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AND NON-WAGE SECTORS IN INDIA: AN
EXPLORATORY ANALYSIS OF THE
NON-FARM SECTOR**

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Analysis of the Non-Farm Sector*

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Minimum Wages in the Presence of Wage and Non-Wage Sectors in India: An Exploratory Analysis of the Non-Farm Sector

Mohit Sharma and Brinda Viswanathan

Abstract

The Indian labour market is characterized by large informality and self-employment. While most of the literature in developing nations on minimum wages has focused on the impact of minimum wages on wages and the employment of the 'wage earners', this leaves out a large proportion of the self-employed workforce (non-wage earners). Using the novel data on minimum wages and with the availability of earnings data for self-employed workers in the recent Periodic Labour Force Survey (PLFS) rounds 2017-18, 2018-19, and 2019-20, this study attempts to explore the role of minimum wages on the earnings of all categories of workers including self-employed in the non-farm sector. We find that for unskilled and semi-skilled workers who have studied up to secondary education, higher levels of minimum wages reduce the earning gap between regular, own-account, and casual workers. This might indicate the "lighthouse effect", where both casual and own-account workers (primarily engaged in informal activities) use minimum wages as a numeraire to carry out earnings negotiations. It has also been found that a higher level of minimum wage reduces the earnings disparity between males and females.

Keywords: *Minimum wage, Informality, Self-employment, Lighthouse effect, India*

JEL Codes: *J21, J23, J30, J31, J46, J50*

INTRODUCTION

The statutory enactment of minimum wages helps to protect the workers against low wages. It can further help in reducing wage inequality and poverty (David, Manning, and Smith 2016; Mansoor and O'Neill, 2021; Stigler, 1946). However, the most direct impact of minimum wages is expected to be on the wages of the workers. Almost all studies that estimate wage effects have found a positive relationship between minimum wages and the wages of the worker (Card and Krueger (1994); Dickens et al. (1999); Dube (2019); Lemos (2009); Dube et al.(2010); Dinkelman and Ranchhod (2012); Bhorat et al. (2013); Giuliano (2013); Dolton et al. (2015); Gudibande and Jacob (2017); Cengiz et al. (2017); and Menon and Rodgers (2017); Soundarajan.V (2019); Gopalan (2020); Mansoor and O'Neill (2021)).

The positive impact of minimum wages is particularly visible on the wages of the workers belonging to the formal sector (Fajnzylber 2001; Gindling and Terrell 1995; Maloney and Nunez Mendes 2004). However, the higher level of minimum wages has also been found to raise wages in the informal sector which is indicative of the "lighthouse effect" (Betcherman, 2015). According to the "lighthouse effect", in the presence of legislated minimum wages, usually workers and employers undertake wage bargaining with minimum wages as their benchmark. Maloney and Mendez (2004); Menon and Rodgers (2017); Baanante (2004), and Lemos (2009) discusses the "lighthouse effect". Fajnzylber (2001) argued that there is considerable evidence that minimum wage is used as a *numeraire* not only by the protected formal sector but also in the informal sector. This is indicative of the "lighthouse effect" for informal sector workers.

This paper aim to make two contributions to the existing literature using the novel minimum wage data compiled using state-wise minimum wage notifications for respective scheduled employments and job categories and earnings data of all workers provided by the Periodic

Labour Force Survey (PLFS) for the year 2017-18, 2018-19, and 2019-20. First, it aims to analyze the association between minimum wages and earnings of different categories of workers including self-employed workers. Second, to explore whether the “lighthouse effect” exists among the unskilled and low skilled casual and own-account workers.

In developing countries, like India, the labour market is characterized by large informality and self-employment. 91 percent of the workers in India are informally employed (ILO, 2021). Moreover, according to PLFS, 2019-20, 53.6 percent of the Indian workforce (farm and non-farm together), and 37.3 percent in the non-farm sector are self-employed. India is also one of the first developing countries to have minimum wage regulations with the aim to protect workers from receiving excessively low wages. In India, the Minimum Wages Act was enacted in 1948 and for the past 70 years has been shaping the minimum wage policy of the country. The Minimum Wages Act, 1948 allows the Government of India to revise and fix minimum wages for employees working in scheduled employment (ILO, 2018). Both the central government and state governments fix minimum wages for scheduled employment under their authority. The state-wise minimum wages are announced according to skill level for each of the scheduled employment. This evolving process has contributed to building a complex web of minimum wage rates in India (Satapathy et al., 2021). At present, the minimum wage system in India has nearly 429 scheduled employments, with 45 in the Central sphere and the rest in various states, and 1,915 scheduled job categories for unskilled workers (GoI, 2018).

To do away with these complexities, the Government of India came up with the new Wage Code Bill (2019). This bill has been enacted in many states in 2021. The Wage Code Bill is complemented with wage rules, both discuss several aspects of the reform related to the system of minimum wage in India. One of the key reform measures that the Wage Code Bill discussed, is the universalization of payment of wages by

allowing a legal extension of minimum wages to all wage-earners in India. The universalization of payment of Minimum Wages is expected to protect the most vulnerable group of wage-earners belonging to the informal sector. While Wage Code Bill is applicable to wage-earners, it leaves out 53 percent of the workforce, who are self-employed, many of them belong to vulnerable sections of the informal sector.

In the past decade or so several studies have examined the impact of minimum wages on wages and employment in India. However, most of the earlier studies in India are primarily concerned with wage-earners and leave aside self-employed workers. Few studies have analyzed the employment effects of minimum wages on the self-employed, but could not study the wage effects of minimum wage on the earnings self-employed. This is largely due to the non-availability of earnings for the self-employed until recently.¹ Evidence from other countries shows that minimum wages impact the entire earnings distribution including those of self-employed workers (Faznzlyber, 2001). However, even internationally the evidence is limited to a few studies.

The structure of the paper is as follows. Subsequent section covers the literature review, next section provides a discussion on PLFS data and how minimum wage data have been compiled. Subsequent to this section we discuss briefly the labour market trends in India and then we discuss the estimation strategy and presents the main findings from the regressions. We conclude the paper with a discussion of the potential takeaways.

LITERATURE REVIEW

Wage and Employment Effects of Minimum Wages

The curiosity to understand the costs and benefits of the minimum wage legislation in conjunction with the rise of innovative econometric

¹ Periodic Labour Force Survey (PLFS) data, since 2017-18, started collecting information on earnings of all kind of workers including self-employed.

applications impelled the rise of voluminous and rich literature since the early 1990s. In his seminal analysis, Stigler (1946) explored the economics of minimum wage legislation. According to him, the impact of minimum wages on aggregate employment is dependent on the market structure. In a perfectly competitive labour market, wages are usually set by the market forces rather than the individual employers. In this case, the imposition of a minimum wage above the market-clearing wage for low-skilled workers can result in a reduction in employment. However, this might not hold true in the real world, where there is overwhelming evidence of monopsonistic labour markets where employers set up wages at the low end of the labour markets (Ashenfelter, Farber and Ransom 2010; Manning 2011 and Soundarajan 2019). Therefore, in the case of a monopsonistic market enacting minimum wages can result in an increase in employment as long as it is below the threshold wage. If minimum wages are set up above this threshold wage then that can result in a decline in employment.

Owing to this theoretical framework under which different outcomes of employment is possible, the literature on the impact of minimum wages on employment reaches different conclusions. Some studies have found a positive or null impact of minimum wages on wages and employment (in Card and Krueger (1994), Dickens et al. (1999), Dube (2019), Lemos (2009), Dube et al.(2010), Dinkelman and Ranchhod (2012), Bhorat et al. (2013), Giuliano (2013), Dolton et al. (2015), Gudibande and Jacob (2017), Cengiz et al. (2017), and Menon and Rodgers (2017), Soundarajan.V (2019), Gopalan (2020), Mansoor and O'Neill (2021)), while several others have found a negative impact of minimum wages on employment including Neumark and Wascher (1992), Bell (1997), Burkhauser et al. (2000), Strobl and Walsh (2003), Machin and Wilson (2004), Lemos (2004), Gindling and Terrell (2009), and Neumark et al. (2014). The divergent findings in the literature can be attributed to the structure of labour markets (degree of monopsony power), the bargaining power of the trade unions, and the ability of the industrial sector to pass through the increasing costs to the consumers

(Dube, 2019). However, the threshold of the minimum wage that can result in a decline in employment is more of an empirical question. In the Indian context, Soundarajan (2019), Gudibande and Jacob (2020) and Mansoor and O'Neill (2021), used a quasi-experimental approach to analyze the impact of minimum wages on wages and employment.

Distributional Effects of Minimum Wages

According to Stigler (1946), the popular objective of minimum wage legislation is fighting poverty. According to him, the minimum wages can have a positive impact on the family income at the lower tail of the wage distribution thereby reducing inequality in wages. One of the earlier empirical studies on the impact of minimum wages on wage inequality was conducted to explore the rising wage inequality in the United States of America during the 1980s. Lee (1999) concluded that from 1979 to 1988 the rising wage inequality can entirely be attributed to the fall in federal minimum wages during that period. David et. al. (2016) in their seminal work, carried out the analysis of three decades of data, since 1980, and concluded that minimum wage reduces inequality in the lower tail of the wage distribution. The evidence from developing countries is limited but many interesting studies have been conducted. Similar to Lee (1999), Bosch and Manacorda (2010) find evidence that the growth in wage inequality, in Mexico, for the bottom end of the wage distribution can be explained by the decline in the minimum wages between the late 1980s and early 2000s. Lemos (2007) and Sotomayor (2021) found that the enactment of minimum wage legislation reduced poverty and inequality in Brazil. Similarly, in an interesting study for Indonesia, Yamada (2016) concluded that an increase in minimum wages not only resulted in enhancement of employment but also an increase in earnings at the lower tail of the distribution. Mansoor and O'Neill (2021) carried out an analysis to explore the impact of minimum wage compliance on employment and household welfare in India. According to them the increase in minimum wages positively impact both employment and household consumption in high compliance regimes. However, they have not found similar evidence in a low compliance regime. Further, Besler

and Rani (2011), argue that perfect enforcement of minimum wages would significantly reduce the inequality, poverty, and gender pay gap.

Effects of Minimum Wage in the Presence of Informal and Self-Employed Sector

If minimum wages induce the migration of workers from the formal wage-earning sector the corresponding increase in the supply of labour in the informal wage-earning or self-employed sector could, in principle, lower earnings. There are, however, several countering effects that could lead to the opposite result (an increase in informal sector earnings). Faznzlyber (2001), found minimum wages impact the entire wage distribution and the changes in wage distribution seems to impact all kind of workers including self-employed workers. Faznzlyber (2001) found that self-employed benefitted from an increase in the minimum wage with earning elasticity of self-employed workers (1.32), which is significantly larger than formal and informal salaried workers (1.08 and 1.03 respectively). Alaniz, Gindling, and Terrell (2011) estimated the impact of minimum wages on the transition of workers from the covered sector to the uncovered sector including self-employment. An increase in wages in the formal private sector can result in disemployment, and these disemployed workers can find themselves working as self-employed workers. Further, according to Alaniz, Gindling, and Terrell (2011) due to higher legal minimum wages, many workers who lost their jobs in the private sector were forced to enter into unpaid family work. Moreover, the increase in minimum wages can result in higher prices, which in turn can impact the self-employed workers (Bird and Manning, 2008).

DATA SOURCE

This study makes use of the Periodic Labour Force Survey (PLFS) 2017-18, 2018-19, and 2019-20 datasets. PLFS collects yearly information on the key employment and unemployment indicators that can help us to estimate, Labour Force Participation Rate (LFPR), Unemployment Rate, proportional distribution of different categories of workers, and average

earnings among many others. It also collects information about individual worker specific details such as gender, socioeconomic group, general education level, marital status, religion, household size, and age.

The information is collected both using Current Weekly Status (CWS) and Usual Primary and Secondary Status (UPSS). Under CWS and UPSS the activity status of the worker is determined using the 7 days' reference period and one year preceding the date of the survey respectively. The information on earnings is available only for CWS, as a result. we have used CWS criteria to categorize workers into the employer, regular, casual and own-account worker.

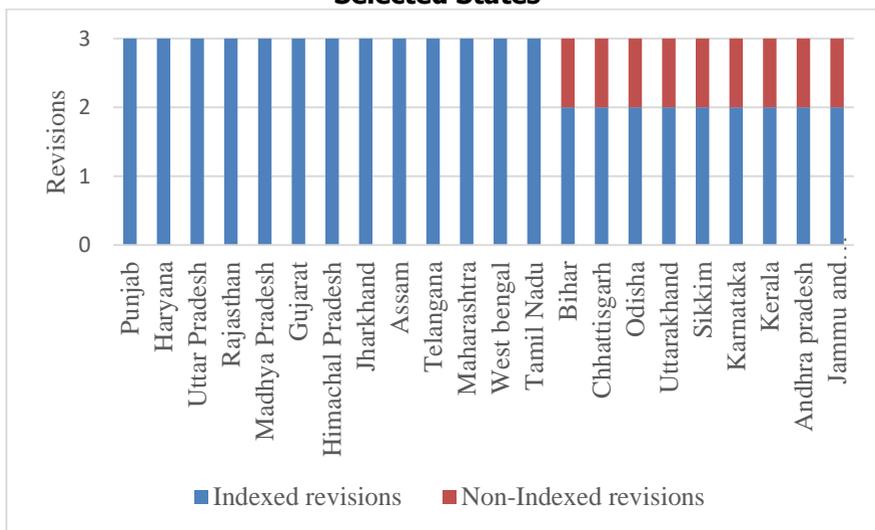
The dataset on minimum wages is compiled using state-wise notifications issued by the Labour departments of respective State governments. The minimum wages are notified for all categories of workers, regardless of their gender, age, or whether working in rural/urban locations. Moreover, they are notified for the respective scheduled employment. The number of scheduled employment differs from state to state. For instance, Odisha notified minimum wages for 89 scheduled employment, whereas Bihar notified minimum wages for 69 scheduled employment.

For the purpose of analysis, we mapped minimum wages to PLFS data, effective before January of the same year when the PLFS survey took place. For instance, workers belonging to PLFS 2017-18 were mapped using minimum wage data prior to January 2017 for the majority of states.² This has been done to account for adjustment lags for the internalization of minimum wage in the system (Soundarajan 2019, Menon 2017).

² For some states this could not be done due to unavailability of data. The details are provided in appendix A

It is mandated in the 'Minimum Wage Act, 1948' to revise the minimum wage not exceeding five years. Figure 1 shows the indexed and non-indexed minimum wage revisions. 15 states and 3 Union territories (UTs) have undertaken a minimum of 3 indexed revisions between 2016-2019 with a few making 2 indexed and 1 non-indexed revision. Two states, Manipur and Mizoram, have not made any revision to the minimum wage during this period. In Puducherry, only one indexed revision was made. 13 states and two Union territories have made single non-indexed revisions. Nine states are shown in the picture, the other four are Arunachal Pradesh, Meghalaya, Nagaland and Tripura. The two UTs, that have made non-indexed revisions are Lakshadweep and Andaman and Nicobar.

Figure 1: Minimum Wage Revisions between 2016 and 2019 for Selected States



Source: Author's estimate.

The format for announcing the minimum wage also differs from state to state.³ Some states use only skill level as the basis for

³ The details are covered in Table A1 of the Appendix

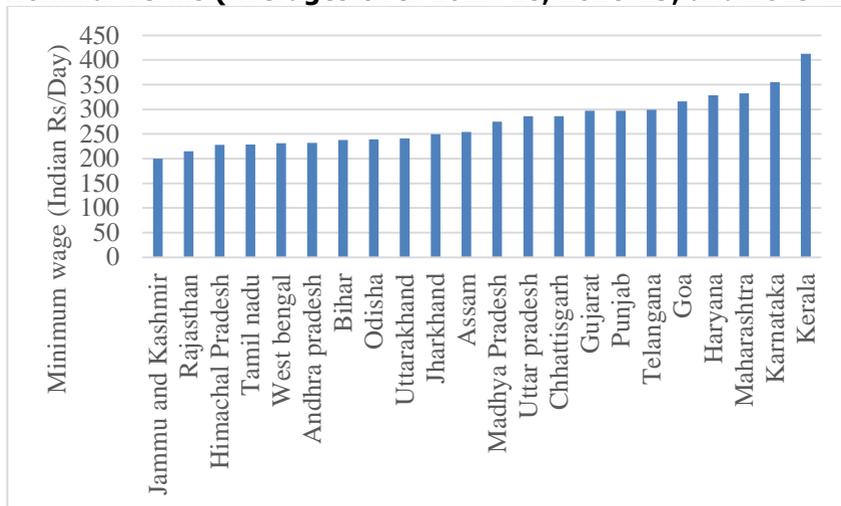
announcing minimum wages. In these states, different minimum wages are announced for each skill level (unskilled, semi-skilled, skilled and high-skilled) but minimum wages remain the same across scheduled employments. On the other hand, some states use skill level as well as scheduled employment as the basis to announce minimum wages. In these states, different minimum wages are announced for each scheduled employment and the skill level within each scheduled employment. In this study, we have mapped skill level-wise minimum wages present in the minimum wage to the PLFS worker data using the National Classification of Occupation (NCO, 2015) categorization of occupations into different skill levels. For a few categories of workers, NCO coding is not available in PLFS data. NCO report also does not classify 'legislators' in any skill category. In those cases, we have used education level as the criteria for classifying workers according to skill level. In states where different minimum wages are announced for separate scheduled employment, we have mapped scheduled employment using National Industrial Classification (NIC) coding available in PLFS. In case multiple minimum wages are announced within a given NIC, then we have taken a minimum of minimum wages. If there is zone-wise difference for a same skill, in that case also we have taken a minimum of minimum wages within a skill level.

19 states and 5 UTs announce minimum wages on the basis of only skill level. The rest of the states and UTs announce minimum wages using both scheduled employment and skill level as the criteria. Barring Himachal Pradesh, Delhi, West Bengal, Maharashtra, Arunachal Pradesh and Tripura all states in North, North east, Central and West India announce minimum wages on the basis of only skill level. On the other hand, barring Goa and a few UTs, all South Indian states/UTs namely, Tamil Nadu, Kerala, Karnataka, Telangana, Puducherry and Andhra Pradesh announce minimum wages using both scheduled employment and skill level as the criteria (Table A1). Tamil Nadu is the only state

which uses only scheduled employment as the criteria and doesn't announce minimum wages on the basis of skill levels.⁴

Figure 2 shows the state-wise level of minimum wages for unskilled workers. There is a difference of more than Rs 200 between the state with the highest minimum wage (Kerala) and the state with the lowest minimum wage (J and K). This implies across states lot of heterogeneity in minimum wages exists.

Figure 2: State-wise Minimum Wage for Unskilled Workers in Nominal Terms (Averages Over 2017-18, 2018-19, and 2019-20)



Source: Data compiled from State Wise Minimum Wage Notifications (2016-2019).

LABOUR MARKET IN INDIA

Employment in India is characterized by two major categories, those that are self-employed (non-wage earners) (the majority of which are own-account workers), and those that are defined as wage earners. The latter refers to those with an employment relationship linked through the payment of wages. Under this category, the PLFS has subdivided workers

⁴ For our study, if skill levels are not given we assume same minimum wage across all skill levels.

into regular/salaried and casual wage employment. According to PLFS 2019-20, 53.6 percent of the workers are self-employed, 24.4 percent are regular and salaried employees and 21.8 percent are casual workers in India (Table 1).

Table 1: Year-Wise Percentage Distribution of Individuals Belonging to the Age Group 15 To 65 According to Current Weekly Status (CWS), Farm and Non-Farm Together and Non-Farm Only

	Farm and Non-farm (percent)			Non-Farm (percent)		
	17-18	18-19	19-20	17-18	18-19	19-20
Regular worker	11.24	11.84	11.96	13.6	14.19	14.85
Casual worker	11.18	10.77	10.59	7.79	7.79	7.08
Own account worker	17.16	17.26	18.35	9.64	9.94	10.95
Employer	0.85	0.97	0.93	0.69	0.8	0.7
Unpaid family worker	5.57	5.29	6.84	1.38	1.34	1.43
Unemployed	4.47	4.46	4.76	5.54	5.46	6.03
Not in labour force	49.54	49.42	46.58	61.36	60.47	58.97
Total	100.00	100.00	100.00	100.00	100.00	100.00

Source: Author's estimate using PLFS 2017-18, 2018-19, and 2019-20.

Casual workers are usually engaged in informal jobs, are under-employed with irregular working cycles and are compensated on daily basis (ILO, 2018). Regular or salaried workers, on the other hand, have continuous employment and their wage compensation is made periodically (weekly or monthly) (Estupinan et al., 2020).

The other half of the workforce comprises self-employed individuals. In 2019-20, 53.6 percent, and 37.3 percent of the Indian workforce in the 'farm and non-farm together' and 'non-farm sector' are self-employed respectively (Table 1). Self-employment is composed of employers, unpaid family workers, and own-account workers. The latter constitutes the biggest group of the self-employed, 70 percent are own-account workers, 26 percent are unpaid family members and 4 percent (approx.) are employers in 2019-20 (Table 1). Further, most of the own-

account workers are also home-based workers and home workers and their income fluctuates the same as casual workers (ILO, 2018).

EMPIRICAL STRATEGY

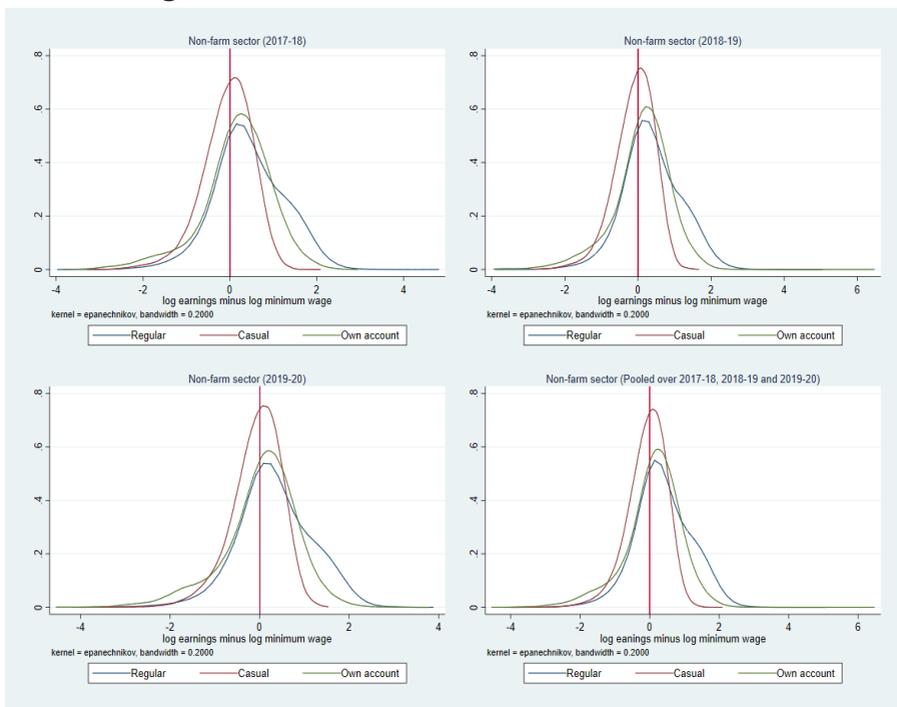
Kernel Density Plots

Kernel density plots (KDPs) are utilized to draw inferences about the level of compliance as well as to explore whether minimum wages have any impact on the earnings of the workers. This is one of the two popular techniques (the other being regression) to analyse the relationship between minimum wages and wages (Wolfson, 2019). KDPs are the non-parametric probability density function (PDF) of wage distributions. However, in such studies, the PDF is commonly estimated at the difference between logarithm of earnings and logarithm of minimum wage (horizontal axis) rather than at the earnings or log earnings. The peak of KDP indicates that level of earning difference where most of the individuals are clustered together.

Figure 3 shows KDPs for the casual, regular, and own-account workers for the entire non-farm sector for the year 2017-18, 2018-19, and 2019-20. The horizontal axis represents the difference between the log of earnings and the log of minimum wages. If the height of KDP is noticeably taller at zero, indicating no difference between MW and earnings, than any other point on the horizontal axis and is drastically reducing on either side, then this provides evidence that most of the workers are receiving earnings more or less equivalent to minimum wages. We can notice that density values are relatively lower to the left for regular workers, in comparison to own account workers, which in turn is lower to the left than casual workers. This shows better compliance for regular workers in comparison to own account and casual workers. Moreover, a spike at the point where log earnings minus log minimum wage is zero implies that minimum wages may be impacting the earnings of the workers. This spike at '0' is visible for all categories of workers, including own-account workers. This gives preliminary evidence of the

positive impact of minimum wages on the earnings of wage earners (casual and regular workers) and non-wage earners (own-account workers).

Figure 3: KDPs Non-Farm Sector All Workers



Source: Author's estimate using PLFS 2017-18, 2018-19, and 2019-20

Linear Regression Model

As part of this study we want to explore the following; first, how much is the variation in average earning gap between the reference category of regular workers compared to casual workers or, own-account workers or employers, and second, whether some of the earning gap between different categories of workers can be explained by the presence of minimum wage. In order to answer these questions, we have used the two regression specifications. The first question can be answered using the following specification:

$$\begin{aligned}
Y_{ijst} = & \beta_0 + \beta_1 C_{ijst} + \beta_2 Ow_{ijst} + \beta_3 Em_{ijst} + \beta_4 LnMW_{jst} \\
& + \beta_5 X_{ijst} + \beta_6 \gamma_{st} \\
& + \partial_t + \partial_s + \partial_t \times \partial_s + \partial_t \times \partial_Q + \mu_{ijst}
\end{aligned}$$

Where y_{ijst} is the outcome variable, log of earnings, for worker i in state s and at time t . C_{ijst} denote *casual worker* i , Ow_{ijst} denote *own-account worker* i , Em_{ijst} denote *employer* i in industry j , at time t in state s respectively. We have used regular workers as the base category that helps us to estimate the earning gap between regular workers and all other categories of workers. $LnMW_{jst}$ is the log of statutory nominal minimum wage across the industry, state and time. X_{ijst} is the set of household and individual characteristics such as worker's education, social group, age, religion, the proportion of dependents and marital status. It also includes an indicator which identifies whether a worker belongs to a rural or urban region. γ_{st} represents net per capita real domestic product, the unemployment rate to account for labour demand conditions (Menon and Rodgers, 2017; Soundarajan, 2019). ∂_t and ∂_s are the time and state fixed effects, respectively, that are common for all individuals in each year. $\partial_t \times \partial_s$ shows the interaction between state and time. This will help to control for any unexpected shock at the state level that might influence the earnings of the workers and is also correlated with the state-level changes in the minimum wage (Card 1992, Card and Krueger 1995, Menon 2017). $\partial_t \times \partial_Q$ gives the interaction between time and quarter which helps us to control for any significant quarterly shock to the labour market such as the COVID lockdown that coincides with the period of April to June 2020. u_{ijst} is the error term that includes unobservable individual-specific characteristics. It is pertinent to note that worker i is different every year and it is not a panel at an individual level.

To answer the second question, whether some of the earning gap between different categories of workers can be explained by the

presence of minimum wage? We have used the following regression specification:

$$\begin{aligned}
 Y_{ijst} = & \beta_0 + \beta_1 C_{ijst} + \beta_2 Ow_{ijst} + \beta_3 Em_{ijst} + \beta_4 LnMW_{jst} \\
 & + \beta_3 (C_{ijst} \times LnMW_{jst}) + \beta_3 (Ow_{ijst} \times LnMW_{jst}) \\
 & + \beta_3 (Em_{ijst} \times LnMW_{jst} + \beta_4 (LnMW_{jst} \times G_{ijst}) \\
 & + \beta_5 (LnMW_{jst} \times S_{ijst}) + \beta_6 X_{ijst} + \beta_7 \gamma_{st} \\
 & + \partial_t + \partial_s + \partial_t \times \partial_s + \partial_t \times \partial_Q + \mu_{ijst}
 \end{aligned}$$

The only difference between *eq* (2) and *eq* (1) is the presence of five interaction terms ($C_{ijst} \times LnMW_{jst}$), ($Ow_{ijst} \times LnMW_{jst}$), ($Em_{ijst} \times LnMW_{jst}$), ($LnMW_{jst} \times G_{ijst}$) and ($LnMW_{jst} \times S_{ijst}$) in *eq* (2). The first three interaction terms depict the interaction between the worker type and the log of minimum wages. The fourth is between the worker type and gender and the fifth one is between the worker type and sector (urban/rural). Rest everything is the same between *eq* (2) and *eq* (1). These first three interaction terms will help us analyse how the difference in earnings between separate categories of a categorical variable is changing with increasing minimum wages. In all models, standard errors are clustered at the district level to account for the correlation between worker's unobservable characteristics at the district level. All models are estimated using OLS.

Results of Linear Regression Model

We have estimated the regression specifications explained in the previous section for all the workers employed in the non-farm sector with positive earnings and in the age group of 15 to 65 years. As earnings data is not available for unpaid family workers, therefore they are not considered for the analysis. Table 2 reports the summary statistics for the outcome and key control variables for all workers (female and male) across all worker categories who have reported earnings.⁵ Table 3

⁵ Summary statistics in all the tables are reported by combing all the three years of PLFS data. We have dropped bottom 2 percent sample from our regression to account for outliers. 75 percent of bottom 2 percent sample reported zero earnings. Cutoff at 2 percent reported earning Rs 750 (9.4 USD) per month. Including these workers does not significantly alter the results and the main conclusion of the study still holds.

reports the summary statistics for the outcome and key control variables for only males.

The outcome variable is the log of monthly earnings. From tables 2 and 3 it is observed that employers as a category have the highest average weekly earnings, followed by regular workers, then own-account workers and lowest for the casual workers. Around 32 percent of the casual workers belong to the SC category. Whereas 18 percent, 16 percent and 8 percent of the regular, own-account and employers belong to SC category. 82 percent of the casual workers have education at or below middle class. Whereas 35 percent, 60 percent and 33 percent of the regular, own-account and employers have education at or below middle class. 36 percent of regular workers and employers in comparison to 2 percent of casual and 12 percent of own-account workers have education at or above diploma level. The average number of children are higher for casual, own-account and employer than regular workers. A similar result holds for the male sample (Tables 2 and 3).

Table 2: Non Farm, Age (15 to 65 Years) (Averages Over 2017-18, 2018-19 and 2019-20)

	Regular workers		Casual workers		Own Account Worker		Employer	
	mean	sd	mean	sd	mean	sd	mean	sd
Weekly earnings (Rupees)	3748.1	3868.6	1703.2	785.8	2596.8	7844.5	6244.6	5036.0
Log weekly earnings (Rupees)	7.79	1.33	7.31	0.63	7.32	1.76	8.41	1.30
MPCE (Rupees)	3232.4	2707.2	1646.6	918.7	2357.4	1772.6	4358.91	3365.7
Gender (Male)	0.77	0.42	0.88	0.33	0.84	0.37	0.95	0.22
Age (in years)	36.29	11.01	36.20	11.51	39.90	11.34	42.36	10.36
Household size	4.48	2.01	4.75	1.99	4.78	2.03	4.71	2.03
Social group:								
Scheduled tribe	0.06	0.24	0.11	0.32	0.04	0.20	0.02	0.14
Scheduled caste	0.18	0.38	0.32	0.47	0.16	0.37	0.08	0.27
OBC	0.39	0.49	0.42	0.49	0.46	0.50	0.41	0.49
Forward caste	0.37	0.48	0.15	0.36	0.33	0.47	0.49	0.50

	Regular workers		Casual workers		Own Account Worker		Employer	
	mean	sd	mean	sd	mean	sd	mean	sd
Education								
Illiterate	0.07	0.26	0.29	0.46	0.14	0.35	0.04	0.19
Primary	0.11	0.31	0.27	0.45	0.20	0.40	0.11	0.31
Middle	0.18	0.38	0.26	0.44	0.25	0.43	0.18	0.39
Secondary and higher	0.27	0.45	0.16	0.36	0.27	0.44	0.30	0.46
Diploma	0.01	0.09	0.00	0.04	0.00	0.05	0.01	0.08
Tech diploma	0.03	0.17	0.01	0.07	0.01	0.11	0.05	0.22
Graduate and above	0.25	0.43	0.01	0.11	0.11	0.32	0.25	0.43
Tech diploma(graduate and above)	0.02	0.15	0.00	0.01	0.00	0.07	0.01	0.12
Tech degree(graduate and above)	0.05	0.22	0.00	0.03	0.01	0.10	0.05	0.21
Vocational education:								
No vocational training	0.78	0.42	0.86	0.34	0.78	0.41	0.77	0.42
Non-formal vocational	0.15	0.36	0.13	0.34	0.19	0.39	0.16	0.37
Formal vocational	0.07	0.26	0.01	0.08	0.03	0.18	0.06	0.25
Marital status:								
Never married	0.24	0.42	0.19	0.39	0.11	0.32	0.08	0.27
Currently married	0.72	0.45	0.77	0.42	0.84	0.36	0.89	0.31
Widowed	0.04	0.19	0.03	0.18	0.04	0.19	0.02	0.14
Divorced/separated	0.01	0.09	0.01	0.08	0.01	0.08	0.01	0.08
Religion:								
Hindu	0.83	0.37	0.80	0.40	0.77	0.42	0.79	0.41
Islam	0.10	0.30	0.15	0.35	0.18	0.39	0.13	0.34
Christian	0.03	0.18	0.02	0.16	0.02	0.14	0.03	0.18
Sikh/Jain/Buddhism	0.03	0.17	0.02	0.15	0.03	0.16	0.05	0.21
Others	0.00	0.07	0.01	0.08	0.00	0.07	0.00	0.06
No. of Children (<15 years)	0.94	1.12	1.28	1.30	1.20	1.24	1.07	1.14
No. of elders (>60 years)	0.16	0.44	0.11	0.36	0.15	0.42	0.22	0.50
<i>N</i>	125757		48969		85621		6012	

Source: Author's estimate using PLFS 2017-18, 2018-19, and 2019-20.

Table 3: Summary Statistics of all covariates (Male-Non Farm, Age: 15 to 65 Years) (Averages Over 2017-18, 2018-19 and 2019-20)

	Regular workers		Casual workers		Own Account Worker		Employer	
	mean	sd	mean	sd	mean	sd	mean	sd
Weekly earnings (Rupees)	3943.9	3663.6	1790.7	770.9	2880.6	8501.1	6319.4	5063.8
Log weekly earnings (Rupees)	7.88	1.30	7.38	0.58	7.51	1.67	8.42	1.31
MPCE (Rupees)	3161.6	2565.0	1622.7	909.0	2336.4	1714.0	4260.5	3059.8
Age (in years)	36.10	11.09	35.73	11.47	40.30	11.28	42.50	10.41
Household size	4.55	2.05	4.82	2.00	4.86	2.06	4.74	2.04
Social group:								
Scheduled tribe	0.06	0.23	0.11	0.31	0.04	0.19	0.02	0.14
Scheduled caste	0.17	0.37	0.32	0.47	0.16	0.37	0.08	0.27
OBC	0.40	0.49	0.41	0.49	0.47	0.50	0.41	0.49
Forward caste	0.38	0.48	0.16	0.36	0.34	0.47	0.49	0.50
Education:								
Illiterate	0.05	0.22	0.26	0.44	0.12	0.33	0.04	0.19
Primary	0.11	0.31	0.28	0.45	0.19	0.40	0.11	0.32
Middle	0.19	0.39	0.27	0.45	0.25	0.43	0.19	0.39
Secondary and higher	0.30	0.46	0.17	0.37	0.28	0.45	0.31	0.46
Diploma	0.01	0.10	0.00	0.04	0.00	0.05	0.01	0.08
Tech diploma	0.03	0.18	0.01	0.08	0.01	0.11	0.05	0.22
Graduate and above	0.24	0.43	0.01	0.11	0.12	0.32	0.24	0.43
Tech diploma (graduate and above)	0.02	0.14	0.00	0.01	0.00	0.07	0.01	0.12
Tech degree (graduate and above)	0.05	0.21	0.00	0.03	0.01	0.10	0.04	0.20
Vocational education:								
No vocational training	0.77	0.42	0.86	0.35	0.79	0.40	0.77	0.42
Non-formal vocational	0.16	0.37	0.14	0.34	0.18	0.38	0.17	0.37
Formal vocational	0.07	0.25	0.01	0.08	0.03	0.16	0.06	0.24

	Regular workers		Casual workers		Own Account Worker		Employer	
	mean	sd	mean	sd	mean	sd	mean	sd
Marital status:								
Never married	0.25	0.43	0.21	0.40	0.11	0.32	0.08	0.27
Currently married	0.74	0.44	0.78	0.42	0.87	0.34	0.90	0.30
Widowed	0.01	0.10	0.01	0.12	0.01	0.12	0.01	0.12
Divorced/separated	0.00	0.06	0.00	0.07	0.01	0.07	0.00	0.06
Religion:								
Hindu	0.83	0.37	0.79	0.41	0.77	0.42	0.78	0.41
Islam	0.11	0.31	0.16	0.36	0.18	0.39	0.14	0.34
Christian	0.03	0.16	0.02	0.15	0.02	0.13	0.03	0.17
Sikh/Jain/Buddhism	0.03	0.17	0.02	0.15	0.03	0.16	0.05	0.21
Others	0.00	0.07	0.01	0.08	0.00	0.06	0.00	0.06
No of Children (<15 years)	0.97	1.14	1.31	1.31	1.22	1.26	1.08	1.14
No. of elders (>60 years)	0.16	0.42	0.11	0.36	0.15	0.42	0.22	0.50
N	96549		42987		71415		5707	

Source: Author's estimate using PLFS 2017-18, 2018-19, and 2019-20

Table 4 reports the regression results for equation 1 with models (1) and (3) are for all workers and models (2) and (4) for male workers. Models (1) and (2) do not include the minimum wages as one of the explanatory variables and models (3) and (4) do include the minimum wages.⁶ Minimum wages is statistically significant and positively associated with the earnings of workers [models (3) and (4)], Table 4. 'Worker-type' included in regression to understand the earning differences between separate categories of workers. Worker-type categorises workers into four categories, (i) Regular worker, (ii) Casual worker, (iii) Own Account Worker and (iv) Employer. Regular workers

⁶ 2,66,359 is the total sample of workers. In regression the sample got reduced to 2,60,230. Total sample lost is 6,129. Out of 6,129 workers, 2,247 worker sample lost due to non-inclusion of bottom 2 percent of workers. 3,882 sample lost due to non-inclusion of Lakshadweep, Daman and Diu and Dadra and Nagar Haveli as Gross Domestic Product (GDP) data is not available for these Union Territories (UTs). The inclusion of this sample does not significantly change the conclusions of the study

have been used as the reference category in the regression model. According to model (1), casual workers on average earn 22 percent lesser and own-account workers earn 16 percent lesser than regular workers. Employers earn on an average 37 percent higher than regular workers. In model (2), which considers only the male sample, we find that the gap between earnings of regular workers and own-account workers is 8.8 percent. This implies that the larger earning gap between regular and own-account workers in the model (1) is mainly contributed by females. In all the four models, casual and own-account workers are earning significantly lower than regular workers.

Table 4: Determinants of Wages for Workers in the Non-Farm Sector (Age group 15 to 65 years) (Outcome: Log of monthly wages)

	(1) All workers	(2) Male	(3) All workers- MW	(4) Male-MW
Casual worker (Ref: Regular worker)	-0.222*** (0.011)	-0.236*** (0.011)	-0.189*** (0.012)	-0.203*** (0.012)
Own account worker (Ref: Regular worker)	-0.164*** (0.011)	-0.088*** (0.010)	-0.179*** (0.011)	-0.105*** (0.010)
Employer (Ref: Regular worker)	0.376*** (0.018)	0.405*** (0.019)	0.356*** (0.019)	0.384*** (0.020)
Ln Min Wage			0.793*** (0.053)	0.794*** (0.051)
Age	0.041*** (0.001)	0.038*** (0.001)	0.040*** (0.001)	0.038*** (0.001)
Age square	-0.000*** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)
Urban	0.183*** (0.010)	0.171*** (0.009)	0.183*** (0.009)	0.169*** (0.009)
Male	0.658*** (0.019)		0.657*** (0.020)	
Primary (Ref: Illiterate)	0.102*** (0.009)	0.094*** (0.009)	0.091*** (0.009)	0.085*** (0.009)
Middle (Ref: Illiterate)	0.172*** (0.008)	0.153*** (0.009)	0.154*** (0.008)	0.139*** (0.009)

	(1) All workers	(2) Male	(3) All workers- MW	(4) Male-MW
Secondary and higher (Ref: Illiterate)	0.319*** (0.009)	0.287*** (0.010)	0.289*** (0.009)	0.263*** (0.009)
Diploma (Ref: Illiterate)	0.628*** (0.032)	0.562*** (0.032)	0.586*** (0.031)	0.526*** (0.031)
Tech diploma (Ref: Illiterate)	0.573*** (0.022)	0.493*** (0.022)	0.527*** (0.021)	0.455*** (0.022)
Graduate and above (Ref: Illiterate)	0.765*** (0.017)	0.675*** (0.015)	0.695*** (0.017)	0.610*** (0.015)
Tech diploma(graduate and above) (Ref: Illiterate)	1.116*** (0.035)	1.000*** (0.040)	1.024*** (0.033)	0.910*** (0.038)
Tech degree(graduate and above) (Ref: Illiterate)	1.149*** (0.026)	1.026*** (0.027)	1.059*** (0.026)	0.940*** (0.026)
Non-formal voc (Ref: No x voc training)	0.014 (0.013)	0.023* (0.013)	0.014 (0.013)	0.022* (0.013)
Formal voc (Ref: No voc training)	0.030* (0.016)	0.038** (0.015)	0.025 (0.016)	0.032** (0.016)
Islam (Ref: Hinduism)	-0.026** (0.010)	-0.017 (0.011)	-0.028*** (0.010)	-0.018 (0.011)
Christian (Ref: Hinduism)	0.023 (0.017)	-0.012 (0.016)	0.025 (0.017)	-0.009 (0.016)
Sikh/Jain/Buddhism (Ref: x Hinduism)	0.043 (0.027)	0.050** (0.024)	0.038 (0.027)	0.047* (0.025)
Other (Ref: Hinduism)	-0.002 (0.027)	-0.004 (0.025)	0.012 (0.027)	0.010 (0.025)
ST (Ref: Forward caste)	-0.091*** (0.015)	-0.105*** (0.014)	-0.086*** (0.015)	-0.099*** (0.014)
SC (Ref: Forward caste)	-0.119*** (0.010)	-0.110*** (0.009)	-0.112*** (0.010)	-0.104*** (0.009)
OBC (Ref: Forward caste)	-0.107*** (0.009)	-0.094*** (0.009)	-0.102*** (0.009)	-0.089*** (0.009)
Currently married (Ref: Not married)	0.118*** (0.008)	0.151*** (0.008)	0.121*** (0.008)	0.153*** (0.008)
Widowed (Ref: Not married)	0.092*** (0.019)	-0.015 (0.027)	0.102*** (0.019)	-0.007 (0.027)
Separated (Ref: Not married)	0.061** (0.030)	-0.075 (0.048)	0.064** (0.031)	-0.074 (0.048)

	(1) All workers	(2) Male	(3) All workers- MW	(4) Male-MW
No of Children (<15 years)	-0.007 ^{***} (0.002)	-0.005 ^{**} (0.002)	-0.006 ^{***} (0.002)	-0.005 ^{**} (0.002)
No. of elders (>60 years)	0.016 ^{***} (0.005)	0.010 ^{**} (0.005)	0.015 ^{***} (0.005)	0.009 [*] (0.005)
Unemployment rate	-0.442 ^{***} (0.125)	-0.537 ^{***} (0.156)	-0.444 ^{***} (0.126)	-0.541 ^{***} (0.158)
Per capita GDP	0.885 (1.756)	1.023 (1.179)	0.895 ^{***} (1.683)	0.795 ^{***} (1.183)
Covid quarter (April to June 2020)	-0.065 ^{***} (0.023)	-0.107 ^{***} (0.022)	-0.066 ^{***} (0.023)	-0.107 ^{***} (0.022)
Constant	-2.405 (19.81)	-3.275 (13.30)	-51.26 ^{***} (19.02)	-49.90 ^{***} (13.41)
State dummies	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes
State and year interaction	Yes	Yes	Yes	Yes
Year and quarter interaction	Yes	Yes	Yes	Yes
Observations	260230	211983	260230	211983
R^2	0.422	0.406	0.452	0.412

Note: Standard errors in parentheses, Robust standard errors are clustered at the district level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Result of Interaction between Minimum Wages and Worker Type

In equation (1) worker type is included as fixed effect as intercept dummy variables. Equation (2) also allows for differences in slope coefficients for minimum wage across worker type as an interaction of worker type with minimum wages in order to understand the association between a higher level of minimum wages and the different kinds of worker earnings. This will also help to understand the impact of higher minimum wages on the earnings gap among different categories of workers. If the "lighthouse effect" hypothesis is true, then one would expect workers to use minimum wages as the benchmark to conduct 'earnings-bargaining'. The minimum wage can be used as a *numeraire* by workers at higher levels of minimum wages. At a very low level of minimum wages, the majority of workers earn above minimum wages, hence minimum wages are not expected to serve as a *numeraire* for

workers. According to our calculations, 93.6 percent of workers are earning above minimum wages when the nominal minimum wage is less than 175. Whereas 50 percent of the workers earn above minimum wage, 22 percent at minimum wage and 28 percent below minimum wage when the nominal minimum wage is less than 400. This implies that workers earning closer to minimum wages rise at a higher level of minimum wages.

Following Soundarajan (2019), we dropped skilled workers and workers with higher education to make the sample homogenous to understand the role of minimum wages on worker type. The sample now consists of unskilled and semi-skilled workers who have completed education up to secondary school. To further explore the segmentation of the labour market, between unskilled plus semi-skilled and skilled plus high skilled workers, we estimated two different models one for those workers who have completed education up to secondary school and the other one for those who have education above the higher secondary level (including graduate and masters). Chow test was carried out to see whether a significant difference exists between the interaction term coefficients of the two models. We have used the *contrast* command in STATA to carry out the test. The Chow test rejects the null hypothesis with, $F(8, 36303) = 20.98$ and $\text{Prob} > F = 0.000$, implying a significant difference in values of the true interaction coefficients between the two models. While estimating the regression model only for skilled workers, we find that the interaction coefficient for casual and own-account workers becomes insignificant (Table 5). The result of the Chow test, in addition to the insignificant interaction coefficient for casual and own-account workers in skilled/higher skilled worker regression, as well as the fact that 99.3 percent and 78.8 percent of casual and own-account workers, respectively, are unskilled and semi-skilled in our sample, we believe making the sample homogenous will qualitatively help us in understanding the minimum wage effects on the earnings of different categories of workers. Moreover, we conducted this analysis for males. It has been observed that weaker compliance exists among firms that hire

female workers which can potentially bias our estimates (Menon and Rodgers, 2017).

The coefficient on worker type and its associated interaction are given in Table 5.

Table 5: Impact of Minimum Wages on Earnings Gap between Regular Workers, Casual Workers, and Own-Account Workers (Age Group 15 to 65 years, (Outcome: Log of Monthly Wages)

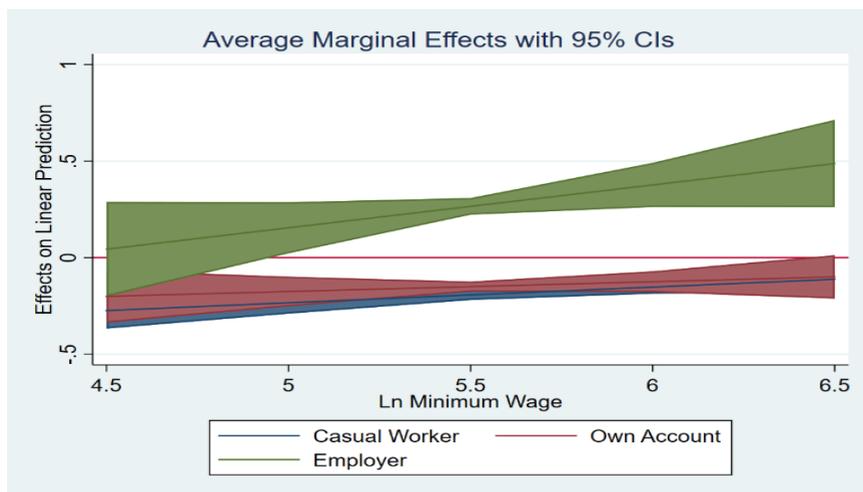
	Male (education till secondary)	Male (education above secondary)
Casual worker (ref: regular worker)	-0.815*** (0.104)	-.248 (.213)
Own account worker (ref: regular worker)	-0.358*** (0.097)	.038 (.126)
Employer (ref: regular worker)	-0.439** (0.223)	.152 (.248)
Casual worker × Ln Min Wage	0.108*** (0.018)	-.030 (.037)
Own account worker × Ln Min Wage	0.056*** (0.017)	-.051*** (.022)
employer × Ln Min Wage	0.154*** (0.038)	.009 (.043)
State dummies	Yes	Yes
Year dummies	Yes	Yes
State and year interaction	Yes	Yes
Year and quarter interaction	Yes	Yes
Observations	137897	74086
R^2	0.263	0.392

Note: The following control variables are incorporated in the regressions: respondent education, gender, age, Scheduled Caste/Scheduled Tribe, number of adults in the household, number of children in the household, state level unemployment rate and per capita real state gross domestic product. Standard errors clustered at the district level in parenthesis. Asterisks are based on standard p -values *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Sampling weights have been included.

We have used marginal effects to disentangle the effect of increasing minimum wages on the earnings of separate categories of

workers. Marginal effects allow for a change in one independent variable, while keeping all other variables constant, to estimate the predicted value of the dependent variable at different values of the independent variable (Stolz and Williams, 2020). While estimating the marginal effect's values of all other independent variables in a regression model are kept constant. We have used STATA post estimation command *margins* to get predicted values of earnings for different worker types at different levels of minimum wages.

Figure 4: Predicted Average Marginal Effects of Earnings At Different Levels of Minimum Wage for Unskilled and Semi-Skilled Male Workers (Education Till Middle School)



Source: Author's estimate based on regression estimates using PLFS 2017-18, 2018-19, and 2019-20

Figure 4 shows the predicted average marginal effects for casual workers, own account workers and employers with regular workers as the base category, for increasing values of minimum wages. The line $y=0$ represents the regular workers. Any deviation from $y = 0$ would represent the predicted earning difference of regular worker with any other category of worker. The confidence plots are also given in the

figure. If for increasing values of minimum wages, the predicted values of marginal effects for a particular category of worker are positive, then that implies a positive earning difference of that worker in comparison to regular workers. However, if for increasing values of minimum wages, the predicted values of marginal effects are negative, then that implies a negative earning difference of that worker in comparison to regular workers.

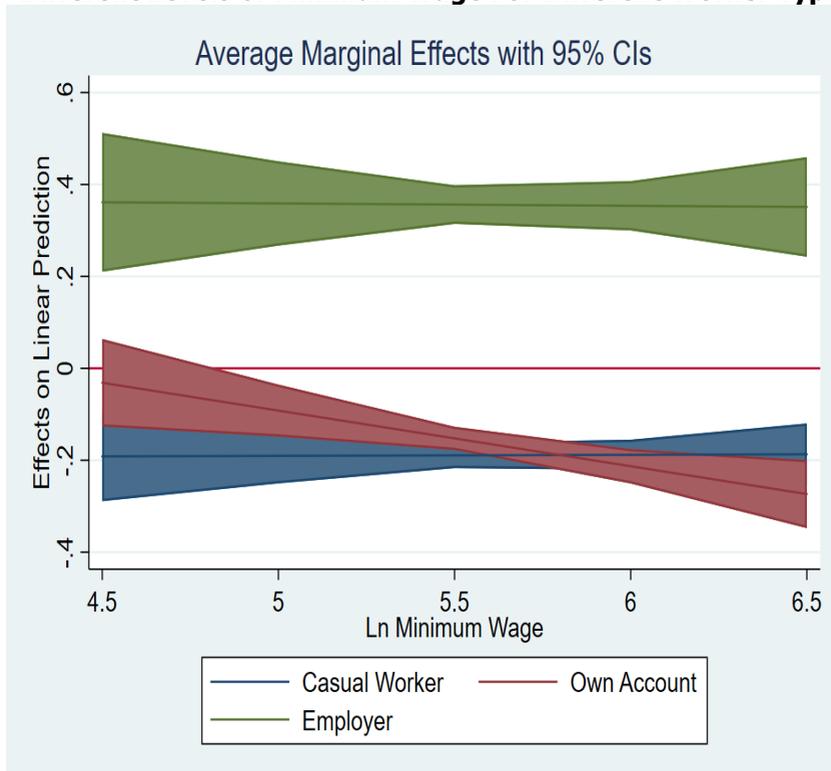
We find with a homogenous sample, the earnings gap between regular workers and own-account as well as casual workers is predicted to reduce with an increasing level of minimum wages (Figure 4). This might be indicative of the “lighthouse effect” at a higher level of minimum wages, where earnings of own-account and casual workers, who mostly belong to informal sectors, may rise with increasing levels of minimum wage. According to “lighthouse effect”, in the presence of legislated minimum wages, usually workers and employers undertake wage bargaining with minimum wages as their benchmark (Maloney and Mendez 2004, Menon and Rodgers 2017, Baanante 2004, and Lemos 2009). The evidence of the “lighthouse effect” is visible for own-account workers too. This might be the result of the similar nature of jobs performed by low-skilled own-account workers and casual workers. According to the instructor manual of PLFS;

“Carpenters, masons, plumbers, etc., who move from place to place in search of work and carry out the work on a contract basis (not on wage basis) whenever work is available, will be considered as 'own-account worker'. But if such persons are working on a wage basis under a contractor, they will be considered as employee”

At a higher level of minimum wages, own-account workers might be bargaining, by looking at the wages of casual and regular workers, who in turn use minimum wages as a benchmark wage.

When we estimate the model for all workers we find the interaction coefficient for casual workers to be insignificant (Table 6). For own account workers the interaction coefficient becomes negative depicting larger earning gap between own-account workers and regular workers at higher level of minimum wages, this might be due to the high skill earning premium for regular workers at higher level of minimum wages (Figure 5).

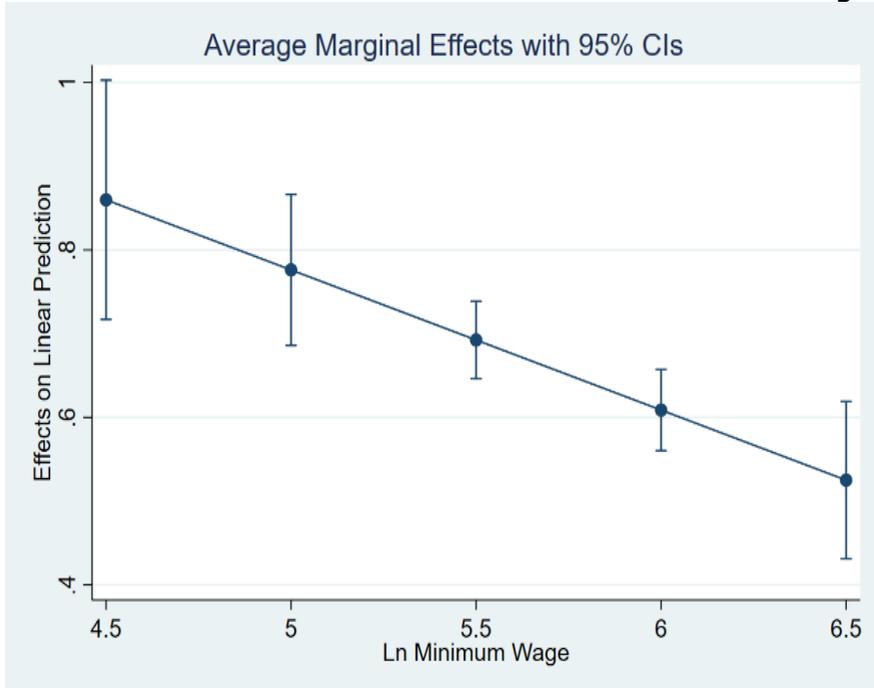
Figure 5: Predicted Average Marginal Effects of Earnings at Different Levels of Minimum Wage For Different Worker Types



Source: Author's estimate based on regression estimates using PLFS 2017-18, 2018-19, and 2019-20

We have also allowed the interaction of gender with minimum wages. In model (1) of Table 6, the coefficient of the *male* is positive indicating a positive earning difference in comparison to females. Here also we have used the margins command to interpret the interaction term of male \times Ln Min Wage. Figure 6 shows the earning gap between males and females is predicted to reduce with higher values of minimum wages.

Figure 6: Predicted Average Marginal Effects of Earnings Gap Between Male And Female At Different Levels Of Minimum Wage



Source: Author's estimate based on regression estimates using PLFS 2017-18, 2018-19, and 2019-20

Table 6: Determinants of Wages for Workers in Non-Farm Sector (Age group 15 to 65 years) (Outcome: Log of Monthly Wages)

	(1) All Workers	(2) Male
Ln Min Wage	0.884*** (0.073)	0.736*** (0.056)
Casual worker (ref: regular worker)	-0.202 (0.229)	-0.234 (0.221)
Own account worker (ref: regular worker)	0.514** (0.234)	0.347* (0.185)
Employer (ref: regular worker)	0.384 (0.361)	0.356 (0.377)
Casual worker × Ln Min Wage	0.002 (0.040)	0.005 (0.038)
Own account worker × Ln Min Wage	-0.121*** (0.041)	-0.079** (0.033)
employer × Ln Min Wage	-0.005 (0.063)	0.004 (0.066)
male	1.613*** (0.327)	
male × Ln Min Wage	-0.167*** (0.056)	
Urban	0.945** (0.234)	0.975** (0.223)
Urban × Ln Min Wage	-0.198 (0.041)	-0.201 (0.039)
Age	0.040*** (0.001)	0.038*** (0.001)
Age square	-0.000*** (0.000)	-0.000*** (0.000)
Primary (ref:Illiterate)	0.088*** (0.009)	0.085*** (0.009)
Middle (ref:Illiterate)	0.152*** (0.008)	0.139*** (0.009)
Secondary and higher (ref:Illiterate)	0.289*** (0.009)	0.264*** (0.009)
Diploma (ref:Illiterate)	0.578*** (0.030)	0.521*** (0.031)
Tech diploma (ref:Illiterate)	0.524*** (0.021)	0.456*** (0.021)

	(1)	(2)
	All Workers	Male
Graduate and above (ref:Illiterate)	0.689*** (0.017)	0.609*** (0.015)
Tech diploma(graduate and above) (ref:Illiterate)	1.012*** (0.033)	0.903*** (0.037)
Tech degree(graduate and above) (ref:Illiterate)	1.050*** (0.026)	0.933*** (0.026)
Non-formal voc	0.013 (0.013)	0.022* (0.013)
Formal voc	0.023 (0.015)	0.031** (0.016)
Islam (Ref: Hinduism)	-0.028*** (0.010)	-0.019* (0.011)
Christian (Ref: Hinduism)	0.026 (0.018)	-0.007 (0.016)
Sikh/Jain/Buddhism (Ref: Hinduism)	0.041 (0.027)	0.048* (0.025)
other (Ref: Hinduism)	0.011 (0.027)	0.008 (0.025)
ST (ref: Forward caste)	-0.085*** (0.014)	-0.099*** (0.014)
SC (ref: Forward caste)	-0.110*** (0.010)	-0.103*** (0.009)
OBC (ref: Forward caste)	-0.100*** (0.009)	-0.087*** (0.008)
Currently married (ref: Unmarried)	0.121*** (0.008)	0.153*** (0.008)
Widowed (ref: Unmarried)	0.106*** (0.019)	-0.008 (0.027)
Separated (ref: Unmarried)	0.068** (0.031)	-0.073 (0.048)
No of Children (<15 years)	-0.006*** (0.002)	-0.005** (0.002)
No. of elders (>60 years)	0.015*** (0.005)	0.009* (0.005)
Unemployment rate	-0.448*** (0.125)	-0.542*** (0.156)
Real GDP	4.614*** (1.555)	4.617*** (1.070)

	(1)	(2)
	All Workers	Male
Covid quarter (April to June 2020)	-0.066*** (0.023)	-0.107*** (0.022)
Constant	-49.10*** (17.60)	-47.58*** (12.13)
State dummies	Yes	Yes
Year dummies	Yes	Yes
State and year interaction	Yes	Yes
Year and quarter interaction	Yes	Yes
Observations	260230	211983
R^2	0.454	0.414

Note: Standard errors clustered at the district level and are given in parentheses.

CONCLUSION

The aim of minimum wage policy is to protect unskilled workers against low-wages. However, in developing countries, like India, labour markets are characterized by high informality and self-employment. In the minimum wage literature, studies have attempted to study *wage-effects* of minimum wages. However, most of these studies have considered only wage earners, leaving aside large proportion of non-wage earners. This study attempted to include self-employed workers and explore the impact of minimum wages on the earnings of all kinds of workers including self-employed using the novel minimum wage data and earnings data from the three recent PLFS rounds from 2017-2020. It has been found that for unskilled and semi-skilled workers who have studied up to secondary education, higher levels of minimum wages reduce the earning gap between regular, own-account, and casual workers. This might be indicative of the “lighthouse effect”, where both casual and own-account workers (mostly engaged in informal activities) use minimum wages as a *numeraire* to carry out earnings negotiations. Given the recent enactment of the Wage code bill (2019) that includes elements of coverage, compliance, and adequacy to enhance the effectiveness of

minimum wage policy, these results show that a higher level of the minimum wage is positively associated with the earnings of not only casual workers, who are mostly employed in the informal sector, but also of unskilled and semi-skilled own-account workers.

This study does not delve deeper into the question about what is the *adequate* level of minimum wages that can influence the earnings of informal and non-wage earners. Rather it just concludes that a higher level of minimum wages positively influences the earnings of both own-account and casual workers. This is a preliminary study on the relationship between minimum wages and earnings and future analysis will be extended to use the causal framework of difference-in-difference and related methods to empirically investigate the impact of minimum wages on earnings. Further, it has not taken into account the differential level of compliance rates existing in different industries. The research in the following areas is warranted in the future.

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APPENDIX

**Table A1: State-wise Revisions and Notes Related to
Announcement of Minimum Wages**

State	Indexed revision	Non- Indexed revision	Notes: Announcement of minimum wages
Punjab	3	0	Skill wise announcement of minimum wages. Scheduled employment wise no difference
Haryana	3	0	Skill wise announcement of minimum wages. Different minimum wage rates for clerical staff, data entry operator, driver, cleaning staff, and brick kilns, but for rest of the scheduled employment category, same minimum wages apply
Uttar Pradesh	3	0	Skill wise announcement of minimum wages. Scheduled employment wise no difference
Rajasthan	3	0	Skill wise announcement of minimum wages. Scheduled employment wise no difference
Madhya Pradesh	3	0	Skill wise announcement of minimum wages. Scheduled employment wise no difference
Gujarat	3	0	Skill wise announcement of minimum wages. Scheduled employment wise no difference
Himachal Pradesh	3	0	Skill wise and schedule employment wise. Have mapped to NIC category. Minimum of minimum wages are taken if there is any conflict
Jharkhand	3	0	Skill wise announcement of minimum wages. Scheduled employment wise no difference
Assam	3	0	Skill wise announcement of minimum wages. Scheduled employment wise no difference
Telangana	3	0	Skill wise and schedule employment wise. Have mapped to NIC category. Minimum of minimum wages are taken if there is any conflict
Maharashtra	3	0	Skill wise and schedule employment wise. Have mapped to NIC category. Minimum of minimum wages are taken if there is any conflict
West Bengal	3	0	Skill wise and schedule employment wise. Have mapped to NIC category. Minimum of minimum wages are taken if there is any conflict
Tamil Nadu	3	0	Schedule employment wise. Have mapped to NIC category. Minimum of minimum wages are taken if there is any conflict
Bihar	2	1	Skill wise announcement of minimum wages. Scheduled employment wise no difference

State	Indexed revision	Non-Indexed revision	Notes: Announcement of minimum wages
Chhattisgarh	2	1	Skill wise announcement of minimum wages. Scheduled employment wise no difference
Odisha	2	1	Skill wise announcement of minimum wages. Scheduled employment wise no difference
Uttarakhand	2	1	Skill wise announcement of minimum wages. Scheduled employment wise no difference
Sikkim	2	1	Skill wise announcement of minimum wages. Scheduled employment wise no difference
Karnataka	2	1	Skill wise and schedule employment wise. Have mapped to NIC category. Minimum of minimum wages are taken if there is any conflict
Kerala	2	1	Skill wise and schedule employment wise. Have mapped to NIC category. Minimum of minimum wages are taken if there is any conflict
Andhra pradesh	2	1	Skill wise and schedule employment wise. Have mapped to NIC category. Minimum of minimum wages are taken if there is any conflict
Jammu and Kashmir	2	1	Skill wise announcement of minimum wages. Scheduled employment wise no difference
Arunachal pradesh	2	1	Skill and experience wise announcement of minimum wages. Scheduled employment wise no difference. Minimum of minimum wages are taken if there is any conflict
Nagaland	2	1	Skill wise announcement of minimum wages. Scheduled employment wise no difference
Tripura	2	1	Skill wise and schedule employment wise. Have mapped to NIC category. Minimum of minimum wages are taken if there is any conflict
Lakshadweep	2	1	Skill wise announcement of minimum wages. Scheduled employment wise no difference
A and N Island	2	1	Skill wise announcement of minimum wages. Scheduled employment wise no difference
Manipur	0	0	Skill wise announcement of minimum wages. Scheduled employment wise no difference
Mizoram	0	0	Skill wise announcement of minimum wages. Scheduled employment wise no difference
Delhi	3	0	Skill wise and schedule employment wise. Have mapped to NIC category. Minimum of minimum wages are taken if there is any conflict
Meghalaya	2	1	Skill wise announcement of minimum wages. Scheduled employment wise no difference

State	Indexed revision	Non-Indexed revision	Notes: Announcement of minimum wages
Goa	3	0	Skill wise announcement of minimum wages. Scheduled employment wise no difference
Daman and Diu	3	0	Skill wise announcement of minimum wages. Scheduled employment wise no difference
D and N Haveli	3	0	Skill wise announcement of minimum wages. Scheduled employment wise no difference
Chandigarh	3	0	Skill wise announcement of minimum wages. Scheduled employment wise no difference
Puducherry	1	0	Skill wise and schedule employment wise. Have mapped to NIC category. Minimum of minimum wages are taken if there is any conflict

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