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Amit K. Bhandari

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IZA

P.O. Box 7240
53072 Bonn
Germany

Phone: +49-228-3894-0
Fax: +49-228-3894-180
E-mail: iza@iza.org

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ABSTRACT

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Trade unionism is a legislative system of organizing workers and raising voices for economic and social goods. As the process of global integration deepens the labour market become more flexible and fragmented, rendering collective organization more and more difficult. In this backdrop, the paper attempted to analyse the impact of union membership on wages in the organised manufacturing industries in India. The study uses a recent survey data on labour market in the organised manufacturing industries. The estimated wage premiums for union membership for permanent and contract workers are 56.7 per cent and 10.3 per cent respectively. Decomposing this wage gap indicates that union membership contributes majority of the wage differentials, indicating that unions able to reserve higher premium for their members. In general, it refutes the problem of free riding the benefits in the organized manufacturing industries in India.

JEL Classification: J51, J31, L60

Keywords: trade unions, wage differentials, manufacturing

Corresponding author:

Amit K. Bhandari
Indian Institute of Social Welfare and Business Management (IISWBM)
Management House
College Square West
Kolkata – 700 073
India
Email: amitbhandari2@rediffmail.com

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1. Introduction

In a democratic country trade unions can essentially be looked upon as interest groups of industrial workers. Union membership has traditionally been the principle agent of voice representation, which empower worker in the form of better wages and benefits, better working conditions as well as job security (Booth, 1995). Trade unionism is a legislative system of organizing workers and rising voice for economic and social benefits. In a democratic country like India the strength and organization of unions are tied up with political parties to function as independent entities. In United States trade union is an economic association of workers thriving on free collective bargaining, giving freedom to workers to choose unions. In Britain unions maintain their separate identities as socio-economic interest groups and enjoy full freedom to bargain with employers. In other democracies like France and Italy trade unions are closely associated with political parties. In the ex-colonial democracies the trade union movement has developed as an aspect of nationalist movement and eventually been tied with political parties.

The presence of unions is associated collective bargaining such as higher wage rates, benefits in order to improve the condition of the workers. The differences in wages between union and non-union workers considered an important indicator of union control. There are large fields of empirical study on the wage differential between them. On average, almost all studies uniformly conclude that there is a positive union-nonunion wage gap. However, when disaggregated calculations are done, union memberships are not always associated with positive wage gaps (Booth, 1994). In the USA and Britain, trade unions significantly reduce wage dispersion among the workers. Freeman (1982) showed that in the US unions reduce intra-industry wage dispersion and wage dispersion across certain labour markets. Trade unions in Britain also reduce wage dispersion within the union sector (Gosling and Machin, 1993).

In India, under the trade Union Act 1926, seven workers can form a union and take part in negotiation through collective bargaining. In 1947 legislation for resolving conflicts at the workplace were introduced in the form of Industrial Dispute Act. Under this law both employers and employees will have to inform the labour commissioner before declaring lockout or strikes. In principal, to retrench workers, employers have to seek permission from the government if the factory employs more than 100 workers. It is a debate how much obstacle the labour laws are creating in flexibility in labour use. Companies are using contract workers in place of permanent workers in core activities. The labour unrest at Hero Honda plant at Gurgaon indicated the dependence of contract workers by Indian manufacturing industries. There are no evidence exists that firms employing more than hundred workers are facing hurdles in laying off workers when compared to firms that employ less than hundred workers.

Globalisation[1] has weakens the bargaining position of trade unions as it increases the substitutability of employees (Rodrik, 1997). In India, trade unions have been loosing its strength ever since the reform process begun. The opening up of the economy is accompanied by vigorous campaign for the right to hire and fire workers freely. As the process of globalization and liberalization deepens, the employers are demanding greater flexibility in labour use so that they can freely deploy or retrench

[1] For detailed discussion on the measurement of globalisation and its measurement see Bhandari and Heshmati (2007)

workers if the business environment demands.[2] As a result, there has been a structural shift in employment from permanent to temporary, contract or casual employment. All these development has resulted in weakening bargaining power of labour unions. The bargaining power of trade unions has further been weakened by new managerial strategies like outsourcing and parallel production (Sharma, 2006).

The drive for labour flexibility and just-in-time production has led to the changes in employment contract, whereby full time work is declining and part time, casual and contractual work is on the rise (O'Conuor *et al*, 1999). Official figures indicate that organized manufacturing industries shed about 18 per cent job between 1997 and 2004. At the same time, contractualisation is rising proportionate to the fall in permanent jobs. Contract employees are typically without the legislative protection compared to their counterpart. Since the contract workers have no formal employment status and can be retrenched anytime, it is difficult to organize them. Moreover, contract worker cannot join the unions of the permanent workers. However, contract worker prefer to stay away from any union activities because of the fear of job and income security. Trade unions become more defensive in the age of reform due to structural transformation of the economy, which have forced them to reorient their role to ensure the survival of the industry. As the future of trade unions depends on the size of workforce, the growing number of contract workers might loose momentum of the trade union movement.

In Indian less than two percent workers in both formal and informal sector are covered by union membership. Union's share is dominant in public sector enterprises confined among the workers in the organised industries. With the spread of industrialization and economic development, trade union movement has acquired varied colour. One striking feature is the rapid growth in unionism among white-collar workers (Sahoo, 1999). In India unions represents almost all industries and most of them are affiliated to political parties. The impact of union is depends on many factors such as qualitative and qualitative strength and its leadership. The presence of unions is higher in the states ruling by leftist parties such as West Bengal and Kerala. On the other hand, in the North Indian states have low share of unionized firms. Bigger firms are more likely to be unionized than smaller firms (Deshpande *et al*, 2004).

In a firm there should be equal wage between union members and non-members. However, empirical evidence suggests that union members are getting wage advantage than non-union workers. In the United States private sector union members gain substantially in terms of wage and benefits compared to their counterpart (Budd and Na, 2000; Schumacher, 1999). Using British Household Panel Survey (BHPS) Hildreth (1999) showed that there exists positive wage difference in United Kingdom. The wage difference between union and non-member workers can be distinguished as structural effects and the difference that cannot be traced from the difference in characteristics, which is referred as union effect. The structural effect includes the difference in productivity augmenting characteristics like education, experience, skills and other job related characteristics.

Dunlop (1944) was the first to declare a trade union as an economic theory which requires that the organization be assumed to maximize (or minimize) something. According to him, the aim of trade union is to maximize the total amount of wages

[2] Bhandari and Heshmati (2005) highlighted the fact that despite the rigidity in labour laws firms in the organized manufacturing industries adjust its labour to the optimal level.

and benefits by its members. During the seventies and eighties, the development of human capital theory and access to better data source made possible the rise in new generation studies of wage differentials[3]. Unions negotiate with their employer for higher wages, health benefits, retirement benefits, hours of work and working environment. The effect of unions on the distribution of earning depends on the size of the union wage premium, the position of the organised workers in the non-union earning distribution and the effect of unions on inequality within the organized sector (Freeman and Card, 1993). One fifth of the recent rise in male wage inequality in the United States is due to the decline in unionization [Card (1991) and Freeman (1991)]. In India, the presence of union in manufacturing industries explains only a little portion of the wage gap between permanent and contractual workers (Bhandari and Heshmati, 2008).

The wage difference between union and non-union workers can be distinguished as structural effects and the difference that cannot be traced from the difference in their characteristics. The second effect is referred as union effect. The structural effect includes the difference in education, experience, skills and other job related characteristics. In a firm no distinctions are made based on the status of union membership, that is union members receive same wages as non-union members. Unions do not try to negotiate lower wages for non-members. If the non-members were paid less, firms would substitute union workers to cheaper non-union workers, which in turn may drive unions out of existence. However, empirical evidence on union 'wage effect' suggests that union members are getting wage advantage than non-union workers. There are several reasons for different returns in the union covered and non-covered workers. Union members my try to discriminate against non-union workers in order to discourage free riding (Blackmore *et al*, 1986).

Union set wages for all workers irrespective their membership. It is very difficult for unions to sell group incentive schemes to its rank and file its beneficiaries to only a small subset of its constituencies. Hence, there exists a free riding problem associated with union membership. The free riding assumes that the outcome of any union bargaining is available to all workers whether they are members. In a workplace, free riding problem is relevant where there is no coercion of joining union. The reason for joining union in the absence of coercion is the anticipation of excludable goods and services offered by unions (Olson, 1965). The excludable goods might include pension advice, legal advice etc (Booth & Bryan, 2004). However, empirically it is difficult to estimate the effects of excludable goods on the decision to join union by the workers.

The present study is the first of its kind to estimate the wage difference between union and non-union member in manufacturing industries in India and the sources of this difference, if it exists. To what extent the salary of the industrial workers covered by collective bargaining by unions exceeds the salaries of workers not covered by union bargaining. The study addresses the issue employment status, where both permanent and contractual workers are considered. The paper is organized as follows. The characteristics of data set used in this study are discussed in Section 2. The methodology used to in the study is discussed in Section 3. The next section reports the results highlighting the difference in the mean of log wages

[3] See Delton and Ford (1977), Freeman and Medoff (1981), Long and Likn (1983) and Dunn (1986)

for union and non-union workers. The final section concludes the paper with policy implications.

2. Data and Sample Characteristics

The information available with secondary sources does not permit for a comprehensive analysis of trade union and its wage impact in the organized manufacturing industries in India[4]. The data for this study were collected from a field study of individual factory workers from different industries and from industrially developed locations of the country[5]. The areas from where the data were collected are West Bengal, Uttar Predesh, Haryana and Delhi. The surveys were conducted during 2004-05. The survey contains information on workers personal as well as job related characteristics. The sample includes 551 workers from different factories under organized manufacturing industries. The factory belongs to 16 industries under 2-digit industry groups of National Industrial Classification 1998. The information was collected on the basis of a structured questionnaire. The samples were randomly chosen within the framework that the number of workers restricted to at most five in a particular firm so as to cover a wider industry groups. For the sake of comparability, major attention was given in selecting the type of workers in a firm so that the sample become represents both permanent and contractual groups. As far as union penetration among the workers is concerned West Bengal has traditionally been the stronghold of trade unions compared to other parts of the country. In compliance with general perception, 65 per cent of the workers are union members, while 35 per cent are from other states. Traditionally, union penetrations are dominant in West Bengal, especially among the permanent workers, while in other regions contractual workers are more unionized in the sample.

The descriptive statistics of the variables used of the study are presented in Table 2. The union density is 48 per cent in the total sample. The data are disaggregated into permanent and contractual sub-samples. This represents 49.2 per cent permanent and 50.8 per cent contractual workers. As far as worker's category and unionization are concerned about 50.6 per cent permanent workers and 39.6 per cent contract workers respectively. The unionized workers earn higher income compared to non-unionized workers. The average difference in wage is highest is narrow among contractual segments. For permanent category, unionized workers earn average per hour wage of Rs. 20.8 while non-union worker earn Rs. 16.6. On the other hand, within the contractual group the average per hour wage of unionized and non-unionized workers are Rs. 10.5 and Rs. 9.9 respectively. Thus, wage difference is higher among the permanent members. For education, the highest number of worker belongs to basic education category, followed by secondary and higher secondary education for both unionized and non-unionized category. The average job tenure, which is a proxy of job experience of the workers are 10.2 years and 6.2 year for union member and non-members respectively. In the unionized segment, highest

[4] The labour bureau of Government of India collects data from employers and trade unions on various aspects of industrial relations. The data are collected only from registered unions. The quality of such data published is inadequate and poor (Shyam Sundar, 1999). In India data on unions are obtained from Indian Labour Statistics (ILS), Indian Labour Year Book (ILYB) and Trade Unions in India.

[5] The survey was sponsored by Indo-Dutch Programme for Alternatives in Development (IDPAD) sponsored research project on "Political Economy of Labour in a Globalised Economy".

migrant workers are found among contractual workers (65.8 per cent), while 70.1 per cent migrant workers have general union membership. As far as general skill are concerned majority of the workers are skilled. However, a little portion of workers has special training across various categories of workers. Union penetration is significantly lower in Special Economic Zone (SEZ) areas.

3. Methodology

The strategy to estimate the impact of union on wage premium follows the standard practice of human capital model. The estimation process is divided into two stages. In the first stage, the wages of individual workers are regressed on a vector of workers characteristics (personal and job related). This estimation is made for union and non-union workers separately. The earning function takes the following form:

$$W_i^j = \beta X_i^j + \varepsilon_i^j$$

where W = natural logarithm of hourly wage rate; X = a vector of worker's personal as well as job related characteristics (see Appendix for the list of variables), β = coefficient of the individual variables and ε = random error term which are assumed to satisfy the usual properties. The subscript j denotes workers type, j = (Permanent and Contract workers). The earning equation is estimated separately for both union and non-union workers to investigate the difference in the return of the individual and job related characteristics considered in this study.

The estimated earning equation for union and non-union workers are

$$\overline{W}_u^j = \hat{\beta}_u^j \overline{X}_u^j$$
$$\overline{W}_n^j = \hat{\beta}_n^j \overline{X}_n^j$$

where the hats denotes estimated parameters and the bars over variables indicate sample mean. W is the mean wage, X is a vector of the mean values of the wage determining characteristics. β is a vector of estimated coefficients or return to the characteristics. The gross earning differential in logarithm form is given by

$$\overline{W}_u^j - \overline{W}_n^j = \hat{\beta}_u^j \overline{X}_u^j - \hat{\beta}_n^j \overline{X}_n^j$$

In the second step, following Oaxaca (1973) methodology the above equation has expanded. The difference in wages is to be adjusted to identify the difference in the factors affecting wages. Since there are two different wage structures there is no theoretical and empirical guidance for us to know definite wage structure prevailing in the market. First, we assume that we assume the real wage structure affecting the labor market is union wage structure and adjust the gross earnings differential in terms of the coefficient of the union wage equation, and obtain an estimate of union and non-union earnings differential. Second, we assume the real wage structure prevailing in the labor market is non-union wage structure[6].

$$\Delta W = \overline{W}_u - \overline{W}_n = \left(\overline{X}_u - \overline{X}_n\right)\hat{\beta}_u + \overline{X}_n\left(\hat{\beta}_u - \hat{\beta}_n\right)$$
$$= \left(\overline{X}_u - \overline{X}_n\right)\hat{\beta}_n + \overline{X}_u\left(\hat{\beta}_u - \hat{\beta}_n\right)$$

[6] Firstly, $\overline{X}_u\hat{\beta}_n$ is added to both equation (1) and (2), and equation (1) is subtracted from equation (2). Secondly, $\overline{X}_n\beta_u$ is added and follows the same procedure.

Thus, the average wage differential between union and non-union workers is decomposed into two components. The first term on the right hand side is supposed to correspond to the difference in productivity or the difference in endowment evaluated according to the non-union returns (β_n), the second term is the differences in the pay structure between union and non-union workers evaluated by the mean value of the union characteristics, which is termed as union wage premium.

4. Empirical Results

The analysis is focused on the structural differences in wages between union and non-union segment of workers in the manufacturing industries. The empirical result highlights the importance of human capital model in determining earning, following Mincer's earning equation. The wage equation is estimated for permanent and contractual workers in each segment using level of education, occupational experience, skill, migration and industrial location (see Table 3). As discussed in the previous section the semilog earning function has been estimated to investigate the impacts on earning because of the change in explanatory variables.

Table 3 contains results of the estimated coefficients from the union and non-union wage equations. For permanent workers, the estimates of the return to education are higher in the union segment than in the non-union segment[7]. Most of the estimated coefficients in the contractual workers are statistically insignificant across two equations. Each successive education level is associated with subsequent higher earnings. However, the return to education is higher for union segment. The return to job tenure is significantly higher for union members than non-members in the permanent category. The same character is observed for contract workers. Since the union density is higher among the permanent workers, they can reap the benefits of higher job tenure. Job tenure of contract workers is less important because contract workers cater to the seasonal demand for workers. Due to shorter stint in a particular firm contractual worker failed to get advantage of periodic pay hike, while permanent workers, due to their higher work experience get higher income than their counterpart. General skill does not pay any significant premium for both types of workers. This is because workers acquired skill through learning by doing or prior experience of working in other firms. However, the return to general skill is higher for permanent non-union member and contract union member. For both permanent and contract workers the return to general skill is higher among non-unionized segment. Special skill pays significant premium for unionized workers in permanent category. It should be noted that advanced skills are not provided in the conventional education system. Workers have to get additional technical skill from different training institutes before entering the job or employers provide the necessary training according to the requirement at their current workplace. For permanent non-unionized workers migration is associated significantly lower pay, while other coefficients are positive but statistically insignificant. Workers belongs to Special Economic Zones receive lower wages compared to other areas. Let us now turn to the analysis of the decomposition of the wage difference between union and non-unionized workers.

[7] The estimated t-statistics are presented in Table 4.

5. The Decomposition of Union/Non Union Wage Difference

As indicated in Table 5, among the permanent workers, pay difference between union member and non-member is 0.443, representing an adjusted pay difference of 55.7 per cent[8]. Measured with union members' coefficients, 31.1 per cent of this difference is due to the wage-determining characteristics of the permanent workers. When evaluated with non-members' coefficients, the difference in observed characteristics explains 45.7 per cent of the pay difference. The unionized workers are supposed to be more motivated and prepared to invest in productivity augmenting factors[9]. Thus, union wage premium, that is the higher return earned by the union sector for the same characteristics is in the range of 68.8 per cent and 54.2 per cent. To further explore the issue for contract worker, the estimated wage difference is 0.098, or 10.3 per cent of the wage gap, which is narrower than permanent workers. The result suggests that the difference in the endowment of wage determining characteristics explain a minuscule portion of the wage gap, while union wage effect explains almost entire portion of the wage gap (99.4 and 99.8 per cent) for both segments. In brief, the presence of unions in organised manufacturing sector has significant wage effect for both permanent and contractual workers. Thus, workers do not get the perceptible opportunity of free riding the benefits of collective bargaining by unions.

6. Conclusions and Recommendations

If the union membership is voluntary, unions set wages which is applied to all workers regardless of their member status. Under the circumstances workers would like to prefer free riding instead of joining union. The present study has made an attempt to estimate the pay difference between union members and non-members and the phenomenon of free riding in the organised manufacturing industries in India. The data were collected from some selected industrial areas across India. The empirical analysis of the paper reveals that trade unions reserve higher wages for their members. The wage difference between union worker and non union workers is 55.7 per cent and 10.3 per cent for permanent and contractual workers respectively. A standard earning decomposition model is applied to investigate the factors responsible for the difference in wages. By controlling various productivity augmenting characteristics of the workers, the wage gap between union and non union workers is narrowed only 31.1 - 45.7 per cent for permanent workers. However, controlling for productivity related factors of the workers has hardly made any impact on the wage difference. A higher proportion of the wage gap, 54.2 - 68.8 per cent for permanent workers and 99.4 - 99.8 per cent for contractual workers remain unexplained what is referred to as union premium. The wage gap between union and non-union workers explains almost entirely by union effect for contract workers. This result lends support of the view that workers have not been benefited from collective bargaining in the form of free riding in the organised manufacturing sector. High unionization can lower inequality of earnings and raise the overall industry wage rates. The high union effect among the contractual workers highlights the viability of labour union in this segment. Contractual workers are deprived of getting wage and non-wage benefits compared to their counterpart. Our labour laws

[8] Conversion of log difference to percentage differences is conducted using the formula $|\exp(D) - 1|$, where D is the difference in log points in earning between union and non union workers.
[9] For detailed discussion see Budd and Na (2000).

do not allow the regular trade unions to raise industrial disputes on behalf of contractual workers. The contract workers have to form their own unions as they are not allowed to join the trade unions formed by permanent workers. However, the field survey has managed to collect few productivity augmenting characteristics of the workers, leading to an omitted variable problem. Nonetheless, the results are encouraging to consider the future study in other industries, especially in service sectors.

Appendix

Table 1

Variable Definitions

Name	Definition
Casual	Worker's type; takes the value of 1 if the worker is casual
Income	Hourly earning of each worker (Rs.)
Basic	Takes the value of 1 if the worker have basic education
Secondary	Takes the value of 1 if the degree is secondary education
Higher	Takes the value of 1 if the worker has passed higher secondary
Graduate	Takes the value of 1 if the degree is graduate and above
Experience	Years involved in the present job
Skill	Takes the value of 1 if the worker have general skill of working
Advanced Skill	Takes the value of 1 if the worker have got special training
Migration	Takes the value of 1 if the worker is a migrant
SEZ	Takes the value of 1 for Special Economic Zone (SEZ) included in our study

Table 2

Descriptive Statistics of the Sample (Means value)

Characteristics	Union Workers		Non-union Workers	
	Permanent	Contractual	Permanent	Contractual
Gross hourly wage (Rs)	20.8	10.5	16.6	9.9
Education (%)				
Literate	8.8	12.6	8.2	13.0
Basic Education	41.6	43.2	35.1	37.9
Secondary	25.5	22.5	24.6	22.5
Higher Secondary	16.1	17.1	21.6	19.5
Graduate and above	8.0	4.5	10.4	7.1
Experience (Years)	17.0	3.6	8.0	3.9
Migration (%)				
Migrant	24.8	65.8	70.1	33.1
Non migrant	75.2	34.2	29.9	66.9
Skill (%)				
Skilled	83.2	73.9	82.8	78.7
Unskilled	16.8	26.1	17.2	21.3
Advanced Training				
Yes	8.1	22.6	17.9	15.4
No	91.9	77.4	82.1	84.6
Industrial location				
SEZ	17.1	3.6	14.9	9.5
Other Places	82.9	96.4	85.1	90.5
Region (%)				
West Bengal	90.5	35.1	19.4	72.8
Other Places	9.5	64.9	80.6	27.2
Number of Observation	137	111	134	169

Table 3

Decomposition of the Wage Equations: Comparison by Union Membership

Independent Variable	Permanent Worker		Contractual Worker	
	Union member	Non Member	Union member	Non member
	Coefficients	Coefficients	Coefficients	Coefficients
[Primary]				
Basic Education	0.011	0.016	0.173**	0.061
Secondary	0.166	0.025	0.166**	0.146
Higher Secondary	0.306**	0.133	0.095	0.323*
Graduate	0.313**	0.275**	0.102	0.224
Tenure	0.017*	0.007**	0.013*	0.010
[Unskilled]				
Skill	0.063**	0.159**	0.127**	0.007
[No special training]				
Special Training	0.277*	0.338*	0.112	0.169**
[Non migrant]				
Migrant	0.070*	-0.242*	0.104	0.117**
[Other areas]				
SEZ	-0.222*	-0.229*	-0.254*	-0.147
Industry Category	Yes	Yes	Yes	Yes
Region	Yes	Yes	Yes	Yes
Constant	2.612*	2.591*	2.014*	1.992*
Adjusted R Squared	0.306	0.300	0.164	0.150
F Statistics	7.651*	7.242*	3.401*	4.225*

Note: Omitted reference category are shown in brackets
Coefficients of industry category and area are not reported to preserve space.
*Statistically significant at the 0.01 level; ** at the 0.05 level of significance

Table 4
Absolute t-Statistics

Independent Variable	Permanent Worker		Contractual Worker	
	Union member	Non Member	Union member	Non member
Basic Education	0.137	0.137	1.711	-0.592
Secondary	0.201	0.201	1.519	1.297
Higher Secondary	1.268	1.568	0.802	2.784
Graduate	1.885	1.885	-0.588	1.470
Tenure	1.603	1.603	1.771	1.369
Skill	1.953	1.953	1.715	0.085
Special Training	4.102	4.102	0.969	1.831
Migrant	-3.618	-3.618	1.386	1.721
SEZ	-2.678	-2.678	-2.747	-1.332
Constant	17.510	17.546	14.483	14.795

Table 5

Decomposition of union/non union wage gap

Worker's Type	Decomposition	Total Gap	Portion Attributed to Difference in	
			Characteristics	Union Premium
Permanent Worker	Returns to union member are baseline	0.443 (100.00)	0.138 (31.14)	0.305 (68.86)
	Returns to non member are baseline	0.443 (100.00)	0.203 (45.72)	0.241 (54.28)
Contract Worker	Returns to union member are baseline	0.098 (100.00)	0.001 (0.600)	0.098 (99.40)
	Returns to non member are baseline	0.098 (100.00)	0.001 (0.130)	0.098 (99.87)

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