	.13814	0.00911
18.70583	0.00111	1.66740	0.00226	.71760	0.00113	.37466	0.00090	.13109	0.00937
14.76519	0.00113	1.62695	0.00215	.71691	0.00217	.35332	0.00166	.13109	0.00937
14.76519	0.00113	1.40685	0.00102	.71691	0.00217	.33806	0.00480	.10785	0.00974
9.01072	0.00117	1.40685	0.00102	.70679	0.00237	.32324	0.00468	.10785	0.00974
7.31472	0.00115	1.28385	0.00102	.70679	0.00237	.32324	0.00468	.08606	0.00997
7.11463	0.00115	1.27988	0.00238	.70533	0.00274	.32115	0.00437	.06813	0.00992
7.11463	0.00150	1.26372	0.00193	.70533	0.00274	.31542	0.00511	.04823	0.01025
6.50379	0.00125	1.22910	0.00198	.70368	0.00211	.31542	0.00511	.04713	0.01090
6.46940	0.00137	1.22910	0.00198	.69096	0.00297	.30902	0.00519		
5.45190	0.00168	1.14826	0.00223	.67526	0.00297	.30891	0.00549		
5.45190	0.00168	1.13364	0.00225	.67526	0.00397	.30891	0.00549		
5.30904	0.00178	1.13267	0.00204	.64350	0.00335	.29863	0.00566		
4.91151	0.00197	1.10717	0.00221	.64350	0.00335	.29661	0.00538		
4.87025	0.00179	1.06724	0.00295	.63529	0.00356	.29661	0.00538		
4.87025	0.00176	1.06724	0.00295	.63487	0.00394	.28731	0.00526		
4.61315	0.00149	1.06458	0.00117	.61339	0.00358	.28731	0.00526		
4.47351	0.00183	.98959	0.00158	.58356	0.00397	.28464	0.005513		
4.05530	0.00193	.98134	0.00195	.58230	0.00370	.28464	0.005513		
4.02091	0.00179	.97157	0.00128	.58230	0.00348	.27050	0.00669		
3.63955	0.00189	.96302	0.00190	.57621	0.00350	.27050	0.00669		
3.50259	0.00199	.93172	0.00237	.57313	0.00348	.26808	0.00630		
3.19005	0.00196	.93172	0.00237	.57313	0.00348	.26416	0.00658		
3.09275	0.00198	.91191	0.00290	.56769	0.00349	.26057	0.00549		
2.78601	0.00176	.87944	0.00237	.56769	0.00049	.25784	0.00560		
2.73519	0.00174	.87489	0.00168	.54366	0.00387	.25784	0.00560		
2.73519	0.00174	.87489	0.00168	.54196	0.00340	.25073	0.00679		
2.62563	0.00179	.87052	0.00195	.50151	0.00338	.25073	0.00679		
2.61749	0.00189	.86248	0.00149	.50151	0.00338	.24323	0.00715		
2.55266	0.00173	.86038	0.00197	.49869	0.00477	.24323	0.00715		
2.55266	0.00173	.83868	0.00254	.49708	0.00467	.23565	0.00738		
2.55266	0.00173	.83868	0.00254	.48381	0.00468	.23565	0.00738		
2.55266	0.00173	.83251	0.00220	.48381	0.00468	.23066	0.00748		

Table D: Regression result of interaction term including all existing variables

Interaction term	Coefficient	S.E	Wald	P
Age of the respondent *Ln_Age	0.458	0.876	0.273	0.601