ABSTRACT

In this paper the relationship of different age and experience group of weavers on their monthly wages and productivity is investigated. In order to examine the relationship between age, wage and productivity as well as to determine whether different age groups of weavers have different impact on wage and productivity, the weavers are groups according to their age. Three age group are between’ (15-24), (25 - 32) and above 32 year of age. The multiple regression analysis shows that the coefficient of weavers aged 15-24 is significant at 5 percent level. The productivity and wages of the weavers are found to decline with increase in age. The coefficient of weavers aged (25-32) and 32 above on both wages and Productivity are found insignificant. Weavers are also grouped on the basis of experience between (up to 5 years experience) and above 5 years. The value of t-test shows that the coefficients of both the experience groups (up to 5 years of experience and above 5 years of experience) on monthly wages are significant at 10 percent level.

Keywords: Age; Experience; Education; Wages; Productivity and Weavers

INTRODUCTION

The existences of wage-productivity variation among workers in different demographic groups are becoming important for empirical studies. In this paper importance is given to different age, educational level and experiences group amongst weavers. Ageing, experience and educational level plays a very important role in determination of wages and productivity. Productivity and wages are multidimensional that is affected by work experience, educational level, age-induced changes in physical strength and cognitive abilities to work. Experience may benefit employer through their performance but the physical strength of the people reduced with the increased in age. Skirbekk, V (2003) found that job performance decrease with age 50 but some abilities like vocabulary size and verbal ability increased to a relatively late age and or remain stable throughout the working life. Different type of work requires different abilities and physical strength which again depends upon the work process and how the work is organized. So the bodily coordination and improved age- specific mental and physical health condition has positive influence to the workers. In this paper the impact of ageing, education and experience on the wages and productivity on Handloom weavers is analyzed. This paper also examined the wage – productivity differentials associated with different age and experience group of weavers.

OBJECTIVES

The study is undertaken with following objectives

1. To investigate the relationship of age, experience and educational level on wages and productivity of Weavers.
2. To find the Wage and productivity Differential among various age group and experience group of Weavers.

REVIEW OF RELATED LITERATURE

Judith K. Hellerstein, David Neumark, Kenneth R. Troske (1999) focus their attention on the existence of wage differentials across plants workforce. They use plant-level data on input and output matched with individual level data on workers to estimates relative marginal products of workers with different demographics characteristics. First they estimates wage differential associated with age or experience to examine implication of human capital model of wage growth. Secondly they estimates wage differential on the basis of sex or race to test for wage discrimination. Thirdly they estimates wage differentials associated with marriage. They use wage regression estimates computed from the sample worker matched to plants in order to obtain the most comparable estimates of relative wage to relative productivity. Their result shows a significant wage gap between men and women, and a smaller but still significant wage gap between blacks and non black. Their estimated age profile suggests that productivity increases somewhat with age, although the differences are not statistically significant. Their estimate also indicates that married workers are considerably more productive than unmarried workers but does not appear any productivity differences between black and white. They have also found that wages are statistically higher for worker aged 35-54 than aged 55 above.

Ours, J.V and Stoeldraijer, L (2010) analyze the relationship between age, wage and productivity using a matched worker-firm panel dataset from Dutch manufacturing covering the period of 2000-2005. While performing a pooled cross-section time series estimates, they found that workers between ages 30 to 45 have the highest productivity, while the productivity of younger and older worker is lower. The lowest productivity concerns are below 25 years. So they found a clear hump-shape relationship between age and labor costs and for the older workers it is reverse. But when they introduced fixed effect the result has changed. In this case they found age profile of productivity a rather flat until age 50, after which productivity has decline. In their final estimates, both productivity and wage costs are found to be increase with age but they cannot say that age has the same effect on the productivity and wage cost.

Cataldi, Kampelmann, Rycx (2011), examine the relationship between age, wage and productivity for the overall workforce in Belgium private sector in order to determine whether certain age groups are paid below or above the marginal productivity. They also examine how changes in proportion of young (16-29 years), middle age (30-49 years), and older (49 above) workers affect the productivity and remuneration of firm. They rely on matched employer-employee panel data covering the period 1999-2006. Result regarding the age – productivity shows that the workers younger than 30 are significantly less productive than prime age and older workers. But the productivity of workers older than 49 is not found to differ significantly from that of middle age workers. Their comparison of estimates for the age-productivity and age- wage profiles suggest that the young workers are paid below their marginal productivity while workers older than 49 would be overpaid. They also highlight the average hourly wages within firms and found that it increase significantly and monotonically with means workers age. They also found that workers older than 49 are significantly less productive than prime age and young workers.

Their results has given important policy implication, that is the older workers are found to be less productive than their younger colleague which suggest the needs of policies to improve the employment rate of the older people as well as to reduce the impact of aging on workers physical and mental health.

Tipper, A (2012) examines the role of workforce age structure on real wages, labor productivity and productivity real- wage in New Zealand across 2001-07 data. In his study 24 industries were included in the model, 13 of these are at the one digit level, 9 were manufacturing sub-industries, and property service and business service are separated. Both cross section and time series data are taken for his study. Three age groups, 15-24 years, 30-44 years and 45 above were divided to show workforce and
age structure. He takes a sensitivity test such as dropping all control variables, changing age group structure, dropping selected industry and accounting for non linearity in the age group productivity and the wage relation. Descriptive statistics results shows that the labor productivity is decreasing in the proportion of younger workers, increasing slightly in the proportion of middle age workers and increasing with the proportion of older workers. Similar pattern of trend is also found for real wages and age groups. Econometrics results show that there is significant relationship between age groups and real wages. But in case of age-productivity and age- wage model, the proportion of male workers variable was insignificant. F-test for the proportion of younger and older workers suggests that there is no relationship between workforce age structure and labor productivity. However, workforce and real wage is found to be significant at 95 percent confidence level and the productivity - real wages gap at 90 percent confidence level.

METHODOLOGY AND DATA COLLECTION

The area of my study includes four Districts of Bodoland Territorial area Districts (BTAD) namely Kokrajhar, Baksa, Chirang and Udalguri. In order to achieve the objective, both primary and secondary data are collected. Primary data has been collected mainly from visit to Handloom sector. To obtained primary data, interview has been conducted through well designed questionnaire especially prepared in view of the objective of study. The study is based on simple random sampling. The time period during which the field study for collecting primary data was conducted is in the month of October to December, 2012. The data collected are cross-section data. The objective of research is to gain insight for developing an approach to the problem and to get insight about the Productivity and wage factors.

Questionnaire is prepared in such a way to get the necessary information from the weavers. Questionnaire is prepared in two parts- first the information from the weaving owner or in charge and the second part in form of table where information from weavers is collected individually. Information regarding the employees, income earned from weaving, monthly production, loss or profit, whether run individually or group, whether obtained any assistance from the Government, wage structure is also collected from owner of the weaving. The variables that are collected from weavers are their monthly wages, monthly production, gender, community, age, experience and their educational status. Secondary data is mainly congregated from published and unpublished works on the related topic.

From four districts of BTAD namely Kokrajhar, Chirang, Udalguri and Baksa; a sample size of 80 is collected through field study, 20 observations from each district. Weavers are found between aged ‘15 to 42’, they have experience from 1 year to 20 years. 90 percent of weavers are below class 10th and only 10 percent are above class 10th.

LIMITATION

The present study on wage differential in handloom sector in BTAD area was not an easy task as the units are dispersed over a wide geographical area with unique characteristics managed and run by person with moderate level of education. The research could not incorporate wage differences fully due to small sample size and data limitation that account for the gap in this research. The following are the main limitation of the study.

1. Majority of the unit do not maintain proper and uniform records or accounts of their business. Moreover the sector is unorganized and disclosure of accurate information by the in charge.
2. The study is confined only to four district of Bodoland Territorial Area Districts.
3. Sample size taken for the study is small due to time constraints, hence possibility of error in generalization of universe.

However efforts on the part of the researcher managed to gather the adequate information as much as possible for the purpose of data analysis.
Empirical Analysis

In order to examine the relationship between age, wage and productivity as well as to determine whether different age groups of weavers have different impact on wage and productivity, the weavers are grouped according to their age. Three age group are between’ (15-24), (25 - 32) and above 32 year of age. The relationships between experience, productivity and wages of weavers among different experience group of weavers are also examined. Weavers are also grouped on the basis of experience between (up to 5 years experience) and above 5 years. They are regressed separately on monthly wage and productivity to know which experience groups have more impact on it.

Empirical results examining different aged group of weavers and their monthly productivity.

Multiple regression model in the form of equation given below is used to examine different aged group of weavers on their monthly productivity.

\[ P = \beta_0 + \beta_1 A (15 \text{ to } 24) + \beta_2 A (25 \text{ to } 32) + \beta_3 A (32 \text{ above}) + U. \]

Where \( P \) is monthly productivity, \( A \) is Age and \( U \) is Error term.

The methodology used here is similar to the methodology used by Dickerson and Mcintosh (2011) while investigating the relationship between productivity, Earning and Age in the early year of working life.

<table>
<thead>
<tr>
<th>AGED GROUP</th>
<th>COEFFICIENT</th>
<th>STANDARD ERROR</th>
<th>T VALUE</th>
<th>P- VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>15-24</td>
<td>1.419</td>
<td>.487</td>
<td>2.910</td>
<td>.010</td>
</tr>
<tr>
<td>25-32</td>
<td>.378</td>
<td>.458</td>
<td>.826</td>
<td>.414</td>
</tr>
<tr>
<td>32 ABOVE</td>
<td>.137</td>
<td>.557</td>
<td>.247</td>
<td>.809</td>
</tr>
</tbody>
</table>

The analysis shows that the coefficient of weavers aged 15-24 is significant at 5 percent level (\( p \) value=.01). The estimated coefficient also indicates that the young weavers (between 15-24) are more productive than the older weavers. The productivity of the weavers is found to decline with increase in age. The coefficient of weavers aged (25-32) and 32 above are found insignificant (\( p \) value= .414 and .809 respectively). From field study it is observed that the young weavers especially unmarried weavers could devotes more time in weaving activities because they don’t have household burden. Cataldi, Kampelmann and Rycx (2011) examination of age, productivity and wages for the overall workforce in Belgium private section based on matched employer- employees panel data shows that that the workers younger than 30 are significantly less productive than prime age and older workers. But the productivity of workers older than 49 is not found to differ significantly from that of middle age workers. They also found that workers older than 49 are significantly less productive than prime age and young workers. Ours, J.V and Stoeldraijer, L (2010) found that the matched workers between aged (30 to 45) have highest productivity. He found a hump shape relationship and rather a flat until age 50, after which productivity decline.

Empirical result examining different aged group of weavers and their monthly wages

\[ W = \beta_0 + \beta_1 A (15 \text{ to } 24) + \beta_2 A (25 \text{ to } 32) + \beta_3 A (32 \text{ above}) + U. \]

Where \( W \) is monthly Wages, \( A \) is Age and \( U \) is Error term.

<table>
<thead>
<tr>
<th>AGED GROUP</th>
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</tr>
</thead>
<tbody>
<tr>
<td>15-24</td>
<td>287.490</td>
<td>109.588</td>
<td>2.623</td>
<td>.018</td>
</tr>
<tr>
<td>25-32</td>
<td>-52.549</td>
<td>108.777</td>
<td>-.483</td>
<td>.632</td>
</tr>
<tr>
<td>32 ABOVE</td>
<td>161.765</td>
<td>173.982</td>
<td>.930</td>
<td>.368</td>
</tr>
</tbody>
</table>

Comparison of monthly wages between various aged groups shows that weaver of aged 15-24 has higher wages. The coefficient of weavers aged 15-24 is also found significant at 5 percent level (\( p = 0.018 \)). But the coefficient of aged 25-32 and 32 above are found insignificant. The regression analysis of weavers aged 15-24 on both productivity and wages are found significant but it is found
The study of Judith, Hellerstein, Neumark, Kenneth and Troske (1999) found that wages are higher for age 35-54 and above. Dickerson and McIntosh (2011) while examining the hourly wages of workers found that workers of age (16-21) have lower wage than age group (22-28), they also have lower productivity. Further, they found that for younger workers aged 16-21, wage grew by less than 10 percent while there was a modest increase in real wages for young adult women aged 22-28. 1 percent increase in the proportion of 22-29 years old is associated with 0.3 percent higher average wages relative to similar sized increase in proportion of 16-21 years old. Again 1 percent increase in the proportion of 30-39 years old and 40-49 years old is associated with an average wage increase of 1.48 percent and 1.14 percent respectively.

**Empirical result examining weavers with different experience and their monthly wages**

\[ W = \beta_0 + \beta_1 \text{EXP (up to 5)} + \beta_2 \text{EXP (above 5)} + U. \]

<table>
<thead>
<tr>
<th>EXPERIENCE GROUP</th>
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<th>STANDARD ERROR</th>
<th>T VALUE</th>
<th>P- VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>UP TO 5 YEARS EXP.</td>
<td>302.143</td>
<td>148.417</td>
<td>2.036</td>
<td>0.046</td>
</tr>
<tr>
<td>ABOVE 5 YEARS EXP.</td>
<td>223.259</td>
<td>103.193</td>
<td>2.164</td>
<td>0.048</td>
</tr>
</tbody>
</table>

The value of t-test and F-test indicates that the coefficients of both the experience groups (up to 5 years of experience and above 5 years of experience) on monthly wages, significant at 5 percent level. So the wage of weavers is found to be associated with their experience. The literature of Dustmann and Meghir (2005) while examining the wage growth in Germany found the wages of skilled workers grow with experience, with growth starting at 7 percent and then 6 percent a year. The return declines thereafter but even in long run experience leans to a wage growth of 1.2 percent a year. Wage for the unskilled workers grow at 10 percent and 8 percent a year in the first 2 years but they become effectively zero beyond 3 years of work.

**Empirical result examining weavers with different experience group and their monthly productivity**

\[ P = \beta_0 + \beta_1 \text{EXP (up to 5)} + \beta_2 \text{EXP (above 5)} + U. \]

<table>
<thead>
<tr>
<th>EXPERIENCE GROUP</th>
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<th>T VALUE</th>
<th>P- VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>UP TO 5 YEARS EXP.</td>
<td>3.09</td>
<td>.715</td>
<td>4.328</td>
<td>.000</td>
</tr>
<tr>
<td>ABOVE 5 YEARS EXP.</td>
<td>.303</td>
<td>.477</td>
<td>.636</td>
<td>.535</td>
</tr>
</tbody>
</table>

To know the impact of weavers with different experience on productivity, the weavers with experience up to 5 years and above 5 years are regressed separately. Both t-test and F-test is found significant at 1 percent level for the weavers with experience up to five years. But for the weavers with experience above 5 years both the t-test and F-test are found to be insignificant. From the estimated result we found that productivity increase with the increased in experience but after certain point it decreases. Skirbekk (2003) also shows that job experience are found to improves productivity for several years, but after certain point experience are found no longer effective. Both the work sample tests measuring quantity and quality of the workers output and analysis of employer employee dataset, where the firms productivity is measured are found lower productivity level among the oldest employee. However Daveri and Parisi (2010), while investigating the role of workers and managerial experience show that un-experience worker is associated to low innovation and productivity.

**Impact of Education on monthly wages and productivity of weavers**

The influence of education on monthly wages of weavers is also found insignificant (p value=.284) which means education is not the sole parameter of wage earning of weavers in BTAD area. Education
could not influence weavers’ monthly wages but it is influence by other socio-economic factors. This implies that whether the weavers are more qualified or less, this does not affect their monthly wages. This finding is similar to that of Mehta (1990) who found that wage earning are determined by several socio-economic variables, besides education and conditions in the labor market.

The influence of educational qualification of weavers on their monthly productivity is found to be negatively significant at 5 percent level (t-value= -2.284 and p value=0.02). Taking into consideration educational qualification of weavers and other variables as constant, an increase in educational qualification of weavers’ is found to decrease monthly production of weavers. From field study we know that educated people are not interested in weaving. About 90 percent of weavers in BTAD area are below class 10th and only 10 percent is above class 10th. Medoff and Abraham (1980) shows that better educated employees yield less productivity than lower educated employees before being promoted. So he found that better educated workers within a job who have not been promoted are on average less productive than well educated workers.

CONCLUSION
Thus the paper examines the productivity-wage differentials among the weavers associated with different age and experience group. According to the estimate we have found that productivity and wage of weavers of age group 15-24 higher than the others. We have also found that the monthly wages of weavers of both the experience group (up to 5 yrs and above 5 yrs) significant. The result also shows that wages of weavers depend on their productivity. Skill of the workers can increase productivity. Skill can be increased through additional training, experience and so on which can be promoted through government policy. As wages depend upon productivity in handloom sector importance should be given to increase productivity as well as standardization of all Handloom fabrics in a systematic way.

REFERENCES


