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Wage Inequality among Construction Workers: A Study in Urban Housing Sector of Assam:

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Abstract:

The challenge often confronted by the clients (owners of buildings and contractors) in housing sector of Assam that they require paying different wage rates to the workers serving in identical skill jobs. Due to such confusion, they get difficulty in estimating the fund need to be paid to the workers in advance and suffer a sizeable amount in vain. Despite the government of the state have fixed the minimum wage rates for workers as per skill category for both rural and urban areas , in practice, the uniformity in the payment of such wage rates to the workers is hardly found, particularly in the private housing sector of the state .The state fixed wage rates not only differ from the market prevailing ones, the disparity in payment of the wage rates to the workers in same/identical skill jobs has been observed either in same or different geographical areas of the state. Against this backdrop, an attempt has been made to examine the degree of inequality in wage distribution among the construction workers in urban housing sector of the state. This has been done mainly through examining the wage inequality with respect to job, labour quality and geographical areas.

Key Words: Construction Workers, Urban Housing Sector, Wage Inequality, Job, Labour Quality and Geographical Areas.

Introduction:

In Assam as in other parts of the country (India), there prevail innumerable wage rates and unreasonable wage inequalities among the informal sector workers (Saxena, 1963, p.900). This is particularly relevant for the construction workers in the urban housing sector of the state; termed as Building Construction Workers (BCWs)[1] .Since this sector is purely unorganized and private. However, the causes of such wage inequality among BCWs are many. Being heterogeneous groups, BCWs bear varied personal characteristics. They differ in terms of personal attributes such as gender, education, age, experience, skill and quality/efficiency. Due to such variation in personal characteristics, the personal wage disparity emerges either in the same geographical area or in similar works. Bhagoliwal observes similar findings in his study in India (Bhagoliwal, Economics of Labour

[1]Building Construction workers (BCWs) refer those are employed either on casual or contract basis under contractor/builder for construction or repair of building works. It does not include any person employed in managerial or administrative works of the establishments. Thus, the BCWs comprise mainly the workers engaged in construction works of building such as excavators, stone crushers, brick masons and their helpers, tiles fitter, carpenter, wall painter and electrician. Self-employed building construction workers are not covered in the study.

and Industrial Relations, 1987, pp.388-396). In addition to diverse personal attributes, the type of job associated with construction work required for rendering final touch to a building, requirements of dissimilar skill/training, varied cost of living and labour market conditions are other important factors that cause geographical wage inequality for similar job, and/or similar skill category. Further, due to difference in labour quality, payment of different wage rates for similar skill category has been observed.

Review of Literature:

Bichitra Hira has found significant wage differentials among the building construction workers in Assam with respect to gender, skill, nativity and geographical areas. In the study, he has suggested for formation of active labour unions among the workers (distinctly among female workers for lessening gender wage gap), implementation of minimum wage rate policy and acquisition of training-skills, safety and other legal rights among the workers(Hira, 2019,pp.1054-1070).

C. V. Nguyen & T. P. Minh have examined the wage gap between migrants and non- migrants in Hanoi (Capital of Vietnam) and Ho Chi Minh Cities. In the study, they have found that owing to less experience and poor education, migrants used to work in informal sectors and receive substantially lower wages than the non-migrants (C. V. Nguyen & T. P. Minh, 2016,pp.1-23).

Another researcher, Yang LIU has examined the wage gap between urban-born workers and rural migrants in China; and found that the wage gap arises between them due to the difference in the labour market related factors rather than in human capital factors (LIU, 2015).

Analysing the dual segmentation in Urban China induced by the Hukou (unique household registration system), Haining Wang& et al have found that rural migrants are discriminated against above the medium wage level as compared to the urban locals; while the urban migrants are discriminated against below the medium wage level. The main causes of such discrimination are the employers 'desire to put the rural migrants in low skilled and low paid, labour intensive job under hazardous conditions, which are typically shunned by the urban locals, while the urban migrants are favoured to engage in high wage, capital intensive and high skilled conditions (Haining Wang & et al, 2014,pp.2383-2403).

Aruna Solanki & Kirti Zankharia have found wage differentials among the migrant workers in terms of gender, types of workers (naka and non-naka) and sectors (organized and unorganized) as statistically significant (Aruna N. Solanki & Kriti S. Zankharia, 2014,Pp.57-68).

Muhammad Waqas has found a sizeable wage differential between immigrants and native workers in England and Wales. He finds that the wage differentials among the workers disappear over time as immigrants make better social network and learn new skills which eventually help them in getting better paid jobs (Waqas, 2103,1-34).

Ravi Kumar B has examined the wage discrimination among the women construction workers in Vijayawada, and identified a few means for empowering women workers to reduce the discrimination against them. He suggested for providing training facilities for women workers to acquire the required skill for becoming a mason (Kumar B. R., 2013,pp.42-53).

Lixin Cai has examined the contributing factors to wage differentials between the immigrants and the native-born Australians. This study reveals that due to earning-enhancing productivity factors and the favourable reward to their productivity factors, the immigrants have enjoyed the wage advantages over the native-born, which increases with an up gradation in their skill that increases the wage rates (Cai, 2015,pp.374-396).

Through the survey into the existing literature on wage inequality/differential in India and abroad, it has been found that most of the researchers have studied wage inequality mainly in terms of the nativity of the workers (urban local and rural migrants, native and foreign-born immigrants), gender and skill.

These earlier studies have avoided inquiry into another three types of wage inequality, particularly among the construction workers- wage inequality by job and labour quality/efficiency and geographical areas. Again, such kind of study has not so far been done in the state of Assam. So, based on field survey data for BCWs working in the sample construction sites for 2018-2019, an analysis of wage inequality by job, labour quality and geographical areas have been drawn in this academic work.

Objectives:

i. To examine the inequality in wage distribution of BCWs serving in different jobs in the sample urban areas of Assam.

ii. To examine the wage inequality by labour quality among the BCWs in the sample urban areas.

iii. To examine the inequality in wage distribution of BCWs serving in different geographical areas (sample urban areas) of the state.

Research Questions:

i. To what extent, do the wage inequalities of BCWs in sample areas differ from one type of job to another?

ii. Is the difference in the labour quality an influential factor for wage inequality among BCWs in sample urban areas?

iii. Does the inequality in wage distribution of BCWs differ from one urban area to another?

Research Methodology:

The methodology of the study contains mainly the sample design for primary data collection and analytical techniques used. The secondary data utilized in this study has been collected from Economic survey of Assam, Directorate of Economics and statistics, Government of Assam and the office of Register General of India &Census Commissioner, Government of India.

This study has been based largely on primary data collected from the sample urban areas of Assam, which, however, constitute the geographical area of the study as shown in table-2. The census of India, 1971 has classified the urban areas of the country into six categories on the basis of the size of population. The classification of towns/urban areas in Assam in 2011 are shown in table-1.

Table-1: Classification of towns in Assam, 2011:

Category of Towns	Class-I Town	Class-II Town	Class-III Town	Class-IV Town	Class-V Town	Class-VI Town	Total
Population(,000)	100& above	50-100	20-50	10-20	5-10	Below 5	
Towns	4	12	26	45	90	37	214

Source: Office of Register General of India &Census Commissioner, Indian economic survey.

Taking one town from each category totaling 6(six) sample towns has been selected purposively for the study. Out of 4 nos. of Class-I towns in Assam, the capital city- Guwahati Municipality Corporation (GMC) has been selected purposively on the following grounds: First, GMC covers an area of 17.14% (216 sq. km) of the total urban geographical area in Assam (1259.88 sq.km) in 2011. Secondly, GMC is comprised of 60 municipal wards which encompass 21.81 %(957,352nos.) of the total urban population in the state (4388756nos) in 2011.

As regards the class–II towns, out of twelve (12) nos of class-II towns, Jorhat Municipal Board has been selected on the ground that it is comprised of 19 wards with a population size of 72,380 nos. (Census report, 2011) that has encompassed a geographical area of 9.20 sq.km. The sample towns of other categories have been purposively selected as shown in table-2.

Giving relatively more weight on the higher category of towns, a total of 42 construction sites of different categories of town/ urban areas has been selected for the study (table-2).Again, from the midst of the workers (BCWs) currently found working in 42 construction sites in total (42X5) =210 BCWs have been randomly selected for interview in a specially designed questionnaire taking at least 5 BCWs from each sample site. In addition to this, from each sample urban area, one contractor/builder (Class-I) has been selected and hence, in total 6(six) sample Class-I contractor have been interviewed for this study as shown in table-2

Table-2: Nos of Sample Sites, BCWs and Labour Officers selected for the study:

Category of towns	Sample Towns selected for field visit	Construction Sites Surveyed	BCWs interviewed	Contractor/ Builder
(1)	(2)	(3)	(4)=(3) x 5	(5)
Class-I	Guwahati Municipality Corporation(GMC)	12	60	01
Class-II	Jorhat Municipality Board(JMB)	10	50	01
Class-III	Golaghat Municipality Board(GMB)	08	40	01
Class-IV	Bokakhat Town Committee(BTC)	06	30	01
Class-V	Amguri Town Committee(ATC)	04	20	01
Class-VI	Kamalabari Town Committee(KTC)	02	10	01
Total	06nos	42 nos	210 nos	06 nos

For analyzing wage inequality among BCWs, the techniques of Lorenz Curve, Gini Index, Standard deviation and coefficient of variation have been used in the study.

Results and Discussion:

Wage Inequality by Job:

Construction activity in the housing sector involves different types of job ranging from initial stage of ground preparation requiring piling works to the end stages of painting and electrification, which are more or less different from each other. In many cases, brick laying workers have been observed to perform some other jobs such as digging, centering, column fitting, tiles/ marble fitting and plastering. Such overlapping of work category makes it difficult to classify them according to the jobs done. The BCWs of the state are classified into the following categories considering their differences in job type such as (i) Piling, (ii) Bricking/ plastering, (iii) Flooring, (iv) Carpentering, (v) Plumbing, (vi) Painting and (vii) Electrification. Accordingly, the job composition of 210 sample BCWs in 6 sample urban areas, covering 42 construction sites has been classified as shown in table-3.

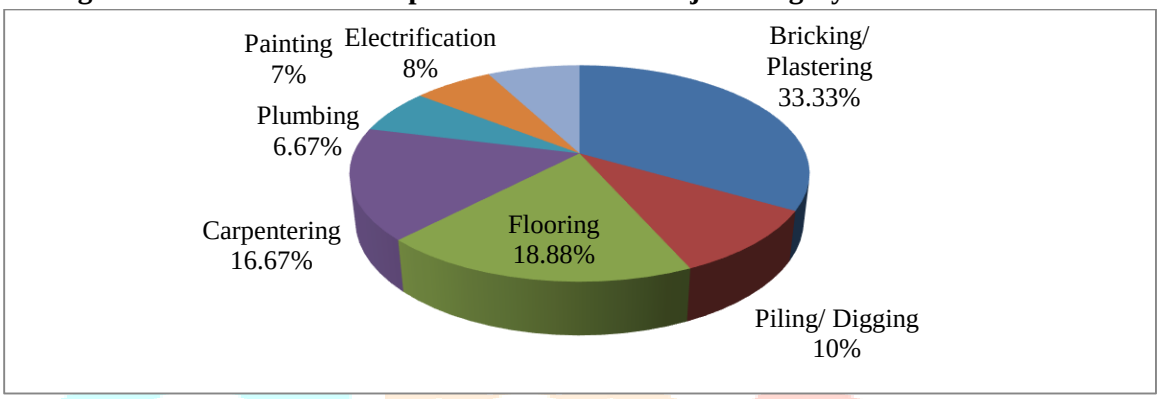
Out of 210 sample BCWs, 33.33% of them are found engaging in brick laying; 18.88% workers are found deployed in flooring job; 16.67% in carpentering; 10% in piling; 7.78% in electrification, and a smallest group is in plumbing and painting with 6.67% in each (table-3).

Table-3: Distribution of sample BCWs in different work categories:

Sl. No	Category of Jobs	No. of workers involved	% to total workers
i.	Bricking/ Plastering	70	33.33
ii.	Piling/ Digging	21	10
iii.	Flooring	40	18.88
iv.	Carpentering	35	16.67
v.	Plumbing	14	6.67
vi.	Painting	14	6.67
vii.	Electrification	16	7.78
Total		210	100

Source: Field survey data in 42 working sites in 6 sample urban areas of Assam as on November, 2018.

Fig-1: % distribution of sample BCWs in different job category:



Source: Drawn on the basis of data in table-3

The difference in wages paid to workers engaging in different jobs requiring different type of skill is termed as wage differential by job. During field survey, the mode of payment to workers performing different construction work has been found to be different in the sample sites. Most of the workers engaged in brick-laying, carpentering, flooring and piling jobs have been found paid either on daily or weekly basis, i.e. on time rate basis. Contrary to it, workers engaged in plumbing, painting and electrification have been paid on piece rate basis.

Amongst different type of jobs in building construction sector in the sample areas, inequality in wage distribution has been found to be highest in flooring work. The Lurenz curve for flooring job highly deviates from the equality curve (Fig-2). Gini Index for it has also been found to be highest (0.46).The root cause of it is that most of the female workers rendering manual works in flooring, falls in lower category (200-250) of wage distribution.

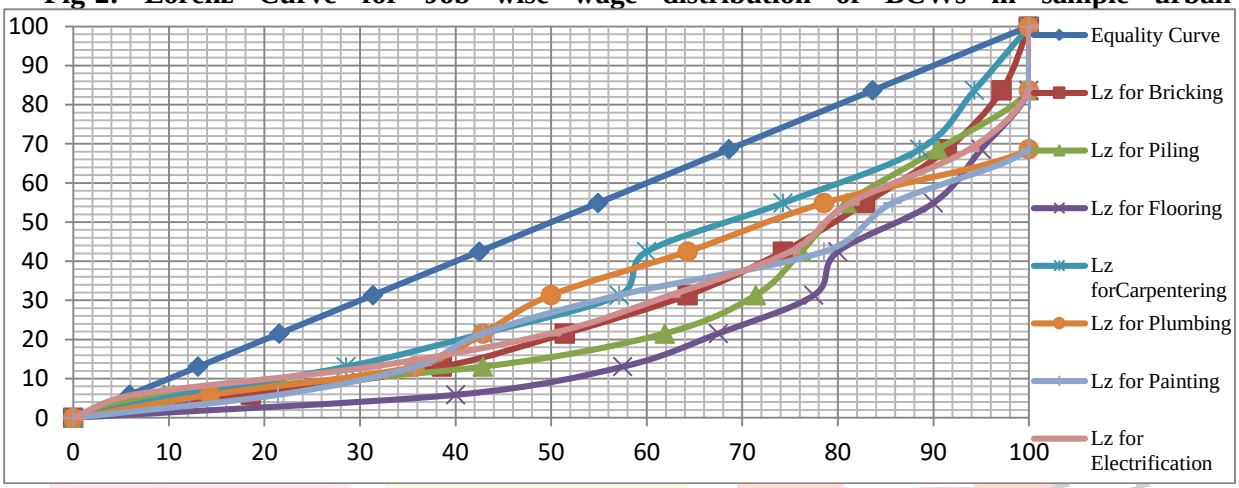
In brick-laying job, Gini index of wage inequality has been found to be 0.26. Again, Gini Index of wage inequality in piling work happens to be 0.25. In the cases of painting and electrification job, Gini Index of wage inequality has come to be 0.2; in plumbing job this has been estimated to be as small as 0.19, for carpentering job Gini Index of wage inequality has been found to be the lowest, i.e. 0.11 (table-4).The corresponding deviation of Lorenz curve of wages for carpentering job is seen to be much smaller from the equality line (Fig-2)). In fact, wage inequalities of BCWs do not differ much from one type of job to another, except in the case of flooring.

Table-4: Wage structure of BCWs (210nos) employed in different works in sample urban areas Assam as on November,2018.

Sl. No	Wage structure	No. of workers in different jobs						
		Bricking	Piling	Flooring	Carpentering	Plumbing	Painting	Electrification
i.	200-250	13	2	16	4	2	3	1
ii.	250-300	14	7	7	6	3	2	4
iii.	300-350	9	4	4	5	1	1	3
iv.	350-400	9	2	4	5	1	2	2
v.	400-450	7	1	1	1	2	3	2
vi.	450-500	6	1	4	5	2	1	1
vii.	500-550	6	2	2	5	3	2	2
viii	550-600	4	2	2	2	0	0	1
ix.	600-650	2	0	0	2	0	0	0
Total		70	21	40	35	14	14	16
Gini Index		**0.26**	**0.25**	**0.46**	**0.11**	**0.19**	**0.2**	**0.2**

Source: Field Survey data from 6 sample urban areas in the Brahmaputra Valley, Assam.

Fig-2: Lorenz Curve for Job wise wage distribution of BCWs in sample urban areas:



Data Source: Table no-4:

Wage Differentials by Labour Quality:

BCWs differ in personal attributes such as quality and efficiency, which may be acquired genetically, or due mainly to experience, education and training (Bhagoliwal, Economics of Labour and Industrial Relations, 1987, pp.390). Generally, an efficient/ qualified worker produces better output and hence, he demands for higher wage rate. The labour quality hypothesis also states that large firms hire highly qualified workers and pay higher wages (Zafar M. Nasir & Nasir Iqbal, 2010,pp.509-521). In the sample construction sites, payment of different wage rates has been found among the workers requiring similar skills, mainly due to difference in their quality/efficiency. In many cases, it has been observed that a worker in same skill category, serving the same job has been paid relatively higher wage rate, mainly due to his efficiency and better quality work.

Buildings and their appliances may differ in type with varied structure and design, which also permit wage difference of construction workers at par with labour quality. Hence, construction venture in the housing sector needs varied quality works, ranging from requirements of a highly architecture /modernized complex and multi-storied building to those in a simple Assam type building. Moreover, clients also demand highly superior and distinct output, and hence, they are ready to pay higher wage rate for the qualified and experienced workers yielding standard product.

During field survey, it has been found that qualified and long-period experienced workers acquiring wide reputation in building construction, mainly in the cases of head-mason and technicians, demanded higher wage rates. The employers too paid accordingly, for retaining them in construction of their premises. In many cases, the employers are found hiring such technicians through out-sourcing for some complex and highly architecture parts of the buildings. Hence, wage difference among the workers in the same skill category serving in a particular job arises, mainly due to difference in quality of labour and work output.

For determining the wage differentials by labour quality, the standard deviation (SD) and coefficient of variation (CV) of the wage rates of the workers in the same skill category serving in a particular job has been estimated. For it, only the highly skilled workers, i.e head-masons/ technicians engaging in selective jobs under in building construction sector have been considered.

The SD and CV of the daily wage rate of the highly skilled workers (head-masons) serving in column preparing, super structuring, bricking /plastering job have been found to be the highest, 60.94 and 11.69, respectively (table-5). Next, in carpentering job, the SD and CV of wage rate of the *head-mistry* have been estimated to be 55.81 and 11.15, respectively. In the cases of electricians, the S D and C V of the wage rate have been found as 37.77 and 7.66, respectively. On the other hand, in plumbing and painting jobs, wage disparity among the *head-mistry* has been found to be almost same having SD and CV around 28 and 6, respectively. In the case of piling job, SD and CV of the wage rates of the head-masons are as small as 25.22 and 5.24, respectively (table-5).

In flooring job, wage disparity of the head-masons as measured by SD and CV has been found to be lowest, 21.44 and 4.56, respectively. However, there is a gradual decline in skill - unskilled wage differential due to diminution of craft-skill differences as observed in Kerala(Harilal, 1989).

Table-5: Wage differentials among head-masons/ technicians (40nos) serving in selective jobs in building construction sector of the state (Assam):

Jobs / Particulars	Bricking	Piling	Flooring	Carpentering	Plumbing	Painting	Electrification
i. N	13	4	7	7	3	3	3
ii. Range	210	70	60	170	80	80	100
iii.Maximum	650	520	500	600	500	500	550
iv.Minimum	440	450	440	430	420	420	450
v. Mean	521.07	481.11	470.63	500.71	458.33	450	493.33
vi.SD	60.94	25.22	21.44	55.81	28.58	28.28	37.77
vii.CV	11.69	5.24	4.56	11.15	6.24	6.29	7.66

Source: Calculated through SPSS from field survey data collected in 42 nos sample construction sites of 6 sample urban areas.

Geographical Wage Inequality:

Beside wage inequality by labour quality, BCWs having identical skill and serving in identical jobs have been observed receiving different wage rates in different geographical areas (urban areas) of the state that indicates the prevalence of geographical wage inequality in the building construction sector of the state.

In order to determine the degree of wage-inequality in each of the sample urban areas, Lorenz curve[2] and the corresponding Gini Index[3] for each sample area has been estimated. This, however, helps in comparing the degree of wage inequality i.e. inequality in wage distribution among BCWs in a particular sample urban area with that of another urban area. Thus, Lorenz curve and Gini Index for each sample area may represent the wage distribution in the state (Ramzai, 2020).

[2]Lorenz Curve represents the distribution of wealth or income among people or wage among workers in a particular region.
[3]Gini Coefficient/ Index measure the degree of inequality in the distribution of variables such as wealth, income and wage. Gini Index(G) is calculated as a ratio of the area that lies between the line of equality and the Lorenz curve (A) over the total area below the line of equality(A+B), where B is the area under the Lorenz curve. Hence, G=A/A+B

Out of 6 sample urban areas, inequality of wage rate among BCWs in unskilled category has been found very high in Kamalabari TC, and its Lorenz curve representing wage rate distribution highly deviates from the equality line (Fig-3). The corresponding Gini Index of wage inequality for Kamalabari TC area has been estimated to be highest, 0.53 (table-6).

The lowest deviation of Lorenz curve has been observed in the case of Jorhat municipality Board area with lowest Ginni index of 0.19. Other Lorenz curves representing deviations from equality and the corresponding Ginni coefficients showing wage rate inequality in other sample areas are falling within these two ranges.

The deviation of Lorenz curve of wage rate for Amguri TC is in the second rank with corresponding Gini Coefficients of 0.42. The Gini Index for GMC is estimated at 0.35, which is in the third rank. For Golaghat MB, the Gini Index of wage inequality is 0.32 and for Bokakhat TC, it has come to be 0.25(table-6).

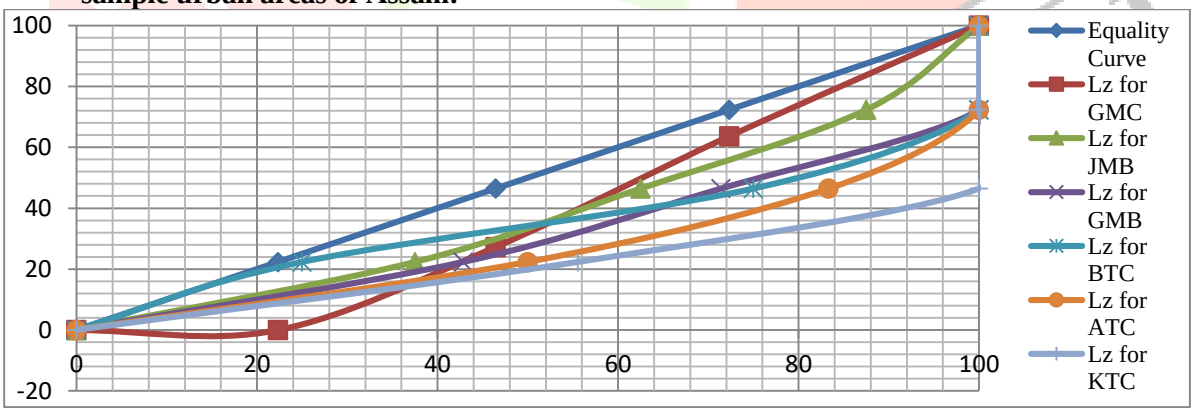
Table-6: Wage structure for unskilled BCWs (130nos) in sample urban areas in the Assam:

Wage Structure	No. of BCWs(unskilled)					
	GMC	JMB	GMB	BTC	ATC	KTC
240-260	00	15	15	05	06	05
260-280	15	10	10	10	04	04
280-300	20	10	10	05	02	00
300-320	20	05	00	00	00	00
Total	55	40	35	20	12	09
Gini Index	**0.35**	**0.19**	**0.32**	**0.25**	**0.42**	**0.53**

Source: Field survey in 6 sample urban areas in the Brahmaputra Valley, Assam.

Thus, wage inequality among the unskilled BCWs in the sample areas of study has been found to be moderate(less than 0.5), except in Kamalabari TC area (table-5.13). This is indicative of the fact that amongst the BCWs in Kamalabari TC area, people those who belong to poorer strata of the society, there prevails higher income inequality and wider poverty gap.

Fig-3: Lorenz Curves of Wage rate inequality amongst the unskilled workers (Helpers) in sample urban areas of Assam:



Source: Drawn from the data set as shown in table-6

The core causes of geographical wage differentials have been examined and these have been found as follows:

i. Variation in Cost of Living: Cost of living varies in different areas. For covering such variation in cost of living in the different geographical areas, an additional compensation is paid to the workers serving identical jobs. Cost of living in Guwahati is much higher than in other geographical areas of the state. As a measure of the cost of living, consumer price index (CPI) for industrial workers based on 1982 price level was estimated to be 1084 for Guwahati city, it was 924 for Jorhat, and the state average is 952 in 2015[4].

[4] Directorate of Economics and statistics, Assam, 2017-18

ii. Different Labour Market Condition: The difference in the labour market condition in the different geographical areas also creates wage differential. The builders and contractors surveyed in Guwahati and Jorhat have reported that demand for workers in the city is growing significantly as much more building construction works are in progress. Moreover, requirement of more skilled workers for construction of sophisticated buildings with an increasing trend has pushed the workers to demand higher wages in these city areas.

iii. Level of living: Among all the economic variables relevant for determination of wages in Indian industry, the difference in level of living alone seems to explain largely the regional wage determination (Papola, Economics of Labour Market, 1970, pp.170-187). The living standard of the workers in the cities such as Guwahati and Jorhat is found to be higher as compared to the other urban areas of the state that enforces the workers in demanding a higher wages.

iv. Tactics of the trade unions: Certain non-economic and unquantifiable factors such as tactics of the trade unions at the different locations, labour policy of the governments and the attitudes of the employers are also responsible for inter-regional wage differentials. Most of the BCWs in Guwahati MNC have been found to join in active trade unions of the city, namely, the greater Guwahati Daily Labour Association (2009) and *Sodou Assam Gramin Sramik Santha*, New Guwahati (1996),which might have enforced the employers to increase wage rates through collective bargaining.

Conclusion and Policy prescription:

In urban housing sector of Assam, the wage inequalities of BCWs are not found to differ much from one type of job to another, except in the case of flooring. However, owing to higher concentration of the low-paid female workers in flooring job, the moderate wage inequality for this job has been found to occur. The difference in labour quality/efficiency has been found to be an influential factor intensifying the wage inequalities among technicians/ head-masons (highly skilled workers) particularly in bricking and carpentering jobs. Again, the inequalities in wage distribution among BCWs do not deviate much from one urban area to another. Hence, for varied jobs involved in building construction sector and different geographical areas, the wage inequalities of BCWs in the state are not much influential so as to create high confusion among the clients of this sector and wide income disparities among the workers themselves. Given the higher demand for highly superior and distinct construction outputs in the state, the demand for the highly qualified and experienced workers yielding standard products is in an upward trend that leads to a higher wage rates for them.

Under the above circumstances, the following has been suggested for policy prescription-

i. For minimizing the wage inequalities among BCWs in different jobs and geographical areas, the minimum wage rate policy requires to be implemented in case of BCWs. Both the employers and workers should be made well aware of the wage rates fixed for different skill jobs and for different geographical areas. Failing to pay such wage rates by the contractors/builders, their registration need to be withheld.

ii. For lessening pay discrimination of the female workers, the female labour unions need to be formed and they need to acquire sufficient training and skill.

iii. For lessening unreasonable wage inequalities by labour quality, ‘ the labour and employment department’ or ‘State construction workers’ welfare board’ may organize at least two day certification course every year for issuing certificate of skill and efficiency to BCWs.

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