To Study the Impact on Occupation and Economical Status Due to Minimum Wages in India

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Abstract

In this work, we examine the effects of changes in legal minimum wages on a range of labour market outcomes, such as: a) wages and employment; b) worker transitions between jobs (in the covered and uncovered sectors); c) employment status (unemployment and out of the labour force); and d) transitions into and out of poverty, using a panel data set at the individual and household levels. It has been observed that modifications to the legally mandated minimum wage solely impact employees whose pre-change starting pay was nearly at the minimum.For instance, raising the legal minimum wage has no appreciable effect on salaries in other sections of the distribution but causes a considerable increase in wages and a loss in employment of private sector workers who were previously paid within 20% of the minimum wage. According to the estimations derived from the employment transition equations, a combination of hiring freezes and layoffs is to blame for the decline in covered private sector employment. A lesser percentage of workers find employment in the public sector; the majority of workers who lose their jobs in the covered private sector due to higher legal minimum salaries either exit the labour force or take on unpaid family work. There is no proof that these workers lose their jobs, as we have found.

Our examination of the connection between household income and the minimum wage reveals that: Raising the legal minimum wage does two things: a) increase the chances that a low-income worker's family will be able to escape poverty; and b) if the increase affects the head of the household rather than the non-head, it is more likely to reduce the prevalence of poverty and make the transition from poverty to affluence easier. This is due to the fact that the head of the home has a lower probability of losing than the non-head, who is more likely to enter unpaid family work or retire from the workforce.

Keywords: Minimum wages, Employment, Poverty, Socio-economic condition, India

1. Introduction

Redistributing revenue to low-paid workers is the rationale behind minimum wage laws. When emerging nations are rapidly adjusting to the global economy, this policy instrument might be extremely crucial. However, some policy makers argue for the reduction (or even abolition) of minimum wages and other labour market regulations in developing countries to allow for greater labour market flexibility and increased competitiveness in an era of intense global competition (see, for example, Heckman and Pages, 2000). The major contention is that labour market rigidities, including pay rigidity brought on by the minimum wage, might impede the creation of new jobs, which in turn fuels unemployment and poverty. (see e.g., Pagés and Micco, 2006).

However, intense rivalry in the increasingly interconnected world has produced what some have dubbed "the race to the bottom." Global competition is feared to be driving down salaries and working conditions, thus laws like the minimum wage and labour standards are necessary to maintain the bottom. Actually, Acemoglu (2001) contends that minimum salaries have the power to change the employment landscape in favour of high-paying positions. If this is the case, raising the minimum wage could help reduce poverty and inequality by raising the earnings of individuals impacted by the law and possibly even generating the creation of new, higher-paying employment.

In this work, we investigate how minimum salaries affect various labour market outcomes. Initially, we look into the degree to which minimum wages increase earnings and/or decrease employment in the industry that is subject to minimum wage laws. Furthermore, we examine the labour market dynamics that transpire after minimum wage hikes. Do employees who are compelled to leave the covered sector go unemployed or find work in the uncovered sector? Does the decline in employment in the covered sector result from worker layoffs or from fewer new hiring made by employers?We look at employment transitions across employment status (from employment to unemployment and out of

the labour force) as well as employment transitions of workers from the public sector and private covered to private uncovered sectors. The amount of these flows will reveal how much the minimum wage affects workers and how much their situation improves or deteriorates. Lastly, we look at how minimum wage laws affect household income and consider whether they are a useful tool for reducing poverty.

The following factors make India a great place to study minimum wages: (a) a relatively high level of legal minimum wages relative to average wages, meaning that minimum wages have the potential to affect a large fraction of the population; (b) substantial variation in minimum wages over time and across industries; (c) a significant percentage of self-employed workers in the private sector who are not legally covered by minimum wages; and (d) a sizable sector of small businesses where employers frequently circumvent minimum wage laws.

In recent years, research on the effects of minimum salaries in developing economies has proven to be fruitful. Studies on Brazil, Chile, Colombia, Costa Rica, Honduras, Indonesia, Kenya, Trinidad and Tobago, Turkey, and South Africa are among the recent publications on the subject.5. Researchers have examined the effects of minimum wages on employment, hours worked, unemployment, average pay, and wage distribution between the formal and informal sectors, as well as poverty in these studies.Six We expand on this literature in a few different ways in our study. First, we calculate the effect of minimum wages on earnings and employment in Nicaragua, a nation that has not been the subject of prior research. Secondly, we assess the minimum wage's effect on new hiring and layoffs differently.

For the first time, a study of a developing economy specifically demonstrates that low wages lead to workers quitting the covered sector as well as fewer people being hired from the uncovered sector into the covered sector. Third, we look at how minimum wage adjustments affect workers' movements (transitions) within and outside of the public sector, self-employment, unpaid family work, and the covered sector. For instance, we demonstrate that workers in India who lose their jobs in the covered sector due to higher minimum wages are more likely to either exit the workforce altogether or work for unpaid family members (rather than either self-employed or unemployed). Fourth, we analyze the impact of higher minimum wages on transitions into and out of poverty. We present evidence that higher minimum wages in India increase the probability that a poor worker's family will move out of poverty.

Additionally, we provide evidence showing that minimum wages have different effects on heads of households vs non-heads, and we explain how these disparities influence how minimum wages affect poverty. We are able to make these novel contributions to the literature only because panel data allows us to identify employment transitions and changes in the incomes of the same individuals or households before and after the minimum wage change, in addition to allowing us to control for individual-specific fixed effects. An existing household-level panel data set in Nicaragua served as the basis for the creation of the individual-level panel data set we used for this investigation.

2. Data

We use annual panel data gathered by Fundación Internacional para el Desafío Económico Global (FIDEG) between 1998 and 2006 to examine the effects of minimum wages on the labour market in Nicaragua.7. The basis for this data collection is a 1996 FIDEG household survey, which included 6,028 homes and is thought to be representative of all Nicaraguan households. The households were chosen with the aid of data on the locations of every residence in every electoral district across the nation and stratified random sampling procedures.8 A random sub-sample of 1,600 homes—816 urban and 784 rural—from the 1996 survey served as the basis for the 1998 poll. Interviews were conducted with the primary household in each of these residences.

During this time, great effort was taken to trace every household and every member of the household. For instance, the interviewer initially ascertained whether this was the household's first interview or if it had been questioned the year before.9. Each household member who had been questioned the year before was listed by first and last name on the questionnaires, along with a line item that was specifically meant to be used for all years and could never be filled by another household member. Inquiries concerning a member's whereabouts were made if they left the household in order to track migration patterns. However, newcomers to the household were given a line on the questionnaire and asked to explain how they became a part of it (by marriage, birth, etc.).

We have 27,000 observations on 8,682 people in working age (average 3.1 observations per person) in our analytical sample. Thirty percent of the sample has two observations, fifty percent has three, and seven percent has nine. The analytical sample's descriptive data are included in Appendix Table A1.

We have verified the representativeness of the panel data, which is based on a small sample, by contrasting certain fundamental workforce attributes with those from the World Bank's 1998 and 2005 Nicaraguan LSMS survey. The distribution of workers' economic activity between the two samples in 1998 is found to be quite similar, but there is some divergence between the two samples in 2005 since the FIDEG sample has a larger share of the tertiary sector. The FIDEG sample appears to have a higher percentage of unpaid family workers, and while average salaries appear to be lower, median incomes are strikingly similar between the two samples. Appendix Table A2 provides more information.

The Ministry of Labour in India minimum wage regulations served as the second source of data. India establishes separate minimum wages for workers in free-trade zones (special regimes), the federal and local governments, and all private sector employees in each of the country's twelve economic sectors. With the exception of 1998 and 2000, new minimum wages are determined annually during the years for which we have panel data. The hourly legal minimum wage changes for the years we examined are listed in Table 1.

Based on their industry of employment, we determine the minimum salary for each worker in the FIDEG panel data collection. This suggests that neither unemployed persons with no prior work experience nor workers who are not in the labour force may be given a minimum wage. Furthermore, we are unable to distinguish between employees of state-owned businesses, which are subject to the private sector minimum wage, and employees of free-trade zones. As a result, we assign these employees the minimum wage that is appropriate for the private sector industry in which they are employed. We assign to full-time workers (working 40 or more hours a week) a monthly and hourly minimum wage (calculated as indicated in the previous footnote) and to part-time workers only an hourly minimum wage.

We discover that, over the time period under consideration, the minimum wage is high in comparison to the mean and median earnings of workers in the private sector. The mean minimum wage to mean wage ratio is 0.53, while the mean wage to median wage ratio is 0.81. With exception of two years in which the minimum wage was not raised, the trend over this time has been largely stable.

3. Compliance issues

All Indian workers, whether in the public or private sectors, are required by law to receive at least the minimum wage. The self-employed (which includes small business owners) and unpaid family workers are the workers not protected by minimum wage laws; together, they make up the uncovered sector. It is crucial to identify the segments of the labour market where minimum wage laws are followed before analysing the effects of such laws. We verify that the data is compliant in a number of ways.

3.1. Comparing the distribution of wages and legal minimum wages

Finding spikes in the wage distribution at or near the minimum wage is an easy way to go about it. We present the kernel density estimate of the log wage minus the log minimum pay for each worker in order to simplify the graphical analysis in light of Nicaragua's numerous minimum wage structures. A zero in these numbers denotes that the employee is receiving the minimal wage allowed by law. We create these data for five distinct categories, the whole covered private sector, major enterprises in the covered private sector, small firms in the covered private sector, the covered public sector, and the uncovered self-employed, in order to test for varying degrees of compliance. The rationale for analyzing three groups in the covered sector separately is to decipher the extent to which the small scale sector complies with minimum wages, and to separate out the public sector workers, who tend to have higher wages in most Central American countries.

We compare monthly wages to the minimum wage for full-time workers in order to create the kernel density estimates. We evaluate the hourly pay of part-time employees against the hourly minimum wage. In Fig. 1, the kernel density estimates are shown on the same scale to facilitate cross-sector comparisons. The workers who earn over or below the legal minimum wage are shown with a value that is neither zero nor below it. These numbers imply that both the public and covered private sectors are impacted to some extent by legally mandated minimum salaries. We observe distributional spikes close to zero in those two covered industries, and the distributions hint at some evidence of censorship below the minimum wage. Nonetheless, there isn't much proof of censorship because most employees in the industries surveyed make less than the minimum wage. For large private sector enterprises compared to small covered private sector firms, the filtering and distribution spike at zero are more noticeable. This could imply that larger private sector companies have higher levels of compliance than smaller ones. There are some spikes in the distribution close to the minimum wage, but there is no evidence of censorship in the unreported self-employed sector.

The hourly wage and hourly minimum wage variables that we utilise for part-time workers may have measurement errors, which raises the question of whether Fig. 1 is not accurately representing compliance. (This is because there can be a significant measurement error in the hourly measures since they are derived from monthly values that are divided by the stated number of hours worked.) Consequently, we further offer kernel density estimates in Fig. 2 for the subsample of full-time employees only. These estimations clearly show that the results in Fig. 1 are valid and unaffected by measurement error..

In conclusion, the kernel density estimates offer some proof of minimum wage compliance in Nicaragua's covered sector—particularly large firms—and non-compliance in the uncovered (self-employed) sector. This evidence is weak, though.

3.2. Proportion of workers earning the minimum wage by sector of employment

Finding the average share of workers in each of these four sectors who make less than the minimum wage, close to the minimum wage, or more than the minimum wage is another technique to compile the data on compliance. In order to accurately estimate the share earning less than 0.8 of the minimum wage, between 0.8 and 1.2 of the minimum wage, and more than 1.2 of the minimum wage, we apply a threshold of 20% to account for measurement error. Table 2 displays these data independently for the public, private covered, and uncovered self-employed sectors. We further categorise the private covered sector into major and small businesses. There is some evidence to suggest that compliance is higher in the covered private sector than in the uncovered self-employed sector: just 15.6% of self-employed workers make within 20% of the minimum wage, compared to 25.5% of workers in the private covered sector. While this suggests that there is more compliance in the covered sector than in the uncovered sector, it is evident that there is still a large percentage of workers—up to 23% of those in the private covered sector—who make less than the minimum wage, even in the sectors that are legally required to pay minimum wages. 4.1% of workers in the public sector make less than the minimum wage required by law.

We also calculate these percentages using the monthly wage and minimum wage for the subsample of full-time workers (who make up roughly 50% of all workers), as many are surprised by the number of workers in India earning less than the minimum wage, even in the large firm sector, and some speculate that it may be due to measurement error in the hourly wage and minimum wage variables. The percentages in Table 2's second panel show that, like our earlier findings, a similar amount of full-time employees in the covered industry make less than the minimum wage. Also, the share of full time uncovered self-employed workers earning less than the minimum wage is substantially larger than the share for all self-employed workers (including part-time workers).

4. Wage and disemployment effects in the covered sector

In this section we examine the extent to which increases in minimum wage rates raise wages and expel workers from the covered sector, as predicted by the competitive model of the labor market.

4.1. Wage effects

We next estimate the elasticity of the wage with respect to the minimum wage in the covered sector. Using the panel data set of workers we estimate the following wage equation on all workers who remain in the covered sector from one year to the next:

$$\Delta \ln W_{it} = \alpha_o + a_1 \Delta \ln MW_{It} + \Delta X'_{it}\beta + a_2 \Delta \ln GDP_{It} + \sum T\ t = 1\gamma_t YR_t + \mu_{it}; \eth 1Þ$$

where the dependent variable, $\Delta \ln W_{it}$, is the change in the log of real wages of individual i between time t and time t+1. $\Delta \ln MW_{it}$, the change in the log of the real minimum wage for worker's industry category i in time t between time t and time t+1, is one of the explanatory variables. An approximation of the effect of changes in the legal minimum wage on actual wages is provided by the coefficient α_1. In addition, the vector X_{it} of individual specific human capital factors (differences in years of schooling and if the worker resides in an urban region) and the change in the log of real value-added in industry I between time t and t+1 (lnGDP) are explanatory variables of additional significance. Lastly, we incorporate a dummy variable for each year, YR_t, to adjust forendogenous variations in yearly average minimum salaries (as well as other year-specific factors like aggregate supply and aggregate demand changes, or the timing of minimum wage changes). All regression estimates (wage, employment, transition, and poverty equations) in this research have

estimated standard errors that are resilient to heteroskedasticity and account for error clustering in the worker's industry (which also happens to correspond to the minimum wage category).

As a placebo test, we additionally estimate the salary equations for people who continue to work for themselves year after year, in addition to the wage equations for those who are in the covered industries at time t and time t+1. Changes in the minimum wage should have a beneficial impact on the earnings of those who continue to work in the covered sector and no direct positive impact on the wages of those who continue to work for themselves from t to t+1 if minimum wages are enforced in the covered sectors but not the uncovered sector.

We also estimate the impact of minimum wages on the earnings of workers who were within 20% of the legal minimum pay at time t (before to the minimum wage change), since we anticipate that legal minimum wages will have a greater influence on the wages of individuals who earn close to the minimum wage. Lastly, we use the hourly minimum wage and hourly wage data for all workers (full- and part-time), as well as for those who are within 20% of the minimum pay at time t, to estimate Eq. (1) for the aforementioned groups. To account for measurement error, we additionally estimate the pay equation using the monthly wage and monthly minimum wage for those full-time employees who were within 20% of the minimum wage at time t.

Table 3 presents the estimated coefficients for these regressions. They can be used as proof that minimum wage rules are being followed as well as elasticities, which measure the percentage change in real earnings given a one percent rise in the legally required minimum wage. It is evident from the estimations of the coefficients on the minimum wage variable that the private covered sector does, in fact, comply with the law regarding minimum wages. The coefficients are statistically significant only for workers whose incomes were close to the minimum wage, but they are positive nonetheless. We estimate an elasticity of 0.58 for all covered private sector workers whose wages are within 20% of the minimum wage in time t, which rises to 0.65 for full-time covered sector workers whose wages are within 20% of the minimum wage. The estimated elasticities are positive for both large and small firms and statistically significant for full-time workers near the minimum.

Although the difference in the coefficients is not statistically significant, the relative size of these coefficients suggests that the large-firm private sector may be more affected by the minimum wage than the small-firm private sector. Changes in the minimum wage have no statistically significant effect on the earnings of private sector employees whose pay is not 20% or less than the minimum wage (not indicated in table). Indicating that legal minimum wages are not being met in this industry, the coefficient on the minimum wage variable in the pay equations for unemployed self-employed workers is never statistically significant. In summary, the wage equations suggest that minimum wage laws in Indiaare complied with in the private covered sector, but do not have a significant impact on the wages of workers in the uncovered self-employment sector.

4.2. Disemployment effects

We next examine the impact of changes in minimum wages on the employment of workers in the private covered sectors. Using the panel data set of workers and binomial probit analysis, we estimate, for all workers who were in the private covered sectors at time t, the following employment equations:

$$\text{Prob EMP}it = 1 \eth \TH = \alpha o + a1\Delta\ln MWIt + \Delta X' it\beta + a2\Delta\ln GDPIt + \sum Tt = 1 \gamma tYRt + \mu it; \eth 2\TH$$

where the dependent variable, Prob(EMPit=1), is equal to zero if individual i loses his or her private covered sector employment between time t and time t+1 (and becomes either an unpaid family worker, self-employed worker, or out of the labour force) and one if individual i continues to work in the covered sector between time t and time t+1. The explanatory variables in the wage equation are the same. We may calculate the effect of a change in the legally mandated minimum wage on the likelihood that an employee will continue to work in the private covered industries using the coefficient $\alpha1$.

Table 4 presents our estimates of how changes in the legally mandated minimum wage affect the likelihood that an employee will stay in the private covered sector. Table 4 shows that a negative number means that a worker's chances of remaining employed in the private covered sector are decreased by an increase in the minimum wage; in other words, a negative number means that a worker is more likely to lose their job in the private covered sector.

These findings suggest that raising the legal minimum wage will lead to a statistically significant decline in employment in the private covered sector. For example, a 10% increase in the legal minimum wage will decrease the

likelihood that all workers will remain in the private covered sector by 3.1 percentage points, all workers with wages close to the minimum wage by 5.2 percentage points, and full-time employment near the minimum by 5.1 percentage points. These results suggest that a 10% rise in the legal minimum wage results in about 5% of private covered sector employees losing their jobs in that sector when evaluated at the average proportion of workers in the private covered sector. We find a statistically significant negative employment impact of increases in minimum wages in large, but not small, private covered sector firms.

In summary, our data supports the hypothesis that higher legal minimum wages in India cause workers in the private covered sector to lose their jobs in that sector. The decline is more pronounced and statistically significant in the large-firm private sector, where the minimum wage's wage impact (i.e., compliance) is greater.

5. Dynamic effects: employment transitions

Increased minimum salaries may result in fewer people being hired into the private covered sector or in workers losing their positions in the private covered sector. Tracing the effects of minimum wages on employment flows into and out of the private covered sector, as well as from the private covered sector into other sectors (like self-employment) and status in the labour market (unemployment and the labour force), is one of our work's original contributions. This is made possible by the panel data we create.We demonstrated in Subsection 4.2 that some workers lose their jobs in the private covered sector as a result of higher minimum wages. This subsection looks at the first places that employees who are affected by a hike in the minimum wage move after leaving the private covered sector (such as into self-employment, the public sector, unemployment, unpaid family work, or dropping out of the labour market). Next, by examining the rates of new hires from the uncovered sectors into the private covered sector, we look for evidence that an increase in the minimum wage also lowers employment in the private covered sector.

Using the sample of all workers employed in the private covered sector at time t, we first estimate a multinomial logit model in which workers may start out in the private covered sector and end up in one of the following sectors in time t+1: self-employment, family work performed for pay, public sector, stay in the private covered sector, become unemployed, or leave the labour force. A variable we define, TRANSikz,t, precisely indicates the worker's shift from sector k (the private covered sector) to sector z (z= continue in the private covered sector, self-employment, unpaid family work, the public sector, unemployment, or exit the labour force).A worker remaining in the private covered sector is the foundation category. Therefore, given a starting point in sector k (k=private covered sector), the likelihood that individual i departs from sector k and enters sector/state z is characterised by:

$$\text{Prob TRANSikz;t} = 1 \quad = \exp \theta ikz;t \ = 1 - \exp \theta ikz;t \ ð3Þ$$

where

$$\theta ikz;t = \alpha okz + a1kz\Delta lnMWIt + \Delta X'it\beta kz + a2kz\Delta lnGDPIt + \sum Tt = 1\gamma ztYRt + \mu ikz;t$$

The change in the log of the actual minimum wage applicable to that worker's industry is one of the explanatory variables. I at time t, \MWIt. The effect of minimum wages on the probability of moving from the private covered sector into sector z is measured using α1kz. We project the impact of a change in the legally required minimum wage on the probability that workers will quit their jobs in the private covered sector and join the public sector, self-employment, the unpaid family worker sector, unemployment, or the labour force entirely. The other explanatory variables are identical to those in the salary and employment equations.

Table 5 displays our estimates of the marginal impact of changes in the legally mandated minimum wage on the probability that workers will depart from the private covered sector and join another sector; a higher number in the table signifies a higher probability of a worker leaving the private covered sector and joining sector z. The results suggest that workers in the private covered sector are more likely to resign from their positions and take on unpaid family labour when minimum wages rise.Whether we use the sample of all workers, full-time employees making less than 20% of the minimum wage, or workers making less than 20% of the minimum wage, this is a novel and compelling discovery. Significant effects result, especially for full-time workers making nearly the minimum wage. The probability that an employee will move from the private covered sector to unpaid family employment will increase by 0.42 percentage points for every 1% increase in the minimum wage. Considering that the mean (unconditional) probability is 4.2%, a 1% increase in the minimum wage will boost the likelihood to 4.6%, or a 9 percent augmentation.

There is evidence that workers who lose their jobs in the private covered sector may migrate into self-employment or unemployment, but there is no evidence in Table 5 that people who leave the private covered sector may go seek a job in the public sector or quit the labour market.

We then calculate the impact of minimum wages on the likelihood of getting hired from self-employment, unpaid family work, or the public sector into the private covered sector. Prior to estimating the "specific" effect on recruits from a particular sector (public sector, self-employment, or unpaid family work), we first estimate the "overall" effect on hires from any of these sectors17. More specifically, we estimate equations of the type using the probit approach:

$$\text{Prob TRANS}ikz;t = 1 \quad = \alpha oz + a1kz\Delta \ln MWIt + \Delta X'it\beta kz + a2kz\Delta \ln GDPIt + \textstyle\sum Tt = 1\gamma ztYRt + \mu ikz;t;\eth 4\text{Þ}$$

For the overall effect, the dependent variable TRANSikz,t, equals zero if the person stays in an uncovered sector from t to t+1 and equals 1 if the person gets employed into the covered private sector at time t+1 from any other sector at time t. For the specific impacts, TRANSikz,t = 0 if the person stays in the other specific sector from t to t+1; it equals 1 if the person is employed into the covered private sector at time t+1 conditional on being in another specific sector (e.g., self employment) at time t.

These estimates are shown in Table 6, where a positive number means that a worker's likelihood of moving from the self-employed, public, or unpaid family worker sectors into the private covered sector is increased by higher minimum wages, while a negative number means that a worker's likelihood of moving from these sectors to the private covered sector is decreased. The findings suggest that raising the legal minimum wage has a statistically significant negative effect on the likelihood that an employee will be employed from the public sector or from self-employment into the private covered sector. There is a significant marginal effect. For all workers within 20% of the MW, a 1% increase in the minimum wage reduces the likelihood that a self-employed person or a worker in the public sector at time t will be hired into the private covered sector at t+1 by 0.52 percentage points. There is no proof that greater minimum wages influence the shift from unpaid family labour to paid employment in the private covered sector.

All things considered, the estimation of the transition equations results indicate that the decline in employment in the private covered sector that follows an increase in the legal minimum wage is caused by both workers quitting the private covered sector and fewer people being hired from the uncovered sectors into the private covered sector. A lesser percentage of workers may find employment in the public sector. Most workers who lose their jobs in the private covered sector due to higher legal minimum salaries either exit the labour force or take on unpaid family work. We find no evidence that workers who lose their jobs in the private covered sector because of higher minimum wages become unemployed.

6. Effects on household income and poverty alleviation

Legal minimum wages may have different effects on households at different locations in the distribution than they do on the overall wage distribution. High earners may be the only workers in low earner households, whereas low earners may be the secondary family workers in high income households. As noted by Addison and Blackburn (1999) and Fields et al. (2007), the effect of legally mandated minimum wages on household incomes is contingent upon the manner in which the job composition of a household changes. Therefore, it is not possible to deduce from our findings regarding the effects of minimum wages on individual earnings and employment what the direct effects of legally mandated minimum wages will be on household incomes.

Families may be more likely to remain impoverished (or fall into poverty) if a family member impacted by a minimum wage rise loses their work. However, minimum wage increases can aid families in escaping poverty if the members of the family maintain their employment and gain from a salary increase. This section looks at how minimum wages affect the likelihood that a worker's family would be impoverished first. It also looks at how much a raise in the minimum wage either keeps a family in poverty or causes it to become more so. We conduct an analysis that separates the impact of the minimum wage on the head of the household and non-heads of the household, given the significance of the head of the household's income in the family's overall income19.

First, we find out how likely it is for minimum wage workers to fall into poverty. A family head who makes at least the minimum wage is most likely not impoverished, according to Table 7. In particular, compared to 57% of heads who make about the minimum wage, 81% of heads who earn more than the MW do not live in poverty. If a non-

household head is earning at least the minimum wage, however, they are much less likely to live in a non-poor household (where the comparable numbers are 37% and 58%).

Lastly, if a household's head or any of its members make less than the minimum wage, they are likely to be extremely poor or poor. Table 7 presents a static image showing the likelihood that an employee is poor or not, depending on their household status and the difference between their take-home pay and the minimum wage. The question that follows is, "What effect does a change in the minimum wage have on the likelihood that a household is impoverished?" In order to estimate a probit equation utilising data for every worker, we need the panel data to answer this question. If the worker's home is impoverished at t+1, the dependent variable is equal to 1 (Poor =1) and 0 if non poor at time t+ 1 (Poor= 0), as a function of the change in the minimum wage from the period t to t+1:

Prob POORit = 1 ð Þ = αo + a1ΔlnMWIt + ΔX′itβ + a2ΔlnGDPIt+ ∑Tt = 1γtYRt + μit;ð5Þ

From the coefficient a1 we calculate the impact of a one percent change in theminimum wage on the probability that a worker's family is poor. The other variables in this equation are the same as those in Eq. (1) through (4).

The exercise's results, which are shown in Table 8, show that raising the minimum wage will, on the whole, reduce the likelihood that a household will be impoverished—but only if the higher minimum wage is applicable to the head of the household. Raising the minimum wage for those who are not household heads has little effect on the prevalence of poverty. A 1% rise in the minimum wage has a marginal effect (i.e., when all variables are taken at their mean values) of reducing the incidence of poverty by 0.12 percentage points per head. Furthermore, families with more than one worker at a time benefit significantly from greater minimum wages.This could be the case because the minimum wage is set extremely low in relation to the poverty line, so that a family is unlikely to escape poverty unless at least two members of the family are earning an income. There is no discernible difference in the effects of a minimum wage rise between male and female household heads.

Thus far, it has been established that modifications to the minimum wage might lessen the prevalence of poverty if they affect heads of households with specific attributes. However, can these modifications truly aid households in escaping poverty? Furthermore, if some members of the household lose their jobs as a result of the minimum wage hike, it's probable that households with particular characteristics will be more likely to enter poverty.

In the following exercise, we calculate the effect of a minimum wage change on the likelihood that a household in poverty at time t will no longer be impoverished at time t+1.therefore, that a household that is not impoverished at time t turns into one at time t+1. In particular, we estimate two equations for the poverty transition. In the first, we estimate a probit equation of the following form using a sample of workers in low-income homes at time t:

Prob OUTPOVit = 1 ð Þ = αo + a1Δ lnMWIt + ΔX′itβ + a2Δ lnGDPIt+ ∑Tt = 1γtYRt + μit;

In Equation (6), OUTPOVit is equal to one if worker i's family is impoverished at time t but not at time t+1, and zero if worker i's family is impoverished at time t and remains impoverished at time t+1. The change in the log of the minimum wage that applies to the employee's job at time t is one of the independent variables. We can assess how raising the minimum wage affects the likelihood that a worker's household would escape poverty using the coefficient on this minimum wage variable, a1. We calculate the effect of minimum wages on the escape from poverty for heads of households, heads of households without heads, and heads of households with various features. The other variables in Eq. (6) are the same as those in the employment transition equations.

Next, using a sample of workers in non-poor households in time t, we estimate a probit equation of the form:

Prob INPOVit = 1 ð Þ = αo + a1ΔlnMWIt + ΔX′itβ + a2ΔlnGDPIt+ ∑Tt = 1γtYRt + μit;ð7Þ

In Eq. (7), INPOVit equals one if the family of worker i is not poor in time t but is poor in time t+1, and zero if the family of worker i is not poor at time t and stays not poor in time t+1. The change in the log of the minimum wage that applies to the employee's job at time t is one of the independent variables. We can assess the effect of raising the minimum wage on the likelihood that a family that was not impoverished would become so by looking at the coefficient for this variable, a1. We calculate the effect of minimum wages on the descent into poverty for heads of households, heads of households without heads, and heads of households with various features.

The results of the estimation of Eqs. (6) and (7) are presented in Table 9. The findings in Table 9 indicate that increases in the minimum wage will pull households out of poverty but will not throw households into poverty.

Regardless of the characteristics of the household, we find that the marginal effect of a minimum wage hike has no statistically significant effect on the likelihood that a worker in a non-poor household becomes poor in the following period. Conversely, a 1% rise in the minimum wage will result in a 0.12 percentage point increase in the likelihood that a worker from a poor household at t will no longer be poor at t+1. Raising the minimum salary for the head of the household is the sole way to help lift families out of poverty; raising the minimum wage for anyone other than the head of the household has no effect on the likelihood that a low-income family would escape poverty.

Our research indicates that, despite the fact that higher minimum wages in India are associated with a decline in employment in the private covered sector, they also raise the likelihood that a household will escape poverty. Furthermore, we discovered that raising the minimum salary for the household head is the only way that minimum wages have a beneficial effect on helping people escape poverty. Raising the minimum wage for other members of the household do not increase the likelihood that a household will escape poverty. This implies that household heads may be less negatively impacted by increasing minimum wages on employment in the private covered sector than non-heads. Employers in India who exhibit paternalistic tendencies may be more inclined to retain an employee who they believe is the primary provider for a family with dependents as opposed to an employee who they view as a secondary earner whose income is not as crucial to the home. As a result, we re-estimate the equations in Tables 4 and 5, but this time we take into account the worker's status as the head of the household.

Table 10 supports the claim that, in reaction to increases in the minimum wage, Indian private sector employers are more likely to terminate non-heads of household than heads of household. Table 10 shows that both heads and non-heads of households are more likely to quit their occupations in the private covered sector in response to increases in the minimum wage; however, the marginal effect is nearly twice as large for non-heads as for heads.

Furthermore, depending on whether or not they are heads of households, workers who quit their positions in the private covered sector due to increased minimum salaries end up in different sectors. Table 11 displays the marginal effects of the same equation for heads and non-heads of household, which was computed in Table 5. Household heads who quit the private covered sector are more likely to go freelance, where they can continue to earn money, whereas nonheads who quit the sector are more likely to become unpaid family workers or to drop out of the workforce, where they will not be paid.Therefore, the negative effect of a worker's job loss in the private covered sector due to the minimum wage is significantly greater if the worker is a non-head rather than the head of the household. Taking into account the relative proportions of their earnings, the fact that the head of the household can supplement part of his or her income through self-employment helps further explain why the detrimental employment effects of higher minimum salaries do not push households into poverty.

As we saw in the first part of this article, a 10% increase in the minimum wage moved the average pay for workers in the private covered sector to within 20% of the minimum wage by about 5%. The number of private covered sector employees working in the covered sector, however, also decreased by 5% as a result of this growth.We also found that employees in the private covered sector who lost their jobs were often more inclined to leave the workforce or take on unpaid household work, which leaves them without a salary. It was unexpected to discover that raising the minimum wage decreased household poverty given the contradictory effects of income and work. The solution to this seeming paradox lies in the differences in how raising the minimum wage affects heads of families vs non-heads.

Even though they often account for the majority of home income, household heads are less likely than non-household heads to quit their jobs in the private covered sector when minimum wages increase. Furthermore, rather than having their pay drastically reduced, the heads of households who do lose their work in the private protected sector will most likely start their own businesses. Nevertheless, non-heads of households that lose their jobs in the private covered sector either quit their occupations or take on unpaid family work, which leaves the home with a large revenue loss.

7. Conclusions

In this article, we observed that minimum wage hikes in Nicaragua between 1998 and 2006 resulted in higher pay and lower employment of workers in the private covered sector. But only those employees whose starting pay (before to the minimum wage increase) was nearly at the minimum were impacted by minimum wages.

For instance, increases in the legal minimum wage rates had no appreciable effect on salaries in other areas of the distribution but significantly increased the average wages of private sector workers affected by the change and whose pay was within 20% of the minimum wage prior to the change. Employees in large organisations experienced a greater impact than those in smaller firms. An increase in the minimum wage was found to be associated with a decline in employment within the private covered sector. Two things contributed to this decline: first, higher minimum salaries in

the private covered sector led to job losses for workers there; second, fewer persons were hired from the uncovered sectors to work in the private covered sector. Due to rising legal minimum salaries, the majority of workers who lost their jobs in the private covered sector either quit the workforce or began doing unpaid family work. We were unable to locate any proof that these workers lost their jobs.

Our study of the relationship between minimum wages and poverty found that: a) higher legal minimum wages increased the chance that a low-income worker's family would become impoverished; and b) higher legal minimum wages were more likely to help the head of the household than the non-head in terms of reducing the incidence of poverty and easing the transition from poverty to non-poverty. This was because, in the event that minimum wages increased, heads of households were less likely than non-heads to lose their jobs in the private covered sector, and those heads who did lose their jobs were more likely to find new paying jobs (like self-employment) than non-heads, who were more likely to enter the unpaid labour force or go into family work.

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Annexures

Table 1:Real minimum wage (per hour) in Odisha,

Area-wise Rates of Minimum Wages for Scheduled Employments by Category of Workers in Central Sphere in India (As on 01.10.2020)				
Scheduled Employment	**Category of Workers**	**Rates of Wages Including V.D.A per day (In Rs.)**		
		Area A	**Area B**	**Area C**
Agriculture	Unskilled	407	371	368
	Semi-Skilled/Unskilled Supervisory	445	409	375
	Skilled/Clerical	483	445	408
	Highly Skilled	535	497	445
Workers engaged in Stone Mines for Stone Breaking and Stone Crushing	**Excavation & Removal of over burden with 50 meters lead/1.5 meters lift :**			
	(a) Soft Soil	-	431	-
	(b) Soft Soil with Rock	-	648	-
	(c) Rock	-	858	-
	Removal and Staking of Rejected Stones with 50 metres lead 1.5 metres lift	-	346	-
	Stone Breaking or Stone Crushing for the Stone Size			
	(a) 1.0 inch to 1.5 inches	-	2642	-
	(b) Above 1.5 Inches to 3.0 Inches	-	2260	-
	(c) Above 3.0 Inches to 5 Inches	-	1326	-
	(d) Above 5.0 Inches	-	1089	-

Sweeping and Cleaning	Unskilled	639	534	427
Watch and Ward	Without Arms	777	707	603
	With Arms	845	777	707
Loading and Unloading	Unskilled	639	534	427
Construction	Unskilled	639	534	427
	Semi-Skilled/Unskilled Supervisory	707	603	500
	Skilled/Clerical	777	707	603
	Highly Skilled	845	777	707
Non-Coal Mines	Unskilled	4271	5342	-
	Semi-Skilled/Unskilled Supervisory	5341	6392	-
	Skilled/Clerical	6391	7452	-
	Highly Skilled	7451	8322	-

Fig 1 : shoaws the graphical representation of data of all sector 2022
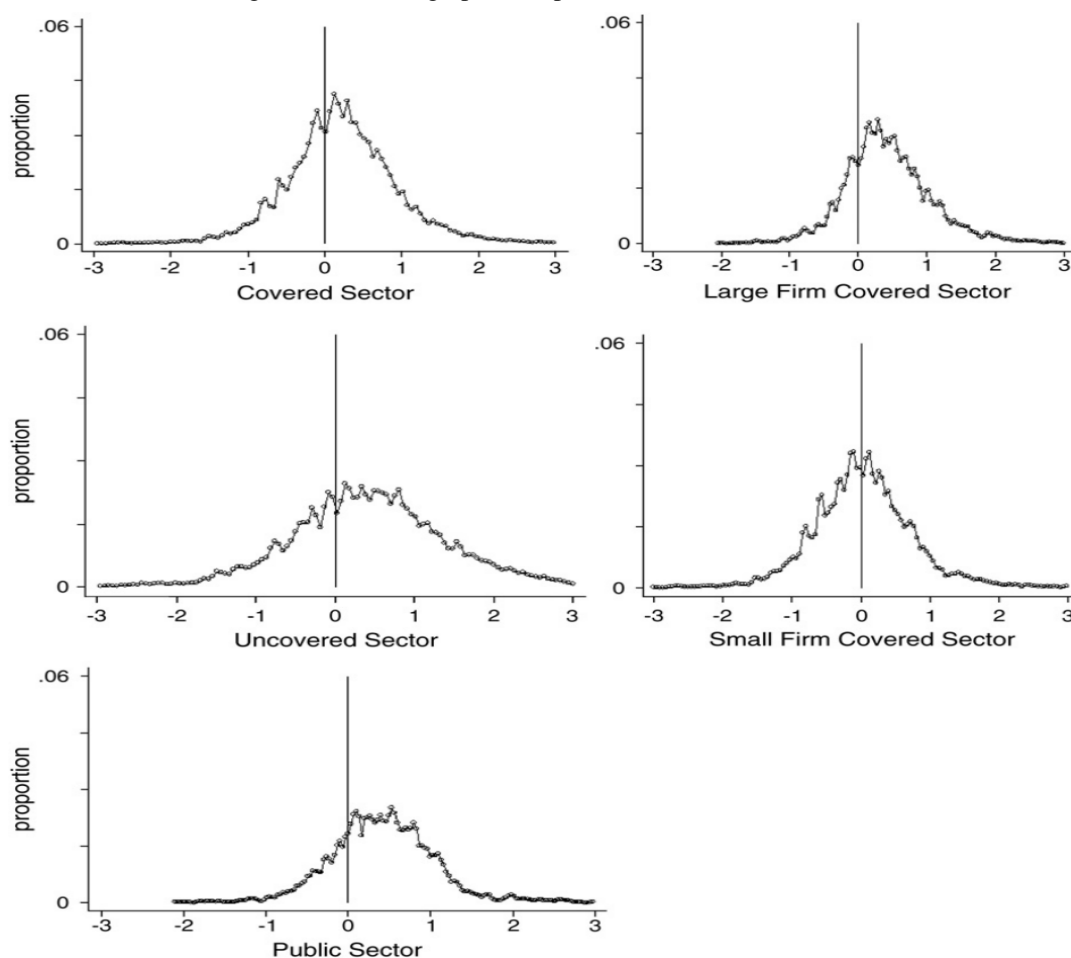

Table 2:Elasticity of the wage with respect to the minimum wage in the covered sector.

For workers who remain in the following sectors at time t and t+ 1	All Workers		All Workers within 20% of MW at time t		Full-time Workers within 20% of MW at time t	
	Coeff.	Standard	Coeff.	Standard	Coeff.	Standard

		Error		Error		Error
Private covered	0.247	0.237	0.579	0.267**	0.651	0.084***
Large-firm private	−0.222	0.355	0.651	0.414	1.036	0.365**
Small-firm private	0.094	0.588	0.302	0.117**	0.702	0.204**
Self-employed	0.094	0.420	0.652	0.493	0.107	0.202

Notes: ***= significant at 1%, **= significant at 5%, *= significant at 10%.

The dependent variable is the change in the log of hourly wage and the key independent variable is the change in the real minimum wage; we report the estimated coefficients for α1 in Eq. (1) for samples identified by row and column.

Reported standard errors are robust to heteroskedasticity and corrected for clustering of errors in the industry of the worker (which also corresponds to the minimum wage category)

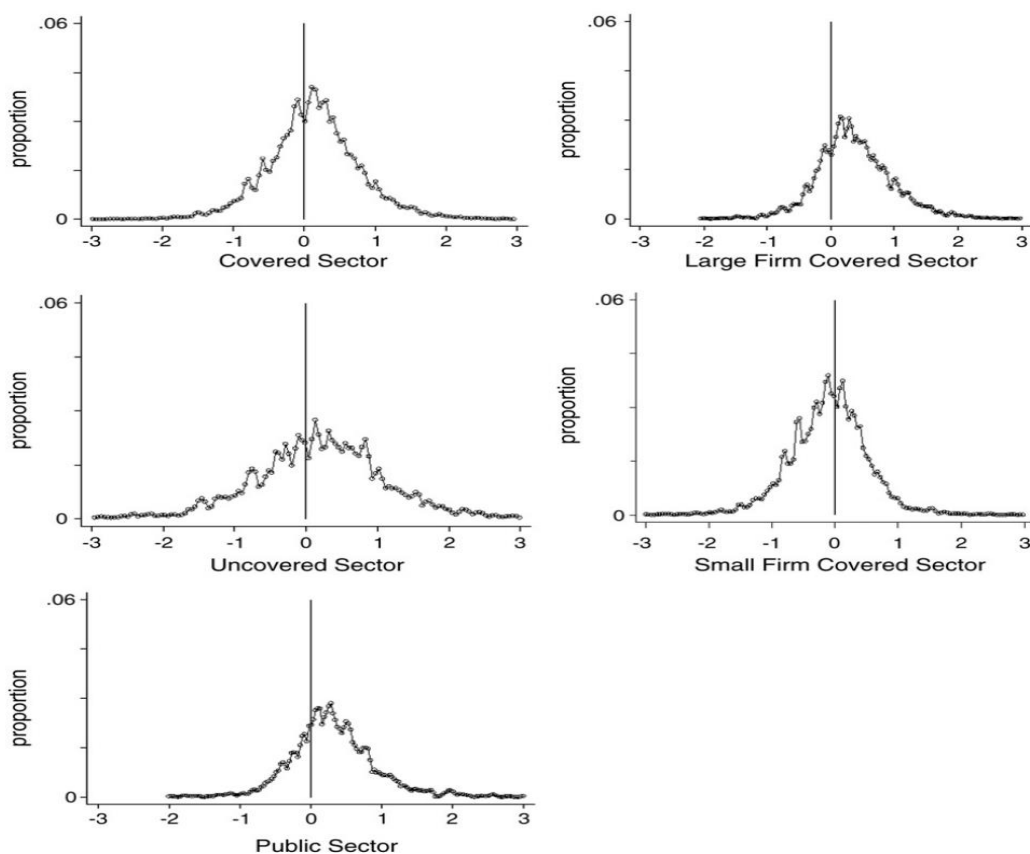Fig 2 : Log wage on Minimum wage of full time workers 2022

Table 3 :Marginal impact of minimum wages on the probability that a worker keeps his/her employment in the covered sector

For workers in the following sectors at time t:	All Workers A		All workers within 20% of MW at time t		Full-time Workers within 20% of MW at time t	
	Marginal Effect	Standard Error	Marginal Effect	Standard Error	Marginal Effect	Standard Error
Private covered	−0.310	0.099***	−0.522	0.189***	−0.509	0.382
Large-firm	0.615	0.219***	−1.197	0.266***	−2.126	0.724***

private						
Small-firm private	0.038	0.393	−0.089	0.428	−0.847	1.358

Notes: Table reports marginal effects evaluated at the means of all variables, from estimates of α1 in Eq. (2) using probit regressions for samples identified by row and column.

A positive coefficient means that higher minimum wages increase the probability that a worker stays in the indicated covered sector. ***= significant at 1%, **= significant at 5%,

*= significant at 10%. Reported standard errors are robust to heteroskedasticity and corrected for clustering of errors in the industry of the worker (which also corresponds to theminimum wage category).

Table 4: Marginal impact of minimum wages on the probability of entering the private covered sector from another sector

Origin Sector:	All Workers		All Workers within 20% of MW at time t		Full-time Workers within 20% of MW at time t	
	Marginal Effect	Standard Error	Marginal Effect	Standard Error	Marginal Effect	Standard Error
Panel A: Probit Regression (Destination is the Private Covered Sector)						
All Others (non-private)	−0.095	0.125	−0.524	0.079***	−2.696	6.229****
Public	−7.925	1.499***	−7.874	1.934***	−20.421	5.133***
Self-employed	−0.157	0.081*	−0.281	0.042***	−0.564	0.284**
Unpaid Family Worker	0.119	0.078	n.a.	n.a.	n.a.	n.a.
Panel B: Unconditional Probability of Entering the Private Sector from Another Sector						
All Others (non-private)	0.109		0.131		0.207	
Public	0.219		0.256		0.268	
Self-employed	0.087		0.083		0.119	
Unpaid Family Worker	0.097		n.a.		n.a.	
Sample Size	3581		1263		676	

Notes: Table provides marginal effects of the estimated α1kz in a variant of Eq. (3) using probit for samples identified by row and column. A positive coefficient means that higher minimum wages increase the probability of a transition into the private covered sector from another sector. ***= significant at 1%, **=significant at 5%, *=significant at 10%. Reported standard errors are robust to heteroskedasticity and corrected for clustering of errors in the industry of the worker (which also corresponds to the minimum wage category).

Table 5:Impact of changes in minimum wages on the probability that a household is poor in t+1.

	Marginal Effect	Standard Error
All	−0.070	0.100
Head of HH	−0.124	0.065*
Non–Head of HH	−0.033	0.108
Male Head of HH	−0.120	0.116
Female Head of HH	−0.101	0.076
Head of HH with 1 worker	−0.009	0.064
Head of HH with 2+ workers	−0.166	0.069**

Note: Using the survey's definition of poverty. A negative coefficient means that higher minimum wages lower the probability that a household is poor at time t+ 1. ***= significant at 1%, **= significant at 5%, *= significant at 10%. Reported standard errors are robust to heteroskedasticity and corrected for clustering of errors in the industry of the worker (which also corresponds to the minimum wage category).

Table 6:Marginal impact of minimum wages on the probability that a worker keeps his/her job in the covered sector.

For workers in the following sectors at time t:	All Heads of Households (HH)		All Non-heads of HH	
	Marginal Effect	Standard Error	Marginal Effect	Standard Error
Private	−0.175	0.110	−0.384	0.111***
Large-firm private	−0.366	0.187*	−0.753	0.230***
Small-firm private	0.005	0.399	0.057	0.386
For workers in the following sectors at time t:	All Heads of HH within 20% of MW at time t		All Non-Heads within 20% of MW at time t	
	Marginal Effect	Standard Error	Marginal Effect	Standard Error
Private	−0.447	0.143***	−0.558	0.213**
Large-firm private	−0.884	0.084***	−1.331	0.352***
Small-firm private	−0.079	0.459	−0.094	0.413

Notes: Table reports marginal effects evaluated at the means of all variables, from estimates of $\alpha 1$ in Eq. (2) using probit regressions for samples identified by row and column. A positivecoefficient means that higher minimum wages increase the probability that a worker stays in the indicated covered sector. ***=significant at 1%, **= significant at 5%, *=significant at 10%. Reported standard errors are robust to heteroskedasticity and corrected for clustering of errors in the industry of the worker (which also corresponds to the minimum wage category)

Table 7: Marginal effect of minimum wages on the probability of leaving the private covered sector for another sector.

Origin: Private Covered Sector	All Heads of Households (HH)		All Non-heads of HH	
Destination:	Marginal Effect	Standard Error	Marginal Effect	Standard Error
Public	0.097	0.031***	0.074	0.059
Self-employed	0.244	0.103**	−0.264	0.075***
Unpaid Family Worker	−0.175	0.067**	0.192	0.095**
Unemployed	−0.097	0.060	−0.009	0.041
Not in the Labor Force	−0.199	0.109*	0.262	0.052***
Origin: Private Covered Sector	All Heads of HH within 20% of MW at time t		All Non-Heads within 20% of MW at time t	
Destination:	Marginal Effect	Standard Error	Marginal Effect	Standard Error
Public	0.143	0.313	0.110	0.062*
Self-employed	0.287	0.159*	−0.146	0.052**
Unpaid Family Worker	−0.084	0.055	0.264	0.128**
Unemployed	−0.070	0.029**	−0.010	0.052
Not in the Labor Force	−0.072	0.140	0.289	0.063***

Notes: Table provides marginal effects, based on estimates of $\alpha 1kz$, evaluated at the means of all variables, in Eq. (3) using multinomial logit regressions, respectively, for samples identifiedby row and column. A positive coefficient means that higher minimum wages increase the probability of a transition from the private covered sector. ***=significant at 1%, **=significantat 5%, *= significant at 10%. Reported standard errors are robust to heteroskedasticity and corrected for clustering of errors in the industry of the worker (which also indicates the minimum wage category).