Asian Development Policy Review
ISSN(e): 2313-8343
ISSN(p): 2518-2544
DOI: 10.55493/5008.v12i1.4971
Vol. 12, No. 1, 39-52.

URL: www.aessweb.com

Minimum wage in Bangladesh: Awareness and impact a case of leather sector

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Article History
Received: 20 September 2023
Revised: 13 November 2023
Accepted: 22 December 2023
Published: 17 January 2024

Keywords
Bangladesh
Compliance
Logit
Minimum wage
Poverty
Tannery
Workers union.

ABSTRACT

This paper aims to explore the awareness of the minimum wage among workers in the tannery sector and assess its impact on poverty. The national minimum wage is a policy instrument for protecting workers' rights. It has an effect on the employment, inequality, equity, and poverty of the workers. The effect is assessed using descriptive and econometric tools and techniques. The regression analysis is used to find the key social and economic determinants of poverty, along with the components of the minimum wage. In total, 120 workers are randomly chosen for interviews. The study shows that workers are less aware of the minimum wage, and 89% report the non-availability of the minimum wage. Nearly 55% of the workers' families live below the poverty line. The Probit model-based regression results show that the implementation of bonuses and annual increments according to the minimum wage policy reduces the odds of poverty significantly. The presence of workers' unions has no effect on the eradication of poverty, but household characteristics, particularly household size, are found to be a key factor in poverty. Sector experts consider non-compliance a governance failure in the tannery sector and suggest awareness campaigns, a reduction of job informality, and sanctions as deterrents to non-compliance.

Contribution/ Originality: This study identifies the awareness level of the minimum wage among workers and the gap between the actual wage and the declared minimum wage. We then examine the effects of non-compliance with the minimum wage on the probability of being poor and the poverty gap.

1. INTRODUCTION

The economy of Bangladesh is mostly informal. The workers have no formal contracts and have limited rights as workers. The working environment is sometimes not appropriate, creating health risks and affecting productivity. The emolument they receive is not sometimes sufficient to cover their basic needs at the national subsistence level. The government of Bangladesh provides some benefits for disadvantaged groups of people through transfer payments, increasing access to essential commodities at discounted prices, and setting the minimum wage for workers. The government of Bangladesh declared minimum wages for various industries in various years, for example, for the plastic, rubber, and tea packaging industry in 1983, for tea gardens in 1987, for the shipbreaking industry in 2009, for the garments industry in 2013, etc. Due to the relative importance of the tannery and leather sectors, the government also recommended a minimum wage for this sector in 2018.

The leather industry is considered to have a promise for export diversification and widening its export basket. The secured supply of rawhides and skins in the domestic market and the production and export of high-value-added items by processing wet leather into finished goods generated the vibe of a diversified export basket. Bangladesh became the 8th largest producer and 18th largest exporter of footwear, with a production volume of 407 million pairs (World Footwear, 2020). The export of this industry was US$ 0.9417 billion in fiscal year 2021, or nearly 2.4 percent of the total export receipts (US$ 38.8 billion) (EPB, 2021). There has been a declining trend in these receipts in recent years. The industry's exports exceeded the US$ 1 billion milestone in fiscal year 2017 (approximately US$ 1.2 billion), which declined to US$ 1.1 billion, US$ 1 billion, and US$ 797.6 million in fiscal years 2018, 2019, and 2020, respectively. This decline was primarily due to several domestic and international factors, like disruption in global demand for crust and processed leather, the increasing use of artificial leather, non-compliance issues, poor safety, and the lack of investment and diversification of products.

Although the tannery sector developed in Hazaribagh, it was relocated to the Tannery Industrial Estate at Savar with a view to improving the overall working environment for the workers and owners. Even after the relocation, the industry was struggling to ensure some basic rights for the workers, like the minimum wage, labor rights, and occupational safety and health. Despite the central effluent treatment plant (CETP), the sector is facing concerns about environmental compliance. It is also suffering from poor working environments, hazardous and risky working conditions, poor working facilities, and so on.

The importance of the minimum wage as a policy instrument for improving the well-being of workers is well-evident in the literature. Particularly, it is considered an effective treatment tool for alleviating poverty (Rani, 2017; Sabia & Burkhauser, 2010; Sotomayor, 2021; Wilson, Rebhun, & Rivas, 2011). Every worker should have a 'decent living' opportunity (Müller & Schulten, 2020). They should have access to improved diet and health facilities (Komro, Livingston, Markowitz, & Wagenaar, 2016). The wage received should also ensure the educational needs of their children (Jadoon & Sarwar, 2020). The study primarily aims to assess the awareness of the minimum wage among workers and the firms' compliance with the minimum wage in the tannery sector. In particular, it aims to study the gap between the current wages received by the workers and the declared minimum wage and to study the effect of the minimum wage on the overall poverty of the workers in this sector. Hence, the paper explores the answers to some specific research questions: (i) What is the current wage structure of the workers in the tannery sector? Are the workers getting the declared minimum wage? (ii) What are the wage differentials between the actual wage received and the expected wage? Does the minimum wage cover the cost of living? (iii) Is the minimum wage binding for the tannery? What is the probable effect of implementing the partial or full package of the minimum wage policy? Are the respective government agencies and the tanneries playing an effective role in establishing the required and just minimum wage for the workers?

Two hypotheses are set in this paper. The first one highlights the gap between received wages and the stated minimum wage. The second hypothesis is about the effect of the assurance of the minimum wage on poverty incidence and the poverty gap. The null hypothesis of the first case states that the workers receive wages in accordance with the minimum wage policy, and hence, the alternative hypothesis states that there is a wage differential between the actual wage and the declared minimum wage. On the other hand, the null hypothesis of the second case states that the minimum wage, either in complete or partial form, is ineffective in reducing poverty incidence. The alternative hypothesis is that the minimum wage has an effective role in reducing poverty. A similar hypothesis can be drawn for the case of the poverty gap variable.

2. LITERATURE REVIEW

The interaction of labor supply and demand determines the wage rate in a market where labor is competitive. The wage rate is dependent on the nature of excess demand for labor, excess supply of labor, elasticity of demand for labor, elasticity of supply of labor, labor market conditions, regulation and policy in the respective labor market,

bargaining power, education, training, experience, information, job nature, and many more individual, organizational, and institutional factors. The minimum wage theory suggests that a binding minimum wage is a wage that is higher than the wage rate determined by the marker forces. According to the ILO, it is the 'minimum amount of remuneration that an employer is required to pay to wage earners for the work performed during a given period, which cannot be reduced by a collective agreement or an individual contract.' In literature, it is also referred to alternatively as floor wage, decent wage, living wage, etc. There is a debate about introducing the minimum wage regulations. The debate is primarily about the effectiveness of the minimum wage on unemployment. Theoretically, the artificial rise in wage rate as per the guidelines of the minimum wage policy induces new workers, especially unskilled workers, to enter the labor market, and, on the other hand, the rise in wage reduces the demand for labor as demand for labor is inversely related to the wage rate. Thereby, the minimum wage causes an excess supply of labor and, theoretically, unemployment. Beyond employment, the minimum wage has impacts on the distribution of wages and earnings among high-paid and low-paid workers, the distribution of income among high-income and low-income families, the skills of the workers, the pricing strategy, and the profitability of the employers. Minimum wage is an issue for developing and industrial economies. The key purpose of providing a national minimum wage is to ensure a reasonable flow of money so that workers can have a decent living standard. The overall purpose of the minimum wage includes the alleviation of poverty (Neumark & Wascher, 1995), improving resource distribution through the reduction of inequality (Belser & Rani, 2010), and achieving a balance in efficiency and equity. Compliance with the minimum wage depends on the system of minimum wage. Compliance is high among the countries following the national minimum wage set at a meaningful level compared to countries that have occupational or industry-specific minimum wage systems (Rani, Belser, Oelz, & Ranjbar, 2013). Better compliance is associated with contextualized minimum wage policies that combine the relationship between employees and employers, awareness-raising, and credible enforcement.

The literature on the effects of the minimum wage focuses on the employment, wages, earnings, productivity, well-being, and poverty of low-wage workers. Some studies also focus on the distributional, inequality, and equity effects of the minimum wage. The empirical shreds of evidence on the employment effect of the minimum wage are ambiguous. Alatas and Cameron (2003) found a negative employment effect for small domestic firms and no employment impact for large firms, domestic and foreign. Hurst, Kehoe, Pastorino, and Winberry (2022) found that a large increase in the minimum wage has a small employment effect in the short run, but in the long run, it reduces the employment, income, and overall welfare of the incumbent group. Pratomo (2011) found a negative employment effect in the covered sector but no effect on total employment due to non-compliance problems. Lester (1960) claimed a zero or near-zero employment effect of a minimum wage law, and Kaufman (2020) provided explanations of those results using Lester's Institutional-Industrial Relation Model of the labor market. Card and Krueger (2000) found no evidence of falling employment due to a rise in the minimum wage. On the other hand, using time series data,Carneiro (2000) found a potential positive employment effect in Brazil. Stigler (1946) stated that the higher the minimum wage, the higher the number of unemployed people. The studies of Neumark and Wascher (1992); Deere, Murphy, and Welch (1995); Burkhauser, Couch, and Wittenburg (2000); and Brown, Gilroy, and Kohen (1982) also supported the competitive market model.

The minimum wage works as an effective policy instrument for poverty reduction and achieving social justice. The effect of the minimum wage depends on employment effects: it may support the workers who continue their jobs in the sector, but some workers may lose their jobs, and hence, the overall gains in terms of poverty eradication among the workers may be zero, near zero, or ambiguous. Belser and Rani (2010) showed that the minimum wage in agriculture and in the low-productive service sector reduced wage inequality by more than 15 percentage points, and in the manufacturing sector by 10 percentage points. They claimed that the impact would be quite substantial with the expansion of the minimum wage at the state level and in specific sectors. Rani and Belser (2012) showed that the effectiveness of the minimum wage is weak in India. However, they have shown that about 40 percent of

casual workers live in poor families, and the payment of the minimum wage to wage earners reduced the probability of being poor by about 10 percent. The response of poverty to wage policy is inelastic, and poverty reduction gains can be eroded by the resulting short-run employment losses due to the minimum wage (Bhorat, 2000). Lemos (2006), using firm-level panel data, showed that the inflation-led volatility in wages can also erode the positive employment effect and thereby the welfare gains of the workers. Awan and Perveen (2019) found no significant impact of the minimum wage on poverty alleviation in Panjab province of Pakistan and identified human capital and skill as the key significant factors of poverty alleviation tools. Jadoon, Tanveer, Javed, and Sarwar (2021) found that the minimum wage policy alone was not sufficient to reduce non-economic poverty, and poverty alleviation required supplementary policies. Saget (2001) remarked that the minimum wage contributed to the alleviation of non-extreme poverty in poorer countries depending on the nature of minimum wage-receiving workers and found no rock-hard evidence of the favorable effect on extreme poverty alleviation. Card and Krueger (1995) identified the minimum wage as a significant predictor of inequality. Who can benefit from the minimum wage policy? The workers who continued their work received higher pay. Studies showed that the workers in the unionized factories are the greatest beneficiaries of the minimum wage (Linneman, 1982). The effect is, however, not a confirmed case. Non-effective unionization may fail to generate the desired effect. The benefits may be heterogeneous between rural areas and urban areas (Taylor & West, 2023). Patel, Khan, and Englert (2020) showed that the national minimum wage could benefit the youth engaged in formal employment by stimulating job-seeking behavior among discouraged workers, which is unlikely to crowd out investments in further education.

3. THE MINIMUM WAGE IN BANGLADESH

The labor market in Bangladesh is mostly informal. The presence of a large informal economy is a key feature of Bangladesh's economy. The workers have limited opportunities for associations or unions, and they have limited control over labor-related policies. So often, the protection of workers is neglected. The excess supply of labor is observed in almost every sector. With this surplus of labor, the market wage remains below the poverty line, and people are forced to lead a poor quality of life. A minimum wage is warranted for some sectors in Bangladesh for numerous purposes. As discussed earlier, the minimum wage acts as a means of risk reduction, accessing basic needs, and helping disadvantaged people to lead a decent life. The Minimum Wages Board, the only statutory wage-fixing government machinery, was established in 1959. Different minimum wages were set for different industries in different years. The Bangladesh Labour Act 2006 obliged the government to establish a Minimum Wage Board, which will determine and declare the minimum wage rates for workers in different private sectors. The government can reset rates as necessary. The trend of minimum wages in various sectors of Bangladesh is presented in Table 1. In 1970, the minimum wage for an unskilled worker in the leather sector was set atBangladeshi taka (BDT)125 per month, which was BDT 225 per month. In 1981, the minimum wage increased to BDT 528 for an unskilled worker, which was BDT 610 for a skilled worker. In 1994, the minimum wage was BDT 1500, which became BDT 3625.5 in 2013 and BDT 7100 in 2020.

Table 1. Trend of minimum wage in the leather and footwear sector in Bangladesh (BDT).

Types of workers	1970	1981	1986	1994	2013	2020
Leather				1500	3652.5	7100
Skilled	225	610				
Semi-skilled	125	573				
Unskilled	125	528				5500
Footwear				1385		
Skilled			1178*			
Semi-skilled			920			
Unskilled			751			

Note: * The figure is the average of the minimum wage of 1268 for highly skilled labor and the minimum wage of 1089 for skilled labor.

Box 1: Minimum wage for tannery workers:

The Minimum Wage Board (MWB) of the Ministry of Labor and Employment (MOL) of Bangladesh circulated the Gazette for the minimum wage for the workers of tanneries at the division and the subdivision level. Table 2 presents the monthly wage structure as per minimum wage policy. Minimum wages range from 13,500 BDT to a maximum of 25,400 BDT for tanneries located within the subdivisions of Bangladesh. The minimum regulatory rate for tanning operations located in other localities ranges from 12,800 BDT to 24,000 BDT.

Table 2. Monthly wage structure for tannery workers at Savar.

Job grade	Basic	House rent	Medical allowance	Transport allowance	Gross
Grade - 1	14000	9800	1000	600	25400
Grade -2	11500	8050	1000	600	21150
Grade - 3	9600	6720	1000	600	17920
Grade - 4	8300	5810	1000	600	15710
Grade - 5	7000	4900	1000	600	13500

Source: The minimum wage board (MWB) of the ministry of labor and employment (MOL) of Bangladesh.

The salary structure has four components: (i) basic, (ii) accommodation rent, (iii) medical allowance, and (iv) Travel allowance. The rent is about 70% of the basic rent. Medical and transportation allowances are 1000 BDT and 600 BDT respectively for all ranks. Grade – 5 includes unskilled workers, starting vocational training, and not belonging to higher classes.

4. CONCEPTUAL FRAMEWORK

Quality of life is determined by a set of socioeconomic factors. Employment is one of the key determinants of quality of life. The return to employment plays a significant role in accessing goods and services. It is expected that a binding minimum wage will increase the volume of compensation for work, and this will have three effects: (i) motivation for work, (ii) increasing work engagement, and (iii) increasing job satisfaction. Job satisfaction will help reduce the turnover intention of the worker. Employment stability and better pay are expected to improve the living standards of the workers.

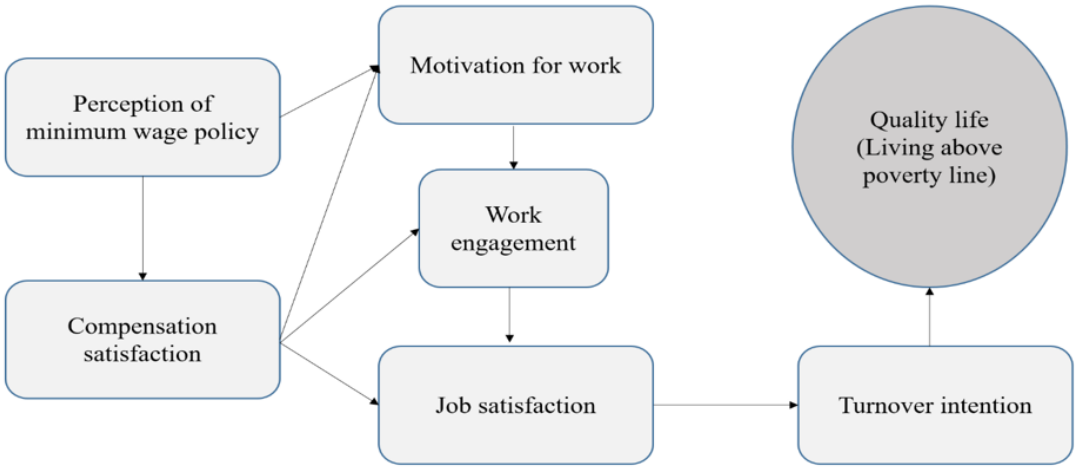


Figure 1. Conceptual framework.

Source: Constructed based on Ahmat, Arendt, and Russell (2019).

The conceptual framework presumes that compliance with the minimum wage policy will increase job satisfaction, reduce turnover, and thereby help to lead a healthy or decent life.

5. MATERIALS AND METHODS

The study follows the quantitative research method to answer the first and second research questions. The study uses the secondary "workers' survey" data of Eusuf, Khaleque, and Mohammad (2022). We have used

quantitative tools like descriptive statistics, correlation analysis, and regression analysis to present the facts, figures, and causal relationships among the variables.

5.1. Measures of Poverty

Three measures of poverty have been estimated using the Foster-Greer-Thorbecke index (FGT):

$$P_\alpha = \frac{1}{N}\sum_{i=1}^{N}\left(\frac{z - y_i}{z}\right)^\alpha I(y_i < z)$$

For $\alpha = 0$, the index converges to the headcount index (HCI), that is,

$$P_0 = \frac{1}{N}\sum_{i=1}^{N} I(y_i < z)$$

Here, N is the population size, z is the poverty line, and y_i is the per capita monthly expenditure. We have a value of 1 for those who have $y_i < z$, and otherwise 0. Let there are M people who have $y_i < z$, then, $P_0 = \frac{M}{N}$

For, $\alpha = 1$, the Foster-Greer-Thorbecke index gives us the poverty gap index (PGI) measure, that is,

$$PGI = P_1 = P_0\left(1 - \frac{\bar{y}_{poor}}{z}\right)$$

For, $\alpha = 2$, the FGT index gives us the squared poverty gap index, that is,

$$SPGI = P_2 = P_0\left(1 - \frac{2\bar{y}_{poor}}{z} + \frac{S^2_{poor} + \bar{y}^2_{poor}}{z^2}\right)$$

Here, P_0 is the poverty headcount index, $\bar{y}_{poor}$ is the average per capita monthly expenditure of the poor household, and z is the poverty line.

5.2. Specification of the Econometric Model

Let us assume the dependent variable PSH is a binary variable consisting of two values: 1 if the worker lives in a poor household and 0 otherwise. Therefore, we want to model the following relationship:

$$PSH = \alpha + \beta X_w + \theta X_F + \phi X_{MW} + \in$$

Here, PSH is the poverty status of the household, X_w is the vector of workers' characteristics, X_F is the vector of characteristics of factories, X_{WM} is the vector of characteristics of minimum wage, and $\in$ is the stochastic disturbance term.

The workers' characteristics include some specific characteristics, like age, sex, and education. In addition to the individual characteristics of the individual workers, some household characteristics, like the size of the workers' families are included in the vector X_w.

Suppose that p_i is the probability of being poor ($Y = PSH = 1$), then $1 - p_i$ measures the probability of non-poor ($Y = 0$) and $\left(\frac{p_i}{1-p_i}\right)$ presents the odd-ratio. The probability of being poor for given characteristics takes the form of $p_i = E(Y = 1 \mid X) = \frac{1}{1+e^{-Z}}$ and it can be expressed as $p_i = E(Y = 1 \mid X) = \frac{e^Z}{1+e^Z}$ - the logistic distribution. The odd ratio can be expressed as $\frac{p_i}{1-p_i} = e^Z$ and therefore, the log of odd ratio can be written as $L_i = ln\left(\frac{p_i}{1-p_i}\right) = Z$. To estimate the Logit model, we incorporate the stochastic disturbance term $\in_i$ into the preceding expression and find:

$$L = \alpha + \beta X_w + \theta X_F + \phi X_{MW} + \in$$

This model is estimated using the maximum likelihood method.

6. RESULTS

Most of the workers in the tanning industry belong to the age group between 18 to 35 years – about two-thirds of the workers. Most of the workers are from five districts: Noakhali, Barishal, Dhaka, Chandpur, and Rangpur. About 37 percent of the male workers have an education over class V, whereas only 10.5 percent of the female workers have an education level over class V. Only a few of the workers have secondary school certificate (SSC) and above. The average household size among the tannery workers is about 4.7. Around 80 percent of workers live in rented houses, whereas 20 percent of the workers live in other ways. Only 6.7 percent live in their own house, and 14.2 percent of the workers live in the factory residence.

Table 1. Characteristics of the workers.

Characteristics	Value
Sex of worker: Male (% of worker)	76%
Education of worker: V and above	71.4%
Recruitment process: Through	
Owners/Managers	48%
Relatives	47%
Nature of contract: formal (%)	4.52%
Job experience	
0-3	21.1%
4-10	36.9%
>10	42.0%
Have training prior to join the job: yes	4.0%
Job tracking	
First job	32.5%
Switched within the sector	52.5%
Switched from other sectors	15.0%
Household characteristics	
Average household size	4.5
Accommodation and living arrangements	
Own house	17.45
Rented house	71.64
Factory residence	10.99
Living arrangement	
living with family members	68.41
living with co-workers	27.72
Others	3.87
The visit of the government-appointed labor inspector	
Once in a week	10.0%
Once in a month	32.5%
Once in few months	14.2%
Once in a year	14.2%
Once in few years	7.5%
Never in years	21.7%
Average weekly regular working hours	67.5
Works 8 hours a day	87.9%
Overtime work	60.7%
Is overtime voluntary? Yes	68.9%
Average monthly earning of the workers (BDT)	14021
Distribution of monthly earnings (BDT)	
Below BDT 13500	55.8%
13500-15710	28.3%
>15710	15.9%
Do not get minimum wage (Perception)	61.4%
Do not get minimum wage (Estimation)	89.2%

Source: Workers' survey data (2022).

Most of the workers got working opportunities through owners/managers or the tannery (48%) and relatives (47%) of the workers (network relations). Job informality is found to be quite prevalent in the tannery and leather sectors in Bangladesh. Only 4.52 percent of the workers are formally recruited. Not only do the workers not have a formal contract, but the majority of the workers do not have any identification cards. About 21 percent of the workers have experience of 0-3 years, and 36.9 percent have 4-10 years of experience. Nearly three-fourths of the workers have 1 to 15 years of experience. The majority of the workers joined the sector without any training (about 96 percent of the workers). They have increased their skills by learning by doing. The International Labor Law and the Bangladeshi Labor Law both recommend that the unionized tanneries adhere to certain working hours. Most of the workers in the unionized tanneries (87.9 percent of the workers) work 8 hours a week. Workers in the unionized tanneries prefer to have overtime; about 61 percent of the workers do overtime, and about 31 percent of them report that the overtime is not voluntary; it is forced. On average, overtime work in the unionized tannery spends 12-13 hours in a week and earns 43-51 taka per hour.

Table 4 presents the benefits received by the workers. Majority of the workers report that they receive a gross wage, and disaggregation of the wage – basic, house rent, and allowances is not disaggregated. About 24 percent of the workers mention that their wage includes house rent, and only 12.5 percent of the workers agree that they get a medical allowance. Around 93 percent of the workers receive their wages in cash mode, and a few get their wages through other modes. They get their wage every month, and none of the workers get a pay slip.

Table 4. Benefits of the workers (% of workers received the benefits).

Description of benefits received by the workers	% of workers
Get house rent in wage	24%
Get medical allowance	12.5%
Get transport allowance	22.5%
Get wage in cash	93%
Wage increases each year	41.7%
The benefit was withdrawn last year	11.7%

Source: Workers' survey data (2022).

The wage is at a stalemate. It does not increase every year, whereas according to the minimum wage law, it was supposed to increase by 5 percent each year. Due to the COVID-19 pandemic, about 11.7% of the employees mention that the owners have removed some benefits.

Of the 120 workers, about 39 percent report that they are aware of the minimum wage for their positions, and the majority of them do not know about the minimum wage for their designation. The workers of tanneries do not have much knowledge about the minimum wage for workers, particularly among the daily/piece rate workers and temporary workers (Figure 1).

Table 5 presents the status of awareness of the minimum wage among workers, the average actual monthly income, and the average expected monthly income by the nature of the job. Nearly 61.4 percent of the workers report that they do not get the minimum wage per gazette. The comparison between the estimated gap between the minimum wage as per the gazette and the wage received by the workers shows that nearly 89.2 percent of the workers do not get the required minimum wage. Albeit about 55 percent of grade-5 workers are getting the minimum wage, over 80 percent of workers in grade-4 and 100 percent of grade-4 and grade-5 are not getting the minimum wage. The non-fulfillment of the minimum wage and low payment make the worker dissatisfied with the employment. The dissatisfied workers demand BDT 19147 per month as a regular wage. The demanded wages of the temporary and piece rate/daily workers are BDT 18372 and BDT 19500, respectively (Table 3). The actual average monthly wage of the permanent, piece rate, and temporary workers is BDT 15461, BDT 13995, and BDT 13835, respectively. The average gap between the received monthly wage and the expected monthly wage is about 5000 at all levels.

Table 5. Awareness of minimum wage, opinion regarding the sufficiency of income to meet their needs, and the level of income by the nature of the job.

Job nature	Aware of minimum wage (Yes %)	Is current income sufficient to meet their needs? (Yes %)	Average monthly income	Expected income per month
Permanent	66.7	0.00	15461	21444
Piece rate/Daily workers	33.3	25.0	13995	19500
Temporary	38.7	29.0	13835	18372
Total	38.7	25.2	14021	19147

Note: The expected wage is the perceived level of monthly wage that is required to meet the basic needs of the workers.

Table 6. Awareness of minimum wage, opinion regarding the sufficiency of income to meet their needs, and the level of income by the job grade.

Job grade	Aware of minimum wage (Yes %)	Current income sufficient to meet basic needs (%)	Average monthly income	Expected income per month	Wage as per minimum wage policy	P-value against $H_o: \mu_{cw} = \mu_{mw}$
1	47.8	4.4	12901	18136	25400	0.000
2	25.5	36.2	14085	19967	21150	0.000
3	60.9	21.7	14508	19882	17920	0.000
4	25.0	75.0	15024	20000	15710	0.784
5	36.4	18.2	14320	18278	13500	0.354

Note: μ_{cw} is the current average monthly wage and μ_{mw} is the minimum wage as per minimum wage policy.

Table 6 presents the status of awareness of the minimum wage among workers, the average actual monthly income, and the average expected monthly income by job grade. The level of awareness of the minimum wage is high among grade 1 and 3 workers, and the highest dissatisfaction about the current income in meeting the current basic needs is observed among grade 1 workers. The current average monthly income of grade 1-3 workers is much lower than the expected average monthly income as well as the monthly wage as per minimum wage policy. On the other hand, workers in grades 5-6 are getting almost equal to the declared minimum wage. The gaps between the average monthly wage received and the monthly wage as per the minimum wage policy are statistically significant for grade 1-3 workers and insignificant for grade 4-5 workers.

According to HIES (2022), about 18.7 percent of the people lived below the upper poverty line (20.5 percent in rural areas and 14.7 percent in urban areas). The survey shows that nearly 55 per cent of the people in the tannery sector live below the upper poverty line, and the poverty headcount index is over 50 percent among permanent, part-time, and temporary workers. The highest poverty headcount index is observed among grade 2 workers. The poverty gap index and squared poverty gap index also show a high shortfall of income and larger heterogeneity among poor households.

Table 7. Measures of poverty by job grade and job nature.

Characteristics	Poverty headcount index	Poverty gap index	Squared poverty gap index
Job grade			
1	57.0	17.8	6.3
2	61.8	15.5	4.6
3	52.2	19.2	8.3
4	60.0	11.0	2.0
5	33.3	10.1	3.6
Job nature			
Permanent	55.6	14.3	3.9
Piece rate	58.2	17.7	6.0
Temporary	50.9	14.2	5.2
Overall	54.4	15.7	5.4

Source: Workers' survey data (2022).

According to theory, a number of social, economic, demographic, regional, and macroeconomic variables affect poverty. This study highlights the role of the minimum wage in reducing poverty and focuses on the components of the minimum wage structure. As explanatory variables, we add the status of the bonus received and the annual increment in salary. In addition, household characteristics and firm characteristics are added to the model.

Table 8 presents the determinants of poverty. The first column represents explanatory variables, and the remaining column represents coefficients, p-values, the standard deviation of the explanatory variables, the marginal effect, and the factor change in odds for a unit increase in the explanatory variable or their standard deviation.

Table 8. Determinants of poverty (Dependent variable: Poverty status under the upper poverty line, and estimated using the logit model specification).

Explanatory variables	Coefficient	P-value	Factor change in odds for a unit increase in X	Change in odds for standard deviation increase in X	The standard deviation of X	Marginal effect
The firm has a union	0.1112	0.868	1.118	1.051	0.45	0.03
Household size	1.5769	0.000	4.84	13.126	1.633	0.39
Have overtime	0.6279	0.287	1.874	1.349	0.477	0.16
Have bonus	-1.9478	0.009	0.143	0.377	0.501	-0.45
Job is temporary	0.8496	0.216	2.339	1.531	0.502	0.21
Salary rises each year	-1.1898	0.040	0.304	0.554	0.496	-0.28
Constant	-6.8319	0.000	.	.	.	

The result shows that the implementation of bonuses and annual increments according to the minimum wage reduces the odds of being poor significantly. For example, the bonus facility reduces the odds of being poor by 0.143 times. The p-value of the coefficient of 'have bonus' suggests a significant reduction in the odds of being poor through the implementation of a bonus facility in the factory. The automatic annual increment of the salary of the workers reduces the chance of being poor by 0.304 times. Other factors, like job nature and household size, are found to be statistically significant in keeping the workers below the poverty line. For example, the odds of being poor become 2.339 times higher for those workers who are temporarily in their position compared to other categories.

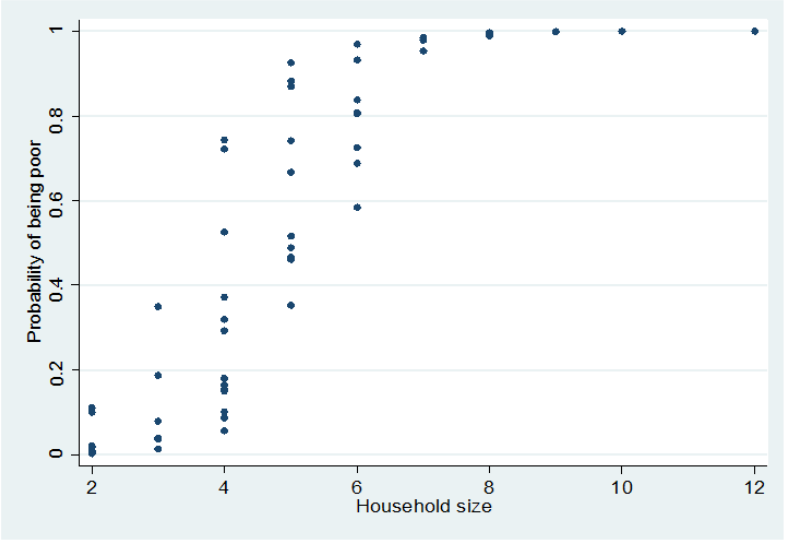
The marginal effects of the explanatory variables are presented in the last column of Table 7. The result shows that an additional member in the household increases the probability of being poor by about 39 percent, while other things remain the same. The availability of a bonus facility would reduce the probability of being poor by about 45 percent, whereas the availability of an automatic annual increment facility would reduce the probability of being poor by about 28 percent, with other things remaining the same. The averages of the predicted probability of being poor based on the coefficients of the Logit model in Table 8 are presented in Table 9.

Table 9. Probability of being poor.

Explanatory variables	No	Yes	Gap	P-value
The firm has a union	0.43	0.49	-0.06	0.44
Have overtime	0.43	0.46	0.03	0.68
Have bonus	0.51	0.38	0.13	0.03
Job is temporary	0.49	0.40	0.09	0.16
Salary rises each year	0.54	0.32	0.22	0.001

There is no significant gap in the probability of being poor due to the presence of a union in the working factory and the nature of the job. However, the probability of being poor significantly varies with the availability of bonus and annual increment facilities. The probability of being poor also increases with an increase in the number of

additional members in the household. It can be interpreted differently: the larger the family size, the higher the probability of being poor. The pattern of the probability of being poor with respect to the changes in household size is presented in Figure 2.



Household size	Probability of being poor
2	0.04
3	0.09
4	0.23
5	0.62
6	0.81
>6	0.99

Summary statistics of probability of being poor

Average: 0.45
Median: 0.37
Standard deviation: 0.34

Figure 2. The pattern of the probability of being poor with respect to the changes in household size.

7. DISCUSSIONS AND POLICY IMPLICATIONS

The tannery sector in Bangladesh is characterized by low unionization, non-binding overtime work in un-unionized factories, employment opportunities through personal relations with contractors, job informality, a lack of governance, and non-compliance with minimum wage regulation. There is a close connection between decent work and well-being, and so it is considered an important agenda for making the integration between poverty alleviation and decent work in development economics. The current paper shows that the binding minimum wage has a positive effect on the welfare of the workers, particularly it contributes to the improvement of their poverty conditions. Such evidence is quite relevant in the literature. Dube (2019) empirically showed that the minimum wage reduced poverty among the children in the households. Addison and Blackburn (1999) found indications of a poverty-reducing effect of minimum wages among teenagers and older junior high school dropouts. Saget (2001) mentioned that minimum wage improved the well-being of low-wage workers, but the distributional effect of such pay was ambiguous. Neumark and Wascher (2008), in their book 'Minimum Wage,' extensively illustrated the minimum wage and its impact on employment and the well-being of workers and reviewed a plethora of research on those impacts. Most of the authors focused on teenagers, youth, adult men and women, low-wage workers, and workers in specific industries like fast-food restaurants (see Neumark and Wascher (2008)). The results of the impacts of the rise in the minimum wage are mixed.

The failure or success of the implementation of minimum wage is largely determined by the governance variable. For example, effective inspection and penalties or sanctions for non-compliance may reduce the problem to a great extent. Other mechanisms may enforce the minimum wage. First, increasing awareness of minimum wage may reduce the asymmetries of wages paid and received under the minimum wage regulation. Awareness campaigns may improve the situation. Second, empower the workers to claim their rights through individual or collective complaints. Unionization may improve group bargaining and reduce the gap between the stated minimum wage and the received wage. Third, the reduction of job informality or measures for formalizing the sector may improve the condition. Fourth, the creation of buyer pressure may improve job formality and pay inequality.

8. CONCLUSION

The leather and tannery sectors are considered important economic sectors in Bangladesh due to the comparative advantage of related raw materials. Although the contribution of this sector to GDP (about 0.05%) is not much in terms of absolute value, it is important for employing low and unskilled workers. Nearly 9 lakh people are employed in the leather sector. The value of exports of leather and leather goods reached the milestone of 1 billion dollars prior to COVID-19, but in fiscal year 2021-22, the export value of this sector was US$ 941.7 million, which was about 2.4 percent of the country's total export earnings. The very recent export earnings from the leather industry have been showing a declining trend. The downtrend is generally attributed to the declining global demand for crust and processed leather, the rising use of artificial leather, poor safety and compliance practices, a lack of investment, and the diversification of products. The government's aim is to spend $10-12 billion and increase the export share of this sector to 4% by 2030. The sector faces challenges in effluent treatment, labor issues, and global competitiveness. The recruitment process for workers is mostly informal. The wage for the workers is set minimally below the poverty line in most cases. They have limited opportunities to have bonuses and annual wage increments. The declared minimum wage is hardly followed by factories. The non-compliance of the minimum wage is primarily considered a governance failure, but other factors like lack of awareness of the minimum wage, job informality, temporary job nature, etc. are also responsible for this. The analysis suggests that compliance with minimum wage improves the well-being of the workers. The sector specialists suggest that awareness campaigns, the reduction of informality, sanctions as a deterrent to non-compliance, effective monitoring, and responsible behavior of actors in global supply chains may enforce minimum wage in this sector.

Funding: This study received no specific financial support.
Institutional Review Board Statement: The Ethical Committee of the University of Dhaka, Bangladesh has granted approval for this study on 30 January 2022.
Transparency: The authors state that the manuscript is honest, truthful, and transparent, that no key aspects of the investigation have been omitted, and that any differences from the study as planned have been clarified. This study followed all writing ethics.
Data Availability Statement: Upon a reasonable request, the supporting data of this study can be provided by the corresponding author.
Competing Interests: The authors declare that they have no competing interests.
Authors' Contributions: Both authors contributed equally to the conception and design of the study. Both authors have read and agreed to the published version of the manuscript.

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