FACTORS INFLUENCING WAGE STRUCTURE OF HANDLOOM WORKERS IN ASSAM

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ABSTRACT

The removal of import quota restriction for textile products opened up new avenues and challenges for the Indian handloom industry, which infused competition in recent years. As majority of the workers in the industry are women, who work mostly as weavers, reelers and helpers, such competition often influences the nature and pattern of earnings of women workers. Therefore, the present study attempts to analyse 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. The study is based on primary data collected from 300 respondents in 13 districts in Assam. Multiple regression technique is used to analyse the data. The results show that in case of contractual workers, there is no gender discrimination in wages, whereas it is found in case of monthly rated workers. Productivity of the workers is found to be significant both for monthly rated as well as contractual workers. Factors like education and experience do not have any significant influence on the wage structure of the workers in the handloom industry in Assam. Thus, the government machinery should address the gender wage discrimination for monthly rated weavers and reelers, and back up support facilities for contractual workers of the industry in the State. The present study greatly extends our understanding of the wage earnings scenario in Assam's handloom sector from gender perspective.

Introduction

The removal of trade restrictions in textile sector from January 1, 2005 infused more competition among countries such as China, India, Bangladesh, Vietnam, Sri Lanka and others. These countries were initially affected by Cotton Textile Agreement (CTA) and thereafter by the Multi- Fibre Agreement (MFA) of 1974 and the Agreement on Textile and Clothing (ATC) of 1994. However, removal of such restrictions infused intense competition among the countries to expand their market share. As a result, the Indian handloom industry which is a part of the textile industry had to face severe competition. As majority of the workers in the industry are women, who work mostly as weavers, reelers, and helpers, such competition often influences the nature and pattern of earnings of women workers more. The industry is beset with manifold problems such as obsolete technology, unorganised production system, low productivity, inadequate working capital, conventional

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product range, weak marketing link, overall stagnation of production and sales, and above all competition from powerloom and mill sector (Sudalaimuthu and Devi, 2006). Women in the industry share enormous work burden with no commensurate compensation system. Their living and working conditions are a serious concern in many parts of India. Whenever the industry is in crisis, the burden of carrying through the crisis is mostly on women weavers. Such burdens increase their physical, psychological and social stress (Reddy, 2006). Women weavers have been the principal stabilisation force through years of crises and problems for the handloom sector.

The pattern of employment has seen a remarkable change worldwide after globalisation. For example, the employment in UK is increasingly taking a variety of work time, benefits and entitlements are put together for different groups of workers. The growth in sub-contracting and the rationalisation of 'marginal' activities by firms and public agencies produced a situation in which many workers, previously in secure jobs, now face regular employment on a more precarious contract labour basis (Allen and Henry, 2001). Standing (1992) referred to this trend as the growing 'contractualisation' of employment. In a similar manner, in India too, there has been a clear indication of workforce restructuring in the handloom industry in the recent years. Analysing the textile and apparel industry in India, Ramaswamy (2008) found that those who were regular workers became contractual workers in a number of cases along with the new hires in the textile industry. In the context of wage differentials in Textile and Apparel, he found that the relative wage disparity in Textile and Apparel has not worsened in the years of greater global trade participation. There was improvement in relative position of female workers; male workers were getting the same wage rate as that in average urban informal sector industries. Other employment benefits have declined as

suggested by the growth of contractual labour. Thus, with the removal of quota restrictions, there is a considerable change in the job and wage pattern. Therefore, the present study attempts to analyse the factors influencing the wage structure of the handloom industry. It examines the wage differential with respect to gender as well as type of work the workers are entrusted with.

Wage Differential and Factors Influencing Wage Structure

Wage differential reflects discrimination as well as differences in productivity related factors such as education, training, and experience (Bonnie & Harrison, 2005). It may be the difference in wage between workers with different skills working in the same industry, or workers with similar skills working in different industries or regions. Wage differential with respect to gender means whether there is any difference in the wages of male and female workers with respect to the work they are entrusted with. The persistence of wage differentials between males and females can be postulated from a few theoretical standpoints involving both competitive and non-competitive settings within the labour market. Traditional human capital explanations of wage differentials involve two approaches based on free-market setting. One is the competitive case, where individual learnings are set according to the labour market supply and demand interaction under a flexible wage regime. In this case, the individual's ability, skill acquisition, qualifications possessed, and productivity levels together influence earnings. Another approach under the competitive setting is the efficiency wage effect, where firm sets wages according to workers' productivity and often common in capital intensive (relatively high technology) occupations, especially those involving high skilled labour force (Darity, 1991; Dickens & Katz, 1987).

Several studies are conducted considering the concept of gender wage differential at national and international levels. Norsworthy (2003) said that women typically earn lower wages than men for the same job. Similarly, Berik et al. (2004) found that competition from foreign trade in concentrated industries is positively associated with wage discrimination against women. Research on rural-urban gender wage gap shows that, in comparison to urban zones, rural areas have persistently lower incomes and higher unemployment and underemployment rates, especially for women (Stabler, 1999; Lichter and Costanzo, 1987). Most notably, women at the lower end of the income distribution suffer the highest degree of discrimination (Gerry *et al.,* 2004). Most of the studies which explain and measure the extent of Russia's gender wage gap since transition were largely based on the Oaxaca- Blinder (1973) decomposition in which wage equations are estimated separately for men and women in order to allow for different gender rewards to a set of productive characteristics (Fairlie, 2003). The male – female wage differential is explained in terms of the difference in average endowments evaluated at the male (female) pay structure and the difference in returns evaluated at the female (male) average endowment. Thus, in the absence of discrimination, men and women will have the same return for similar endowments, and hence the latter difference is interpreted as 'discrimination' (Gerry *et. al.,* 2004).

In an exceptional study conducted by Cobb-Clark and Tan (2011), it was found that non-cognitive skills have a substantial effect on the probability of employment in many, though not all, occupations in ways they differ by gender. Consequently, men and women with similar non-cognitive skills enter occupations at different rates. Women, however, have lower wages on average not because they work in different occupations than men do, rather they earn less than their male colleagues employed in the same occupation. On balance, women's non-cognitive skills give them a slight wage advantage. Thus, gender wage gap in particular is often attributed to gender segregation across occupations, industries or jobs (Blau and Kahn, 2000; Groshen, 1991; Mumford and Smith, 2007). This is because male jobs are generally associated with higher wages, better benefits, and more training opportunities. Occupational segregation may result in an overall gender wage gap, even if there is no wage disparity between men and women in the same occupation (Miller, 1994; Preston and Whitehouse, 2004; Robinson, 1998). Others however, argue that occupational segregation may be relatively unimportant for women's wages (Baron and Cobb- Clark, 2010). Analysing the garment sector in West Bengal, Ganguly (2006) found that the female workers earn half the wage than that of male workers. However, analysing the impact of globalisation of silk industry in North East India, Goswami (2006) observed lower wage discrimination in handloom trade, since the works are mostly done on contractual basis.

There are a host of literature on the concept of wage structure and its determining factors. Examining the determinants of urban wages in China, Appleton *et al.,* (2005) found increased returns to education but a decrease in returns to experience. Based on the notion of efficiency wages, Harrison (2004) found a two-tier situation that explains why rural wage rates vary widely among workers and across regions. He used factors such as number of dependents, tribal affiliation with the enterprise's manager, sex, tenure, location, marital status, education, incentives, per capita cultivated land, season, land irrigation, price level, etc., in his study on wage discrimination in rural agricultural environment. Similarly, working on the important determinants of wages in Russia's transition economy, Ogloblin and Brock (2005) used factors like education,

experience, on the job training, tenure, etc. They also considered factors that help to capture the firm specific factors like industry, type of firm ownership, occupation, and size of the firm with two other variables like marital status and secondary employment. Richard (2007) mentioned that a lot of studies linking gender and labour markets were conducted in the developed world, whereas developing countries have very few empirical studies. Therefore, to examine the male- female wage determination and gender discrimination in Uganda, he used factors like age, monthly wages, education, marital status, urban residence, number of children, non-wage payment and regions. The results implied that education is particularly important for females in order to increase their earnings and thus has implications for poverty reduction efforts.

The Handloom Industry and the Categories of Workers

Centre of attention of the present study is the handloom industry in Assam. This is one of the important States in the North-East (NE) India. The NE States together have the highest concentration of handlooms in the country. Over 53 per cent of the looms in the country and more than 50 per cent of the weavers belong to the North-Eastern States (Ministry of Textiles, 2010). The State contributes 99 per cent of Muga silk and 63 per cent of Eri silk in country's total production of Muga and Eri, respectively (India Brand Equity Foundation, 2010). The industry for generations has been the major source of additional income for the rural women of Assam. More than 60 per cent of the workers are women in the industry (Goswami, 2006).

The present study categorises the workers into weavers, reelers, and helpers. Weavers here are either contractual or monthly. They normally use fly shuttle or throw shuttle in Assamese type of loom. Apart from them, there are two other types of workers, namely reelers and helpers. Reelers are involved in reeling activities in the industry and are either contractual or monthly workers. Helpers are mostly monthly workers and their work is to assist the weavers. About one-third of Assam's 1.2 million weavers are organised into about 3,744 societies registered under handloom cooperative societies (Assam Agricultural Competitiveness Project, 2008). Single loom household units are common in the State. Silk weaving is performed in almost all the districts in Assam. The major weaving districts of *vanya* (wild) silks are Kamrup (Rural), Nalbari, Udalguri, Baksa, Kokrajhar, Nagaon, Morigaon, Dhemaji, Lakhimpur, Golaghat, and Mangaldoi. Products like silk, gamochas (towel), saris, mekhela-chadar, scarves, shawls, wrappers, etc., are produced for domestic as well as commercial purposes (Assam Agricultural Competitiveness Project, 2008).

Sources of Data and Research Methodology

The study used both primary and secondary data. Primary data of 300 respondents producing handloom products were collected from 11 districts in Assam through uniformly designed structured interview schedule during June to October, 2010. Focus group discussions (FGDs) were carried out to collect in-depth information and to cross-verify a few parameters. Secondary data were collected from different secondary sources such as Assam Khadi and Village Industries Board (AKVIB), Central Silk Board (CSB), Assam Apex Weavers Artisans Cooperative Federation Ltd (ARTFED), Directorate of Sericulture, Government of Assam, and Block Development Offices.

Respondent in the present study is considered as the unit of analysis. The districts, blocks, and villages were selected through purposive sampling depending upon intensity of workers and weaving activities. However, the respondents in the selected villages were identified through random sampling method.

Multiple regression of the following log-linear form is used to study the influences of different factors on the wage of the workers in the industry.

$$LnW = lnA + \beta_1 lnX_1 + \beta_2 lnX_2 + \beta_3 lnX_3 + \beta_4 lnX_4 + \beta_5 lnX_5 + e_i$$

Where,

$W =$ Wage of the ith respondent (weavers or reelers or helpers),

$X_1 =$ Sex dummy of the ith respondent, 1 for male and 0 for female,

$X_2 =$ Work experience of the ith respondent,

$X_3 =$ Productivity of the ith respondent in value terms,

$X_4 =$ Number of years the ith respondent spent in school,

$X_5 =$ Age of the ith respondent, and

$e_i =$ Error term.

The descriptive statistics of the factors used in the model are presented in Table 1.

Table 1: Descriptive Statistics of the Factors Influencing Wage of Contractual Weavers, Monthly Weavers, Monthly Reelers and Helpers in Handloom Industry in Assam

Factors	Unit of Measurement	Average Values			
		Contractual Weavers (N = 151)	Monthly Weavers (N = 55)	Monthly Reelers (N = 13)	Helpers (N = 38)
Annual Income	Rupees	24,978.81 (7,695.75)	29,827.27 (17,215.76)	8,744.74 (6,471.80)	12,092.31 (8,824.44)
Sex Dummy	1 for male, 0 for female	0.23 (0.42)	0.12 (0.33)	0.05 (0.22)	0.54 (0.52)
Work Experience	Years	8.12 (6.24)	11.98 (7.53)	12.5 (7.36)	8.07 (8.65)
Productivity	Rupees/ Days	63.17 (18.21)	98.85 (62.46)	46.73 (33.08)	42.15 (30.17)
Education	Years	6.02 (4.21)	5.62 (3.52)	3.92 (4.00)	4.15 (3.65)
Age	Years	27.95 (6.87)	31.81 (8.44)	35.34 (7.71)	25.77 (13.15)

Note: Figures in parentheses represent standard deviation.

The productivity of a worker in the study is measured by the annual income of the workers generated from such activities divided by the number of productive days of the worker. The number of productive days is measured by daily working hours multiplied by the number of working days and divided by eight hours. Separate regression is run for the contractual weavers, monthly weavers, monthly reelers, and helpers. However,

because of poor number of responses (only 13), our attempt to analyse the influence of different factors on wage of the helpers is dropped. Although the number of respondents in the category of monthly rated reelers is only 38, to throw some light in our analysis, we considered the category for further analysis.

Results and Discussion

The influence of different factors on wage structure of the contractual workers in the handloom industry in Assam is presented in Table 2. The sample size of the contractual weavers is 151. The influences of different factors on annual wage of the contractual weavers are estimated by using ordinary least square (OLS) technique. The value of F test in OLS estimation indicates that the model is significant at 1 per cent level with an F value of 26.19. The value of R^2 is 0.50, which reveals that the model explains 50 per cent of the variation in average annual wage of the contractual weavers.

Table 2 : Factors Influencing the Wage of Contractual Weavers in Handloom Industry in Assam

Explanatory Factors	Coefficients	Robust Standard Error	t-Statistics	P>|t|	VIF
Constant	7.256	0.460	15.78	0.000	—
Sex Dummy	0.002	0.048	0.05	0.962	1.27
Work Experience	-0.001	0.025	-0.03	0.980	1.56
Productivity	0 .768	0.075	10.28	0.000	1.02
Education Level	-0.093	0.018	-0.92	0.358	1.03
Age -0.093	0.088	-1.06	0.292	1.36	
R^2 0.	501				
Adjusted R^2	0.484				
F Value (5, 145)	26.19				
Observations	151				
Durbin Watson	1.669				

Note: i) Dependent variable is annual wage of the contractual weavers.
           ii) 1%, 5% and 10% level of significance are considered.

In the handloom industry in Assam, wage of a contractual weaver does not depend on sex of the individual and sex dummy is found to be not significant in case of contractual weavers having a P value of 0.96. It is found in most of the cases during primary data collection that a male or a female weaver earns the same wage for the same kind of work, if the work is contractual. This finding is similar to the findings of Goswami (2006), who observed lower wage discrimination in the silk industry in Assam. On the other hand, work experience of a contractual weaver is found to be not significant having a P value of 0.98. This implies that the wage of a contractual weaver is less dependent on experience of the weaver. It means that, irrespective of the work experience of the weaver, his or her wages

will depend mostly on the factors other than his or her work experience. A weaver who completes a stipulated amount of work in a given time gets more wage than an experienced weaver who does lesser work in the same time.

The influence of productivity on wage structure of the contractual weavers is found to be significant at 1 per cent level with a P value of 0.000, which implies that, other factors keeping constant, 1 per cent increase in productivity leads to a 0.77 per cent increase in wages of the contractual weavers. It means that more the productivity of the worker, more will be the increment in the contractual weavers' wages. In contrast, the influence of education on the wage of the contractual weaver is not significant (P = 0.36). This implies that, whether the weaver is more qualified or less, he or she will earn the same wage for the same kind of work. As also found in FGDs, it is

the efficiency of the worker that matters in the handloom industry in Assam rather than his or her educational qualification. In other words, what matters is his or her capability to produce more in less time. Similarly, age of the contractual weaver is also found to be not significant on the annual wage of the weaver. The VIFs (Variance Inflation Factor) of all the independent factors are less than 1.6. This implies that the multicollinearity problem among the factors is almost negligible in the above model.

An attempt is also made to see the influences of the above mentioned factors on the wage structure of the monthly rated weavers. The sample size of the monthly rated weavers was 55. The influences of different factors on annual wage of the monthly rated weavers were estimated by using OLS technique. The model is significant at 1 per cent level with an F value of 17.14 (Table 3).

Table 3: Factors Influencing the Wage of Monthly Rated Weavers in Handloom Industry in Assam

Explanatory Factors	Coefficients	Robust Standard Error	t-Statistics	P>|t|	VIF
Constant	7.714	1.365	5.65	0.000	—
Sex Dummy	0 .432	0.160	2.71	0.009	1.09
Work Experience	-0.085	0.099	0.86	0.393	1.75
Productivity	0 .653	0.201	3.25	0.002	1.19
Education Level	-0.086	0.081	1.06	0.293	1.04
Age -0.074	0.336	0.22	0.826	1.60	
R^2	0.418				
Adjusted R^2	0.359				
F Value (5, 49)	17.14				
Observations	55				
Durbin Watson	1.075				

Note :   i) Dependent variable is annual wage of the monthly rated weavers.
      ii) 1%, 5% and 10% level of significance are considered.

The value of R^2 is 0.42, which reveals that the model explains 42 per cent of the total variation in average annual wage of the monthly rated weavers. It is found that the influence of the factor 'sex' on wage structure of the monthly rated weaver is found to be significant at 1 per cent level, which implies that, other factors keeping constant, if the respondent is a male, his average wage will be more by 0.43 per cent. It is found in FGDs that, if the weaver is hired on monthly basis, for the same kind of job, a female weaver earns relatively less than a male weaver. Since the females also have domestic chores apart from the weaving works, if given a choice, the owners are reluctant to hire them on the same monthly wage rate as that of male. Analysing the implications of the neo-liberal reforms on workers in the Indian garment industry in the era of post-multi-fibre arrangement, Ganguly (2006) also found that, in West Bengal, women workers are paid much lesser than male workers. Thus, in case of contractual weavers, it is found that a male or female weaver will earn the same wage for the same kind of work related to weaving. Whereas, in case of monthly rated weaver, a female weaver will earn relatively less than a male weaver for the same nature of job.

Analysing the influence of work experience on monthly rated weaver, it is found that the length of experience of monthly rated weavers has no bearing on their wage. It is found during FGDs that the owner fixes a standard wage for workers who have experience beyond a certain threshold level. Owners are indifferent towards experience beyond that level. Threshold level here means a minimum level of work experience that an owner looks for in a worker. It is mostly three years in the study area as observed in FGDs. These results are similar to the results found in case of contractual weavers, where work experience is also found to be not significant on the wage structure of the weaver.

Looking at the influence of productivity on wage structure of the monthly rated weavers, it is found that the productivity has a positive influence on the wage and is significant at 1 per cent level of significance. This implies that, other factors keeping constant, 1 per cent increase in productivity leads to a 0.65 per cent increase in wages of a monthly rated weaver (Table 3). It means that more the productivity of the monthly rated weaver, more will be the increment in the monthly rated weaver's wage. It is observed in the study area that the owners keep track of monthly productivity of the monthly rated workers based on their daily contribution to their output. This implies that, if an owner observes that a worker works for relatively more than a stipulated period per day (usually 8 hours), then the owner prefers to reward him with an increment in his wages. The influence of productivity is very much similar to that of contractual weavers. Thus, the productivity of the workers is found to have a significant influence on the wages of both contractual as well as monthly rated weavers. Whether the weaver is contractual or monthly rated, an increase in productivity will bring about an increment in his or her wages. In contrast, the effect of education level on wage of the monthly rated weavers is not significant. Thus, it is found that the wages of both contractual and monthly rated weavers will not significantly depend on educational qualification of the weavers. The influence of age of the monthly rated weaver on annual wage is also found to be not significant. Similar result was also found in case of contractual weavers. VIFs of all the independent variables are 1.75 or less. This implies that the multicollinearity problem among the factors is almost negligible in the above model.

An attempt is also made to see the influence of the factors on wage of the monthly rated reelers. The sample size of the reelers in the study is 38. The influence of

different factors on wage of the reelers was estimated by using OLS technique. The model is significant at 1 per cent level with an F value of 4.24 (Table 4). The value of R^2 is 0.53, which reveals that the model explains 53 per cent of the variation in the annual average wage of the reelers. It is found that the influence of the factor sex on wage structure of the monthly rated reeler is not significant. It means that a male or female reeler will earn similar wage for a similar nature of work. Analysing the influence of work experience on wage of the reelers, it is found that the length of experience has no significant influence on wage of a reeler. The owners mostly fix a standard wage for reelers who have experience beyond a certain threshold level and they are indifferent towards experience beyond that level. Mentioned earlier, threshold level here means a minimum level of work experience that an owner looks for in a worker. This is mostly 3 years, as observed in the study area.

Table 4: Factors Influencing the Wage of Monthly Rated Reelers in Handloom Industry in Assam

Explanatory Factors	Coefficients	Robust Standard Error	t-Statistics	P>|t|	VIF
Constant	6.773	0.881	7.69	0.000	—
Sex Dummy	0.554	0.399	1.39	0.175	1.14
Work Experience	-0.042	0.085	-0.50	0.621	1.33
Productivity	0.490	0.193	2.55	0.016	1.37
Education Level	0.015	0.075	0.20	0.840	1.40
Age	0.119	0.247	0.48	0.635	1.38
R^2	0.525				
Adjusted R^2	0.452				
F Value (5, 32)	4.24				
Observations	38				
Durbin Watson	1.212				

Note : i) Dependent variable is annual wage of the monthly rated reelers.

  ii) 1%, 5% and 10% level of significance are considered.

Looking at the effect of productivity on wage structure of monthly rated reelers, it is found that productivity has a positive influence and is significant at 1 per cent level. This implies that, other factors keeping constant, 1 per cent increase in productivity leads to a 0.49 per cent increase in wage. It means that more the productivity of a reeler, more will be the increment in his or her wage. As it is observed in the study area, in case of reelers also owners keep a track on monthly productivity of the reelers based on their daily contribution to output. This implies that, if an owner observes a worker working for relatively more than a stipulated period per day (usually 8 hours), then the owner prefers to reward him with an increment in his wage. These results are very much similar to the results we found in case

of contractual as well as monthly rated weavers. Thus, the productivity of the reelers is found to have a significant effect on wages of the contractual weavers, monthly rated weavers as well as on wages of the reelers. The influence of the level of education on wage of a reeler is not significant. This implies that education does not have any significant effect on reelers' wages. Thus, it is found that the wages of the contractual weavers, monthly weavers as well as reelers will not depend much on the number of years the worker spent in school. Reeler's age is also found to have an insignificant influence on their annual wage. Similar results are found in case of contractual as well as monthly rated weavers. The VIFs of all the independent factors are 1.4 or less. This implies that the multicollinearity problem among the factors is almost negligible in the above model.

From the results it is established that there is hardly any gender discrimination in case of contractual workers in Assam. The women contractual workers are capable of earning more than their male counterparts, if they finish a particular work within a stipulated period of time. As observed in FGDs, few of the contractual reelers are found in Palasbari (in Kamrup district of Assam), who are capable of earning more than the reelers engaged in the industries on monthly basis. These contractual workers are in a position to work for longer duration. It is also found in the FGDs that the employment pattern in the handloom industry in Assam has shifted from monthly rated system to contractual system during last 15 years. Similar pattern was also found by Ramaswamy (2008) in his study on the Textile and Apparel industry at all India level. In comparison to contractual weavers, in case of monthly rated weavers and monthly rated reelers, wage discrimination is found.

Conclusions

With the elimination of import quota restriction and expansion of trade, wage structure in the handloom industry in Assam has taken a contractual pattern. Among the factors such as age, productivity, sex, experience, and education, it is found that only the productivity of the workers influence wage structure of the contractual workers significantly. In contrast, in case of monthly rated weavers, along with productivity, gender (sex) of the respondents influence significantly on their wages. Gender wage disparity is found crucial for monthly rated weavers and reelers. Thus, government machinery should come out heavily on addressing the problems related to gender wage discrimination in monthly rated weavers and reelers, and back up support facilities for contractual workers of the industry in the State.

Notes

[1]   Horizontal segregation refers to the distribution of women and men across occupations. Vertical segregation refers to the distribution of men and women in the job hierarchy in terms of status and occupation (Randriamaro, 2005).

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