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Determinants of Work Participation and Income of Female Embroidery Artisans in West Bengal, India

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Abstract: *Hand embroidery industry has spread over wide area of southern West Bengal. Howrah and South 24 Parganas are the two main districts where high concentration of unorganised embroidery industry is located. Major segment of employment in hand embroidery are generated in tiny home-based enterprises. Low-skilled, low value added products along with high quality export-oriented products are produced in different production organisations. A large number of home-based production organisations are operated by significant number female artisans. Majority of the women were involved in this unorganised sector because of economic backwardness. The sub-contracting system of production exploits the female artisans through under-payment. But, hand embroidery works now become a means to maintain somehow moderate level of livelihood to the poor female artisans. Hand embroidery works serve some goal to achieve women empowerment among distressed rural and semi-urban families. The present study deals with the socioeconomic status of female embroidery artisans and econometric models have been applied to explore the determinants of work participation and income of them. Concluding part of the paper presents the summary of findings and recommends some measure for future economic amelioration of the artisans.*

Key words: Artisans, Hand Embroidery, Karigars, Ostagars, Logit Model, Work Participation

I. INTRODUCTION

The craft of hand embroidery or *jari* embroidery in West Bengal, India has flourished during the last few decades. Initially this beautiful craft has been introduced to West Bengal from northern and western part of India by some Muslim artisans of Howrah and South 24 Parganas districts. Later people of other communities have taken this work as their livelihood (Mandal, 2011). The industry has become an important source of earning for poor and middle-income groups of Howrah, South 24 Parganas, East Midnapore, Kolkata and few other districts of Southern West Bengal. Now-a-days good numbers of families earn a major share of income through this unorganized industry and to meet their livelihood expenses.

Less profitable work of hand embroidery is carried on by marginal section of rural and urban community, specially women, subsist on the less lucrative cottage industries like *jari* embroidery. Having no alternative, he craft work is practiced by women of marginal class as a last resort to their survival (Begum, 1995). The female artisans (locally called *karigars*) being an integral part of this industry, do laborious work as casual labours. The economic and social condition of these women is dismal. Majority of the women were involved in this unorganised sector because of economic compulsion. High majority of the women are working because of the inadequate family income and existence of high unemployment amongst the family members (Pandya and Patel, 2010). The women embroidery workers are suffering from recurrent periodic spells of unemployment, contributing to high degree vulnerability, thereby further ruining the prospects of economic and social mobility (Pandya and Patel, 2010).

Majority of the stray works on hand embroidery work are focused on socio-economic conditions of artisans, working conditions of the industry and problems of women and child workers from anthropological and sociological views. The studies on *jari* or embroidery work in West Bengal are practically very negligible, particularly on the economic aspect. Thus it deserves immediate action to study this craft and the artisans at empirical context. Present study emphasises on empirical analysis of female embroidery artisans from the view point of several economic and social aspects.

II. OBJECTIVES OF THE STUDY

Hand embroidery industry of West Bengal is completely an unorganised home based cottage industry driven through labour intensive mode of production. There are many different segments of the embroidery industry where production organisations are continuing in informal enterprises (workshops) and home-based unorganised units within villages and small towns. The women artisans play

very important role in home based production of hand embroidery. Since it is the family enterprise, the girls, maidens and married ladies of the artisan household easily learn the art of *jari* embroidery. Female artisans of different religious community participate in production process during their leisure from domestic duties. Owing to responsibilities of performing domestic duties, regular and continuous embroidery work in workshops is not suitable for female artisans. There are some 'pardah' systems in rural and Muslim community, which restrict females to work outside their dwelling houses. Both internal and external forces drive the females to work within their residential houses. All these lead to under-payment and exploitation of female artisans by the subcontractors.

Economic and social empowerment of poor women fellow affects the family as well as the society in various ways. Hand embroidery works lead the women to achieve women empowerment among distressed rural and semi-urban families. There are some factors which influence the female work participation in embroidery production; there are also many factors which determine the level of income of the female artisans at home based production organization. District level socio-economic factors may differ, which in turn effect the decision of participation of the artisans and income earned by them.

Keeping in view the importance of representation of female artisans in hand embroidery work, the present study is conducted to fulfill the following specific objectives:

1. To understand socio-economic conditions of the female embroidery artisans;
2. To find out the factors responsible for female work participation in hand embroidery;
3. To find out the determinants of income of the female embroidery artisans.

III. DATA SOURCE AND METHODOLOGY

The present study is based on primary source of data collected from Howrah and South 24 Parganas districts, from November 2012 to May 2013. Selection of sample units were done randomly from a total of 1025 embroidery artisans, 590 from household production organisations, 30 from family workshops and 405 from workshops. The study area spreads over 17 administrative blocks, nine in Howrah and eight in South 24 Parganas. Selections of blocks, villages and *karigars* were not completely done randomly, but somewhat purposively so as to get a high representation of embroidery artisans from different types of production organisations.

Information was collected from the respondents on several household characteristics as well as detailed information on embroidery work through structured questionnaire. Some detailed information on socio-economic characteristics of artisans and their families, such as age, sex, marital status, education, religion, BPL status, income and asset of the family, agricultural property holding, loan status of the family – all these information were given due importance. Emphasis was given on variety of embroidery work related issues, such as – hours of work, duration of work throughout the year, experience, monthly income, payment structure etc. From all these detailed gathered information, our focus was to fulfil the three main objectives mentioned in the previous section. , Several tables and diagrams are used to understand socio-economic status of female embroidery artisans. Detailed gathered information based on participating artisans' age, education, marital status, religion and caste, economic condition – all these are analysed elaborately.

To find out the variables responsible for participation of female *karigars* in hand embroidery, the variable SEX (sex of the artisans) is considered as dependent variable. The following specification is used for estimation:

$$SEX = f_1 (WOHR, OSTLV, MARST, PERLN, CONPCR, ALTJB, WORKM, WORKF, ELDMB, ASSVAL, TFINC, EMBOCHD \text{ and } EDNHD) \quad \ldots\ldots\ldots\ldots\ldots\ldots (1)$$

The variable SEX is assigned two values, 0 and 1; the value '0' means the participating artisan (*karigar*) is male and similarly '1' means the artisan is female. Since our dependent variable is dichotomous, expected model cannot be estimated following normal OLS method. Since the dependent variable is dichotomous or assigned values like (0, 1), the most common procedure of logistic regression is followed.

Let, $P_i = Pr (SEX = 1 / X = X_i)$, and
$1 - P_i = Pr (SEX = 0 / X = X_i)$; where, i = 1, 2, ..., n

i.e., P_i is the probability that the 'i'-th artisan is female and alternately $(1-P_i)$ is the probability that the artisan is male. The logistic or logit transformation is used to link the dependent variable to the set of explanatory variables. The logit link can be used as:

$$Logit (P_i) = Log [P_i / (1- P_i)]$$

The term within the square brackets is the odds of an event occurring. In the example above this would be the odds that a *karigar*, engaged in hand embroidery work, is female. The logistic model can be written as:

$$logit (P_i) = Log [P_i / (1-P_i)] = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \beta_3 X_{3i} + \ldots + \beta_k X_{ki} + u_i \quad \ldots\ldots\ldots\ldots (2)$$

There is 'k' number of explanatory variables. The model cab be written in terms of odds as:

$$P_i / (1-P_i) = \exp (\beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \ldots + \beta_k X_{ki} + u_i) \quad \ldots\ldots\ldots\ldots (3)$$

In equation (2), as the probability goes down to zero the odds approach zero and the logit approaches - ∞. At the

other extreme, as the probability approaches one the odds approach + ∞ and so does the logit. So, logits map probabilities from the range (0, 1) to the entire real line. Thus, a dichotomous variable is transformed into a continuous variable to link several explanatory variables. Here, in our model the expected explanatory variables are WOHR, OSTLV, MARST, PERLN, CONPCR, ALTJB, WORKM, WORKF, ELDMB, ASSVAL, TFINC, EMOCHD and EDNHD. Estimating equation (2) the explanatory variables which have significant effect on logit are selected and subsequently effects of these explanatory variables on dependent variable are examined, i.e., SEX.

To fulfil the third objective, i.e., to find out the determinants of income of the female *karigars* the following model is estimated:

$$INC = f_2 (WOHR, OSLEV, DURNW, AGE, MARST, EDNHD, TFINC, TFAMEM, CHSTFYR, PERLN, MGEN, MOBC, EMOCHD, ASSVAL, ELDMB) \quad \ldots\ldots\ldots\ldots\ldots\ldots (4)$$

In above equations (1) and (4), INC stands for monthly income of the *karigars*, WOHR is daily working hour, OSLEV stands for levels of *ostagars* (i.e., the master craftsmen or commission agents), DURNW is duration of embroidery work throughout the year, AGE simply stands for age of the *karigars*, MARST is a dummy variable representing whether the *karigar* is married or not, EDUN is a dummy variable representing *karigar's* level of education which has been categorized into six groups viz. EDUN 0 = illiterate, EDUN 1 = lower primary (up to fourth standard), EDUN 2 = upper primary (fifth to eighth standard), EDUN 3 = secondary but below madhyamik or tenth standard, EDUN4 = Madhyamik (i.e., tenth standard), EDUN 5 = Higher Secondary and above, TFINC is total family income, TFAMEM stands for number of total family members, CHSTFYR represents the number of children belonging to six to fourteen years of age group, PERLN is a dummy variable representing whether the *karigar* has taken personal loan or not, MGEN is a dummy variable representing whether the family belongs to Muslim General category or not, MOBC is a dummy variable representing whether the family belongs to Muslim OBC (Other Backward Class) category or not, EMOCHD is a dummy variable representing whether head of a family has taken embroidery as his/her occupation or not, ASSVAL is valuation of asset owned by the *karigar* family, ELDMB represents the number of elderly member in the family, WORKM is number of working male in the family, WORKF represents number of working female in the family, CONPCR is a dummy variable representing whether the payment system based on contractual piece rate or not, ALTJB is a dummy variable representing whether there exist alternative job opportunity before the *karigar* or not, EDNHD means education of the head of the family and measured in a six point ordered scale with values 0, 1, 2,..,5; where, 0 means illiterate or without any formal education, 1 means education up to lower primary or fourth standard, 2 means education up to upper primary or eighth standard, 3 means education up to secondary level but below madhyamik standard, 4 means just passed madhyamik level and 5 means education above higher secondary level.

Both simple and standard statistical techniques have been used for computation, presentation and analysis of data in spatial perspective separately for two districts. All standard statistical analysis including estimation of regression equations have been done by using SPSS 20.0 software. To estimate equation (1) 'Logit link' in Ordinal Regression Analysis is used and at the same time to estimate equation (4) Multivariate Linear Regression Analysis method is used. The results obtained from there have been presented in different tables and figures.

IV. SOCIO-ECONOMIC CONDITIONS OF FEMALE ARTISANS

In embroidery industry as a whole, particularly in household production units and family workshops, significant parts of the *karigars* are constituted with female *karigars*. These *karigars* are bound to perform household duties and after completing their usual household work they engage themselves in embroidery work. Hand embroidery is the major earning source to these poor women folk; depending on embroidery works they earn some money to support their families and they mainly spend these income for their children's education and better living.

A. *Females as Embroidery Artisans*

Females with their natural artistic skill of craft can easily take up the job of hand embroidery. They participate in production process after finishing their usual household chores and responsibilities. In many houses the young women have taken this work as a source of earning through which they have some contribution to their poor families, Majority of female *karigars* are working about 4-12 hours per day. Family burden and self interest are the two most important forces that drive a woman to work in the hand embroidery industry. Spending their leisure time, these women try to earn and reduce financial burden of their family through hand embroidery work. Hand embroidery provides them easiest and simplest opportunity for that.

Table 1: Female Embroidery Artisans in Different Production Units

District	Household Unit	Family Workshop	Total Female Artisans
Howrah	160 (50.16)	5 (21.74)	165 (32.54)
South 24 Parganas	206 (76.01)	1 (14.29)	207 (39.96)
Total	366 (62.03)	6 (20.00)	372 (36.29)

*Figures in the parenthesis indicate percentage share of female artisans to total artisans

Source: Primary data collected from field survey

In two sample districts female *karigars* comprises lion's share of total household *karigars* (Table 1). Representation of female *karigars* in household units is remarkably high (76.01%) in South 24 Parganas. As a whole, it is clear from the table that 62.03% household workforces are women. So, in our sample it found that, female *karigars* are the central driving power of the household units.

Rural women folk, after completing daily household activities, have very little time to spend for needle work on a regular and continuous basis. Owing to some religious and social obligations rural female *karigars* cannot undertake outdoor activities. During peak season of production (before festivals like, *Puja, Dewali, Holi, Onam, Eid* etc.) the *karigars* of workshops are bound to work continuously at a stretch, fourteen to sixteen hours in a day and work even up to midnight to finish production within a stipulated time. Again, facilities provided at workplaces, particularly sanitary arrangement and arrangements for maintaining privacy and security of female *karigars* are not sufficient at all. Prevalent norms of seclusion (*parda*) in Muslim community do not allow the females to work in the Workshops, as it is the domain of the male *karigars* (Mondal, 2009). Participation of female *karigars* in family workshop is also low because of the compulsions of completing needle work within pre-stipulated time constrain fixed by the *ostagars* (the master craftsman).

B. Distribution of Age

Several age categories are found among the artisans. Children as well as *karigars* aged above sixty years are encountered in our study. Only four girls within 6-14 years age have been noticed working in hand embroidery, one in South 24 Parganas and three in Howrah. Awareness and consciousness about child education among parents restricts their children to work, rather the responsible guardians are sending their kids to the schools regularly.

Table 2: Age-distribution of the Female Artisans

Different Age Groups (in Year)	Howrah	South 24 Parganas	Total
06-14	3 (1.82)	1 (0.48)	4 (1.08)
15-24	62 (37.58)	60 (28.99)	122 (32.80)
25-34	61 (36.97)	88 (42.51)	149 (40.05)
35-44	31 (18.79)	50 (24.15)	81 (21.77)
45-59	8 (4.85)	7 (3.38)	15 (4.03)
60+	0 (0.00)	1 (0.48)	1 (0.27)
Total	165 (100.00)	207 (100.00)	372 (100.00)
Average Age (in Year)	27.42	29.63	28.65

*Figures in the parenthesis indicate percentage values
Source: Primary data collected from field survey

It is found that over 94% of female *karigars* belong to 15-44 years of age (Table 2). 93.34% and 95.65% female *karigars* of Howrah and South 24 Parganas respectively belong to this range. There are some district level differences regarding concentration of *karigars* within a particular age group. In Howrah, the overwhelming concentration (37.58%) of *karigars* is noticed within 15-24 years of age and in South 24 Parganas, maximum concentration (42.51%) of *karigars* exists within 25-34 years of age.

General condition of *jari* embroidery requires good eye sight, sound health, patience with excellent skill of needle work. Continuous needle work requires concentration of mind and eye within a small area over a long period, and this in particular may cause several health problems, viz, low eye sight, low back pain, shoulder pain, head ache etc. Aged *karigars* achieve superior skill on needle work, but several health problems resist them to work after 40 - 45 years of age. Very few *karigars* above 45 years of age are found working in hand embroidery production organisations. In our sample only one female *karigar* above sixty years of age is found working in South 24 Parganas. Average age of the female *karigars* in Howrah is 27.42 years, while, in South 24 Parganas it is 29.63 years.

C. Marital Status

Data depicted in Table 3 indicate that majority of the female *karigars* employed in hand embroidery work are married, being 77.58% and 87.44% in Howrah and South 24 Parganas respectively. As a whole 16.94% females of embroider families in both districts help their families by working in hand embroidery industry till their marriage.

Table 3: Marital Status of the Female Artisans

District	Married	Unmarried	Total
Howrah	128 (77.58)	37 (22.42)	165 (100)
S. 24 Pgs.	181 (87.44)	26 (12.56)	207 (100)
Total	309 (83.06)	63 (16.94)	372 (100)

*Figures in the parenthesis indicate percentage values

Source: Primary data collected from field survey

It is worth mentioning that few unmarried girls in both districts are found to continue their graduate and post graduate studies with their earnings from hand embroidery. These girls from poverty-strike background work four to six hours in a day and even more on Sunday and holidays. These energetic girls are self-sufficient about defraying expenses of their education. Embroidery or *jari* work is providing them some scope to continue their higher studies.

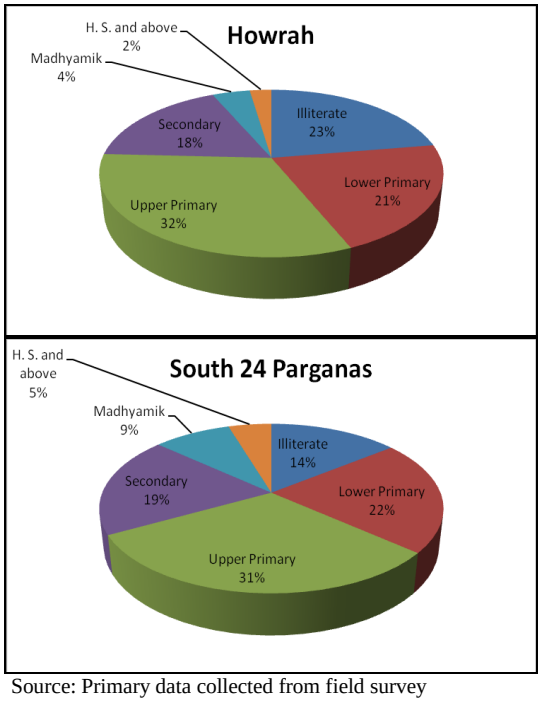
D. Educational Attainment

Educational attainments of female embroidery artisans in both districts are not satisfactory. Only 2% and 5% of female *karigars* of Howrah and South 24 Parganas

respectively passed Higher Secondary level of education. Again, 6% and 9% of female *karigars* in respective districts passed first external secondary level of examination, i.e., Madhyamik Examination.

It is observed that few of female *karigars* who passed Higher Secondary level are still continuing their graduation and post graduation degree fighting against poverty and at the same time fighting against social custom of early marriage. *Jari* embroidery provides them the opportunity to build up self confidence through which they able to maintain their future ambitions.

Diagram 1: Educational Attainment of the Female Artisans in Howrah and South 24 Parganas



Source: Primary data collected from field survey

Some similarities regarding attainment of primary level of education is observed in these two districts. It is found that about 53% in total of female *karigars* in both districts attended just lower (up to class IV) and upper primary (class V to VIII) level of schooling. However, percentage share of illiterate artisans is relatively high in Howrah district.

It is noticed that the young family members joined *jari* work following other family members, neglecting their education and stop going to school at primary or early secondary level. Extreme poverty, ignorance as well as negligence of the parents about child education are the main causes of drop out of embroidery artisans at the early age of schooling. Marriage of girl child at early age is another cause of drop out. So, it is no wonder that there would be few *harigars* who achieved a higher degree of education. However, the workers disclosed that it would have been better for them if they had at least one degree. They understand that educated artisans can handle the technical and business aspects of the embroidery production more efficiently.

E. Religious and Caste Composition

Hand embroidery artisans of two districts belong to bi-religious and multi-caste community, majority of female *karigars* are Muslims, constituting nearly 60% of all females. Maximum concentration of *karigars* belonging to Muslim community is noticed in Howrah. Significant part of these Muslim *karigars* is OBC (other backward class). In South 24 Parganas proportion of Muslim OBC *karigars* is quite low, (1.93%); whereas in Howrah it is 12.73%.

Table 4: Religion and Caste Composition of Female Artisans

District	Hindu			Muslim	
	Gen	S C & S T	OBC	Gen	OBC
Howrah	16 (9.70)	37 (22.42)	3 (1.82)	88 (53.33)	21 (12.73)
South 24 Parganas	63 (30.43)	34 (16.43)	0 (0.00)	106 (51.21)	4 (1.93)
Total	79 (21.24)	71 (19.09)	3 (0.81)	194 (52.15)	25 (6.72)

*Figures in the parenthesis indicate percentage values
Source: Primary data collected from field survey

Although most of the female *karigars* are Muslim, proportion of Hindu *karigars* is not insignificant. The Hindu *karigars* constitute more than 40% of the total female *karigars.* A considerable part of the Hindu *karigar* is belonging to SC and ST community. In Howrah district, 1.82% of total *karigars* are Hindu OBC. The artisans of Hindu SC, ST and OBC community are belonging to sub-classes like, *Jele, Napit, Podh, Methor, Kahar, Tanti, Teli etc.* Most of these backward and sub-class Hindus are extremely poor and they engaged in seasonal type of occupations. These first generation embroidery artisans have started *jari* work to reduce the risk of seasonal uncertainty of their profession. From early documentary evidence, it is found that, Muslim artisans constitute almost 80-90% of the whole embroidery industry. The rest part of the Hindu artisans are mainly first generation artisans, learned the art of embroidery from their Muslim neighbour (Mondal, S. R., 2009). Our present study indicates some change in the scenario; Hindu female artisans have taken this profession as easy way of earning and to show their inherent skill of needle work working at their own dwelling house.

F. Financial Status

The distribution of monthly income of the female artisans is presented in Table 5, which does not indicate homogeneous pattern.

There is disparity of income of the female *karigars* in both districts. In Howrah, statistical Range of monthly income is Rs. 3500, with minimum and maximum values of Rs. 500 and Rs.4000 respectively. In South 24 Parganas, the Range is little lower than what it is in Howrah, and it is Rs. 2800, with extreme values of Rs. 600 and Rs.3400 respectively. In Howrah, 86.07% *karigar* earn Rs. 2000 or less and 94.55% *karigar* have income up to Rs. 2500. Only 5.45% female

karigars earn Rs. 2501 or above. Maximum 46.67% *karigar*'s income concentrated within a single income class of Rs. 1501-2000.

Table 5: Distribution of Income of the Female Artisans

Different Income Classes (Rs.)	Number of Female Artisans		
	Howrah	South 24 Parganas	Total
Below 600	5 (3.03)	13 (6.28)	18 (4.84)
601-1000	19 (11.52)	87 (42.03)	106 (28.49)
1001-1500	41 (24.85)	56 (27.05)	97 (26.08)
1501-2000	77 (46.67)	42 (20.29)	119 (31.99)
2001-2500	14 (8.48)	5 (2.42)	19 (5.11)
2501-3000	5 (3.03)	2 (0.97)	7 (1.88)
3001-3500	2 (1.21)	2 (0.97)	4 (1.08)
3501-4000	2 (1.21)	0 (0.00)	2 (0.54)
Total	165 (100.00)	207 (100.00)	372 (100.00)

*Figures in the parenthesis indicate percentage values
Source: Primary data collected from field survey

Somewhat different scenario in South 24 Parganas is observed. Female *karigars* do not enjoy any financial advantages like their counterpart in Howrah. About 95.65% female artisans in South 24 Parganas earn below Rs. 2000, i.e., only 4.35% *karigars* somehow able to earn Rs. 2001 or above. Lower 48.31% of *karigars* in South 24 Parganas earn only Rs. 1000 or less. Thus, it is found that monthly incomes of female *karigars* in Howrah as well as South 24 Parganas are significantly low. Inspite of low monthly income, female artisans of both districts are still continuing this work, because they love this work, spend time over their usual household activities and earn some money for the betterment of their children and family.

V. DETERMINANTS OF FEMALE WORK PARTICIPATION

Table 6 furnishes the results of logit model estimation for female work participation in Howrah and South 24 Parganas district separately. In our model, high values of χ^2 and Pseudo R^2s suggest that the models for both districts fitted well with the data. The table shows those explanatory variables which are significant at 95% level or more. Six general variables have similar kinds of effects on odds ratios and so on dependent variables for both Howrah and South 24 Parganas.

EMOCHD, WOHR, WORKM – all these three variables have negative and significant effect on female work participation. So, participation of female *karigars* in hand embroidery is significantly low in case of those families where head of the family has taken hand embroidery as their occupation (EMOCHD). If head of a family (either male or female) is directly associated with hand embroidery for major earning opportunity, then scope and time for other household activities to those *karigar* heads reduce significantly. Female members of that family have to take extra load of daily household activities. This reduces the opportunity of female work participation in hand embroidery work. Similar effect also found for WORKM. If number of male in a family is high, then scope of female work participation is low. More working male member in a family means greater possibility of earning for the family. This reduces the necessity of female members of the family to work. WOHR has negative impact on dependent variable. Female *karigars* have less opportunity to work continuously for more than 7-8 hours in a day. But seasonal demand of the embroidery products forces the *karigars* to work continuously, even 15 hours in a day. Thus, in production organisations where *karigars* require longer hour to work, female work participation remains significantly low.

The variable CONPCR has positive impact on dependent variable SEX. Female *karigars* engage themselves in embroidery work without maintaining particular time schedule. They perform as and when they manage to free some time from their regular household activities. Since female *karigars* work at any time between their household activities, contractual per hour system of payment is not suitable for them. Again, embroidery works associated with contractual unit length system of payment (*patty or* border etc.), are complex type of works, require high skill which may be obtained through time consuming training. This is not appropriate for majority of female *karigars*, as they confess. So, among the three major systems of payment prevailing in hand embroidery industry, contractual piece rate (CONPCR) is the most appropriate one for female *karigars*.

The variable OSTLV, i.e., level of *ostagars*, has positive impact on female work participation. Since poor womenfolk has little bargaining power, and since majority of female *karigars* have no fixed time to spend on needle work, these *karigars* are compelled to work with higher level *ostagars* (i.e., lower ordered *ostagars*).

In both the districts, the variables PERLN (i.e., whether a *karigar* has taken personal loan or not) has positive significant effect on female work participation. This implies the female *karigars* who have received personal loans are likely to join embroidery work more. It should be worth mentioning an important observation here is that, several microfinance companies (for example, Bandhan, Sarala, Sahara, Village Financial Services, Arohan etc.) provide loans to self help groups (SHG) formed by eight to twelve neighbouring village women targeting financial empowerment of poor families. The female members of distressed rural families used to take such loans as they have opportunity of repaying such loans (with interest) through small weekly instalments, which they can compensate with their earning from embroidery work.

Table 6: Impact of Explanatory Variables on Female Work Participation in two Districts

Variables		Howrah				South 24 Parganas			
		β	Std. Error	Wald χ^2	p	β	Std. Error	Wald χ^2	p
Intercept		-6.453	2.011	10.294	0.001	-5.698	1.845	9.54	0.002
EMOCHD		-1.577	0.547	8.296	0.004	-1.742	0.667	6.82	0.009
WOHR		-0.956	0.127	56.372	0.000	-1.343	0.169	62.863	0.000
WORKM		-1.029	0.28	13.557	0.000	-1.185	0.31	14.582	0.000
PERLN		3.902	0.874	19.909	0.000	3.297	1.27	6.737	0.009
CONPCR		3.857	1.395	7.645	0.006	3.509	0.804	19.046	0.000
OSTLV		0.743	0.341	4.751	0.029	1.222	0.428	8.172	0.004
ALTJB		-5.644	1.286	19.258	0.000	-	-	-	-
ELDMB		-1.706	0.536	10.115	0.001	-	-	-	-
MARST		-	-	-	-	3.081	0.701	19.309	0.000
WORKF		-	-	-	-	1.172	0.37	10.025	0.002
EDNHD		-	-	-	-	-0.481	0.19	6.388	0.011
-2 Log Likelihood		107.699				112.329			
χ^2		509.962 *				580.144 *			
Pseudo R^2	Nagelkerke	0.885				0.911			
	McFadden	0.797				0.832			
	Cox and Snell	0.634				0.674			
No. of Observation		507				518			

Source: Primary data collected from field survey
* Significant at p = 0.000

The variable ALTJB has negative significant effect on female work participation in Howrah. This is quite expected result, as there is no alternative job opportunity before the *karigars*, they are bound to engage in low income generating profession like hand embroidery. Alternative job opportunity will reduce female work participation. Only two out of total 165 female *karigars* admit that, they have alternate job opportunity, still they are continuing embroidery work. So, 163 female *karigars*, having no alternative job opportunity, are continuing embroidery work. The variable ELDMB (number of elderly member in the family) reduces the chance of female work participation in Howrah. Presence of elderly member in a family means some additional duty and responsibility, which reduce possibility of female work participation. Last two variables, i.e., ALTJB and ELDMB, are significant in Howrah district, but are insignificant in south 24 Parganas.

MARST, WORKF and EDNHD – all three variables are significant in South 24 Parganas, in Howrah, these are either insignificant. The variable MARST has positive influence on female work participation, i.e., married women are more interested in *jari* embroidery work than unmarried women. In section 5.2, it has already revealed that 87.44% of female *karigars* in South 24 Parganas are married. These married women are persevering to keep their children as well as other family members in a better socio-economic state. At the same time, it cannot be ignored the fact that poor village girls are married at an early age, in some cases before reaching 18 years of age. Therefore, scope of participation of unmarried girls in hand embroidery is limited. So, there exist positive association between married women and work participation of female artisans.

The variable WORKF has positive influential effect on female work participation. The fact is quite obvious; as the number of working female in a family increases, female work participation also enhance. Education of the head (EDNHD) of a family negatively influences the decision of work participation of a female member of that family. Our investigation on this ground has revealed the fact that more educated head of a family nourish a comparatively financially strong family with relatively low family member. There are certain observations behind our conclusion; firstly, the bivariate correlation between (i) EDNHD with BPL status and (ii) EDNHD with total family member of that family – these two are negatively significant at 0.01 level. Secondly, the bivariate correlations between (i) EDNHD with valuation of asset hold by the family, and (ii) EDNHD with agricultural property holding of that family – these two are positively significant at 0.02 level. Certainly,

the families that are financially well off with relatively less family members reduces the chance of participation of a female member in embroidery work. Thus there is a possibility that education level of the head of a family acts as a proxy for family income and economic condition of the family.

VI. MONTHLY INCOME OF FEMALE ARTISANS

A. Comparison of Income

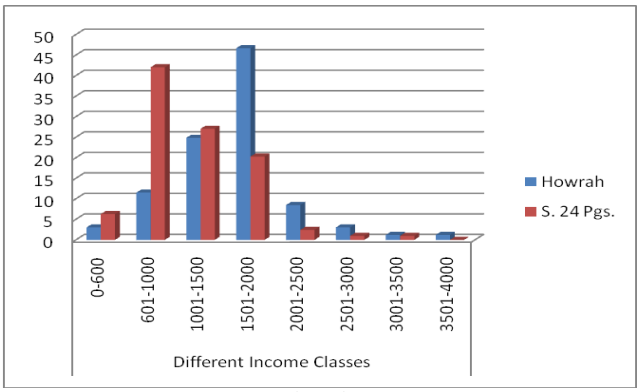
Average monthly incomes of female *karigars* in both districts are quite low, but this income from *jari* embroidery empowering them to some extent. Importance of these earnings in rural families is better understood by the way these are utilised. The female *karigars* spend their earning for their children's education, repaying debts, purchasing durables for the family and compensating several regular and emergency needs of the family.

Several statistical measures depicted in Table 7, indicate almost same type of distributions of income for two districts. Both income distributions are positively skewed and 'leptokurtic' type. This means that there are high concentrations of income at lower level. However, the values of skewness and kurtosis are slightly greater in South 24 Parganas, compare to Howrah. The female *karigars* in Howrah are comparatively more consistent about their monthly earning.

The Diagram 2 represents the percentage distribution of female *karigars* as classified according to their monthly earnings. It is observed that concentration of *karigars* at lower income class is comparatively high in South 24 Parganas. On the contrary, high concentration is observed at the middle income class (Rs. 1501-2000) in Howrah district.

Table 7 and Diagram 2 are sufficient to understand that, monthly average income of the *karigars* in Howrah and South 24 Parganas are considerably low and there is significant difference between average incomes in two districts.

Diagram 2: Percentage Distribution of Female Artisans in different Income Classes



Source: Primary data collected from field survey

However, to make an inference about the difference in average incomes, ANOVA technique is applied, related statistical measures are represented in Table 8. The value of 'F' statistic clearly suggests that it is statistically significant at 0.01 level. So, there is significant variability in monthly income between the two districts. The difference in income of the female *karigars* is not due to variability within the districts, but it is completely owing to existence of variability between the two districts. Therefore, there is significant difference in monthly income of the female *karigars* between Howrah and South 24 Parganas.

Table 7: Descriptive Statistics of Female Artisans' Income

District	N	Mean (Rs.)	Median (Rs.)	S. D. (Rs.)	C. V. (%)	Kurtosis	Skewness
Howrah	165	1649.39	1600.00	577.31	35.00	2.576	1.004
S 24 Pgs	207	1229.95	1100.00	494.58	40.21	2.696	1.403
Total	372	1415.99	1400.00	571.57	40.37	2.113	1.115

Source: Primary data collected from field survey

Table 8: ANOVA Table for Comparing Monthly Income of Female Artisans in two Districts

ANOVA Table

	Source of Variation	Sum of Squares	d. f.	Mean Square	F	Sig.
Income * District	Between Groups (Districts Combined)	16153093.08	1	16153093.08	56.894	0.000
	Within Groups (Districts)	105049238.91	370	283916.86		
	Total	121202331.99	371			

Source: Primary data collected from field survey

B. Determinants of Monthly Income in Howrah

In Howrah, it is found that eight explanatory variables have influencing effects on monthly income of the female *karigars* (Table 9).

Variables, WOHR has positive and significant effect on Income. The result is not unexpected; the more work done by a *karigar* in a day more will be the income of that *karigar*. The variable OSTLV has negative effect on monthly income. It is found that presence of one additional *ostagar* reduces the monthly income of the *karigar* by Rs. 118.93, here, it is assumed that all other variables are remain unchanged. Presence of one or more *ostagar* between *mahajan* and *karigar* always reduce income of the *karigar*; this is because, the *ostagars* are actually the commission agents and they earn at the cost of the *karigars* income. So, higher the number of *ostagar*, lower will be the income of the *karigar*. This is the normal situation continuing in hand embroidery industry.

Variable AGE has negative impact on income. Embroidery work requires high eyesight and sound state of health. Lacking these two maximum aged *karigars* are not able to work for longer hour. Thus their monthly income declines with an increase of their age. General observation in this connection is that, *karigars* aged over 45 years are bound to give up this type of needle work owing to low eyesight, low back pain, headache, and so many other health problems.

TFINC has positive significant effect on income of female *karigar*. Increased family income from subsistence base level provides some better opportunity and more bargaining power to the *karigar*. Improved economic condition of the family provide some better arrangement, such as wide and clean area to work, wooden *dhadda* in place of bamboo made *dhadda*, arrangement of electric light and fan etc. – all these increase productivity of the *karigar* and also income. At the same time, better economic condition of a *karigar* builds up self-confidence; this in turn helps him/her to bargain with the *ostagar*, and thus increases the monthly income of that *karigar*.

CHSTFYR has positive significant effect on income of the *karigar*. This variable has two way influences on income. Firstly, presence of child in the family within this category induces the female *karigars* to work more to meet some expenses for nutrition and education of their children. Secondly, teen age children within this category help their *karigar* mother or elder sister in performing embroidery work. They work two-three hours in a day as and when they able to free from their study or play-time. These younger members of the family are trainee artisans, helping their family members in needle work, at the same time they are continuing their study. Since, they do not devote themselves in hand embroidery work regularly and continuously, they cannot be considered as child labour of *jari* work. Thus, presence of child within six to fourteen years of age increases income of a female *karigar* in Howrah.

Table 9: Determinants of Monthly Income of Female Artisans in Howrah

Variables	β	Std. Error	t	P
Intercept	454.175	203.538	2.231	0.027
WOHR	178.129	14.467	12.313	0.000
OSTLV	-118.930	46.113	-2.579	0.011
AGE	-7.291	3.468	-2.102	0.037
TFINC	0.084	.013	6.468	0.000
CHSTFYR	116.078	33.447	3.471	0.001
TFAMEM	-89.817	24.394	-3.682	0.000
MGEN	197.830	65.899	3.002	0.003
MOBC	192.634	97.480	1.976	0.050
F	31.005*			
R^2	0.614			
Adjusted R^2	0.594			
No. of Observation	165			

Source: Primary data collected from field survey
*Significant at p=0.000

TFAMEM has negative influential effect. Increase in the number of TFAMEM also increases related household duties and responsibilities of the female *karigar*, which reduce actual time for '*jari'* work.

The religion factor is significant in Howrah district. Here, two variables, MGEN and MOBC have positive influential effect on income. If the female *karigar* belongs to either Muslim general (MGEN) or other backward classes of Muslim community (MOBC) family, monthly income of the *karigar* increases considerably. This means that, monthly incomes of a Muslim female *karigars* (both MGEH and MOBC) are considerably higher than that of female *karigar* of Hindu family.

So, in Howrah district, eight explanatory variables which explain the variations of monthly income of the female *karigar* are found. The values of R^2 and adjusted R^2 suggest that the model fits well with our data. Only those variables are incorporated which are significant at 0.05 or less probability levels.

C. Determinants of Monthly Income in South 24 Parganas

In South 24 Parganas, nine important explanatory variables are found to have significant effects on dependent variable INC (Table 10). Like Howrah, WOHR is the most important factor to explain the variation in INC. The variable DURWK, i.e., duration of work (in month) throughout the

year, has positive influential effect on income. Normal duration of embroidery work in household production organisations throughout the year is 6-10 months. Very few household units are operating continuously for 12 months in a year. Owing to seasonal character of *jari* embroidery production, maximum household units are operated 6-8 months in a year.

Table 10: Determinants of Monthly Income of Female Artisans in South 24 Parganas

Variables	β	Std. Error	t	p
Intercept	-336.225	165.985	-2.026	0.044
WOHR	113.949	14.696	7.754	0.000
DURWK	64.139	15.567	4.120	0.000
MARST	-194.347	72.029	-2.698	0.008
EDN 1	-123.308	58.468	-2.109	0.036
PERLN	335.313	63.212	5.305	0.000
EMOCHD	284.081	59.545	4.771	0.000
ASSVAL	-0.005	0.002	-2.828	0.005
TFINC	0.057	0.008	6.908	0.000
ELDMB	125.639	45.684	2.750	0.007
F	29.381*			
R^2	0.573			
Adjusted R^2	0.554			
No. of Observation	207			

Source: Primary data collected from field survey
*Significant at p=0.000

The variable MARST has negative impact on INC. This implies, the average monthly income of the married *karigar* has a chance to decrease significantly. The married female *karigars* of household production organization have some fixed and bound duties in their families; they have additional responsibility of performing usual household activities. That is why, income of the married female *karigars* falls short of average income of the unmarried female *karigars* and so the result comes.

Education has significant effect on INC, although it is insignificant in Howrah. It is explored that 'EDN 1' has negative significant effect on INC. This implies that, the *karigars* who attended just lower primary level of education earn significantly less than *karigars* of other level of education. In our sample, it is observed that about 22% of female *karigars* are belonging to this category.

The variable PERLN has positive significant effect on INC in South 24 Parganas. The female *karigars*, who have taken personal loans from microfinance institutions, have additional effort and urge to earn more for repaying such loans. Although EMOCHD has negative impact on female work participation, it has positive significant effect on INC. The implication of the result lies on the fact that, when head of a family engage in embroidery work, he seems to know all important aspect of the work and drives his female artisan members of the family on the right track.

The variable ASSVAL has negative impact on INC, while TFINC has positive influence. The results are quite expected. The families, those are using valuable assets, are expected to represent a comparatively better economic class. So, female members of these families are expected to be less interested in embroidery work. Positive effect of TFINC on INC is owing to the fact that, higher family income create suitable environment of work to poorer section of embroider artisan families which in turn increases their income.

Lastly, number of elderly member (ELDMB) in a family has positive effect on INC. Elderly members, if they are not sick enough, generally take some responsibility of domestic work, whereby they create some scope of embroidery work for active female members. Another important significance of the result lies on the fact that, aged members are not able to contribute economically for their families and create some economic burden. To carry out additional pressure, active female *karigar* members put some extra efforts on needle work to earn more.

In South 24 Parganas, variable AGE is omitted owing to problem of multicollinearity. It is found that AGE and MARST – these two variables have similar effects on INC. There is also high and significant association between age and marital status of female *karigars* in both the districts. So, AGE and MARST can be considered as proxy to each other.

VII. SUMMARY AND CONCLUSION

Majority of embroidery artisans in household production organisations are female *karigars*. The female *karigars* constituted with different religious groups. But majority of them are belonging to Muslim community. A significant part of Hindu *karigars* are belonging to schedule case, schedule tribe and other backward classes. About 74% of these female *karigars* are aged below 34 years and 95% are below 44 years. About 83% of female *karigars* are married. Majority of these *karigars* attended just upper primary level of education, except few passing their higher studies.

There are so many factors those are responsible for female work participation. Through logit model estimation, it is explored that there is less probability of female work participation in families, which are headed by embroidery artisans and which have comparatively more working males. The production organisations, which require additional working hour to complete embroidery work, are less represented by female *karigars*. The female *karigars* who have taken personal loans participate more in embroidery work. The contractual piece rate system of remuneration also determines female work participation. Female *karigars* are associated with production organisations where higher level (lower ordered) *ostagars* are associated. These all mentioned variables have same types of influences in both

Howrah and South 24 Parganas. In Howrah, two more variables are found to have negative influential effects on work participation. Alternative job opportunity and presence of elderly member in families reduce probability of female work participation in Howrah. In South 24 Parganas, married women are more interested in embroidery work. Presence of working females in embroiders family increases the probability of female work participation. Probability of work participation of female *karigars* is relatively low in those families which are headed by more educated members.

So far as income distributions are concern, it is observed that incomes of the female *karigars* are considerably low in both districts. It is also found that incomes of female artisans in two districts are significantly different. It is explored that, eight variables are highly significant in explaining variations in income in Howrah. Daily working hour has positive significant effect on income. Although female *karigars* are associated with higher level (lower ordered) *ostagars*, their monthly income decreases with increase in level of *ostagars*. Age of the *karigar* has negative impact on income. The determinants related to family concern, have mixed effects. Total family income has positive influence, while, number of total family member has negative effect on income. Number of children belonging six to fourteen years of age has positive significant effect on income. These children are not included in family labour force, but have some influences on their mother's or sister's income by contributing two-three hours per day on needle work. Religious factor has significant effect on income in Howrah. Muslim artisans (both general and other backward class) earn significantly more than other Hindu artisans. However, it is not significant in South 24 Parganas.

In South 24 Parganas, daily working hour and duration of work have positive significant effect on income. Income of married women is significantly low, compare to unmarried women. Education factor is effective in South 24 Parganas, but it is ineffective in Howrah. Female *karigars*, who have received personal loan, also earn more than others. In South 24 Parganas, four family factors have influential effect the income. Female *karigars*, belonging to embroidery artisan headed family, earn significantly more. Valuation of asset of the family has negative impact on income, whereas, collective family income influences the individual income of the female *karigar* to increase. Number of elderly member in a family has positive impact on income of the female *karigar*.

There is no doubt that female embroidery artisans are underpaid owing to their low bargaining power and ignorance about the market conditions. To cope with the problems, local female artisans should form self help groups for distribution and marketing of embroidery products. Supply of embroidery material should be continuous and uninterrupted throughout the year. Educated artisans among the group are to lead the groups bearing extra responsibility for that. Formation of co-operatives should be encouraged by local administrative bodies. Several microfinance institutions should be encouraged in those areas where availability of loan is scarce. System of payment should be restructured from contractual piece rate to contractual per hour system, and finally, towards daily wage or salary system. It is also recommended that, separate workshops for female artisans should be formed in the locality where artisans are living densely. Government health and sanitary programmes, adult education, subsidised housing and rural electrification programme should be implemented in those areas where extremely poor and distressed artisans are living. Since, female artisans are the driving force of the home-based embroidery production organisations, all these measures are to be implemented not only for the betterment of the female artisans, but also for the embroidery industry and above all for the society as a whole.

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