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HIID/ESEPP Project
Planning Commission
Government of Bangladesh
Resident Economic Advisor:
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LABOR POLICIES AND EMPLOYMENT

by

Kathryn H Anderson

Two Papers:

1. The Impact of Unions on Wages and Employment in Bangladesh
2. Minimum Wages and Employment in Urban Bangladesh

July 1, 1990

THE IMPACT OF UNIONS ON WAGES AND EMPLOYMENT IN BANGLADESH: FINAL REPORT

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The Impact of Union Activity on Wages and Employment in Bangladesh

In previous studies of Bangladesh's recent economic development, evidence of stagnation has been presented. Some of the contributors to this slow economic growth in the 1980's have been increases in effective protection of the industrial sector and the increasing politicization of labor unions (Sahota, et al., 1990a,1990b; Houssein, 1990). It is the measurement of the effect of these union activities on employment that this research report addresses.

Unions can have positive or negative effects on the productivity of workers in unionized firms. If unions are primarily economic organizations designed to improve the economic conditions of their members, then unions reduce competition in the labor market, and, with the threat of strikes, are able to increase the wages of their members at the cost of a reduction in employment. The effect of unions on the share of the total wage bill going to their members depends on how inelastic the demand for unionized labor is. Unions are most successful if the demand for output in the industry is price inelastic, if other inputs are not good substitutes for unionized labor, if the supply of other inputs is inelastic, and if the industry is capital-intensive. Marshall's rules give unions a guide to the choice of industries to be organized. (Lewis, 1963, 1986)

Unions can be economic agents, increasing the wages of their members, and also increasing the productivity of labor. This collective voice approach has links to efficiency wage

theory. Productivity is improved in four possible ways: (1) workers will reveal preferences and problems noticed in the firm to union representatives but not to management for fear of layoff; (2) there are elements of public goods in work relationships within a firm, and individual negotiations between a worker and the firm will usually fail to value how the worker's actions may spill over onto others; by acting for a group of workers, the union can internalize externalities (safety, for example) in employment contracts; (3) the union can enforce contracts, preventing the firm or the worker from going back on agreements; and (4) the union can foster cooperation among workers (junior and senior) and coordinate production in internal markets that work imperfectly. The tools used to facilitate efficiency include setting seniority-based wage contracts, providing formal grievance procedures, and opening direct lines of communication between workers and managers. (Freeman and Medoff, 1983;Addison and Hirsch, 1986)

A third role for labor unions is noneconomic; that is, unions can act as political entities in which strikes, work slowdowns, and other noncooperative behavior by the union are not designed to achieve an economic goal. The causes of these political disputes are summarized by Houssein (1990, pg.3): "...Inter-union rivalry, call of general or industry-wide strike by federations or associations, and personal clashes between groups of workers." The result of political activity by unions may not be an improvement of members' relative wage position

among all workers, but, by reducing the production of firms through work stoppages, firm output would be lower, and employment would decline. Productivity of labor would not improve with this kind of union activity.

Houssein (1990) presents some empirical evidence that union activity in Bangladesh since 1973 has become increasingly political. He collected data on industrial disputes from the Bangladesh Labor Journal and the Bangladesh Observer, and found that 12% of all disputes in 1973 were political as compared to 87.5% in 1983 and 55.56% in 1988. The jute industry in particular has been vulnerable to labor unrest. The result of this political activity in the 1980's has been a small decline in productivity in jute; more importantly, this activity affects future investment in unionized industries and may be one reason for the downward trend in labor productivity in the industrial sector. (Houssein, 1990)

Further evidence is needed on the economic impact of unions in Bangladesh. This report presents the results of a study of the effect of unions on employment and wages in Bangladesh. The model estimated incorporates a model of the union's choice of industry. This targetting of industries for organization by unions may influence the measurement of these economic effects and must be controlled. The next sections discuss the data to be used, the model estimated, and the results of the estimation.

Model, Data, and Variables

The estimation of union wage and employment effects involves

estimating the labor demand function for a firm. If firms are profit maximizers, then employment demand (E) depends on the wage (w) which must be paid, the output (Q) of the firm, the costs of other inputs (r), and other firm characteristics (X1) which may affect efficiency. One of these characteristics is the presence of a union in the industry. This relationship expressed as a linear function is given below:

$$E = a0 + (a1 * w) + (a2 * Q) + (a3 * r) + (a4 * X1) + e \quad (1)$$

where e is a random disturbance and ai are coefficients.

In this model, the wage is assumed to be given to the firm in a competitive market. In a unionized industry, however, the wage is usually negotiated between the union and the firm. The wage then is also affected by union activity and must be modelled. Assume that the wage is affected by output, the cost of other inputs, and firm characteristics (X2). Then we have a two-equation, reduced-form system in which both wages and employment are influenced by only exogenous variables. This system is given below:

$$E = a0 + (a1 * Q) + (a2 * r) + (a3 * X1) + (a4 * X2) + e1 \quad (2a)$$

$$w = b0 + (b1 * Q) + (b2 * r) + (b3 * X1) + (b4 * X2) + e2 \quad (2b)$$

One of the characteristics affecting efficiency and wage setting is whether the firm is unionized. If unions do not randomly target firms for organization, then the measurement of union employment and wage effects in the regression system above will be biased if a union variable is included. This bias occurs because the union's choice of a firm or its ability to

organize a firm may depend on that firm's productivity, employment, and/or wage rate. For example, suppose a union is more likely to choose a firm where wages and employment are low. Estimation of the above model can produce an estimated negative effect of unions on wages and employment that is the result of firm selection and not union causation. In other words, in a cross-section of firms, the negative correlation occurs because the union is located in low employment, low wage firms.

To eliminate this bias in the estimation of union wage effects, we need to model the union's choice of firm jointly with the employment and wage model. Assume that whether a firm is unionized (U) depends on the output of the firm and other efficiency-related characteristics of firms (Z). Then, a joint model of unionization, employment, and wages is:

$$U = c0 + (c1 * Q) + (c2 * Z) + e1 \quad (3a)$$

$$E = a0 + (a1 * Q) + (a2 * r) + (a3 * X1) + (a4 * X2) + e2 \quad (3b)$$

$$w = b0 + (b1 * Q) + (b2 * r) + (b3 * X1) + (b4 * X2) + e3 \quad (3c)$$

where the residuals, e1,e2,and e3, are assumed to be distributed with a joint normal distribution.

To estimate this model, we use LIMDEP software and estimate the employment and union equations jointly, and then estimate the wage and union equations jointly. The selection bias model is described in (Heckman, 1976).

The data used to estimate the model above are obtained from the HIID/ESEPP Enterprise Survey for 1989. 1989 is the only year for which we know the union status of the firm. We include

all firms which have complete information on the variables included in the model. The sample size in 591 firms.

To measure employment, we examine five variables: total employment, employment of skilled labor, employment of semi-skilled labor, employment of unskilled labor, and clerical employment. The measures of the wage are: average skilled wage, average semi-skilled wage, average unskilled wage, and average clerical wage. Each wage variable is an estimate of the monthly wage and is calculated by dividing total wages paid to that skill of labor by the employment of that skill of labor multiplied by 13 months.1 This variable is very imperfect because it confounds the actual monthly wage with the intensity of employment of labor (that is, the number of months for which labor is hired per year).

To measure unionism in the firm, we create a dummy variable equal to one if the firm is currently unionized and equal to zero otherwise. In the union equation, we need measures of output and other characteristics affecting firm selection. Output has to be comparable across firms. This rules out using units of the product because all products are measured in different units. We use total sales as our output measure, recognizing that this variable confounds price and quantity. Other characteristics that identify firm selection are location in a rural or urban area, whether the firm is nationalized or

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113 months is assumed because most workers are paid a one month's bonus at the end of the year.

privately owned, the share of total employment that is female, and the age of the firm. We expect to find that unions target bigger firms, nationalized firms (Houssein, 1990), older firms because they are more established, and firms with a low percentage of women workers.2 The effect of location is uncertain.

In the employment and wage equations, the variables are identical. Output is measured as sales. The cost of capital is equal to the value of capital multiplied by 10%.3 The firm characteristics identifying wages and employment (X1 and X2) are location of the firm, whether the firm is nationalized, whether the industry in which the firm is located has a minimum wage, the female labor share, education of the entrepreneur, and whether the entrepreneur is in a local business association. We expect to find that employment and wages are higher in large firms (high volume of sales), in nationalized firms, and in firms run by more educated entrepreneurs and entrepreneurs with business connections (i.e.in business associations). The effect of capital costs depends on the substitutability of labor and capital. Minimum wage firms are expected to have lower

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2Studies of union selection in developed countries show that unions are more likely to be established in firms with a smaller percentage of women workers (Farber and Saks, 1980; Lewis, 1986). Reasons for this include the belief that women are less committed to the labor market and, therefore, less interested in the long-run benefits of unionization. In Bangladesh, if women are more passive workers than men and are more committed to work in the home than work in the market, then organization of women workers would be more difficult than the organization of men.

3This assumes that the rental rate on capital is the same across all firms.

employment and higher wages.4 Finally, while we expect female labor share to negatively affect wages, we have no priors on the effect on employment. We also have no prediction on the effect of location on employment and wages.

Results

Summary statistics for the variables used in the regressions are given in Table 1. From this table, we find that 16% of the firms in the sample are currently unionized.

Table 2 presents the results of the model for which union selection is not controlled (Equations 2a and 2b above). We find that unions increase total employment through increases in the employment of clerical, semi-skilled, and unskilled labor. The employment of skilled labor is not affected by unions. By not controlling for selection, however, we may be measuring the fact that unions target large firms and not the effect of unions on employment. From Table 2 we also see that unions do not appear to change wages.

The joint model of union selection and employment and wages is presented in Table 3 for all firms. In the first column, we present the union selection results (Equation 3a). As expected, unions are more likely to be in large firms (high volume of sales), in firms with a low percentage of women workers, in nationalized firms, and in rural firms. In addition, unions are

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4See Anderson (1990) for an examination of the effects of minimum wages on employment and wages. In the current report, we have included all firms (rural and urban). In the minimum wage report, only urban firms are examined. The estimated minimum wage effects may, therefore, be quite different.

more likely to be found in older, established firms.

This selection equation is estimated jointly with employment. Controlling for selection does significantly affect the measurement of union employment effects. Total employment is lower in unionized firms, but the effect of unions is statistically significant only at the 10% level.5 In addition, we do find that the effects of unions on skilled labor and clerical labor are significantly negative at the 10% level while unions have no significant effects on semiskilled and unskilled labor. The effect on clerical labor is small. Finally, in the joint model of union selection and wages, we find no effects of unions on wages.

Table 4 presents the results disaggregated by firm size; in this table, we present the effects for large firms (more than 20 employees). The joint model could not be estimated for small firms because so few small firms were unionized that the selection equation explained very little of the variation.6 The sample size in Table 4 is much smaller (204 firms) than in Table 3. As a result, we find no significant effect of unions on wages or employment except that the employment of skilled labor is lower in unionized firms with a significance level of 10%.

5The coefficient on the union variable cannot be interpreted as a decrease in employment of 5555 workers if a firm is unionized. The instrument for the union dummy was the predicted probability of being unionized so that a one unit change in unionism is a one unit probability change.

6The predicted values of unionism were collinear with the other variables in the employment and wage equations. Only 5% of the small firms were unionized.

In summary, it appears from this analysis that union effects on employment and wages are small or insignificant. Among all firms, union activity is associated with the reduction of skilled labor, but the employment of most workers is not affected. Wages are never related to union activity. It is also clear from these results that union selection is not a random event, and future work estimating the economic impact of unions in Bangladesh must control for this firm selection to obtain unbiased estimates of union economic effects.

Conclusions

We have been able to measure small negative effects of unions on the employment of skilled labor but have measured no wage increases resulting from union activity. In explaining these results, we refer to the discussion on economic and political motivations for union activity. If the union is primarily an economic organization, we would have observed an increase in wages and a decrease in employment of workers in unionized firms. In a political model, wages may not be affected, but employment should decline because of the output effects of work stoppages. Our results support the predictions of the political model but not strongly. Given the frequency of work stoppage due to strikes, hartals, and other union activity, we expected stronger employment effects. The effects are negative but small. Firms may be avoiding the potentially negative effects of having unionized labor by substituting more contract labor for wage labor in unionized firms. The ability to substi-

tute in this way would reduce the negative employment effects.

If the political model is the appropriate model of unionism in Bangladesh, then policy implications of these results involve minimizing the political activity of unions. Legal remedies for political disruption would encourage unions to act more responsibly and in the interests of their members and, as a result, may promote the dialogue between workers and managers. This is the most likely approach to increasing the productivity of unionized labor.

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Table 1.--Descriptive statistics: all firms

Variables	Mean	Standard Deviation
Employment Variables		
Total employment	208.22	772.39
Skilled labor	105.56	435.61
Semi-skilled labor	46.56	186.50
Unskilled labor	32.50	119.96
Clerical labor	23.61	85.70
Wage variables (if wage > 0)		
Average skilled wage	1390.9	883.74
Average semi-skilled wage	897.23	692.94
Average unskilled wage	724.22	602.94
Average clerical wage	1532.4	1654.2
Control variables		
Rural firm (yes=1)	.63	.48
Nationalized firm (yes=1)	.06	.23
Minimum wage firm (yes=1)	.36	.48
Female labor share of total employment	.08	.19
Sales (in million taka)	18.22	50.11
Return of capital (in 10,000 taka)	6.47	32.57
Education of entrepreneur (years)	8.72	4.98
Entrepreneur in a business association (yes=1)	.61	.49
Union firm (yes=1)	.16	.37

Table 2.--Regression estimates of union effects on employment and wages: all firms (n=591)[a,b]

Dependent	Total employment	Skilled Labor	Semi-skilled Labor	Unskilled Labor	Clerical Labor	Average skilled Wage	Average semi-skilled Wage	Average unskilled Wage	Average Clerical
onstant	98.937 (41.37)	46.030 (26.406)	32.485** (13.161)	10.319 (7.521)	10.103* (4.582)	1029.18** (92.77)	509.617** (88.223)	406.431** (97.247)	1192.76** (355.512)
ural Firm	-16.913 (35.115)	-5.525 (22.414)	5.513 (11.171)	-3.368 (6.435)	-2.506 (3.889)	361.897** (76.934)	213.805 (69.618)	42.169 (69.775)	302.584 (240.363)
ationalized irm	458.108** (98.877)	274.142** (63.114)	102.035** (31.456)	1.814 (18.120)	80.117** (10.951)	377.114 (213.567)	498.196** (175.558)	335.460* (149.048)	408.196 (489.678)
inimum Wage irm	-94.496 (34.171)	-49.302* (21.811)	-18.890 (10.871)	-16.362** (6.262)	-9.942** (3.785)	9.720 (75.20)	66.258 (65.683)	-47.392 (68.208)	-116.879 (245.227)
emale Labor here	-13.535 (83.186)	-6.905 (53.098)	-7.324 (26.464)	8.113 (15.245)	-7.419 (9.213)	-825.494** (181.653)	-656.576** (166.929)	-337.166* (168.884)	-417.742 (599.511)
ales	11.337** (.418)	6.245** (.267)	2.271** (.133)	1.740** (.076)	1.082** (.046)	1.836* (.926)	2.495** (.736)	3.490** (.622)	1.376 (1.908)
turn on pital	-.844 (.527)	-.368 (.337)	-.449** (.168)	.073 (.097)	.046 (.058)	1.163 (1.131)	2.187** (.861)	1.569** (.682)	-1.060 (2.286)
ucation of trepreneur	-10.431** (3.791)	-4.328 (2.420)	-3.568** (1.206)	-1.478* (.695)	-1.056** (.420)	5.454 (8.296)	8.949 (7.471)	11.030 (7.453)	3.971 (28.061)
trepreneur Business sociation	.552 (37.171)	-13.720 (24.023)	6.285 (11.973)	7.522 (6.897)	.464 (4.168)	112.001 (82.491)	129.616 (75.815)	34.422 (78.149)	-14.683 (302.789)
ion Firm	113.948* (55.542)	1.514 (35.453)	49.271** (17.670)	40.895** (10.179)	22.268** (6.151)	-161.442 (119.905)	-29.034 (104.985)	100.921 (87.771)	239.112 (295.473)

[a]Standard errors are in parentheses.

*Significant at the five percent level.

**Significant at the one percent level.

[b] n=568 for skilled wage, n=404 for semi-skilled wage, n=267 for unskilled wage, n=240 for clerical wage.

able 3.--Structural es[illegible]f employment and [illegible]fects of unions: a [illegible]rms.[a]

ndependent Variable	Union Selection	Total Employment	Skilled Labor	Semi-Skilled Labor	Unskilled Labor	Clerical Labor	Average skilled Wage	Average Semi-skilled Wage	Average unskilled Wage	Average Clerica Wage
onstant	-1.887** (.177)	115.401 (178.702)	57.899 (128.090)	34.805 (127.769)	11.312 (12.196)	11.384 (14.284)	1031.53** (104.402)	512.644** (88.993)	458.330** (118.539)	867.267 (663.063)
ural Firm	.345** (.170)	205.168 (194.119)	154.898 (139.141)	25.839 (30.165)	10.062 (14.030)	14.819 (15.516)	420.047** (102.038)	201.430** (74.573)	77.250 (84.133)	-118.230 (716.843)
ationalized rm	1.422** (.344)	3301.26** (1608.33)	2323.78** (1152.82)	502.607** (249.924)	173.401 (116.242)	301.467 (128.555)	1104.02 (722.558)	305.454 (442.561)	629.213* (335.693)	-813.921 (1994.42)
nimum Wage rm	-----	-400.122* (222.533)	-269.629* (159.507)	-61.950* (34.580)	-34.807** (16.084)	-33.736* (17.787)	-206.966* (111.539)	83.639 (74.934)	-168.847* (96.54)	149.145 (508.626)
e of Firm	.025** (.006)	-----	-----	-----	-----	-----	-----	-----	-----	-----
male Labor are	-1.526** (.697)	-856.901 (583.432)	-614.892 (418.193)	-126.146 (90.662)	-42.785 (42.168)	-73.078 (46.634)	-1084.00** (305.289)	-595.605** (222.978)	-522.247** (261.568)	260.492 (1279.16)
les	.009** (.002)	23.297** (6.768)	14.867** (4.851)	3.956** (1.052)	2.462** (.489)	2.013** (.541)	5.276 (3.394)	1.659 (1.903)	5.093** (1.740)	-4.262 (9.086)
turn on pital	-----	8.901 (5.782)	6.657* (4.144)	.924 (.898)	.515 (.418)	.805 (.462)	3.742 (2.737)	1.603 (1.499)	2.461** (1.163)	-6.071 (8.282)
ucation of trepreneur	-----	21.090 (23.729)	18.395 (17.003)	.872 (3.687)	.424 (1.715)	1.398 (1.897)	24.404** (12.508)	6.869 (8.713)	13.117 (8.433)	18.282 (40.396)
trepreneur a Busines sociation	-----	328.744 (241.675)	222.876 (173.288)	52.524 (37.555)	27.329 (17.467)	26.015 (19.317)	200.959 (123.773)	100.484 (98.534)	101.059 (108.471)	-285.859 (569.460)
on Firm	-----	-5555.50* (3101.54)	-4085.62* (2223.12)	-749.500 (481.959)	-301.262 (224.164)	-419.119* (247.908)	-1672.86 (1426.08)	333.559 (770.029)	-600.914 (707.176)	3415.38 (4966.09)
ple Size	591	591	591	591	591	592	567	403	267	240

[a]Standard errors are in parentheses.
**Significant at the five percent level.
*Significant at the ten percent level.

able 4. Employment and wage effects of unions: large firms.[a]

ndependent Variables	Union selection	Total employment	Skilled labor	Semi-skilled labor	Unskilled labor	Clerical labor	Average skilled wage	Average semi-skilled wage	Average unskilled wage	Average clerical wage
Constant	-1.456**	231.889*	124.034	77.720*	8.302	21.832	1190.28**	578.126**	616.965**	1309.75**
	(.285)	(127.225)	(87.371)	(43.934)	(24.099)	(14.486)	(182.812)	(122.572)	(188.143)	(546.526)
ural firm	.581**	1.316	39.472	-21.309	-10.995	-5.851	296.924**	245.907**	84.466	548.644
	(.260)	(97.470)	(66.937)	(33.659)	(18.463)	(11.098)	(140.568)	(90.079)	(124.561)	(395.701)
tionalized irm	.915**	194.245	187.063	4.141	-45.767	48.807**	510.994**	374.305**	171.164	671.234
	(.363)	(182.026)	(125.005)	(62.858)	(34.479)	(20.726)	(261.243)	(173.952)	(205.124)	(665.081)
nimum age firm	—	-231.603**	-133.233**	-34.562	-39.489**	-24.319**	-39.395	3.891	46.708	-10.186
		(101.148)	(69.463)	(34.929)	(19.159)	(11.517)	(145.915)	(102.290)	(140.239)	(417.983)
male labor hare	-2.370**	-57.870	-90.137	1.597	39.084	-8.414	-1132.91**	-593.195**	-464.577*	916.492
	(.830)	(196.567)	(134.991)	(67.879)	(37.233)	(22.381)	(295.433)	(215.627)	(276.796)	(937.980)
e of firm	.028**	—	—	—	—	—	—	—	—	—
	(.009)									
les	.007**	14.335**	8.254**	2.689**	2.061**	1.331**	.442	1.547**	3.153*	1.058
	(.002)	(.780)	(.535)	(.269)	(.148)	(.089)	(1.117)	(.678)	(.812)	(2.904)
urn on pital	—	-.333	.194	-.490*	-.100	.063	.962	1.867**	1.458*	-.552
		(.835)	(.574)	(.288)	(.158)	(.095)	(1.196)	(.705)	(.821)	(2.967)
cation of trepreneur	—	-16.827	-4.079	-8.262**	-2.811	1.675	20.732	6.221	2.307	-.776
		(10.279)	(7.059)	(3.550)	(1.947)	(1.170)	(14.752)	(10.100)	(12.931)	(41.566)
repreneur a business ssociation	—	-44.524	-74.611	12.283	21.311	-3.507	47.047	71.752	-73.001	192.367
		(119.675)	(82.186)	(41.327)	(22.669)	(13.626)	(172.988)	(117.194)	(160.954)	(514.556)
on firm	—	-225.966	-355.179**	64.545	55.441	9.228	-206.042	155.615	80.898	-383.736
		(229.012)	(157.272)	(79.083)	(43.379)	(26.075)	(329.717)	(189.573)	(277.390)	(984.531)
ample size	204	204	204	204	204	204	202	160	130	157

Standard errors are in parentheses.
Significant at the five percent level.
ignificant at the ten percent level.

MINIMUM WAGES AND EMPLOYMENT IN URBAN BANGLADESH: FINAL REPORT

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Minimum Wages and Employment in Urban Bangladesh

Introduction

The Government of India introduced the Minimum Wage Bill in 1948 which developed the machinery for setting minimum wages by the Provincial Government of India. After independence from Britain, the Government of Pakistan announced, in 1955, its own labor policy, and, in 1957, a Minimum Wages Board was established in Karachi. The East Pakistan Minimum Wages Act was also passed in 1957, and the first Minimum Wages Board was established in Dhaka for the purpose of setting the wages of textile workers. In 1961, the Minimum Wages Ordinance set minimum wages for East and West Pakistan, and the present Minimum Wages Board covering all private industries was established in Dhaka.

The Board consists of four permanent members: the Chairman and one independent member appointed by the Government, one member representing employers in Bangladesh, and one member representing workers. In addition, two more members are appointed by the Government to represent employers and workers in the particular industry under evaluation. The Board examines the wage structure of a particular industry on request from the Government. The Government refers a case to the Board upon application from workers and/or employers in the industry. Not all cases are referred to the Board for review -- only those the Government finds worthy of examination.

Labor affected by Minimum Wage Board decisions include "adult unskilled and juvenile workers" in any industry who have

no effective bargaining or formal wage setting mechanism within firms.1 Bilateral negotiation of wages between labor and management is the model which the Board tries to enforce.2 In cases where firms are small, workers are not organized, and there is observed variation in wages paid for similar work, the Minimum Wage Board can be asked to intervene and fix a wage floor for all firms. For example, weavers are frequently hired to work in small shops of 10 or fewer workers. Competition is intense across establishments, and workers in one small firm may be paid less than workers in a larger firm in the same region. The Board can attempt to regulate wages across firms to prevent exploitation of workers in excess supply and to provide "living wages."3

The Board has the authority to set minimum wages for time-work (hourly, daily, weekly, or monthly payment), piece-work, overtime work, and work on the weekly day of rest or on paid holidays.4 The Board may also recommend cost of living increases between one and three years after the regulation has been in effect. To encourage firms to pay minimum wages, penalties are imposed if the firm is found in violation of the

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1Minimum Wage Board mimeo,1990.

2See N. Houssein (1990).

3This rationale was provided by officials of the Ministry of Labour, Dhaka.

4Overtime pay is set by the Overtime Pay Act. Overtime is paid at double the straight time rate for any hours over 48 per week. The maximum hours of work per week allowed is 60.

law. The penalties include fines up to 5000 Taka and/or imprisonment up to one year.

Procedure

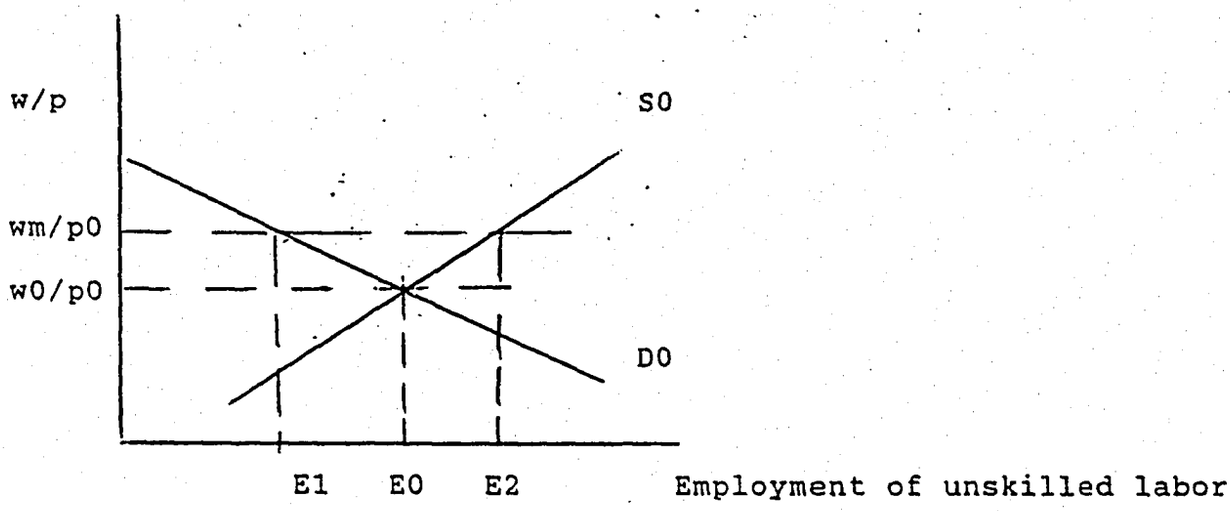
A case is referred to the Board by the Government. The Board initially reviews the relationship between workers and firms in the industry and prepares a questionnaire to be distributed to firms for the purpose of collecting information on the number of employees and the occupational structure, existing wages and amenities, full-time or part-time status, and the financial condition of the firm. The members of the Board then visit several firms in the industry, examine the operation of the firms and the working conditions, and gather additional records or information from these firms. The Board uses its site visit information together with the survey data to set minimum wages in the industry. Wages are set for highly skilled (clerical), skilled, semi-skilled, and unskilled labor. After approval of the rates by the Government, firms are notified of wage changes through the official Gazette. At that point, the law is in effect.5

Expected Effects of the Minimum Wage on Employment and Wages

The effect of the minimum wage on employment depends on the extent of its coverage and the rate at which it is set. Assume first that the rate is effective -- that is, it is set above the wage level that would exist in a competitive market -- and

5Information obtained from the Minimum Wages Board, January 1990.

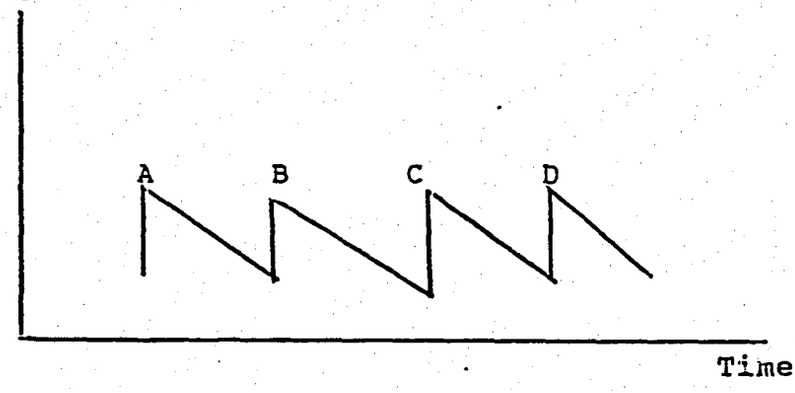
that the minimum wage covers all industries and all unskilled workers. The figure below illustrates the predicted effect of setting a wage (wm) above the equilibrium wage (w0).



The number of employed unskilled workers is reduced from E0 to E1 while the number of workers available has increased to E2. The immediate efect is an increase in unemployment to E2-E1.

If the minimum wage is a nominal wage, them the largest impact of setting this wage will be felt in the first year after it is imposed. In subsequest years, if inflation is positive, the value of the real minimum wage will fall until eventually the real minimum wage will be equal to the initial equilibrium wage (wm/p1 = wm/p0). At this point, the unemployment effect of the minimum wage will have been eliminated. If the minimum wage is periodically increased, we expect the employment effects to exhibit the following pattern:

Unemployment



Points A, B, C, and D represent years in which the nominal minimum wage is increased. Unemployment in those years is artificially high but declines in each year after the increase. Unemployment rises again when the minimum wage is increased.6

If the minimum wage is tied to the consumer price incex so that a real wage floor is set, then this model predicts a permanent unemployment effect (E2 - E1). Whether unskilled labor as a group benefits from this policy depends on the elasticity of demand for labor. If labor demand is inelastic, then the percentage increase in the wage exceeds the percentage decrease in employment, and the wage bill (w X E) rises. However, only those workers who keep their jobs under the minimum wage benefit.

The above model assumes that the coverage of the minimum wage is complete, that employers comply with the law, and that the economy's growth rate is constant over time. In the discussion below, we loosen each of these assumptions and analyze the effect of the minimum wage under different conditions.

First, assume that coverage is less than complete so that some sectors (industries) are exempt from compliance or have a lower minimum wage. These two sectors are presented in the

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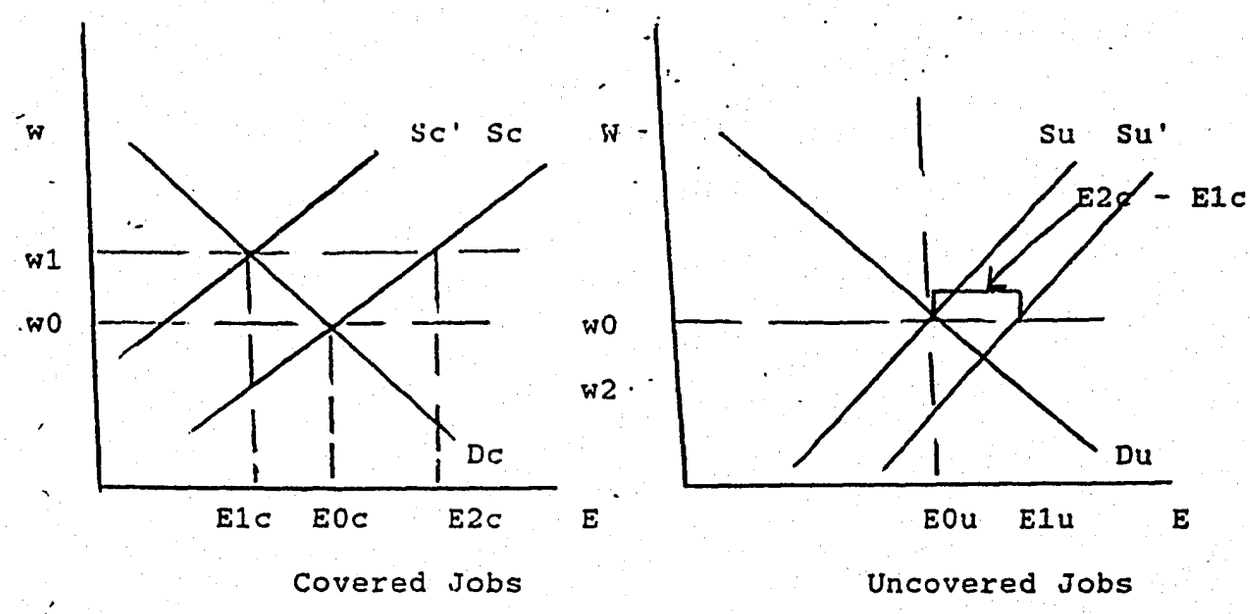
6See Ehrenberg and Smith (1987) for this discussion.

figure below.



In equilibrium, the wage would be w0 in both industries, and E0c would be employed in the covered industry while E0u would be employed in the uncovered industry. In the covered industry, the wage is increased to w1. The immediate effect is to lower employment in the covered industry to E1c. Unemployment in C would increase to E2c - E1c.

In the uncovered industry, one of two results is possible. First, if labor is mobile across sectors, unemployed workers not expecting to get jobs in the covered industry move into the uncovered industry. If E2c - E1c move to the uncovered indus-

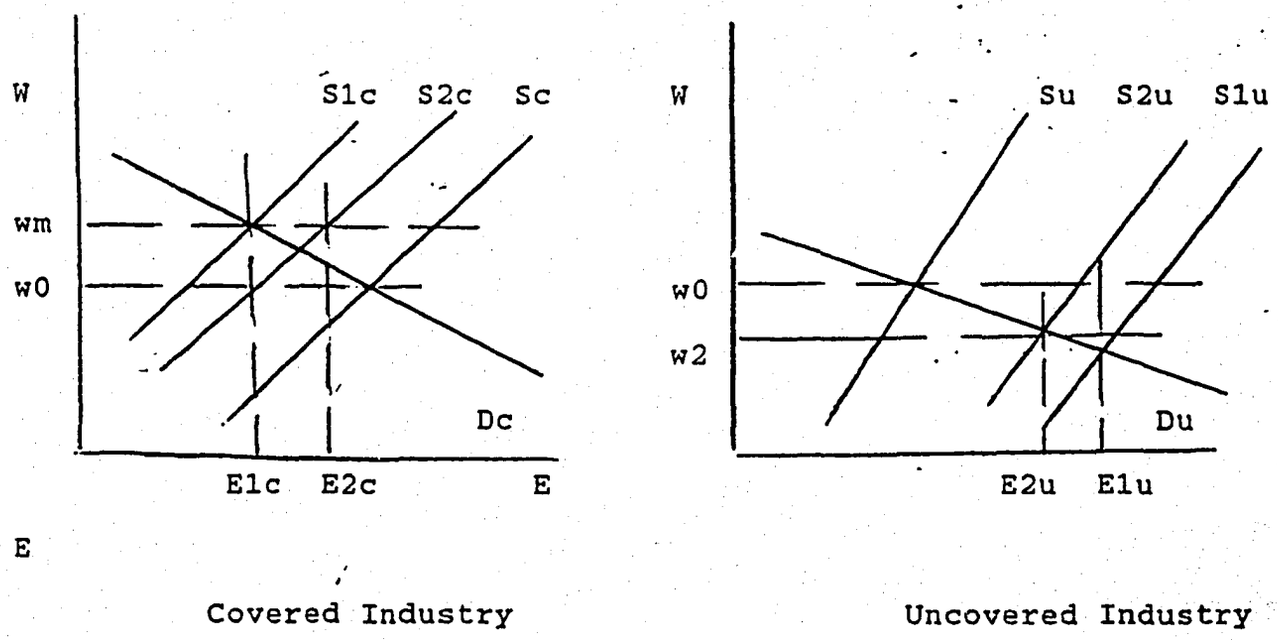
try, then the supply of labor to the uncovered industry increases to Su', and the wage falls to w2. No aggregate unemployment effects result, but employment and income are redistributed. In the covered industry, employment declines, the wage is higher, and, if labor demand is inelastic, the wage bill increases, and those still employed in this sector are better off. In the uncovered industry, the employment of labor increases, the wage falls, and, if labor demand is inelastic, the wage bill declines. Income is redistributed from uncovered to covered workers.

A second possible result is that labor in both industries responds to expected wages not actual wages; the expected wage is equal to the actual wage weighted by the probability of employment. In equilibrium, employment adjusts until the expected wage in the covered industry is equal to the expected wage in the uncovered sector, or:

$$(wc \times Pc) = (wu \times Pu)$$

where wi = wage in industry i (i = c,u) and Pi = probability of employment in i. If the wage rises in the covered industry, employment falls to E1c; the supply of labor to the uncovered sector increases to S1u, the wage falls to w1, and employment increases to E1u. Pc and Pu are equal to one, but because wc is greater than wu, (wc X Pc) > (wu X Pu). Now, some workers in the uncovered sector have an incentive to move back to the covered industry to wait for a higher paying job. This shifts the supply of labor in the uncovered industry to S2u and increases the supply of labor in the covered industry to S2c. The

probability of getting a job in the covered industry decreases, and the wage increases so that the expected wage rises. This movement of labor across sectors continues until expected wages are equalized. The process is illustrated below:7



Unemployment can exist in this two industry economy because some workers wait for scarce jobs in the covered industry. More formally, this analysis concludes that if the rate at which jobs are being vacated in the covered sector is less than the elasticity of demand for labor in the covered sector, then labor flows out of the covered sector into the uncovered sector and the wage in the uncovered sector falls as the minimum wage in the covered

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7This diagrammatic approach to the minimum wage is summarized in Ehrenberg and Smith (1988).

sector is increased; only if the vacancy rate exceeds the elasticity of demand for labor in the covered sector will wages rise in the uncovered sector in response to a minimum wage However, wages in the uncovered sector will never rise fast enough to eliminate the positive wage gap between the covered and uncovered sectors.8 In addition, the greater the increase in the minimum wage in the covered sector, the less likely are workers to move to the uncovered sector in response to the wage floor, and the higher the vacancy rate in the covered sector, the less likely workers are to move to the low wage sector. This means that increases in the minimum wage in one sector always increase unemployment in the covered sector and in the aggregate.9

Firms in uncovered industries may respond to minimum wages in covered industries directly. Suppose a firm does not want to be regulated by the Minimum Wage Board and to prevent this

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8See Mincer (1976). The equation for the rate of change in uncovered wages, wu, is:

$$wu = \{[k(\quad - \quad)]/[(1 - k)e + k \,]\} \, wm$$

where k = coverage rate, = vacancy rate, = elasticity of demand for labor in the covered sector, e = elasticity of demand for labor in the uncovered sector, and wm is the rate of change in the minimum wage.

From this equation, it is clear that increases in the minimum wage in one sector affect wages in the uncovered sector, and the direction of this effect depends on the relationship between and .

The equation for the wage gap, w = wm + wu, is:

$$w = \{[(1 - k)e + k \,]/[(1 - k)e + k \,]\} \, wm.$$

If > 0 and e > 0, then w > 0 and an increase in wm increases w.

9See Mincer (1976) for formal derivation of these results. The equation for the aggregate unemployment rate, U, is:

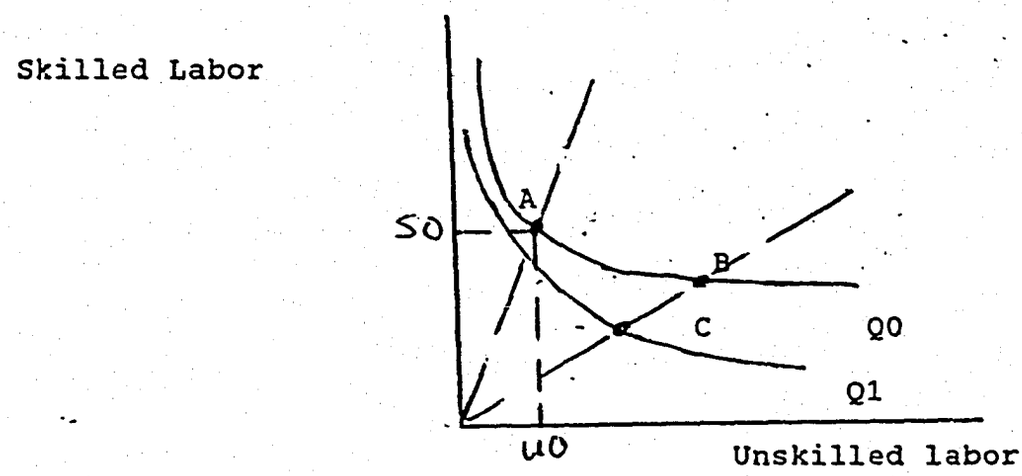
$$k \, w/(1 + k \, w).$$

The derivative of this equation with respect to wm is positive.

intervention, it tries to remedy a low or variable wage policy that may cause an investigation. This threat of intervention by the government into an industry can result in uncovered firms increasing or stabilizing their wages before a minimum wage can be imposed, increasing the costs of labor in the uncovered industries as well. The threat effect does reduce employment in the uncovered sector as labor that spills over from the covered sector is not hired and some labor previously employed in the uncovered sector is released. Unemployment is a direct result of this kind of strategy on the part of firms. Threat effects are most likely to occur in industries that are similar to covered industries.

A second adjustment to the model is to remove the assumption that only unskilled labor is covered by the minimum wage. Now assume that output is produced with skilled and unskilled labor and with capital and that both kinds of labor are covered by minimum wages. If minimum wages are increased by the same percentage on each skill of labor, the relative wage ratio will remain unchanged after the change in the wages. In this case, there is no expected change in the relative employment of skilled and unskilled labor in the firm. However, if the skilled wage is increased by a larger percentage than the unskilled wage, then the relative use of skilled and unskilled labor may be altered. Assume, for illustration, that the capital input is fixed and that skilled and unskilled labor are substitutable in production. This process is illustrated below with the negatively sloped

isoquants of the firm depicting all the skilled and unskilled labor combinations that can produce a given level of output.



At the initial cost-minimization point, employment of skilled labor is S0, employment of unskilled labor is U0, and output is Q0. After the relative wage of skilled labor is increased through the minimum wage, along Q0, the firm substitutes away from skilled labor into unskilled labor (point B). Because of the increase in factor prices, the firm also lowers its output, disemploying skilled and unskilled labor (point C). The sum of these two changes demonstrates that the employment of skilled labor decreases and, if the production function is homothetic and inferior factors are ruled out, the industry becomes more intensive in the use of unskilled labor. A minimum wage that distorts relative wages can, therefore, alter the skill mix of labor used by industry.10

10Assume that the firm faces a constant returns to scale production function in which output depends on inputs of skilled labor (Ls), unskilled labor (Lu), and capital (K) which is not fixed. The market prices of the three inputs and Ps, Pu, and Pk. It can be shown (Allen, 1938) that the effect of a change

The third adjustment to the model is enforcement. If the minimum wage is enforced in the covered industry or enforcement officers can be paid to ignore violations, then a market equilibrium results where wages are equal across sectors and no unemployment results from the distortion of relative wages. In the case of bribes being paid, however, the cost of the side payments are included in the fixed costs of production, and these costs can reduce the volumn of output and, as a result, lower employment in the long run.

Finally, the effect of the minimum wage is minimized if the economy is growing. With growth, the demand for labor is increasing annually, and the minimum wage becomes less of a constraint. With labor demand increasing relative to labor supply in a competitive labor market, wages and employment will increase so that, over time, the minimum wage is ineffective.

The minimum wage can produce other results in addition to the wage and employment effects. One additional effect is through the substitution of wage income for non-wage income. Total compensation is the sum of wage and non-wage income such as

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in relative input prices depends on the share of the input's cost in total cost (ki), the elasticity of demand for output (N > 0), and the elasticity of substitution between inputs (ij). For example, if the minimum wage in the industry increases the price of skilled labor, the effect on the demand for skilled labor is negative:

$$dLs/dPs = (Ls/Ps)\ ks\ (\ ss - N) < 0.$$

The effect of an increase in the price of skilled labor on the demand for unskilled labor is uncertain:

$$dLu/dPs = (Lu/Ps)\ ks\ (\ su - N).$$

If su > 0, Ls and Lu are substitutes and the effect on Lu is positive only if su > N. If su < 0, Ls and Lu are complementary, and the effect on Lu is negative.

clothing and housing allowances. If firms are concerned about the total compensation paid to labor and are indifferent to the form that compensation takes, then if the minimum wage raises the wage component, firms will offset this increase in costs with a decrease in other forms of payment. This includes a reduction in in-kind payments or in time-off, for example. The effect on employment will be minimal if firms can alter the form of the compensation without increasing the cost of labor. Those firms best able to do this are large firms.

In summary, the following wage and employment effects are expected from the imposition of effective minimum wages:

(1) if all labor is covered by an effective minimum wage, employment declines and unemployment rises with increases in the wage;

(2) if the minimum wage is a nominal wage and is not adjusted for changes in prices over time, the employment effects decline over time;

(3) if some industries are not covered by the minimum wage, employment in covered industries falls relative to uncovered industries, but the wage received by covered labor rises relative to the uncovered wage;

(4) unemployment rises with the minimum wage even if workers in uncovered industries respond to expected, not actual, wages; and,

(5) if non-wage compensation is substitutable for wage compensation, an effective minimum wage should lower the fraction of

total compensation paid as non-wage income.

Estimation

To determine the impact of the minimum wage on employment, a labor demand equation must be estimated in which employment is determined by the minimum wage relative to the average wage for each skill of covered labor, the factor prices of uncovered inputs, the output of the firm, and other firm characteristics such as location and union status. If information is available on firms over the period of time in which minimum wages were changed, then the estimating equation for a time-series and cross-section of firms is given in equation (1) below:11

$$Eitk = a0 + a1*(wmitk/waitk) + a2*(wmjtk/wajtk) + a3*rtk + a4*Qtk + a5*Xtk + a6*T + etk \quad (1)$$

where:

Eitk = employment of affected labor i in firm k at time t,

wmitk = minimum wage affecting i in firm k at time t,

waitk = average wage of i in firm k at time t,

wmjtk = minimum wage affecting j in firm k at time t,

mwjtk = average wage affecting j in firm k at time t,

rtk = price of unaffected inputs in firm k at time t,

Qtk = output in firm k at time t,

Xtk = characteristics of firm k at time t,

T = time,

a0,a1,a2,a3,a4,a5,a6 = coefficients.

11This equation is similar to time-series regressions estimated in the literature. For a review of this literature, see Brown, Gilroy, and Kohen (1982, 1983).

The direct effect of a minimum wage on labor i in firm k at time t is measured by the coefficient on (wmitk/waitk), a1. The effect of a minimum wage on labor j on the employment of i is measured by the coefficient on (wmjtk/wajtk), a2.

The requirements for estimating this equation are a time series on firms covering a period of change in minimum wage regulations, a complete set of the minimum wage regulations over time, knowledge of the costs of all skills of labor and capital costs, and information on firm production that is comparable across firms. Most of these requirements are not met with the data available, however. As a result, a second simplified approach is taken. Assuming that one knows in which industries minimum wages have been imposed but knowledge of how these wages have changed over time is not available, a crosssection version of the above model could be estimated. First, a dummy variable measuring the imposition of a minimum wage for that industry is created. This variable is equal to one if a minimum wage is present in the industry and is equal to zero otherwise. Second, the wage ratios above are replaced with the dummy variable, and the equation is estimated over a cross-section of firms for the most recent year for which data are available.

The estimating equation is given in equation (2) below:

$$Eik = a0 + a1*Dk + a2*rk + a3*Qk + a4*Xk + ek \qquad (2)$$

where:

Dk = minimum wage dummy variable for firm k. The coefficient on the dummy variable measures the effect of membership in a minimum

wage industry on employment.

To measure the effect of the minimum wage on the average wage, a wage regression can be estimated in which wages are determined by industry characteristics, output, other factor prices, and the minimum wage. Using the dummy variable (D) above to measure the impact of the minimum wage on wages, the wage regression estimated is given in equation (3) below:

$$Wik = bo + b1*D + b2*rk + b3*Qk + b4*Zk + uk \qquad (3)$$

where:

Wik = average wage in firm k

and

Zk = firm characteristics affecting the determination of wages in k.

The effect of the minimum wage on the wage is measured by the coefficient on D, b1.

Finally, to test the effect of the minimum wage on the composition of total compensation, a regression of the nonwage share of total compensation on the minimum wage is appropriate. The estimating equation is given in equation (4) below:

$$Nik = c0 + c1*Dk + c2*rk + c3*Qk + c4*Zk + nk \qquad (4)$$

where:

Nik = nonwage income/total compensation paid to labor i in firm k.

Data

The data to be analyzed are obtained from two sources: the HIID/ESEPP Enterprise Survey collected in 1988 and the Census

of Manufacturing for 1987. The Enterprise Survey contains a sample of 592 responding firms randomly drawn from all firms in Bangladesh. Of these firms, 34% are located in the urban centers of Dhaka, Chittagong, and Khulna. The survey collected information on the costs and employment of labor by skill as well as the costs of other resouces and the level of production.

The CMI data set for 1987 contains information on 1797 firms.12 Data available for this project include inputs used by firms, capital and labor costs, ouput and value added, and some limited information on firm characteristics. For example, it was not possible to determine the location of the firms.

The minimum wage data were obtained from the Minimum Wage Board in Dhaka. Information on the most recent minimum wage regulations was available. Information on past regulations was not kept by the Board. This lack of past wage changes prevented us from looking at the effect of regulations over time. The current regulations are presented in Table 1a for the urban centers and in Table 1b for the rural areas. Only five rural industries are affected by a minimum wage; the regulations affect mainly urban firms. For this reason, we limit our analysis of the Enterprise data to the 205 urban firms.

Current minimum wage regulations have been in effect since the middle 1970's for some industries (baby food and cold

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12The CMI contains many other firms but the data were of questionable quality, and these firms were dropped from the sample. See Sahota et al. (1989), for information on the cleaning of the data.

storage, for example) and have recently changed for others (deep sea fishing and road transport, for example). The wages for these industries are monthly wages and vary by skill of labor. In all covered industries, skilled labor is covered, and most of the industries include coverage for semi-skilled and unskilled labor. Clerical and white-collar coverage is less common.

Minimum wages are not applied to any workers in nationalized industries such as the jute industry. A separate regulatory board determines the wages to be paid in these industries.

Variables: Enterprise Survey

The Enterprise Survey data included information on the total employment of skilled, semi-skilled, unskilled, clerical, and professional/managerial labor as well as information on the employment of unpaid family members and contract labor. To measure the effect of minimum wages on employment, we examine total employment in the firm of four kinds of labor: skilled, semi-skilled, unskilled, and clerical.13

The firms were also questioned about their costs of operation, and the total wage and nonwage costs of each of the above categories of labor are available. To calculate a monthly wage requires dividing total costs by employment and dividing that number by the average number of months worked. The number of

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13These classifications of skill of labor are usually based on the worker's experience in the firm.

months worked is not available, however, so we divided by 13.14 We calculated the ratio of the minimum wage to the average wage for each skill of labor that we had constructed. The minimum wage was frequently larger than the monthly wage paid. There is considerable error in the calculation of the minimum wage ratio needed to estimate equation (1). In addition, wage information was frequently missing for each skill of labor but especially for the less-skilled labor. For these reasons, we chose to estimate equation (2).15 In this equation, D is a dummy variable equal to one if the firm has an industry code corresponding to one of the covered industries in Table 1.16

The other variables in equation (2) measure output, other

14All workers are paid a bonus at the end of the year equal to one month's salary. We added the extra payment to the 12 months paid to full-year workers.

15Another problem in estimating the minimum wage ratio is the difficulty in matching the minimum wage to the industry to which it applies. We have industry information at the four digit level in the Enterprise and the CMI data. However, as is apparent from Table 1, minimum wages are frequently applied at a more narrowly defined industry level. For example, there are two industries with a 4-digit industry code of 4000: hotel and restaurant, and cinema house. The minimum wages on these specific industries differ. In the survey data, we cannot determine whether firms with a code of 4000 are in the hotel and restaurant industry or in the cinema house industry, and the shares of these specific industries within the 4000 classification are not available. We would not be able to decide which minimum wage is appropriate in calculating the wage ratio or whether the base wage is coming from the same industry.

16Again, we do not know if the firm is in the specific industry covered by the regulation, only if it is in the four-digit industry group in which minimum wages have been applied to some industries. Here, a threat effect interpretation might be appropriate. If the firm is not covered but is in a 4-digit industry in which some specific industries are covered, it may respond to the threat of possible government regulation.

input costs, and firm characteristics. The output measure must be comparable across firms. This rules out using units of the product because units differ across industries. We chose sales as our measure of output, recognizing that this measure is the interaction of both price and units of output.

To measure other input costs, we include the cost of capital measured as the value of the capital stock multiplied by 10 percent. This measure assumes that the marginal cost of capital (the rental rate) is constant across firms.

The measures of firm characteristics are the age of the firm (in years) and whether the firm is unionized (a dummy variable equal to one if a union represents workers in the firm). In the wage regressions, we also include a measure of the importance of female labor in the firm. This variable is the fraction of total employment that is female labor. This variable is important in a wage equation because we assume that female labor is less skilled and is, therefore, paid less.

Results: Enterprise Survey

Descriptive statistics for the variables included in the regressions are given in Table 2. From this table, we find that the minimum wage exists in 32% of the 4-digit industry groups in our sample. The employment results for all urban firms are given in Table 3, the employment share results are given in Table 4, and the wage equations are given in Table 5. From Table 3, we find that minimum wage industries have lower total employment, skilled employment, unskilled employment, and clerical employ-

ment. The semi-skilled employment effect is also negative but insignificant. The largest decline in employment occurs among skilled workers, and clerical workers are least affected. This result is reasonable given the infrequency with which clerical wages are adjusted. On average, minimum wage industries have 41 fewer workers broken down into a decline of 22 skilled workers, 14 unskilled workers, and 4 clerical workers.

Of interest is whether these changes in the employment of workers signify an adjustment in the skill intensity of production. From Table 4 we find that minimum wage industries have a lower skilled labor share than non-minimum wage industries, but the semi-skilled and clerical employment shares are higher. There is no signifcant effect on the share of unskilled labor.

Finally, the effects of the minimum wage on average wages by skill are presented in Table 5. Wages are higher for all skills of labor in minimum wage industries but are significantly higher only among unskilled workers. However, notice that we lose many observations in these wage equations especially with the unskilled and clerical wages; these results are more likely to be biased than the employment results.

We next examine how the minimum wage affects employment and wages in small firms relative to large firms.17 These results are presented in Tables 6 - 8. The employment results are given in Table 6. We have 150 small firms and 51 large firms.

17A small firm is defined as a firm with less than 20 employees.

With these smaller samples, minimum wage effects are more likely to be insignificant. For total employment, minimum wage industries have no significant total employment change although the effect in large firms is negative and large in number while the effect in small firms is positive and small. However, some significant results are detected among the skill classes of labor. Skilled employment is significantly lower in large firms and insignificantly lower in small firms. Semi-skilled employment is actually higher in small firms in minimum wage industries but insignificantly lower in large firms. Unskilled employment is significantly lower in large firms but insignifcantly higher in small firms in minimum wage industries. Finally, in large firms, clerical employment is lower if the firm is in a minimum wage industry.

Table 7 reports how the skill composition of employment is affected by size of firm. Among large firms, only the clerical share is significantly affected by membership in a minimum wage industry; the clerical share increases. Among small firms, the skilled labor share declines and the semi-skilled labor share increases with membership in a minimum wage industry.

Table 8 presents the wage effects of the minimum wage. Only the unskilled wage is significantly affected by membership in a minimum wage industry in small firms, and this wage is higher in these firms. Among large firms, both unskilled and clerical wages are signifcantly higher in minimum wage firms. Note, however, that the sample sizes in these regressions are

quite small.

Variables: CMI Data

The CMI data available could not be broken down by location so the CMI regressions are run over firms in urban and rural regions even though the minimum wage is usually not applied to rural industries. The variables used in the regressions are similar to the ones used in the Enterprise analysis, but less information is available on the CMI. The minimum wage dummy variable is the same as above. The employment variables are total employment, operatives employed, administrative labor, and other labor. The average wage for each of these groups of workers is also calculated as above as the total employment costs divided by the number of workers multiplied by 13 months. Considerable error is present in these average wage calculations because no variation across firms in months employed is allowed.

Control variables include measures of output, capital costs, and firm characteristics. The output measure is value added which also has the problem of confounding price and quantity. The current value of capital is used to measure capital costs. The only firm characteristic is whether the firm is a new firm in 1987. In addition, we also compare equations which include the capital - labor ratio as a control variable to equations which exclude it. Descriptive statistics for variables used in the CMI regressions are presented in Table 9.

Results: CMI Data

The employment and wage results are presented in Tables 10 -

12 for all firms and in Tables 13 - 15 separately for small and large firms. Turning first to the results for all firms, we find that for firms in minimum wage industries total employment and the employment of operatives are lower than in non-minimum wage industries. On average, minimum wage industries employ between 40 - 42 fewer workers per firm. This result is very close to the result obtained from the Enterprise data. These results are not sensitive to whether the capital/labor ratio is included in the regression or not. The only other significant result in this table is that the employment of other labor is slightly higher in firms in minimum wage industries.

In Table 11, the employment share regressions are presented for all firms. For firms in minimum wage industries, the operative labor share is lower and the administrative and other labor shares of employment are higher than in non-minimum wage industries. These results are not surprising because minimum wages are primarily placed on operatives of different skills.

In Table 12, we examine whether the average monthly wage, calculated under the assumption that all workers are paid for 13 months of work per year, is affected by being in a minimum wage industry. We find no significant effect on any of the wage variables.

Table 13a presents employment results for small and large firms, including the capital-labor ratio as a regressor, while Table 13b excludes this regressor. For small firms, operative employment is lower by one worker on average, and administrative

employment is higher by .5 workers in firms in minimum wage industries than in other firms. Among large firms, operative employment is lower by 91 workers, and total employment is lower by 84 workers in minimum wage firms. The employment of other labor is not significantly affected by the minimum wage.

From the labor share results in Tables 14a and 14b, we find that for both small and large firms, operating in a minimum wage industry lowers the operative employment share and increases the administrative labor share. Only in the large firms is the share of other labor in employment also significantly increased.

Finally, the wage results are presented in Tables 15a and 15b. The only signifcant result is that the total wage is lower in large firms in minimum wage industries than in non-minimum wage industries.

With both data sets, we estimated non-wage compensation equations. We found no effect of the minimum wage on the non-wage compensation share of total compensation.

Conclusion

This study has examined theoretically and empirically the effect of current minimum wage legislation on employment and wages in Bangladesh. The minimum wage policy in Bangladesh is unusual in that it places floors on wages on an industry by industry basis rather than by setting a national or urban minimum wage applicable to all industries. The policy is also distinct in that different wages are set for different skills of workers. With this structure, many industries (over 60%) do not have

minimum wages so that workers displaced in one industry by the minimum wage in that industry can flow to uncovered industries; employment and wages are likely to be affected in those industries as well. In addition, because the wage is set by skill of labor, the policy has the potential to distort the firm's use of inputs: the extent to which this distortion occurs depends on how high the minimum wage is relative to the average wage and how substitutable labor inputs are for each other and for other inputs. We, therefore, expected to find that the minimum wage policy in Bangladesh raised the wages of covered labor relative to uncovered labor, reduced covered employment, and altered the share of total employment going to skilled and unskilled labor. Our empirical results support some but not all of these predictions.

Using data from the HIID/ESEPP Enterprise Survey and from the Census of Manufacturing, we did find that employment is affected by being a firm in a minimum wage industry. The CMI results suggest that total employment and the employment of operatives in particular are lower in minimum wage industries; the Enterprise results suggest that employment of skilled and unskilled labor are negatively affected with stronger effects among skilled labor. Results from both surveys also suggest that significant reallocation of inputs occurs when the firm is in a minimum wage industry. From the CMI, we find that operatives are used relatively less and white collar labor relatively more when in a minimum wage industry; from the Enterprise data, we find

that skilled production labor is used relatively less and white-collar clerical labor is used relatively more in minimum wage industries. Finally, from the Enterprise data, we find some evidence that wages are higher in minimum wage industries; we find no evidence of this in the CMI data. These wage results were obtained, however, using a very inaccurate measure of the monthly wage. Assuming that all firms make 13 monthly wage payments a year is incorrect. It is highly likely that firms facing a wage floor on monthly wages will not only reduce employment of workers but will also reduce the number of months that workers are employed per year. Future data collection should include more information on the intensity with which labor is employed.

In summary, the results we obtain from this analysis are reasonable and supportive of most of the theoretical predictions. However, further work needs to be done. One other explanation for the results obtained in this project is that industries targetted for minimum wage regulation are not randomly selected from among all possible industries. If, for example, the Minimum Wage Board targetted industries with lower employment and with a less skilled or operative employment base, then the results we obtained are the product of minimum wage effects and industry selection. We did not have enough information available with which to identify such a selection model, but further work in this area should explore the objective function of the Board in its wage regulation behavior.

Policy Implications

From the results obtained in this project, we recommend an adjustment of the minimum wage policy in Bangladesh. In a world of competitive labor markets, the best policy is to remove all wage floors. The effect of this policy would be to increase the employment of labor and to increase the use of skilled production workers within firms. Such a policy would be compatible with a policy promoting the overall technological development of the Bangladesh economy.

In a world with imperfections in the labor market, there may be a role for the minimum wage to play. In the extreme case where one firm is the only employer of labor, the minimum wage can be welfare improving to the workers and the economy by forcing monopsonists to behave more competitively. Where a few employers dominate the market, the degree of exploitation of workers is less, but welfare may be improved with a minimum wage if these employers act collusively.

Assuming that elements of labor market imperfection do exist, then what form should a minimum wage policy take? If the goal of the policy is to guarantee workers a minimum level of subsistence, then the appropriate policy is to set one wage for the urban economy and a lower wage for the rural economy (where the cost of living is lower and wages are lower). This policy of a flat wage for all firms would eliminate the relative input price distortions across industries, and the minimum wage would be more like a true wage floor rather than a wage control.

Firms know best how to allocate resources to achieve maximum production. Minimum price distortion would improve this resource allocation across firms by letting the market reward workers for their skills appropriately.

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Table 1a.--Minimum wage information: urban areas

Name of Establishment	CMI Code	Year	Category of Employees			
			Skilled	Semi-Skilled	Unskilled	Clerical & White Collar
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Baby Food	3112	1974	387.50	237.50	187.00	--
Cold Storage	3112	1975	380.00	255.00	200.00	--
Bakery	3122	1976	300.00	237.5	200.00	--
Crushing & Refining	3118	1978	NA	NA	NA	NA
Hotel & Restaurant	4000	1979	281.6	262.5	255.00	--
Automobile	3844	1980	470.0	370.0	255.00	570.00
Glass & Sllicate	3621	1980	482.5	430.0	400.00	650.00
Aluminium	3809	1981	642.5	541.0	495.00	800.00
Bidi	3141	1981	275.0			
Enamel	3814	1981	699.0	541.0	525.33	642.33
Match	3525	1981	581.0	480.0	450.00	--
Iron Foundry & Engg.	3712	1981	625.0	560.0	495.00	755.00
Road Transport	3844	1981	666.66	466.66	400.00	450.00
Oil Mill & Vegetable Products	3115	1981	547.00	521.00	475.00	586.00
Soap and Cosmetics	3522	1982	703.00	560.00	495.00	631.5
Cinema House	4000	1982	570.00	520.00	446.25	620.0
Bakery	3122	1982	626.66	585.5	559.12	--
Tannery	3231	1982	690.00	631.5	528.00	820.00
Plastic	3569	1983	787.5	651.0	599.00	--
Saw Mill	3311	1983	787.5	625.0	612.5	--
Typing Foundry	3712	1983	820.0	625.0	529.0	1095.00
Rubber	3551	1983	755.0	651.0	612.0	--
Tea Packaging	3312	1983	644.5	537.0	510.0	982.00
Rice Milling	3119	1984	820.0	625.0	495.0	1015.00
Bidi	3141	1985	723.0	675.0	627.0	--
Glass & Silicate	3621	1985	745.0	665.0	630.0	820.0
Garments	3221	1985	691.0	595.5	510.0	994.50
Match	3525	1986	878.0	812.0	751.0	971.0
Printing Press	3422	1986	800.05	796.50	672.0	1261.0
Jute Pressing & Bailing	3253	1986	947.0	842.0	751.0	--
Pharmaceuticals	3501	1986	1069.6	894.0	790.0	1310.0
Shoe	3241	1986	1089.0	920.0	751.0	1264.0
Ayurvedic Medicine	3503	1986	1114.0	894.5	751.0	1261.0
Homeopath Medicine	3504	1986	850.0	850.0	750.0	1100.0
Knitting Mill	3213	1986	952.0	851.0	751.0	--
Hotel & Restaurant	4000	1986	871.25	790.00	751.00	--
Cinema	4000	1987	1440.00	1245.00	985.00	1765.00
Tea Garden		1987	717.50	NA	276.60	720.00
Automobile	3844	1987	1288.00	1084.00	878.00	1500.00
Petroleum	3541	1987	1596.00	1148.67	868.00	1850.00
Re-rolling Mills	3713	1988	1191.00	998.00	888.00	1960.00
Garments (Local)	3223	1988	1115.00	946.00	NA	1261.5
Biri	3141	1988	982.00	NA	868.00	1190.00
Crushing & Refin(Bone)	3942	1988	1500.00			--
Deep Sea Fishing	3114	1989	1517.5	1180.00	910.00	2057.5
Road Transport	3844	1989	1235.5	985.00	868.00	--

Table 1b.--Minimum wage information: rural areas

Name of Establish.	Ind Code	Year	Category of Employees			
			Skilled	Semi-skilled	Unskilled	Clerical & White Collar
1. Garments	3221	1985	573.00	471.00	--	--
2. Baby Food	3112	1974	375.00	235.00	185.00	--
3. Petroleum	3541	1987	1206.00	918.00	812.00	--
4. Tea garden		1987	645.31	640.00	145.37	--
5. Printing Press	3422	1986	865.00	726.00	684.00	--

Table 2. Descriptive statistics: privately owned urban firms

Variables	Mean	Standard Deviation
Employment Variables		
Total employment	45.84	2983.00
Employment of skilled labor	20.02	92.31
Employment of semi-skilled labor	9.33	50.02
Employment of unskilled labor	9.09	66.86
Employment of clerical labor	3.68	20.80
Share of employment: skilled	.51	.69
Share of employment: semi-skilled	.18	.24
Share of employment: unskilled	.11	.25
Share of employment: clerical	.04	.10
Wage Variables		
Average monthly skilled wage	1061.288	737.562
Average monthly semi-skilled wage	616.122	455.565
Average monthly unskilled wage	556.469	447.924
Average monthly clerical wage	1141.723	679.533
Control Variables		
Minimum wage industry (=1)	.317	.466
Unionized wage industry (=1)	.049	.216
Total sales (million Taka)	5.366	18.570
Return on capital (10,000 Taka)	2.029	9.125
Age of firm	12.927	10.519
Female share of employment	.123	.221
Years under current minimum wage		

Table 3. Employment regressions, all firms, by skill of labor[a] (n=203)

Independent Variables (1)	Total Employment (2)	Skilled Labor (3)	Semi-Skilled Labor (4)	Unskilled Labor (5)	Clerical Labor (6)
Constant	4.155 (16.351)	3.544 (6.343)	-2.917 (3.658)	-1.285 (5.393)	-1.243 (1.225)
Sales	7.948** (.643)	2.940** (.251)	1.739** (.144)	2.153** (.214)	.694** (.049)
Return on capital	.492** (.112)	3.154** (.052)	.088** (.025)	1.426** (.446)	.680** (.101)
Age of firm	.404 (.890)	.072 (.347)	.172 (.199)	-.018 (.295)	.052 (.067)
Union firm (=1)	-89.997 (53.176)	11.753 (20.276)	21.682 (11.895)	16.442 (17.240)	7.786* (3.916)
Minimum Wage firm (=1)	-41.330* (20.233)	-22.690** (7.840)	-6.971 (4.526)	-14.655** (6.666)	-3.872** (1.514)
R^2	.680	.693	.657	.578	.775
F-statistic	84.035	90.039	75.492	54.408	136.911

[a]Standard errors are in parentheses.
**Significant at the one percent level.
*Significant at the five percent level.

Table 4. Employment share regressions, all firms, by skill of labor[a] (n=202)

Independent Variables	Skilled Labor Share	Semi-skilled Labor Share	Unskilled Labor Share	Clerical Labor Share
Constant	.542**	.117	.083	.003
	(.087)	(.030)	(.031)	(.012)
Sales	.0007	-.0002	-.0004	.0003
	(.0034)	(.0012)	(.001)	(.0005)
Return on capital	-.0002	.0001	.0001	.0002*
	(.0006)	(.0002)	(.0002)	(.0000)
Age of firm	.004	.0027	.0009	.0019
	(.005)	(.0016)	(.0017)	(.0006)
Union firm (=1)	-.095	-.062	.117	-.039
	(.282)	(.097)	(.101)	(.039)
Minimum Wage firm (=1)	-.230*	.111**	.023	.040**
	(.108)	(.037)	(.038)	(.015)
R^2	.027	.061	.015	.119
F-statistic	1.096	2.543	.585	5.306

[a]Standard errors are in parentheses.
**Significant at the one percent level.
*Significant at the five percent level.

Table 5. Wage regressions, all firms[a]

Independent Variables	Average Skilled Wage	Average Semi-skilled Wage	Average Unskilled Wage	Average Clerical Wage
Constant	1160.006**	718.842**	423.130**	1236.551**
	(96.298)	(66.661)	(89.418)	(159.787)
Sales	1.907	4.584*	.007	6.900*
	(3.541)	(2.084)	(2.608)	(3.487)
Return on capital	.306	1.119**	.584	1.364**
	(.618)	(.343)	(.349)	(.580)
Age of firm	-6.564	-5.999	-2.948	-17.786**
	(5.091)	(3.268)	(5.085)	(7.029)
Union firm (=1)	114.102	-206.372	498.812*	-467.352
	(285.724)	(237.768)	(228.945)	(468.592)
Minimum wage firm (=1)	40.449	61.802	335.717**	166.892
	(113.808)	(72.054)	(101.912)	(145.417)
Female labor share	-810.946**	-369.570**	-250.447	-867.196**
	(291.841)	(88.543)	(165.900)	(524.649)
R^2	.056	.366	.360	.344
F-statistic	1.797	10.874	5.535	5.232
Sample size	190	120	67	67

[a]Standard errors are in parentheses.
**Significant at the one percent level.
*Significant at the five percent level.

Table 7. Employment share regressions: Small and large firms[a]

Independent Variables	Skilled Labor Share		Semi-Skilled Labor Share		Unskilled Labor Share		Clerical Labor Share	
	Small	Large	Small	Large	Small	Large	Small	Large
Constant	.459	.720	.126**	.074	.074	.102	-.0007	.032
	(.037)	(.398)	(.034)	(.075)	(.025)	(.121)	(.0135)	(.028)
Sales	.010	-.0005	-.003	-.0000	.0004	-.0011	.001	-.0000
	(.009)	(.0078)	(.008)	(.0001)	(.0053)	(.0024)	(.003)	(.0005)
Return on capital	-.004*	-.0001	-.0003	.0001	.0005	.0000	.0016**	.0001
	(.002)	(.0014)	(.0015)	(.0003)	(.0011)	(.0004)	(.0006)	(.0001)
Age of firm	.002	-.012	.0024	.0057	-.0000	.003	.0014	.0008
	(.003)	(.022)	(.0019)	(.0043)	(.0014)	(.007)	(.0007)	(.0016)
Union firm	-.043	-.296	-.075	-.093	.129	.162	-.020	.011
	(.120)	(1.228)	(.110)	(.133)	(.081)	(.374)	(.044)	(.036)
Minimum wage firm	-.114*	-.436	.130**	.085	.021	.028	.017	.065*
	(.043)	(.453)	(.044)	(.036)	(.033)	(.138)	(.017)	(.032)
R^2	.095	.036	.071	.062	.028	.013	.163	.156
F-statistic	3.011	.344	2.139	.505	.843	.119	5.618	1.707
Sample size	150	51	150	51	150	51	150	51

[a]Standard errors are in parentheses.
**Significant at the one percent level.
*Significant at the five percent level.

Table 8. Wage regressions: small and large firms.

Independent Variables	Skilled Wage		Semi-skilled Wage		Unskilled Wage		Clerical Wage	
	Small	Large	Small	Large	Small	Large	Small	Large
Constant	1050.642** (107.379)	1743.118** (244.024)	71[illegible],769** (75.938)	845.309** (164.425)	401.307** (106.932)	399.506** (201.357)	1617.937** (299.398)	1239.654** (192.544)
Sales	26.028 (22.971)	2.140 (4.339)	1.471 (14.361)	5.228 (3.019)	1.014 (18.910)	-.053 (3.493)	-7.803 (24.608)	5.261 (3.384)
Return on Capital	-1.730 (52.675)	8.329 (9.167)	67.628* (31.780)	14.955** (5.818)	51.147 (46.539)	8.092 (4.849)	33.421* (64.761)	15.047* (6.558)
Age of Firm	-.004 (5.699)	-29.139* (12.391)	-7.580* (3.796)	-16.074* (7.886)	-6.841 (6.165)	4.107 (11.858)	-26.456* (11.752)	-16.621 (9.766)
Union Firm	455.344 (318.937)	-554.153 (616.276)	-31.902 (262.678)	-415.020 (529.517)	698.274* (287.791)	284.[illegible]2 (428.511)	---	-187.630 (454.411)
Female Labor Share	-814.887* (337.613)	-1018.326** (375.065)	-622.159** (205.802)	-695.847** (250.434)	-190.857 (333.655)	-510.065 (311.216)	-1226.918 (685.332)	-1237.550** (401.475)
Minimum Wage Firm	-36.315 (132.199)	70.669 (239.738)	8.386 (86.886)	80.697 (150.790)	276.513* (132.853)	502.585* (200.754)	-48.753 (242.360)	523.443** (203.091)
R^2	.078	.242	.234	.595	.298	.553	.240	.564
F-Statistic	1.815	2.500	3.869	7.832	2.553	3.305	1.581	6.265
Sample Size	136	54	83	39	43	23	31	36

[a] Standard errors in parentheses.
** Significant at the one percent level.
* Significant at the five percent level.

Table 9. Descriptive statistics: privately owned urban firms, CMI[a]

Variables	Mean	Standard Deviation
Employment Variables		
Total employment	82.225	305.737
Operatives	60.037	252.341
Administrative labor	16.210	46.125
Other labor	4.940	47.604
Share of employment: operatives	.688	.187
Share of employment: administrators	.214	.138
Share of employment: other labor	.049	.142
Wage Variables		
Average monthly wage: operatives	999.220	448.003
Average monthly wage: administrators	1560.10	1192.94
Average monthly wage: all labor	1306.94	5637.38
Control Variables		
Minimum wage industry (Yes=1)	.253	
Value added (thousand Taka)	20.620	15.965
Value of capital (thousand Taka)[a]	3.266	11.250
New firm (Yes=1)	.133	
Capital-labor ratio	42.255	77.377

[a]10 percent of the total cost of capital.

[b]Minimum wage firms only.

Table 10. Employment regressions, all firms, CMI, by skill of labor: Effects of minimum wage[a] (n=1797)

Independent Variables (1)	Total Employment (2)		Operatives (3)		Administrative Labor (4)		Other Labor (5)	
Constant	62.127**	35.900**	53.989**	33.291**	8.171**	4.566**	.946	-2.902
	(12.689)	(12.465)	(10.662)	(10.452)	(1.830)	(1.795)	(2.169)	(2.101)
Value added	.004	.013	-.268	-.260	.092	.093	.180*	.180*
	(.513)	(.521)	(.431)	(.437)	(.074)	(.075)	(.088)	(.088)
Value of capital	11.199**	8.875**	8.423**	6.589**	1.985**	1.666**	.788**	.614**
	(.647)	(.587)	(.543)	(.492)	(.093)	(.084)	(.111)	(.099)
New firm	192.146**	205.370**	157.151**	167.587**	29.345**	31.163**	5.436	6.422
	(24.387)	(24.750)	(20.490)	(20.753)	(3.516)	(3.563)	(4.168)	(4.172)
Capital-labor ratio	-.743**	---	-.587**	---	-.102**	---	-.055**	---
	(.093)		(.079)		(.013)		(.016)	
Minimum wage firm (=1)	-42.280**	-40.488**	-47.608**	-46.193**	.270	.516	4.352	4.985*
	(15.247)	(15.508)	(12.810)	(13.003)	(2.198)	(2.233)	(2.606)	(2.614)
R^2	.204	.176	.175	.150	.273	.250	.041	.035
F-statistic	91.945	95.783	76.167	78.840	134.563	149.123	15.322	16.041

[a]Standard errors are in parentheses.
**Significant at the one percent level.
*Significant at the five percent level.

Table 11. Labor share regressions, all firms, CMI: effects of minimum wage[a] (n=1797)

Independent Variables	Operative Labor Share		Administrative Labor Share		Other Labor Share	
Constant	.729**	.712**	.174**	.188**	.044**	.044**
	(.008)	(.008)	(.006)	(.006)	(.007)	(.006)
Value added	.000	.000	.0002	.0002	-.000	-.000
	(.000)	(.000)	(.0002)	(.0003)	(.000)	(.000)
Value of capital	.001	-.0003	-.0002	.0010	.0002	.0002
	(.0004)	(.0004)	(.0003)	(.0003)	(.0003)	(.0003)
New firm (=1)	.011	.019	.0127	.0010	-.020	-.021
	(.016)	(.018)	(.012)	(.0120)	(.013)	(.013)
Capital-labor ratio	-.0005**	--	.00037**	--	.000	--
	(.00006)		(.00005)		(.000)	
Minimum wage firm (=1)	-.103**	-.102**	.071**	.071**	.027**	.027**
	(.010)	(.010)	(.007)	(.007)	(.008)	(.008)
R^2	.085	.055	.093	.058	.009	.009
F-statistic	33.366	26.144	36.489	27.367	3.064	3.829

[a]Standard errors are in parentheses.
**Significant at the one percent level.
*Significant at the five percent level.

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Table 12. Wage regressions, all firms: CMI effects of minimum wage

Independent Variables	Total Wage		Operative Wage		Administrative Wage	
Constant	680.600**	228.286	860.196**	880.809**	1456.614**	1492.700**
	(235.084)	(230.395)	(19.578)	(18.988)	(53.878)	(51.859)
Value added	9.629	9.787	3.962**	3.960**	-.099	-.134
	(9.497)	(9.639)	(.790)	(.794)	(2.167)	(2.170)
Value of capital	198.717**	158.633**	8.360**	10.189**	18.096**	21.274**
	(11.980)	(10.846)	(.995)	(.891)	(2.756)	(2.428)
New firm (=1)	3391.101**	3619.160**	18.420	7.968	399.905**	382.510**
	(451.802)	(457.472)	(37.611)	(37.685)	(102.810)	(102.703)
Capital-labor	-12.823**	---	.586**	---	1.017**	
	(1.732)		(.145)		(.419)	---
Minimum wage firm (=1)	-515.263	-484.356	35.782	33.941	-47.005	-49.365
	(282.464)	(286.645)	(23.531)	(23.628)	(64.547)	(64.630)
R^2	.197	.172	.103	.094	.062	.059
F-statistic	87.699	93.117	40.708	46.374	23.091	27.314
Sample size	1797	1797			1752	1752

Table 13a. Employment regressions: Small and large firms, CMI[a]

Independent Variables	Total Employment		Operative Labor		Administrative Labor		Other Labor	
	Small	Large	Small	Large	Small	Large	Small	Large
Constant	10.754**	124.951**	7.893**	104.985**	1.706**	17.990**	.442**	.775
	(3.02)	(24.070)	(.277)	(20.336)	(.113)	(3.433)	(.114)	(4.256)
Value added	.030*	.473	.025*	.027	.008	.184	-.003	.264
	(.014)	(.887)	(.012)	(.750)	(.005)	(.126)	(.005)	(.157)
Value of capital	3.603**	12.802**	2.319**	9.741**	1.103**	2.143**	.138	.925**
	(.280)	(.998)	(.257)	(.843)	(.105)	(.142)	(.106)	(.176)
Capital-labor ratio	-.038**	-1.697**	-.030**	-1.343**	-.007**	-.231**	-.0009	-.124**
	(.003)	(.201)	(.003)	(.170)	(.001)	(.029)	(.001)	(.036)
New firm (=1)	-.152	227.830**	.014	187.666**	.040	33.888**	-.317	6.194
	(.756)	(38.453)	(.694)	(32.486)	(.284)	(5.484)	(.286)	(6.799)
inimum wage firm (=1)	-.130	-84.803**	-.856**	-91.078**	.480**	-1.366	.228	7.283
	(.355)	(28.396)	(.326)	(23.967)	(.134)	(4.046)	(.135)	(5.016)
R^2	.165	.226	.114	.198	.167	.278	.012	.046
F-statistic	35.261	52.116	22.883	44.200	35.733	68.798	2.083	8.691
Sample size	898	899	898	899	898	899	898	899

[a]Standard errors are in parentheses.
**Significant at the one percent level.
*Significant at the five percent level.

Table 13b. Employment regressions: Small and large firms, CMI[a]

Independent Variables	Total Employment		Operative Labor		Administrative Labor		Other Labor	
	Small	Large	Small	Large	Small	Large	Small	Large
Constant	10.524**	54.542*	7.712**	49.237**	1.666**	8.392**	.436**	-4.387
	(3.21)	(23.450)	(.290)	(19.722)	(.115)	(3.334)	(.114)	(4.017)
Value added	.026	.056	.022	.488	.007	.264*	-.003	.306*
	(.014)	(.919)	(.013)	(.773)	(.005)	(.131)	(.005)	(.157)
Value of capital	.947**	7.896**	.224	5.856**	.634**	1.475**	.073	.565**
	(.155)	(.842)	(.140)	(.708)	(.056)	(.120)	(.055)	(.144)
New firm (=1)	.159	242.031**	.259	198.909**	.095	35.824**	-.031	7.236
	(.805)	(39.897)	(.727)	(33.554)	(.288)	(5.672)	(.286)	(6.835)
Minimum wage firm (=1)	-.153	-79.847**	-.875**	-87.154**	.476**	-.691	.228	7.646
	(.379)	(29.456)	(.342)	(24.774)	(.136)	(4.188)	(.134)	(5.046)
R^2	.050	.164	.024	.142	.142	.226	.011	.033
F-statistic	11.714	43.878	5.364	37.047	36.798	65.057	2.476	7.703
Sample size	898	899	898	899	898	899	898	899

[a]Standard errors are in parentheses.
**Significant at the one percent level.
*Significant at the five percent level.

Table 14a. Employment share regressions: small and large firms, CMI[a]

Independent Variables	Operative Share		Administrative Share		Other Labor Share	
	Small	Large	Small	Large	Small	Large
Constant	.717** (.013)	.728** (.012)	.173** (.008)	.188** (.009)	.037** (.009)	.058** -.010)
Value Added	.0003 (.0006)	-.0003 (.0004)	-.0002 (.0004)	.00009 (.00034)	.00009 (.0004)	-.0003 (.0004)
Value of Capital	.017 (.011)	.0009 (.0005)	.021** (.008)	-.0005 (.0004)	-.006 (.009)	.0002 (.0004)
Capital-labor ratio	-.0007** (.0001)	-.0004** (.0001)	.00015 (.00009)	.00038** (.00008)	.0001 (.0001)	-.00008 (.00008)
New Firm (=1)	.0009 (.0317)	.012 (.019)	.022 (.021)	.008 (.015)	-.033 (.024)	-.020 (.016)
Minimum Wage Firm (=1)	-.047** (.015)	-.152** (.014)	.035** (.010)	.101** (.011)	.0010 (.011)	.044** (.012)
R^2	.065	.131	.084	.111	.006	.020
F-Statistic	12.437	26.872	16.331	22.242	1.069	3.659
Sample size	898	899	898	899	898	899

a Standard error are in parentheses.
Significant at the one percent level.
Significant at the five percent level.

Table 14b. Employment share regressions: small and large firms, CMI[a]

Independent Variables	Operative Share		Administrative Share		Other Labor Share	
	Small	Large	Small	Large	Small	Large
Constant	.712** (.013)	.711** (.011)	.174** (.008)	.203** (.009)	.038** (.009)	.054** (.009)
Value Added	.0003 (.0006)	-.0004 (.0004)	-.0002 (.0004)	-.00004 (.00035)	.0001 (.0004)	-.0002 (.0004)
Value of Capital	-.031** (.006)	-.0002 (.0004)	.032** (.004)	-.00057 (.00032)	-.003 (.005)	.000004 (.00033)
New Firm (=1)	.007 (.032)	.015 (.019)	.021 (.021)	.005 (.015)	-.034 (.024)	-.019 (.017)
Minimum Wage Firm (=1)	-.048** (.012)	-.151** (.014)	.035** (.010)	.100** (.011)	.010 (.011)	.044** (.011)
R^2	.041	.116	.081	.087	.004	4.309
F-Statistic	9.608	29.242	19.744	21.261	.982	.019
Sample size	898	899	898	899	898	899

a Standard errors are in parentheses.
** Significant at the one percent level.
* Significant at the five percent level.

Table 15a. Wage regressions: small and large firms, CMI[a]

Independent Variables	Total Wage		Operative Wage		Administrative Wage	
	Small	Large	Small	Large	Small	Large
Constant	95.944** (3.851)	1498.685** (447.853)	853.012** (19.203)	915.370** (33.808)	1054.030** (36.351)	1866.918** (96.176)
Value Added	.473** (.172)	23.972* (16.506)	.119 (.860)	6.222** (1.246)	2.409 (1.628)	-2.180 (3.545)
Value of Capital	48.238** (3.577)	227.391** (18.562)	69.048** (17.837)	7.294** (1.401)	173.085** (33.765)	14.101** (3.986)
Capital-labor ratio	-.356** (.044)	-29.161** (3.739)	.212 (.218)	.246 (.282)	-.153 (.413)	-.089 (.803)
New Firm (=1)	-12.717 (9.650)	4078.763** (715.449)	-75.259 (48.119)	-24.761 (54.008)	-84.516 (91.086)	416.883** (153.642)
Minimum Wage Firm (=1)	-1.622 (4.537)	-1127.488* (527.830)	-23.166 (22.625)	42.396 (39.845)	23.970 (42.827)	-95.452 (113.351)
R^2	.212	.219	.094	.090	.093	.032
F-Statistic	48.125	50.068	18.522	17.582	18.219	5.942
Sample size	898	899	898	899	898	899

[a] Standard errors are in parentheses.
** Significant at the one percent level.
* Significant at the five percent level.

Table 15b. Wage regressions: small and large firms, CMI[a]

Independent Variables	Total Wage		Operative Wage		Administrative Wage	
	Small	Large	Small	Large	Small	Large
Constant	93.796** (3.980)	288.473 (433.940)	854.292** (19.158)	925.569** (31.709)	1053.108** (36.248)	1863.213** (90.169)
Value Added	.440** (.179)	33.979* (16.998)	.139 (.860)	6.137** (1.242)	2.395 (1.627)	-2.150 (3.532)
Value of Capital	23.390** (1.925)	143.053** (15.584)	83.863** (9.265)	8.005** (1.139)	162.422** (17.530)	13.843** (3.238)
New Firm (=1)	-9.811 (9.989)	4322.838** (738.292)	-76.992 (48.085)	-26.818 (53.949)	-83.269 (90.980)	417.630** (153.410)
Minimum Wage Firm (=1)	-1.836 (4.700)	-1042.306* (545.088)	-23.038 (22.623)	41.678 (39.831)	23.878 (42.805)	-95.192 (113.264)
R^2	.154	.166	.093	.089	.093	.032
F-Statistic	40.674	44.407	22.918	21.793	22.762	7.433
Sample size	898	899	898	899	898	899

a Standard error are in parentheses.
** Significant at the one percent level.
* Significant at the five percent level.