

## Understanding The Impact on Livelihood Due to Minimum Wage and Employment: A Detailed Analysis from A Gender Perspective in India

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### ABSTRACT

This research work seeks to investigate how India's minimum wage affects employment in light of the country's recent implementation of a national minimum wage that applies to the whole economy. This study provides insight into how the national minimum wage affects employment for both men and women, given that women have a lower labour force participation rate and a greater unemployment rate than males. This paper's methodological foundation is a conceptual framework based on Blundell et al. (2007)'s labor-leisure model, which incorporates the minimum wage as a significant variable influencing an individual's employment decision. It makes use of micro data from the Household Survey collected Continuously with Multi-Purpose intention for the years 2021–2022 and implements the difference-in-difference estimate technique. The results show that overall employment is greatly decreased by the minimum wage. Since the national minimum wage was implemented, the likelihood that a worker who is now making less than the minimum wage will continue to be employed is 0.525 less than that of a worker who is making more than the minimum pay. Furthermore, the study shows that women are more negatively impacted by the minimum wage's negative employment consequences than men are, using sex disaggregated data. This is an initial attempt to calculate how employment in India will be impacted by the recently implemented national minimum wage. Even though minimum wages have various effects on different sectors of the economy, this study compares how minimum wages affect employment for men and women in order to take a gender perspective.

Keywords : Minimum wage, Employment, Poverty, Gender and Indian wage system.

### INTRODUCTION

Both the expansion of work options and the increase in real earnings are two significant effects of globalisation on the labour market. Global integration has benefited many industrialised nations, while developing nations continue to face challenges in reducing poverty and improving labour market conditions. Many emerging nations are implementing or raising their national minimum wage in an effort to enhance worker lifestyles and reduce income inequality. This policy protects low-wage workers who may have lower levels of education or skills, or who fall into both categories. Research findings from both developed and developing countries regarding the impact of the minimum wage on employment remain inconclusive. However, traditional neoclassical theory posits that raising the minimum wage beyond market equilibrium rates would lead to unemployment in an ideal market scenario (Zucker, 1973; Carter, 1978; Clemens and Wither, 2022; Kawaguchi and Mori, 2021). Card and Krueger (1994), Card (1992).

Studies conducted in 2014 by Stewart and in 2022 by Bonin et al. revealed that increasing the minimum wage might not necessarily have a negative impact on employment. This area of research prompted a reassessment of the basic concept of the minimum wage to address the contradictory results. For instance, Schmitz (2021) studied the impact of Germany's legally established national minimum wage on employment and discovered it had a notable negative effect. In contrast, similar research by Bonin et al. (2022) has shown that there is no statistically significant connection between employment levels and the minimum wage in Germany.

There is a wealth of empirical evidence on how the minimum wage affects employment. There is a dearth of recent study on impoverished countries and the paradoxical outcomes it produces, primarily concentrating on wealthy nations. Neumark and Corella (2020) argued that minimum wage policies negatively impacted employment in emerging economies. However, Wang and Gunderson (2018) did not find any evidence to support a harmful effect of minimum wages on the employment of low-skilled workers in China. Notably, there has been limited research on this topic in Africa. In their assessment of minimum wage laws in Kenya, Andalon and Pages (2008) identified a link between increased minimum wages and a rise in self-employment, alongside a decrease in formal employment rates. Asmal et al. (2018), on the other hand, analysed the employment effect of minimum wage in India by looking at the effects of various compensation orders for the years 2004–2014. With an estimated employment elasticity of 0.113, they discovered that the minimum wage had a modestly beneficial impact on employment in the covered industry.

India's economy has expanded well since gaining independence because of its robust market economy and democratic political structure. The nation has attained exceptional rankings in multiple global indices. For example, in terms of ease of doing business, it ranks #1 in Africa and 13th out of 190 nations (World Bank, 2020). Moreover, India has maintained its position as Africa's most effective government overall. Additionally, the proportion of households living below the relative poverty threshold—defined as half of the median income per adult equivalent—has remained consistent at approximately 9.4% since 2012. According to Statistics India (2018), fewer than 1% of people in the United States live on less than Rs100 per day (PPP). Moreover, the Gini coefficient fell from 0.414 to 0.400 between 2012 and 2021, suggesting an improvement in income equality (Statistics India, 2018).

Even though India's economy has grown significantly, unemployment is still a big problem. In 2022, the unemployment rate in India was 7.2%, with 5,59,11,000 persons employed. In the same year, women's unemployment was 11.1%, a substantial increase above men's (4.9%) (Statistics India (2020a)). Women not only represent a larger share of the unemployed population, but their average monthly earnings (Rs 3500) are significantly less than those of men (Rs 4500) (Statistics India, 2020b). As reported by the National Wage Consultative Council (2021), around 7% of employees received less than Rs978 in 2021. The national minimum wage was implemented in 2018 with the admirable aim of enhancing the income and living conditions of workers who earn low wages, regardless of their gender. This study stands out for its effort to evaluate how gender-specific employment impacts the enforcement of the national minimum wage in India.

Traditionally, India lacked a cohesive wage system or a uniform minimum salary that applied to different industries and professions. In terms of institutions that establish wages, the country functions with two separate bodies: the National Compensation Board (NRB), which establishes private sector wages through compensation orders, and the Pay Research Bureau (PRB), responsible for establishing wages in the public sector. In 2018, the government established a mandatory minimum wage of Rs 11,500 for all sectors, aiming to improve the living conditions of workers while addressing poverty and income inequality. While the statutory minimum wage is applicable to all workers over the age of sixteen, different worker groups have different threshold levels.

As far as we are aware, there hasn't been much academic research on how India's minimum wage affects employment. Asmal et al. (2018) focused nearly solely on the consequences of the existing compensation orders before India's national minimum wage was implemented on employment. This paper makes three significant academic contributions to our understanding of how minimum wage impacts employment at a macroeconomic level. First, it establishes a conceptual framework that expands upon the labor-leisure model introduced by Blundell et al. (2007), positioning the minimum wage as a crucial factor that affects employment trends. Second, within this framework, the research clarifies the direct influence of the federal minimum wage on total employment by employing the difference-in-difference (DiD) method. India serves as a case study to analyze the effects of the national minimum wage on employment in a resource-limited economy where human capital is the

only available resource. Lastly, the study explores the effects of the minimum wage on employment through a gender lens, considering its impact on both men and women.

## **2. Literature survey**

A significant body of academic research has been generated regarding the effects of minimum wage on employment (Schmitt, 2013). The neoclassical theory suggests that raising setting the minimum wage above the market equilibrium levels will result in job losses in an ideal market scenario. In contrast, in other labour market circumstances such as monopsony, the employer has the ability to hold down labour prices by using market power to employ a specific type of labour. When there is a minimum wage, the business must pay the legally set amount and must bear the additional labour expenses.

Rising rates can lead to job losses in an ideal market scenario. Recent studies have reignited the discussion about the most reliable theoretical model for the labor market. Various empirical investigations (Basu and Felkey, 2009; Ahn et al., 2011; Walsh, 2012) have rejected the competitive model in favor of alternatives that include efficiency wage theory or the job search model. The efficiency wage theory, proposed by Rebitzer and Taylor (1995), posits that increasing the minimum wage will significantly boost the appeal of jobs that were previously paid below this level, while at the same time making them less attractive when compared to positions that offer slightly higher compensation. Consequently, raising pay over the minimum wage serves as a tool to promote morale and discipline, decrease shirking and labour turnover, and expand the scope for selection. Furthermore, Burdett and Mortensen (1998) made the assumption that individuals acting alone make the decision to accept or reject a job offer and that employees may not be fully informed about every job opportunity on the market. The term "job search theory" refers to this.

The idea that raising the federal minimum wage in Texas has led to higher employment levels in businesses most impacted by these increases was initially proposed by Katz and Krueger (1992) in their groundbreaking empirical study. Card and Krueger (1994) supported these results by demonstrating that employment increased in the eateries affected by the minimum wage in New Jersey. In contrast, Neumark and Wascher (1995a) found different results through the DiD method applied to payroll data, revealing a statistically significant negative relationship between minimum wage and employment levels.

Naturally, the impact of minimum wage is more pronounced in low-wage sectors compared to high-income industries. In 2003, Machin et al. examined how minimum wage influenced employment and earnings in the residential home care sector in the UK. Their research revealed that although many care home employees saw an increase in their wages due to the minimum wage, there was a decline in employment. Likewise, Stewart (2014) employed Difference-in-Differences (DiD) methods to analyze how the implementation of the minimum wage affected job opportunities across four major demographic categories: grown men, grown women, young men, and young women, as well as others.

Contrary to the conclusions of Machin et al.'s (2003) study, which was restricted to the home care sector, the latter found that there was no appreciable negative employment impact in the UK. However, Sturn (2018) could not locate any information about how minimum wage rates impact low-skilled women's employment. According to Schmitz (2021), there has been a notable decline in employment in Germany following the introduction of the national minimum wage in 2015. Similar findings were also made by Caliendoa et al. (2018), who examined the short-term employment effects of Germany's recently imposed minimum wage.

Contrary to the conclusions of Machin et al.'s (2003) study, which was restricted to the home care sector, the latter found that there was no appreciable negative employment impact in the UK. However, Sturn (2018) could not locate any information about how minimum wage rates impact low-skilled women's employment. According to Schmitz (2021), there has been a notable decline in employment in Germany following the introduction of the national minimum wage in 2015. Caliendoa et al. (2018) reported comparable results when they investigated the immediate employment impacts of the minimum wage recently implemented in Germany. Additionally, Gindling and Terrell (2009) noted that raising the minimum wage could lead to a rise in the unemployment rate in Honduras.

Furthermore, Del Carpio et al. (2015) found that raising the minimum wage has a detrimental impact on employment, with a greater emphasis on small businesses, employees with lower levels of education, and female

employees. By analyzing microdatasets from urban household surveys alongside country-level minimum wage statistics, Fang and Lin (2015) reassessed how changes in minimum wage influenced employment in China between 2002 and 2009. Their research indicated that increases in minimum wage had a notably adverse impact on employment, particularly affecting women, young adults, and low-skilled workers in the Eastern and Central regions of China.

The first empirical research on Africa dates back to Bhorat et al. (2014), who employed the DiD model to examine the effects of minimum wage legislation on South Africa's agriculture industry from 2000 to 2007. These findings imply that while there has been a notable decline in employment in the agricultural sector, there has been no discernible shift in the number of hours worked since the minimum wage was implemented. From the above succinct overview of the literature, it is clear that while there is a lot of research on the impact of minimum wages on employment, there isn't much agreement on this effect in either developed or developing nation. Therefore, the purpose of this study is to offer an additional viewpoint on that effect from India's perspective—a tiny, developing country with limited resources.

### 3. Theoretical framework

The conceptual framework is based on the neoclassical labor-leisure model introduced by Blundell et al. (2007), which posits that individuals strive to optimize their utility while operating within the limitations of time and income. In this framework, a rational person possesses a utility function  $U(C, L)$ , where  $C$  denotes the financial value of goods consumed, and  $L$  reflects the quantity of leisure time available. An increase in the utility level  $U$  leads to a higher degree of personal satisfaction. We suppose that an individual's utility is increased by both purchasing more products and having more free time, and that  $C$  and  $L$  are “goods” rather than “bads.”

The derivative function partially are  $U_C = \frac{\partial U}{\partial C} > 0$  and  $U_L = \frac{\partial U}{\partial L} > 0$ .

The person is constrained by their budget, which includes both time and pay, and it is shown as :  $C = w(T - L) + V$

(1)

In this context,  $T$  represents the total hours available during the analysis period, which is considered constant;  $w$  is the rate of wage; and additional income is  $V$ .

When we reconstituent the equation (1) with wages:  $C + wL = wT + V$

(2)

The total income of the person is indicated by the  $wT + V$  which shows how more money the person would have if they worked every hour that was available. One uses their entire money for either leisure or consumption. According to the budget restriction,  $w$  monetary units must be spent for every hour of leisure. Therefore, relaxation comes at a cost of  $w$ . Consequently, the person maximizes utility while keeping the budget in mind, the function in Lagrangian set as:

$$\text{Max } \Omega = U(C; L) + \lambda (wT + V - C - wL) \quad (3)$$

$$\text{The conditions in first are as: } \frac{\delta \Omega}{\delta C} = U_C - \lambda = 0 \quad (4)$$

$$\delta \Omega / \delta C = U_L - \lambda w = 0 \quad (5)$$

$$\delta \Omega / \delta \lambda = wT + V - C - wL = 0 \quad (6)$$

The wage rate can be obtained by solving equations (4) and (5), which give rise to the ratio of the marginal utilities that depend on factors like income, age, gender, qualification, marital status, life style, and location of stay.

$$w = \frac{U_L}{U_C}$$

$$wT + V - C - wL = 0 \quad (7)$$

$$L = \frac{wT + V - C}{w} \quad (8)$$

Equation (8) illustrates the connection between labor and wage rates, which are affected by various elements including income, age, gender, marital status, education, and leisure time. As indicated in equation (9), Neumark and Wascher (1995b) identify additional factors such as gender, age, employment background, family size, and income that can influence utility. Consequently, utility serves as the dependent variable evaluated through a range of explanatory factors  $X$  that consider individual and sectoral characteristics.

$$U_{kt}^j = \beta_0 + M W_{kt}^j \beta_j + X_{kt}^j \lambda_j + \varepsilon_{kt}^j \quad (9)$$

$U_{ikt}^j$ : Job-related activities for an individual  $I$ ;

$M W_{kt}^j \beta_j$ : lowest legal pay;

$X_{kt}^j \lambda_j$ : the array of personal attributes (age, gender, education level, relationship status, hobbies, and income); and

$\varepsilon_{kt}^j$ : error term.

Therefore, the explicit model predicting the probability of being employed will be given as:

$$\ln(I) = \ln(\beta_0 + M W_{kt}^j \beta_j + X_{kt}^j \lambda_j + Z_{kt}^j \alpha_j + \varepsilon_{kt}^j) \quad (10)$$

Equation (10) presupposes that a person makes a choice from various options, each shaped by a mix of external and internal factors, along with other specific, unobserved influences. It illustrates how minimum wages and other controlling factors like age, gender, level of education, marital status, free time, and income influence the total hours a person works.

#### 4. Data and methods

##### 4.1 Data references

This research utilizes microdata from the ongoing Multi-Purpose Household Survey (CMPHS) conducted during the years 2021 to 2022. As a monthly survey, the CMPHS offers statistical insights into the societal and financial traits of the Indian demographic. Annually, the study involves 12,000 households and 40,000 individuals, ensuring it is representative on a national scale. It is designed based on a labor market model, providing extensive data regarding the traits of individuals and households, which includes an in-depth labor market section. For this analysis, the information about employment is based on the portion of the working-age population that is part of the labor force. During a period of two years, participants are engaged in in-person interviews four times, following a rotating panel survey format.

Over a two-year period, the same people have been picked and paired. The household is divided into several rotations, and over the course of two years, it is interviewed four times. A new household may sometimes replace an existing one if the previous household has either passed away or relocated. To ensure that the same starting household is selected consistently for each rotation, the new household has been excluded from the original sample. Once every household in the rotation group is assigned a distinct household number, the data for each individual is compared across the households and the subsequent time period. These people's demographic features are tracked from September 2021 to March 2022. Since 16 is the minimum legal age of employment in India, those between 16 and 65 are chosen for study from the matched sample of households.

##### 4.2 DiD estimation

Estimated DiD is a tool for approximating the consequences of particular policy actions that vary in their effects on distinct population segments. Time is a significant factor, and people are taken into account in two periods time with value of  $t$  between 0 and 1, where the value of  $t$  with 0 denotes the pre-treatment before the policy intervention and  $t$  with 1 denotes the post treatment era. There are two separate categories of people: the

"treatment group," which consists of those who underwent therapy during the second period, and the "control group," which includes individuals who were not impacted by the policy change and did not receive treatment during either of the two time frames.

In the year 2018 the implementation of the minimum wage was seriously taken, with a significant increase in pay, particularly for people at the bottom of the wage scale. Assuming all other factors remain unchanged, the DiD technique's shows that the group of workers whose pay were increased effecting new minimum wage likely to experience greater effects than the group. Workers who experienced a pay raise following the introduction of the minimum wage are categorized as the treatment group. In contrast, the control group consists of employees whose earnings were already above the minimum wage level. Because those at the lower end of the wage scale show a decreased likelihood of employment even without a minimum wage in place, it becomes challenging to pinpoint any unintentional effects or observations, making direct comparisons between these two groups impossible. Consequently, the Difference-in-Differences (DiD) framework is used to analyze the variations between the two groups before and after the implementation of the minimum wage. Below is an example of a basic DiD regression, where  $y$  denotes the outcome.

$$y = \beta_0 + \beta_1(\text{Treatment}) + \beta_2(\text{Time}) + \beta_3 \delta(\text{Time} * \text{Treatment}) + \varepsilon_i$$

where:

$\beta_0$  : constant term;

$\beta_1$ : Specific effect of treatment group (average difference between treatment and control before minimum wage policy intervention);

$\beta_2$  : Control group time effect;

$\beta_3$  : True effect due to treatment (Estimation through DiD);

$\varepsilon_i$  : Error.

According to the conceptual framework of Card (1992) and Neumark and Wascher (1995a), the assessment of the impact of minimum salary on work/employment is conducted as follows:

$$E_{ij} = \alpha + \beta_1 M W_{ij} + \beta_2 X_{ij} + \theta_i + \tau_t + \varepsilon_{it}$$

where the primary dependent variable,  $E_{ij}$ , represents the person's employment status throughout the survey year. The minimum wage, denoted by  $MW_{ij}$ , is the primary independent variable, whereas the DiD estimator, or key parameter of interest, is represented by  $\beta_1$ . The time trend common to all individuals is represented, while the time-invariant factor accounts for any unobserved individual differences that remain constant over time. Table 1 outlines all the variables included in the regression analysis.

## 5. Results and analyses

### 5.1 The impact of minimum wage on overall employment levels

Table 2 below displays the average values of the variables before and after the implementation of the national minimum wage policy. While the control group was already earning above the minimum wage, those in the treatment group experienced an increase in their income as a result of the policy intervention, even though they had been earning less before. If a respondent was employed at the time of the survey, the "employed" variable is recorded as 1; if they were not employed, it is recorded as 0. It specifies whether the respondent was employed. According to the table below, the mean for the treatment group—those who were employed but made less than 8,500 as the minimum wage is between 0.4 - 0.9, while the mean for the control group increased slightly—from 0.4 to 0.5. This suggests that a larger number of people are profiting from the increased minimum wage. There have been very few variations in the mean with respect to the control variables.

Table 1 : Shown below the description of variables used

| Variables      | Particulars                                                                                                                                                   | Expected |
|----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| $M W_{ij}$     | Minimum salary                                                                                                                                                | -ve      |
| $X_{ij}$       | The age continuous variable, which represents the individual's years, is part of the set of control variables.                                                | +ve      |
| Age square     | Displays the link between age and pay and reflects experience                                                                                                 | +ve      |
| Marital status | Specifies if the employee is a married, single, or single parent (widowed, divorced, or separated).                                                           | -ve      |
| Gender         | Indicates the gender of the worker, assigning a value of 1 for a male worker and 0 for a female worker.                                                       | -ve      |
| Education      | Records the number of years that a person has attended school, regardless of whether they have completed only primary, secondary, or postsecondary education. | +ve      |
| Urban locality | Relates to the town and rural areas to the villages; the person obtains a value of 1 if they reside in a town, and a value of 0 otherwise.                    | +ve      |

Source(s): Modified and created for this research

Table 3 shows the minimum wage's marginal effects both with and without control variables. The probability of employment following the implementation of the minimum wage is the dependent variable. The treatment variable highlights the differences between the two groups before the minimum wage was implemented. It is a binary variable with codes of 0 for the control group and 1 for the group receiving the treatment. Both regressions' results show that the treatment impact greatly raises the likelihood of employment. In particular, the treatment group's employment likelihood was 0.627 times higher than the control group's previous to the minimum wage being implemented. Furthermore, the control group's time variable captures the impact of passing time.

Table 2 : Information on the average of the major factors introduced before and after

| Details of the variables        | M W (Before)     |                 | M W (After)     |                 |
|---------------------------------|------------------|-----------------|-----------------|-----------------|
|                                 | Treatment        | Control         | Treatment       | Control         |
| Working                         | 0.881 (0.312)    | 0.402 (0.493)   | 0.401 (0.489)   | 0.493 (0.503)   |
| Details of age                  | 43.538 15.249    | 36.782 (22.076) | 38.472 (27.748) | 38.109 (20.910) |
| Square of age                   | 2127.11 (1370.5) | 1840.9 (1788.5) | 1991.5 (1830.3) | 1888.3(1715.7)  |
| Gender                          | 0.473 (0.500)    | 0.525 (0.500)   | 0.475 (0.500)   | 0.535 (0.499)   |
| Marital status                  | 0.618 (0.487)    | 0.460 (0.499)   | 0.446 (0.497)   | 0.480 (0.500)   |
| Single parents                  | 0.164 (0.371)    | 0.099 (0.298)   | 0.145 (0.352)   | 0.097 (0.300)   |
| Alone                           | 0.442 (0.497)    | 0.377 (0.484)   | 0.218 (0.413)   | 0.406 (0.491)   |
| Upto class 5 <sup>th</sup> pass | 0.145 (0.352)    | 0.139 (0.346)   | 0.150 (0.357)   | 0.115 (0.319)   |
| Under matric                    | 0.259 (0.439)    | 0.230 (0.421)   | 0.246 (0.431)   | 0.226 (0.418)   |
| Matriculate                     | 0.050 (0.217)    | 0.033 (0.179)   | 0.035 (0.184)   | 0.0403 (0.197)  |
| 12 <sup>th</sup> pass           | 0.046 (0.209)    | 0.077 (0.267)   | 0.087 (0.282)   | 0.113 (0.317)   |
| Under graduate                  | 0.015 (0.123)    | 0.066 (0.249)   | 0.04 (0.065)    | 0.057 (0.231)   |
| Post graduate                   | 0.004 (0.062)    | 0.013 (0.111)   | 0.001 (0.035)   | 0.014 (0.111)   |
| Stay in urban area              | 0.215 (0.415)    | 0.240 (0.431)   | 0.225 (0.413)   | 0.241 (0.429)   |
| Data taken                      | 260              | 1,500           | 11650           | 3650            |

Source(s): Primary field data computation (2021–2022), MoFPI

The DiD indicator, the primary subject of this study, shows a significant in statistical significant shows -ve association between minimum salary and employment. In particular, as demonstrated by Kawaguchi and Mori (2021), the regression analysis, which takes control variables into account, validates the neoclassical model's predictions. It shows that, in comparison to the control group, the probability of employment retention among those impacted by the minimum salary is 0.525 lower after it was implemented. The results of Asmal et al. (2018), who hypothesized that minimum wages really promote employment, are in contradiction with this study. While

earlier research concentrated on various pay orders as minimum wages, presumably explaining the disparate outcomes, this study investigates the recently established national minimum wage as the policy intervention affecting employment levels.

Furthermore, Asmal et al. (2018) used a two-stage regression analysis rather than the DiD method used in this work to assess the effect of the federal minimum wage on employment. The outcomes are consistent with previous research on the macroeconomic effects of minimum wage implementation in developing nations, such as studies by Gindling and Terrell (2009) and Grau and Landerretche (2011), which showed that high minimum pays significantly reduce the likelihood of employment in these countries. The shift in the Mauritian economy from agriculture to service-oriented industries and the introduction of numerous technical innovations contribute to the explanation of the negative effect on employment. Due to these changes, there is a greater need for highly skilled people, and there are less chances for those with lower levels of education and competence.

Table 3 ; marginal effect on overall employment in India

| Details of variables            | Without the control variables | With the control variables |
|---------------------------------|-------------------------------|----------------------------|
| DID( $\beta_1$ )                | 0.539 (0.033)***              | 0.534 (0.032)***           |
| Treatment( $\theta_i$ )         | 0.531 (0.023)***              | 0.627 (0.033)***           |
| Time( $\tau_t$ )                | 0.0922 (0.022)***             | 0.091 (0.012)***           |
| Details of age                  | -                             | .091 (0.007) ***           |
| Square of age                   | -                             | 0.011(0.0011) ***          |
| Gender                          | -                             | 0.351(0.022) ***           |
| Marital status                  | -                             | 0.141 (0.027)***           |
| Single parents                  | -                             | 0.111(0.044)***            |
| Upto class 5 <sup>th</sup> pass | -                             | 0.081 (0.032)***           |
| Under matric                    | -                             | 0.038 (0.191)*             |
| Matriculate                     | -                             | 0.063(0.041)               |
| 12 <sup>th</sup> pass           | -                             | 0.195(0.031)***            |
| Under graduate                  | -                             | 0.212(0.031)***            |
| Post graduate                   | -                             | 0.222(0.081)***            |
| Stay in urban area              | -                             | 0.057 (0.022)***           |
| Data taken                      | 6,148                         | 6150                       |

Source(s): Primary field computation data (2021–2022), Statistics of India

A person's age is relevant because it reflects the evolution of their preferences throughout their life and also suggests their potential abilities, knowledge, and experience (Collet and Legros, 2016). As shown in Table 3, age has a statistically significant and positive effect on job retention, with each additional year raising the chances of maintaining employment by 0.085. However, the age squared variable indicates a non-linear relationship between age and work, revealing a slight yet noteworthy negative effect on employment. Workers are more likely to choose to leave the workforce as they get older for a variety of reasons, such as retirement, family obligations, or health concerns. These outcomes are consistent with the labour supply life cycle models' expectations. Jia (2014), for instance, observed that age has a positive effect on employment in China, while age square has a negative impact. The results also highlight the significance of gender; in particular, a gender bias is visible, as being male increases employment chances by 0.354 relative to being female.

Matrimony influences the labour force significantly and conceptualises gender roles in society (Ogletree, 2015). The findings show that the likelihood of remaining employed is significantly positively impacted by marital status. When a minimum wage is implemented, the marginal impact of a married individual continuing to work rises by 0.

It is found that 1.03 and 0.109 in the case of a single parent. Similarly, Avner and Robert (2007) note that employment and wage rates are positively impacted by marital status, which raises the likelihood of staying employed because marriage increases the number of hours worked after marriage. Additionally, the findings show that the likelihood that an individual with only a basic elementary or secondary education will continue to be employed decreases by 0.089 and 0.038, respectively, following the national minimum wage's introduction. On

the other hand, as post-secondary and higher education raises a person's skill level with each year of study, it has a beneficial effect on employment. The findings are consistent with those of Wang and Khan (2021), who found that those with more education levels had a higher employment rate than those with lower or no education. The need for more educated and talented workers has been fuelled by structural changes in the Indian economy, which have transformed it from an agrarian to a service economy. Also, the statistically positive, urban variable is meaning that a worker's likelihood of finding employment rises by 0.054 if they reside in a town. These results are consistent with those of Mlatsheni and Ranchhod (2016), who note that geography is a significant factor in employment and that those who live in metropolitan areas have a higher likelihood of finding work.

## 5.2 Impact of minimum wage on employment for both men and women

Although there has been significant progress in reducing poverty and promoting social equality, unemployment is still a significant issue in India, which is sometimes regarded as a model of development (International Monetary Fund, 2020). In 2020, the total jobless rate hovered around 6.7%, although there was a clear gender difference: female unemployment was 10.2%, while male unemployment was 4.4% (Statistics India, 2020a). Compared to men (73.1%), women make up a somewhat smaller fraction of the labour force (46.2%). Even though there has been a rise in the number of women participating in the workforce since independence, the gender disparity in India's labor market continues to be a significant issue (Tandrayen-Ragoobur and Pydayya, 2015; Tandrayen-Ragoobur and Gokulsing, 2021). Women in India are burdened with twice as much paid and unpaid work when it comes to juggling their occupations with their responsibilities for taking care of the home, claim Gaddis and Ranzani (2020). The low rate of female labour market involvement can be attributed in part to this dual burden. Table 4 shows the marginal impacts of implementing the minimum wage on the employment rates of both men and women aged 16 to 65.

The DiD analysis shows that the introduction of the minimum wage significantly harms employment rates for both men and women. Notably, men in the treatment group are 0.425 less likely to remain employed after the minimum wage is enforced compared to their counterparts in the control group and women, with the disparity being slightly larger at 0.547. These findings align with the studies conducted by Suryahadi et al. (2003) and Del Carpio et al. (2015), which identified a negative correlation between women's employment and the minimum wage in Indonesia.

Table 4 : Shows the Marginal effect of minimum wage employment with gender

| Variables                  | Male              | Female            |
|----------------------------|-------------------|-------------------|
| DiD( $\beta_1$ )           | -0.443(0.081)***  | -0.547 (0.038)*** |
| Treatment( $\theta_i$ )    | 0.213 (0.039)***  | 0.702 (0.040)***  |
| Time( $\tau_t$ )           | 0.051 (0.027)**   | 0.138 (0.027)***  |
| Age                        | 0.075 (0.011)***  | 0.086 (0.004)***  |
| Age square                 | 0.003 (0.0011)*** | 0.001 (0.0008)*** |
| Marrital status            | 0.276 (0.033)***  | 0.082 (0.04)**    |
| Single parents             | 0.117 (0.041)**   | 0.067 (0.045)*    |
| Upto 5 <sup>th</sup> class | 0.133(0.053)***   | 0.079 (0.049)*    |
| Under Matric               | 0.017 (0.027)     | 0.017 (0.027)     |
| Matric pass                | 0.155(0.027)***   | 0.144(0.064)*     |
| 12 <sup>th</sup> Pass      | 0.051 (0.032)***  | 0.275 (0.042)***  |
| Graduate                   | 0.011 (0.045)     | 0.0311 (0.045)*** |
| Post graduate              | 0.006 (0.089)     | 0.233 (0.093)**   |
| Location od stay - urban   | 0.007 (0.033)     | 0.071 (0.033)**   |
| Number of data             | 25750.00 (0.031)  | 2400              |

Source(s): Primary field analysis derived from CMPHS data (2021–2022), Statistics of India. Note: The standard errors and marginal effects (indicated in parentheses) are presented above. Significance levels are denoted as \*10%, \*\*5%, and \*\*\*1%, respectively.

Conversely, the factors of time and treatment indicate that minimum wage laws can have a positive impact on employment levels. The treatment effect reveals that prior to the implementation of the minimum wage, a male in the treatment group had a 0.211 higher chance of securing a job compared to a female in the control

group; for males, this disparity was 0.702. The time variable is statistically significant across both genders. However, it suggests that if the minimum wage were not enforced, the probability of hiring a male worker would be 0.048, while the likelihood for hiring a female worker in the control group stands at 0.138.

Age is a significant factor in labour participation and is frequently seen as a measure of a person's skill, knowledge, and experience gained throughout time (Barker, 2015). The findings demonstrate that employment for both sexes is positively impacted by age in a statistically meaningful way. It is important to note that the chances of a male worker remaining employed increase by 0.074 with each additional year of age, whereas for female workers, the probability increases by 0.086. Nevertheless, the variable age squared has a statistically insignificant effect on the likelihood of both Indian men and women continuing in their jobs, according to the findings of this study.

According to the findings, married men who are part of a one-parent household experience a considerable favourable impact on job continuity. On the other hand, married women's employment is significantly impacted negatively. Married males are more likely than married women to be employed, whereas married women are less likely to be employed, according to Janse van Rensburg et al. (2022). These results are in line with earlier studies. Childcare and other unpaid care obligations fall on both married and single women, and they frequently represent a trade-off for entering the workforce. For female workers, the urban variable is significantly positive, suggesting that location is important to women. Transportation-related problems, such as the expense of commuting to and from work, typically affect female employees more than male employees. The degree of education determines an individual's income and is a significant determinant of income distribution (Adeosun and Owolabi, 2021). A person with only a basic school education will find it difficult to find employment, since the data show that primary education has a strong negative effect on employment for both males and females. This discovery aligns with the research conducted by Francesconi et al., which linked lower levels of education to increased unemployment risks.

Furthermore, according to the human capital theory, employment chances are increased when education is funded (Chen and Wu, 2007). This contributes to the explanation of the Indian government's large investments in the education sector, where free primary, secondary, and postsecondary education are mandated until the age of sixteen. Strangely, establishing a minimum wage has a positive and significant impact on female workers at the tertiary level, but has no effect at all on male workers. This could be partially attributed to the "creeping" or "derivative" glass ceiling effects, wherein women may experience pressure to take positions for which they are overqualified. Alternatively, it's possible that women are just more susceptible than men to labour market mismatches, which occur when a worker's qualifications don't meet the requirements of the job.

## **6. Conclusion and suggestions for policy**

With its limited resources and heavy reliance on its human capital for economic development, India offers a unique opportunity to examine the impact of the government's decision to impose a minimum wage policy on employment from a gender perspective. The labor-leisure model of Blundell et al. (2007) is expanded upon in this paper in order to conceptually derive the employment and minimum wage equations. The study examines whether raising the minimum wage increases the likelihood of finding work and making a sustainable income by using regression equations that incorporate the Difference-in-Differences (DiD) approach and data from the Ministry of Food Processing Industries (MoFPI).

Statistical studies of the neoclassical model indicate that the introduction of a minimum wage has been associated with a significant decrease in employment (Andalon and Pages, 2008; Brown et al., 1983; Neumark and Wascher, 1995b; Suryahadi et al., 2003). These results generally support the findings of this research. Specifically, when examining the enforcement of a minimum wage, employees earning below this threshold are 0.525 times less likely to retain their jobs compared to those earning above the minimum wage. Since high-skilled workers are valued more in a service-predominant economy, the shift of the India economy from one centred on agriculture to one centred on services most likely contributed to the inflation of the "cost" of decreased employment retention associated with the implementation of the minimum wage structure.

Due to shifts in the economic structure and the implementation of a minimum wage, unskilled workers have essentially been "priced out" of the labor market in India. Although it is the most important and active sector of the India economy, the manufacturing industry faces numerous obstacles, including high labour costs and a shortage of skilled workers. Nonetheless, the unemployment effect would have been mitigated if the domestic manufacturing sector had been more robust in terms of accepting the greater pay burden imposed by a minimum

wage that was said to have wage elasticity less than unity.

In terms of gender dynamics, compared to their male counterparts, female workers are more adversely affected negatively by employment consequences. This problem is made clear by the overrepresentation of women in lower-paying industries including export processing and pink-collar positions (Tandrayen-Ragoobur and Pydayya, 2015). Apart from their domestic and childcare duties, Indian women face a multitude of social and cultural obstacles (Gaddis and Ranzani, 2020). These conclusions are consistent with the research conducted by Fang and Lin (2015), who found that changes in the minimum wage had a significant negative impact on employment in Eastern and Central China. Their analysis of a household micro-dataset revealed that these changes primarily harmed women and low-skilled workers. The information suggests that India's minimum wage laws have impeded efforts to reduce gender inequality.

Unfortunately, despite its good intentions, the minimum wage was a failure in achieving its initial goals, which were to protect jobs and raise the living standards of the lowest paid people. Considering that the likelihood of job loss for workers with only primary and secondary education is 0.089 and 0.038, respectively, compared to those with higher education, it would have been prudent for the Mauritian government to enhance the skills of lower-educated workers before introducing the minimum wage. This case study regarding the implementation of the minimum wage in India serves as a cautionary tale for other economies with a similar structure, characterized by substantial service sectors and minimal industrial sectors. The government should adopt a gender-sensitive approach when examining the impact of the minimum wage to ensure equal participation of men and women in the workforce, thereby reducing the risk of job losses for women.

A more effective strategy for encouraging pay increases would be to provide low-skilled and less educated people with vocational training so that market forces can push wages higher in order to draw in more productive workers. In order to guarantee that men and women have equal opportunity to enter the workforce, measures for promoting and overseeing fair access to these types of training programs for all sexes must be prioritised. Raising the minimum educational requirement beyond 16 can also promote skill development because the likelihood of maintaining employment rises with age for both male and female workers by 0.074 and 0.086, respectively.

The use of data from 2021 to 2022 in this study to assess the short-term impact of the minimum wage on employment in India presents new avenues for research, particularly regarding the long-term effects of minimum wage policies. Future studies could also investigate how minimum wage regulations influence non-wage factors related to employment, such as working conditions and hours worked. Additionally, exploring how employers may counterbalance the effects of minimum wage—for example, by cutting non-wage benefits, raising the prices of products, or changing employment structures—could be valuable areas for further investigation.

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