



An analysis of the Reason for Wage Differential Amongst Various Social Groups in Handloom Sector: A Study in Bodoland Territorial Area Districts, Assam.

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Abstract

This study is investigated in Kokrajhar and Chirang Districts of BTAD, Assam. Here the investigator had tried to analyze empirically the wage differential among various social groups in handloom sectors. The paper also presents the reason of Wage Differential. The study revealed that there is wage differential among gender, community, marital status, types of weavers and between weaving districts. The study revealed that the wages are closely linked to labor productivity in the handloom sector. Finding indicates that the main causes of wage differential in handloom sector in BTAD areas are their capacity of production, productivity, quality, design of products and differences in mandays.

Keywords: Weaver, Wage, Productivity, Age

Introduction

Wage Differential refers to the differences in wage receive by workers for same work within industry or between industries. It also explains wage differentials among different type of labour. There are two aspect of wage behavior as given by Neoclassical. First, as the labour demand is determined by the value of marginal product so productivity differences lead to wage differential. Another aspect refers to the competitive market where free market forces ensure the labour of same quality to be paid same wage.

There are certain causes for Differential in Earnings of various type of Labour.

- 1) Differentials due to basic differences among non-competing group like return to skill differences.
- 2) Differentials due to Human Capital like the formal education, age and productivity differences.
- 3) Differentials due to Sex and race affected by different factors like Human Capital differences, work place segregation etc.
- 4) Differentials arising from Labour Market structures which includes the determination of Wage with and without union.
- 5) Differentials arising from the product market structure like Government regulation, Minimum Wage Laws etc.

There are different models that explain Wage Differentials; one of them is is the Efficiency Wage Model (EWMs). The term efficiency wage has been introduced by Alfred Marshalls to denote wage per efficiency unit of labor. According to this Model, the workers' Productivity has a positive function to the wages. Wage rate plays a dual role in Efficiency Wage Model. In neoclassical model, Wage perform allocative job by equating labour demand and supply. But in EWMs it has an additional role which states that wages are also affected by physical productivity of worker Behaviour. In Efficiency Wage Model, firm may pay wage to worker which is higher

than their marginal revenue product because paying higher wage may lead to increase in productivity or it may reduce costs associated with turnover. Another Theory is the Compensating Wage Differentials which explain the differences in wages. This theory goes back to Adam Smith (1776), *The Wealth of Nations*. He defines wage differentials as compensation for unpleasant working conditions. According to this theory, location and geographical area also determined the wage structure. In some areas higher pay is expected because the cost of living is higher in that area and it is necessary to compensate for a less pleasant working environment. The theory also explains the differences in pay due to differences in job for a given worker. Important element of this theory is that, non-wage aspects of undesirable occupations decrease the supply of labor for those jobs and the decreased in the supply of labour force the employer to pay higher wage to attract the workers. Lauer mann, J (2006) [20] has pointed out several non-wage job aspects that affect labor supply which necessitating compensating wages. These are

- 1) Job industries that are more dangerous must pay compensating wages to attract workers.
- 2) The fringe benefits of a job: the presence of benefits offered by employers, like health insurance and pension plans, will increase the supply of labor for that job and decrease wages. Conversely, employers that do not offer fringe benefits may face a smaller labor supply and the need to pay compensating wages.
- 3) The location of a job: jobs that are located in unattractive locations, like remote logging or mining camps, need to offer compensating wages; whereas jobs in attractive locations will offer lower wages.
- 4) Job security: insecure occupations with irregular work schedules, like real estate sales, are unattractive to many workers, so higher wages must be paid; in contrast, secure jobs attract workers, which allows employers to pay lower wages.

- 5) The prospect of wage advancement: low advancement potential will force employers to offer higher starting wages, while greater future earning potential will convince workers to accept low starting wages.
- 6) Extent of control over work: employees who have rigid schedules, like factory workers, are often paid a compensating wage, while other workers pay for job flexibility through lower wages.

Again the Hedonic Wage function describes the relationship between wage that workers earn and the job characteristics. The word hedonic is something relating to utility and hedonic model of wage correspondence to the idea that in unpleasant job, workers are paid more compensating the differential. The Hedonic Wage function is upward sloping indicating higher wage for higher risk jobs.

Objectives

- a) To examine whether there arise wage differential among various groups in Handloom Sector of BTAD
- b) To find out the reason for wage differential in handloom sector of BTAD.

Methodology and data collection

The methodology for the study is based on the collection of both primary and secondary data. Secondary data has been collected from books, articles, journals and internet. Primary data has also been collected through field visit in the month of October to December, 2015. From the two districts of BTAD (Assam), that is Kokrajhar and Chirang districts, a sample size of 200 is collected, 100 observations from each district. It consists of 132 female weavers, 68 male weavers, 132 tribal weavers and 68 non tribal weavers (since majority of weavers are female and STs, they are taken in 2: 1 ratio). Blocks and villages for field survey are selected purposively taking into account the weaving activities. Respondents in selected weavings were identified through simple random sampling. In both Chirang and Kokrajhar Districts same number of sample size is collected since from secondary data it is observed that that there is no much difference in weavers engagement in handloom sector of those district.

Statistical tools employed in the study

Discussion and analysis

Wage differential among various groups

Model 1: Wage Differential Among Different Groups

$$W = a + b_1M + b_2 WD + b_3 G + b_4 C + U$$

Here all the explanatory variables are dummy Variable.

W is wages, M is marital status where M= 0 for married and 1 for unmarried. WD is weaving district where WD = 0 for Kokrajhar District and 1 for Chirang District. G is gender where G= 0 for male and 1 for female, C is community where C= 0 for STs and 1 otherwise. a is constant, b1,b2,b3,b4 are slope of explanatory variables. U is error term.

Model 2: Wage Differential Among Organizational Group

$$W = a + b_1 TP + b_2 TW + U$$

Where W is wages, TP is type of weaver where TP= 0 for part time weaver and TP= 1 for full time. TW is type of weaving where TW=0 if weaving is run by private or individually and TW=1 if run by Self Help group or NGOs. a is constant, b1, b2 are slope of the explanatory variables. U is error term.

Model 3: Human- Capital Affecting Wages of Weavers

$$W = a + b_1P + b_2 EDU + b_3 EXP + b_4 AG + b_5D + U$$

Here W is wages of Weavers, EDU is educational status of weavers, AG is age of weavers, D is dummy variable for training where D= 0 for yes (who got training) and D=1 otherwise. a is constant, b1,b2,b3, b4, b5 are slope of productivity, educational status, experience, age and dummy variable training respectively. U is error term.

Model 4: Locational Factors Affecting Wages

$$W = a + b_1 WD + b_2 WR + b_3 WL + U$$

Where WD is distance of weaving from main town, WR is distance of weaving from weavers' residence and WL is location of weaving, where WL= 0 if weaving is located in urban area and 1 otherwise. a is constant and b1, b2, b3 are the slope of explanatory variable WD, WR and WL. Slope of explanatory variables will help us to know the change in Wages as a result of change in explanatory variable. U is error term.

Model 5: Mandays and Wages of Weavers

$$Y_i = a + bX_i + U$$

Where Y is wages of weaver and X is mandays of weaver, and b represents constant and slope of mandays, U is error term.

Table 1: Descriptive statistics showing wage differential.

Explanatory variable	Coefficient	Standard error	t- value	p-value
Constant	3782.16	487.52	7.758	.000***
Marital Status	94.784	247.5	0.383	0.702
Weaving district	617.79	239.1	2.58	.011**
Gender	-1086.9	444.4	-2.44	.015**
Community	866.7	443.4	1.955	.052*

Dependant variable is wages, SPSS Output *** significant at 1 percent, ** significant at 5 percent, * significant at 10 percent.

The estimated regression equation is
 $W = 3782.16 + 94.784 M + 617.79 WD - 1086.9 G + 866.7 C$
 (487.52) (247.5) (239.1) (444.4) (444.3)

R square= .48, F value= 15.169, Sig=.000
 W is wages, M is marital status where M= 0 for married and 1 for unmarried. WD is weaving district where WD = 0 for

Kokrajhar District and 1 for Chirang District. G is gender where G= 0 for male and 1 for female, C is community where C= 0 for STs and 1 otherwise. Figure in parenthesis represent standard error.

To examine wage differential among various group like marital status, wage differential in Kokrajhar and Chirang District, gender and community, regression has been done. The explanatory variables including marital Status, weaving district, gender and community are regressed on monthly average wages using SPSS 16. All the explanatory variables consider in above equation are dummy variables; From table above, weaving district and gender are found to be significant at 5 percent level, even the community can also be consider significant considering the p value at 10 percent. We found that there is wage differential in Kokrajhar and Chirang District and also among gender and community. Wage differential among various groups reflects productivity differential not wage discrimination. The value of F test indicates that the model is significant at 1 percent level. The value of R square is 0.48, which reveals that 48 percent variation in dependant variable is explained by independent variable.

Wage differential among organizational group

Table 3: Wage Differential among Organizational group

Explanatory variable	Coefficient	Standard error	T value	P value	Collinearity statistics	
					Tolerance	VIF
Constant	2684.3	323.84	8.289	.000***		
Type of weaver	1505.200	354.012	4.252	.000***	.983	1.017
Type of weaving	-849.944	297.762	-2.854	.005***	.983	1.017

Dependant variable is Wages, SPSS Output
 $W = 2684.3 + 1505.200TP - 849.944TW$ (323.84) (354.012) (297.762)
 R square=0.32 F value =11.73, sig=.000

Figure in parenthesis represent standard error

Where W is wages, TP is type of weaver, where TP = 0 for part time weaver and TP= 1 for full time weaver. TW is type of weaving where TW= 0 for private weaving and TW=1 if weaving is run by self help group and NGOs.

On the basis of organizational structure, types of weavers are categorized into two groups. They are part time weavers and full time weaver. Again type of weaving are classified as weaving run by private weaving and another weaving is run

**Factors influencing wage differential in handloom sector
 Human- Capital Affecting Wages of Weavers**

Table 4: Human- capital affecting wages of weavers

Explanatory variable	Coefficient	Standard error	t- value	p-value	Collinearity statistics	
					Tolerance	VIF
Constant	944.849	567.77	1.664	.098		
Productivity	144.205	8.990	16.041	.000***	.839	1.192
Educational status	10.445	27.557	.379	.705	.895	1.118
Experience in years	99.735	21.207	4.703	.000***	.421	2.373
Age	-42.200	15.607	-2.710	.007***	.451	2.218
Training	393.991	224.843	1.752	.081	.887	1.141

Table 2: Comparing mean wages among different groups

		Mean wages (monthly)
Weaving district	Kokrajhar	3425
	Chirang	4039
Gender	Male	4911
	Female	3124
Community	STs	3124
	Non STs	4860
Marital status	Married	3900
	Unmarried	3610

Author calculation based on field study

From table, it is seen wages differential among gender, community and between Kokrajhar and Chirang district. To examine which social groups earn more wages, their monthly mean wages is calculated. It is found that mean wage in Chirang district is higher than Kokrajhar district, male earn higher than female and Non STs earn higher than STs. The gap between married and unmarried is small and is found to be insignificant.

by self help group and NGOs. Here the type of weaving and type of weaver is found significant at 1 percent level. Part time weavers work only for 3 or 4 hours so their mean wages (is Rs. 2578) are less than that of full time weavers (Rs. 3951) which account for significant wage differential between them. When we compared the mean wages of different type of weaving, it is found that mean wages for NGO and SHGs is Rs.3221 and that of weaving run by private own sector is Rs. 3967. Private own sector weaving are run mainly for commercial purposes. From field study it is found that some NGOs absorbed women in weaving and is committed to convert traditional weaving skill into income earning and employment opportunities for women and girls. They also provide free stay and fooding.

Estimated regression equation is
 $W = 944.849 + 144.205P + 10.445EDU + 99.735 EXP - 42.200 AG + 393.991D$
 (567.77) (8.990) (27.557) (21.207) (15.607) (393.991)
 R square= .77, F value= 57.90, Sig=.000

Figure in parenthesis represent standard error

Where W is wages of weavers, P is productivity, EDU is educational status, EXP is experience in years, AG is age of weavers and D is dummy variable for training where D= 0 for yes(who got training) and D=1 otherwise.

The value of F test indicates that the model is significant at 1 percent level. The value of R square is 0.77, which reveal that 77 percent variation in dependant variable is explained by independent variables. To identify the problem of Multicollinearity in the model, Tolerance and Variance Inflation Factor (VIF) value are accessed. VIF of above 5 or 10 and the tolerance of less than 0.20 or 0.10 are often regarded as indicating multicollinearity. According to Collinearity statistics, our model is free from multicollinearity. Productivity is the basic measure of employee work output. It is simply the output of an employee or the amount of work in a specific time. In our model the explanatory variables including productivity, experience in year of weavers are found to be positively significant at 1 percent level. So productivity is one of the sole parameter affecting wages of weavers, more the productivity more will be the increment in monthly wages of weavers. Sachdev, N (2007) tests the relationship between wages and productivity. The result suggests a strong relationship between wages and productivity. From the field study also, it is observed that productivity growth leads to higher wages to weaver in both the district of handloom sector in BTAD. Again productivity differences are determined by the types of product, design and also the quality of product. Products with sophisticated design takes longer time, needs more skill in production compared to product without design.

Experience of the weavers is also found to be significant at 1 percent level. According to the result, as experience increase by one year, wages of weavers' increases by Rs. 99. Experience enables to increase their skill and knowledge and that enable weavers to understand the technique used to increased productivity. It is found that many weavers do not have sufficient experience to function fully and the lack of it

may hold back their productivity. Wannakrairoj W (2012) [34] had analyzed the effect of education and experience on wages of worker in Thailand, especially the differences in rural and urban labour market. Their result suggests a significant relationship between wages and experience in both the rural and urban market. Further he found the diminishing return of experience as the number of years of experience becomes larger. Additional year of experience raises about 4.2 percent of wage in urban areas, and about 4 percent in rural areas. For an additional 10 years of experience, the rural area effect on wage declines by roughly 0.054 percent, and the urban area effect on wage effect declines by around 0.049 percent.

Age of weavers is negatively significant at 1 percent level. That means wages reduces as weavers grow older. The result also suggests that as worker grows older there is a gap between productivity and wages. Weaving needs strength and it is observed that physical strength and health reduced as person grows older. Skirbekk V (2003) [27] found that the individual job performance reduce from around 50 years of aged which contrasts almost lifelong increase in wages. According to him, older individual are less productive, however the productivity variation over life cycle are addressed with emphasis over cognitive abilities affecting labour market performance.

Educational status of weavers is found to be insignificant, that means wages of weavers is not affected by education. Whether the weavers are less qualifies or more qualified, it doesn't matter in case of weavers' wages. Weavers' wages are affected more by other social and economic factors. Bortamuly, A.B and Goswami, K (2012) [5], attempts to analyzed the factors influencing the wage structure of the handloom industry from a gender perspective. It examines the wage differential with respect to gender as well as type of work the workers are entrusted with. They found that the factors like education and experience do not have any significant influence on the wage structure of the workers in the handloom industry in Assam.

The dummy variable Training is also found to be insignificant. There is no difference in wages of weavers for those who got training and who don't. Weavers' who got training is relative small in our sample size and the period of training is also too short (not more than 3 month) where no increased in productivity is observed. With relatively small sample size we are unable to detect the effect of training on their wages.

Locational/Geographical Factors Affecting Wages of Weavers

Table 5: Locational factors affecting wages of weavers.

Explanatory variables	Coefficient	Standard error	T value	P value	Collinearity statistics	
					Tolerance	VIF
Constant	3569.139	223.706	15.955	.000**		
Distance of weaving from main town	-79.132	18.976	-4.170	.000**	.833	1.201
Distance of weaving from weavers' residence	67.493	13.730	4.916	.000**	.977	1.023
Location of weaving	495.222	285.940	1.732	.085	.844	1.186

Dependant variable is wages, SPSS Output
 The estimated regression equation is
 $W = 3569.139 - 79.132 WD + 67.493WR + 495.22 WL$
 (223.706) (18.976) (13.730) (285.940)

R square= .44 F value= 15.750, p value= .000
 Where W is Wages, WD is distance of weaving from main Town, WR is distance of weaving from weavers' residence and WL is location of weaving, where WL= 0 if

weaving is located in urban area and 1 otherwise. Weaving may be located in the main town or it may be far away from the town. Distance of weaving from main town is measure in KMs. Similarly some weavers are provided shelter in weaving owner house in weaving centre itself, whereas some comes from home away from weaving centre. Here analysis has been done whether the distance of weaving from main town and distance of weavers' residence from weaving has any affect on their wages. The result shows that the distance of weaving from main town and distance of weavers' residence from weaving significant at 1 percent level. Distance of weaving from main town is negatively significant that means wages are lower if the distance of weaving is more from main town. According to some research it is found that

in town area the cost of living is higher and so to compensate the cost of living, workers are paid higher wages.

Role of Man-days in Determining Productivity and Wages of Weavers

Man-day is a unit of measuring the amount of work performed by a worker. Generally eight (8) hour is taken as one man-day. Here how the changes in mandays determine the wage of weavers is examined. Since in handloom sector the wage of the weaver is given on the basis of the production and type of product they produced, higher working days may increase production determining higher wage on the other hand higher man-days lower prone to absenteeism.

Table 6: Relation between wage and man-days of weaver in study area

	Coefficient	Standard error	T value	P value
Constant	120.261	268.513	.448	.655
Mandays	184.992	12.864	14.380	.000*** R square=0.51

Source: SPSS Output, Dependant variable is wage, *** significant at 1 per cent level

There is a close relation between mandays and monthly wage of weavers. The estimated regression result reveals a positive relationship between mandays and wages of weavers and they are found statistically significant at 1 percent level. According to the estimated result it is found that as man-days increases, wages of weavers also increases. Here a unit changes in man-days results changes of wage by Rs. 184 on average. While interacting with weaver during field visits, they said that to weave traditional Dokna (dress worn by Bodo female) with design they needs two or two and half days if weave for 6 hour a day. That mean to weave 1 traditional Dokna with design on average it is needed two man-days and they are paid

Rs. 300 to Rs.350 for it. And if the Dokna is simple it will take less man-day and for it they are paid on average Rs. 180 to 250. However weavers are paid different wage for different types of product and for different types of product man-days also differs.

Mandays and productivity of weavers

$$Y_i = a + bX_i + U$$

Where Y is productivity of weaver in metres and X is mandays of weaver, a and b represents constant and slope of mandays, U is error term.

Table 7: Relation between Productivity and man-days of weavers

	Coefficient	Standard error	T value	P value
Constant	.502	.025	20.399	.000***
Mandays	-.002	.001	-1.31	.189 R square=0.38

Source: SPSS Output, Dependant variable is productivity, *** significant at 1 per cent level

In our study we have found a negative relationship between man-days and productivity of weavers. That means with increase in mandays, the productivity decline. According to the estimated result, it is found that as mandays increases, the productivity of weavers decrease by 0.2 metres. We have found a negative relationship between mandays and productivity of weavers because productivity may be

effective/increase up to certain time and after that it decline due to bodily coordination, stress and physical tiredness. So it is found that in handloom sector the long hours of working does not increased productivity of weavers. Weaving needs strength hence after working some hours, weavers get tired which affect their productivity.

Table 8: Comparing mean Man-days and monthly average Wages among different groups of weaver

		Mean Mandays (in month)	Mean wages (monthly)	Mean productivity in metres per hours
Weaving district	Kokrajhar	19.67	3425	0.460
	Chirang	19.37	4039	0.482
Gender	Male	23.64	4900	0.529
	Female	17.39	3200	0.442
Community	STs	17.32	3120	0.442
	Non STs	23.61	4860	0.529
Marital status	Married	18.26	3900	0.497
	Unmarried	20.43	3610	0.453
Type of weavers	Part time	13.31	2578	0.490
	Full time	20.70	3950	0.465
Location of weaving	Urban	20.65	3800	0.431
	Rural	18.99	3700	0.490

Total mean	19.52	3732	0.4718
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Source: Author calculation, SPSS output

Comparing Man-days among various groups reveals that the mean man-days of male is highest, that is 23.64 mandays in a month. The man-days of 23.64 reveals that they work for an average of 189.12 hours (23.64 X 8) in a month or an average of 6.30 (189.12/30) hours in a day. Average monthly Man-days of female weavers on average is 17.39, that means 139.12 hours on average in a month or an average of 4.63 hours in a day. Female weavers usually have lower man-day than male because they have been entrusted with household duties. When we compared the monthly wages among gender, we can observe that monthly wages of male weavers on average is Rs. 4900 and that of female on average is Rs.3200. When we take into account the marital status and their man-days, it is seen that for unmarried weavers it is 20.43 on average in a month and for married it is calculated as 18.26 on average in a month. The monthly man-days of 20.43 mean that on average, the unmarried weavers work for 163.44 hours in a month and on average 5.44 hours in a day. In case of married weavers, they work for 146.08 hours in a month or on average 4.80 hour in a day. Comparing man-days among type of weavers, we have found that the average monthly man-days of part time weavers is 13.31 and for full time it is 20.70. The part time weavers work for an average of 106.48 hours in a month compare to the full time weavers who work on an average of 165.6 hours in a month. Or the full time weavers work for an average of 5.52 hours in a day compare to the part time weavers who work for 3.54 hours in a day. Ignoring the various groups, the monthly mean man-days is calculated as 19.52 which is equals to 156.16 hours in a month or an average of 5.20 hours in a day. Above table also reveals the mean wages and productivity of various groups of weavers.

Conclusion

Effort should be made to increased labor productivity as well as standardization of all handloom fabrics in a systematic way. Skill of the workers also increased productivity. Skill can be increased through additional education, training, experience and so on. Higher the productivity, higher will be the wages of weavers. It is observed that the wages discrimination is not on the basis of gender and community but on the basis of productivity, skill and quality of product. The piece rate is seen same for both male and female in all the weaving enterprise but there are different piece rates for different type of piece cloths. The wages differential in handloom sector is due to different pay for different pieces of cloth which again is determined by the quality of raw material used, types of products produced and the location of enterprise. Productivity differs among the weavers because they do not work the same number of hours.

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