Statistics and Applications {**ISSN 2452-7395 (online)**}
Volume 17, No. 1, 2019 (New Series), pp 261–274

Inter and Intra Sectoral Wage Determinants in Indian Casual-Labor Market: Agricultural and Structural Change Implications

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Received: March 12, 2019; Revised: March 18, 2019; Accepted: March 21, 2019

Abstract

The study estimates marginal impacts of household specific determinants (demographic, skill, security and mobility factors) on wages earned by laborers belonging to different quantile classes in agriculture and non-agricultural sectors. The results demonstrate superiority of varying-coefficients approach (Quantile Regression) over constant-coefficient approach (OLS) in terms of robustness and wider policy implications of estimated associations between variables. Different factors affect wages differently across different quantile classes which imply that policies aiming towards improving wages shall have differential strategies for specific target group. The evidences clearly point towards a strong need to raise education level and impart technical skills to laborers for improving their income, accelerating employment diversification towards non-farm sectors and equitable development in the society. Largely, Indian labor market has been found to be informal and unorganized. The access to social security benefits bears positive association with the wages.

Key words: Quantile regression; Wage determination; Agriculture; Non-farm sector; India.

1 Introduction

Of several factors acting upon profit gains in agriculture, wages paid out for hiring laborers for agricultural operations assume highest priority. The share of paid out costs for hired casual laborers in total operational cost vary from 21% to 31% in paddy, 9% to 12% in wheat and 24% to 36% in sugarcane, excluding the labor being spent on field by the farm families[1] (MoAFW, 2016). If accounted, the total labor cost for the corresponding crops forms 45% to 64%, 23% to 35% and 43% to 56% of total operational cost respectively. Hence, a rise in wages directly escalates costs involved in production, leading to a reduction in net income from crops. Long-run estimates show an ever-increasing wage trend (RBI, 2018), rising more steeply since mid-2000s in both nominal and real terms[2]. The factors attributed behind this deviation were a constant expansion of construction sector and successive absorption of labor from agriculture thus a shift-down in total labor supply curve, and floating of the largest public works program – the Mahatma Gandhi National Rural Employment Guarantee Scheme (MNREGS) since 2006-07 (Gulati et al, 2014; Himanshu and Kundu, 2016).

By economic theory, wages are supposed to be set by what the labor contributes in production *i.e.* based on average or marginal labor productivity. Deviations if any, are

[1] Calculated based on Cost of Cultivation Data for the year 2015-16.
[2] Calculated based on RBI data. Real wages were obtained using CPI (AL).

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observed to be temporary and believed to vanish over long-run. Rather, empirical cases analyzing Indian agriculture indicates weak evidences, with wages consistently surpassing productivity since mid-1990s (Balaji et al., 2018). Various factors operate behind wage-setting in a labor market, ranging from the policy interventions like MNREGS to technological improvements in agriculture that are relatively labor-displacing. Non-agricultural factors such as increase in income percapita and a rise in demand for non-agricultural goods could also act upon wages. In industrial sector, concentration of industries and strength of labor unions have significantly influence wages (Martins, 2018). Political and institutional development also shapes wages (Reuda and Pontusson, 2000). One could broadly identify them into the one operating at the macro-level. At household level, the major factors include age, that proxies the experience of an individual in the job-market, the level of literacy, gender, skill factors such as having a formal or informal training in the job one performs (Hossain et al., 2015), human capital accumulated in past (Nawakitphaitoon, 2014), being into a formal association like labor-union (Card, 2001) and ability to enter into the formal job-market etc.

Inherent are the associated poverty and inequality effects. While the case may be readily measured, more interesting will be to look upon how sensitive the effects are over different class of wage earners within an industry. One could observe not all the workers within an industry earning equal wages. There would exist intra-sectoral wage inequality within a sector (Thewissen et al., 2018), especially in informal sector like agriculture, depending upon the nature of job one performs, skill requirements behind the operation and the ability of the employer to pay wages (ILO, 2018). This has more to do with intra-sectoral welfare state rather, which itself assumes critical priority when considering highly populated sectors like agriculture. Together with the changes in macro and micro environment factors, related are the inter-sectoral labor shift processes (Jacoby and Dasgupta, 2018). A rise in wages in a particular sector attracts by nature workers from new sectors. When the demanding sector accepts workers with little or no additional skills, like an unskilled agricultural worker can readily shift into the construction sector, it leads to a speeding-up of structural change process. Opposite is the case of technological breakthroughs, especially in short-run. When innovations emerge, though it creates demand for few knowledge intensive laborers in short-run, emergence of labor surplus unties laborers open in the market. In the absence of effective external absorption, it could slow-down structural change, creating unemployment challenges.

In the present study, we attempt to study the role of household factors in determining wages. Though the focus is set on casual labor market in agriculture, we attempt to bring multiple dimensions into inquiry. We attempt to simultaneously estimate the impact of factors across the distribution of wage-earners within a sector, and estimate the differential impacts of the same factors across different industries. While the former helps to focus the less-privileged labor class in an industry, the later helps to understand structural transformation process. In policy front, especially in agriculture where the flow of casual labor had exceeded the self-employed farmers (MoAFW, 2018) demanding more jobs at one side, and in nonagriculture where labor absorption had turned stagnant adding no jobs on the other side, one would derive meaningful insights to devise strategies to balance the impact of wage growth in agriculture so that helping farmers, and bring convergence between agricultural and non-agricultural wages so as to achieve social equity.

2 Data and Variables Construction

We used household survey information contained in the 68th round of Employment and Unemployment Survey conducted by the National Sample Survey Office (NSSO) of the

Ministry of Statistics and Programme Implementation (MOSPI) for the year 2011-12 to study the wage structure across different industries and relative influence of different factors in determining wages. They survey recorded household characteristics, demographic particulars, principal and subsidiary employment activities of more than one lakh households that comprised around 4.6 lakh individuals during the reference year. Of all population, 38.6% were employed, of which 52.2% were self-employed, 17.9% were regular wage or salaried employees and 29.9% were casual laborers. Information pertaining 21 different industries were extracted and grouped under 9 major industrial categories namely (i) Agriculture, Forestry and Fishing, (ii) Mining and Quarrying, (iii) Manufacturing, (iv) Electricity, Gas and Water Supply, (v) Construction, (vi) Trade, Restaurants and Hotels, (vii) Transport, Storage and Communication, (viii) Finance, Insurance and Real Estate and (ix) Community, Social and Personal Services.

Since the focus is on wage earners, persons earning wages regularly, salaried employees and casual laborers offering their labor services in both public and private works were identified and maintained, and the self-employed, unemployed and the rest were eliminated. Since the wages earned by the individuals under the Mahatma Gandhi National Rural Employment Guarantee Scheme (MNREGS) involve no skill factors or competition as exist in rest of the labor market, persons' earnings under MNREGS were also ignored. Following this, the wages earned during the last 7 days were adjusted to per day wages after accounting the intensity of activity recorded in the survey so that the unemployed days are left out. The wages thus obtained were subjected to further analysis. The set of factors assumed to influence earnings of laborers were categorized under 4 major classes namely (i) demographic factors, (ii) skill factors, (iii) social security factors and (iv) mobility factors. The demographic factors included age, in its actual and squared form and sex of the individuals. The literacy level, including informal literacy state, training received by both formal and informal means including on-the-job trainings were included under skill factors.

Leaving age, almost all the explanatory variables were constructed as dummies as they allow one to observe the wage-differentials at each level more easily. The schooling contained indicators of primary, middle, secondary and higher secondary levels of education, and higher levels contained diploma holders, graduates and post-graduates. Note than we didn't match the field of higher level study to the industry from which one was earning as doing so would lead to a separate set of enquiries. Similar was the case of the training one received. The dummy indicated just whether or not a person had a training, and not that whether he had training on the field in which he was currently employed. The social security factors included the eligibility status for paid leave, the availability of pension, gratuity, health care and maternity benefits in different combinations, and whether or not a person was member in a labor union. The marital status and the locality (rural and urban) were grouped as mobility factors.

3 Methodology

For initial exploration of variables and their relationships across industries, we used summary statistics and graphical analysis. While the entire economy was divided as 9 major industries, the study concentrated on 4 major industries namely (i) Agriculture, Forestry and Fishing (AgrFF), (ii) Manufacturing (Manuf), (iii) Construction (Const) and (iv) Trade, Restaurants and Hotels (TrdRH), backed by the fact of size of workers it employed and the recent labor market changes they are witnessing. The distribution of wage earners in these sectors during the reference period were 34.6%, 13.7%, 19.5% and 6.3% respectively. Following that, the demographic, skill, security and mobility factors that were assumed to influence wages were studied among these sectors.

Since our interest is not only to study the influence of factors in determining the wage a person earns in a given industry but also to observe relative influence of so said factors within the sectors across their distribution, conventional linear regression models such as Ordinary Least Squares (OLS) might not help. Technically, it is not just the constant coefficient that matters to understand wage determinants within a sector and the linkages between different sectors but the coefficients that vary across the distribution. Literature employs quantile based estimation procedures for meeting out this purpose (Martins & Pereira, 2004; Sakellariou, 2004). We employed Quantile Regression (QR) model, called also as Least-Absolute-Value (LAV) model, which expresses the quantiles of the conditional distribution as linear functions of the independent variables. It finds a line through the data that minimizes the sum of 'absolute' rather than the 'squares' of the residuals as in ordinary regression. Hence it allows for effects of the independent variables to differ over the quantiles, our objective is achieved. Following Koenker and Bassett (1978), we assumed the wage-equation model of the following form

$$W_i = X_i'\beta_\theta + \theta_i \quad (1)$$

with

$$Q_\theta(W_i/X_i) = X_i'\beta_\theta \quad (2)$$

where X_i is the vector of variables discussed earlier, β_θ is the parameter vector, and $Q_\theta(W_i/X_i)$ represent the θ^{th} conditional quantile of W given X. By solving the following problem, any quantile θ can be derived.

$$\min_\beta \left\{ \sum_{lnW_i \geq X_i\beta} \theta \, |W_i - X_i'\beta_\theta| + \sum_{lnW_i \leq X_i\beta} (1-\theta)|W_i - X_i'\beta_\theta| \right\} \quad (3)$$

In short, equation (3) can be written as

$$\min_\beta \sum_i \rho_\theta(W_i - X_i'\beta_\theta) \quad (4)$$

where $\rho_\theta(\varepsilon)$ is the check function defined as $\rho_\theta(\varepsilon) = \theta_\varepsilon$ if $\varepsilon \geq 0$ or $\rho_\theta(\varepsilon) = (\theta - 1)_\varepsilon$ if $\varepsilon \geq 0$.

By choosing θ to be 0.3 and 0.7, we studied the wage distribution in different sectors of the economy conditional on the explanatory factors.

4 Results and Discussion

a Demographic and Employment Characteristics

The demographic and employment characteristics of wage earners in 4 major industries are shown in Table 1. As mentioned, their characteristics were studied by segregating each potential variable into different classes, hence one would observe deviations across their distribution. The share of wage earners was relatively low in agriculture in low-age category when compared with sectors like manufacturing, construction and trade, and a relatively high share was observed in high-age category. For instance, the total share of wage earners falling in the age-groups 16-30 and 31-45 together was 71.5% in agriculture and allied sector, whereas in manufacturing, construction and trade, it was 82.9%, 80.4% and 84.1% respectively. To the other end, as high as 26.9% wage earners were above the age of 45 in agriculture, which was considerably low in nonagricultural sectors. This reiterates the fact that young workers are more oriented towards non-farm sectors for employment. This is primarily due to higher wage rate (Figure 1) and less strenuous working environment in non-farm sectors than in agriculture sector.

Around half of the workers were not literates in agriculture (48.2%). Further, much of the workers had not proceeded beyond secondary schooling, and the share of workers qualifying beyond this was extremely low. Exactly contrasting picture was observed in non-agricultural sectors. The share of workers having secondary education was 19.1% in trade and 14.6% in manufacturing against just 6.2% in agriculture. Similarly, the share of workers with higher secondary education was 11.7% in trade and 7.7% in manufacturing, whereas it was just 2.3% in agriculture. Nor the status was encouraging for agriculture when observing the level of training the workers have undergone, although there exists deficiency of trained laborers in rest of the sectors as well. Manufacturing was the only sector to comprise a sizeable share of trained laborers. Despite of having just 5% of formally trained laborers, as high as 21% have undergone on-the-job training. Thus, having a massive size of laborers when observed in absolute terms, together with high levels of illiteracy and lack of trained personnel, the agriculture sector potentially lags behind in acquiring necessary skills to earn higher wages. Therefore, improving education level and imparting technical skills will not only contribute positively in raising their income level but also contribute in accelerating shifting workforce from farm to non-farm sectors.

The gender wise distribution of wage earners shows dominance of male workers in all the sectors. However, share of woman wage earners was relatively higher in agriculture than in other sectors. It was roughly one-third (33.1%) in agriculture, whereas in sector like trade, it was as low as 8.4%. This implies relatively higher level of feminization in agriculture. The other indicators such as having a job-contract at least for a medium-term and eligibilities to avail paid leaves were relatively high for manufacturing and to some extent for trade, while agriculture and construction sectors had registered low levels of access to these facilities. Similar was the case when turning to observe the social security benefits a wage earner enjoys, and the participation into labor unions that exert a positive pressure on wages. This clearly implies unorganized and informal form of labor market in India. The lack of formal labor engagements adversely affect the wage earning capacity of the workers. Effective labor laws may improve such condition and thus economic conditions of wage earners.

b Wage Distribution and Role of Literacy

Having observed through literature, literacy as one among the major determinants helping to earn higher wages and observing the prevalence of stark differences in literacy levels across sectors, we attempted to correlate wage earnings with the level of literacy which a labor possessed. As expected, the wages received gradually increased when the literacy level proceeded from low to high, irrespective of the industry in which a labor was employed (Figure 2). Of course, we could observe intra-industry differences as well for each literacy-group shown clearly with the low wages the agricultural laborers earn, almost in each literacy group, when compared with the laborers in rest of the sectors. On an average, wages in nonagricultural sectors were higher by 1.3 times than agricultural wages for the illiterates, persons with informal schooling and with below-primary group. This gradually rose to 1.4 times to the middle, 1.5 times to the secondary and1.7 times to the higher-secondary class and to 2.1 times to the diploma/certificate holders. For the graduates and the above, it was 1.5 times and 1.6 times respectively. Thus, literacy stands to be a significant explainer of wage earnings within an industry.

c Inter and Intra Sectoral Wage Determinants: Quantile Regression Estimates

Though literacy was taken as a case to explain intra-industry wage differences, there are other factors as well like age, location of residence, the training a person has undergone, nature of job-contract he/she has, whether or not he/she is part of a labor union etc. But even

within a sector, one could claim that the influence of a factor is different for a person falling in a low-wage end when compared with a person falling in a high-wage group despite of having same qualification. Thus, to understand relative influence of variables across wage distribution within an industry, quantile regression technique was employed. Following a 'general' kink at the 3rd and 7th deciles (Figure 2), the regression coefficients were estimated for these classes. These coefficients were estimated jointly as they allow for comparing the value of coefficient at 3rd decile with 7th, by setting the bootstrap replication as 1000. As discussed earlier, estimates were obtained for 4 major industries and the results are given in Table 2. *Factors behind Higher Wages- Inter and Intra Industry Dimensions:* We observed most of the variables significantly influencing the level of wages, although with varying magnitudes across industries. The age factor had a moderate positive impact on wages. The marginal effect varied from as low as Rs.1.4/day in agriculture to Rs. 9.1/day in trade. The positive association between age and wages might be related to experience and specific skills acquired by the workers over the years. However, as the worker gets relatively older, his/her earning capacity reduces. This is revealed by the negative coefficients of square of age in most of the cases. Such patterns were uniform across all the industries. It is to be noted that India is country with relatively younger workforce and the results reveals a great scope to harness this demographic dividend. The gender to which a laborer belonged was found to have a notable impact. Female laborers were earning less than the male irrespective of the industry in which they were employed, and the difference in earnings varied from Rs.20/day in agriculture to Rs. 78/day in manufacturing. In line with our hypothesis, wages rose with each level of increase in literacy, and the wage-differentials were observed prominently among different sectors. The agriculture sector was deviating from this trend as no significant links were found between wages and literacy levels, especially in the low-wage class. This is expected because most of the low wage jobs in agriculture require low or least level of education level and therefore improvement in education may not help them to fetch higher wages until he/she wishes to move the relatively higher wage giving occupations. Wage-gains were relatively high in trade and manufacturing sector. For example, while the wage-gain for a graduate in the low-wage class engaged in agriculture sector with respect to a worker having no literacy was Rs. 40/day, it was as high as Rs. 139/day in manufacturing. Further, in many of the sectors, a sharp shift in wages to the workers those who qualified beyond higher secondary was obvious.

Unlike education, the impact of training varied, depending upon the industry in which a worker was employed. Despite the fact, among different modes, having received a formal training before entering into the job had notable impact, especially in nonagricultural sectors. The impact was highest agriculture for the high-wage class, followed by construction, manufacturing and trade i.e. the marginal gains were Rs. 107/day, Rs. 98/day, Rs. 44/day and Rs. 35/day in agriculture, construction, manufacturing and trade respectively. Similar was the case of workers having social security benefits. Workers obtaining one or the other form of social security benefits were found to realize higher wages. Interestingly, and contradicting to a general expectation as well, in all sectors except manufacturing, the workers belonging to a labor union were found to earn less, demanding further research. In construction sector, the negative wage-gain associated with being a member in a labor union was substantial. While the marital status had no notable impact in agriculture and construction, sizeable gains were observed in trade and manufacturing to the unmarried. As expected, urban workers gained relatively higher wages than the rural counterpart.

Differential Impacts among Low and High Wage Classes: Results showed that to some extent age matters to the high-wage earners in agriculture whereas it matters more to the low-wage earners in manufacturing. In construction and trade, it influences wages positively for

both low and high wage earners, but the marginal impact is roughly double to the later than the former. For example, when age of labor employed in trade increased by a year, while wage increased by Rs.4.6/day to the workers of 3rd decile class, it increased by Rs. 9.1/day for those who were in 7th decline. On similar lines, one could observe men in high-wage class earning more than double than the lower ones in agriculture, and earning more, if not as in agriculture, in rest of the sectors as well. More interesting observations emerged from agriculture sector when observing the role of literacy. To the low-wage class, level of literacy failed to help to earn better except to the graduates. In contrast, one could find the high-wage laborers earning more for each level of increase literacy. Observing the laborers employed in nonagricultural industries, the estimates indicated significant influence on both the groups, but as observed in case of age factor, it pays more to the high-wage earners with increasing literacy levels.

Among various modes, having a formal training had significant impact in all nonagricultural industries. Persons having formal training earned relatively high and the extent of earning differed positively to the high-wage earners. While on-the-job training acted in similar way, the marginal impact was not as high as the one had earlier. No such effect was observed in case of agriculture. Turning to the role of social security factors, the benefits were high for both agricultural and nonagricultural workers, and it was relatively low for the laborers working in trade and manufacturing industries. Rather, unlike literacy, the effects on both low and high wage earners were mixed. More interestingly, workers who were not part of any labor unions earned relatively more than the members except in manufacturing, especially the one in the high-wage group. The marital status had limited impact on wage-differentials. Rather, significant impact was observed for the urban workers, especially in nonagricultural industries, with benefits accruing more to the high-wage earners.

5 Conclusions and Policy Implications

To begin with, in empirical front, a shift in estimation from a constant-coefficient based approach to a varying-coefficients approach provide us more meaningful and interesting results. Though the details of OLS-based estimates were not listed, the advantages behind Quantile Regression based estimates are obvious. One could observe vast deviations between OLS and Quantile Regression coefficients (Appendix I). The deviations not only question the insights derived from constant-coefficient estimates but also explain the relative instability of the coefficients across different quantiles. The robustness to outliers, especially in large samples like the present study undertook where the sensitivity is of much relevance, the Quantile Regression based estimates offer precise estimates on one side, and by distinguishing between the magnitude of influence over different quantiles, it allows to follow decisive insights over distribution on the other side. The joint estimation of coefficients and the comparison possibility across quantiles allowed through bootstrap procedure offers added advantage.

In economic front, in line with the literature, the influence of different factors is clearly established. Having observed literacy fetches higher wages in all nonagricultural sectors when compared with agriculture, concentration of relatively high illiteracy among agricultural laborers who make a massive size when observed in absolute numbers, exert greater difficulties while thinking of devising welfare oriented policies. Especially the observation that level of literacy fails to bring additional wages to the low-earning agricultural labor class demands additional attention. This inability could in part be due to the engagement of a sizeable section of labor class, including women, in low-paying agricultural activities like manual weeding and harvesting unlike the high-paying ones like tractors, power tillers and other machine-operated activities like ploughing, and like pesticide spraying

etc. Much of these high-paying operations are rather performed by skilled labor, especially the men, possibly of low-to-medium age category, thus excluding women and laborers of high-age from earning high in agriculture.

The need for skill-training agriculture is one option which appears largely ignored in the domain. With a 92% of laborers having no training, either through formal or informal means, it appears to hold them from moving into high-paying agricultural operations. To bring to one's attention further, the 8% laborers who report themselves having a vocational training were all not trained for agricultural activities. There was a vast section of laborers having trained for other nonagricultural activities but working in agriculture during the reported survey year. The above factors clearly point out the need for equipping themselves with demand-driven skills. In the phase of growing mechanization among difference class of farmers including marginal and small holders, identifying the means and promoting region-crop-operation specific skill building to the low-earning labor class could bring greater equality in wage earnings.

An increase in higher wages brought out by improving literacy and imparting demand-specific training to the working class could still be a partial welfare solution when the entire agrarian economy is considered. A rise in wages to a greater section of agricultural laborers could threat the viability on small-holder agriculture as leads to a negative gain in net income to the self-employed farmers. When agrarian crisis is observed across nation caused by various factors including climate change and associated risk on which the farming class have a limited control, a mere increase in wage not compensated with at least an equal increase in farm income could be an unwelcoming solution. As part of the solutions, more interesting observations arise from inter-sectoral comparison rather, which help to bring balance between higher wages in agriculture by promoting non-agricultural activities among agricultural laborers.

Unambiguously, the nonagricultural sector offers higher wages than agriculture, and this had been the major factor in past behind the expansion of nonfarm sectors with a greater speed. This expansion includes rural regions as well. Unlike agriculture in which returns to literacy are relatively less, the results provide clear evidence of a smooth increase in wages along with increasing literacy levels on one side and positive wage-differentials on the other side. A greater choice the results indicate is that even for those with low literacy levels, the wage differentials in nonagricultural sectors are substantial in the low-wage earning class, offering a greater scope to train part of the agricultural laborers atleast to the non-agricultural activities fetching these wages. This would not harm both agriculture and nonagriculture, and could be the win-win strategy for both the sectors. A slight reduction in agricultural labor combined with appropriate skill building to the rest could prevent wages rising beyond labor productivity, and hence control falling of net agricultural incomes. This could also help to bring convergence in agricultural and nonagricultural wages, which, while adjusting terms of trade in favor of agriculture, could bring greater harmony in the society.

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Table 1. Descriptive statistics of Wage Earners

Particulars	Industry				Particulars	Industry			
	AgrFF	Manuf	Const	TrdRH		AgrFF	Manuf	Const	TrdRH
A. Demographic particulars					**B. Employment particulars**				
Age group (% distribution)					Type of job contract				
a. <= 15	1.58	1.91	1.22	1.75	a. No written contract	93.36	84.50	97.32	90.89
b. 16-30	30.98	46.07	43.32	50.31	b. Written contract: <= 1 year	1.01	2.46	1.42	2.39
c. 31-45	40.49	36.81	37.08	33.83	c. Written contract: 1-3 year	0.20	1.74	0.16	1.52
d. 46-60	21.71	13.33	15.99	12.27	d. Written contract: >3 year	5.43	11.30	1.09	5.20
e. Above 60	5.23	1.87	2.39	1.85	e. All	100.00	100.00	100.00	100.00
f. All	100.00	100.00	100.00	100.00	Eligibility for paid leave				
Sex					a. Yes	9.19	23.47	2.71	19.04
a. Male	66.87	85.49	88.78	91.59	b. No	90.81	76.53	97.29	80.96
b. Female	33.13	14.51	11.22	8.41	c. All	100.00	100.00	100.00	100.00
c. All	100.00	100.00	100.00	100.00	Availability of social security benefits				
Education-General					a. PF/pension	2.43	6.01	0.51	2.95
a. No literacy	48.22	16.51	35.46	11.13	b. Gratuity	0.39	0.99	0.19	0.66
b. Literate – Informal programs	0.42	0.71	0.44	0.58	c. Health care & maternity benefits	0.03	1.90	0.34	1.05
c. Literate – Below primary	14.76	9.99	12.96	7.19	d. PF/pension and gratuity	0.08	2.29	0.12	1.04
d. Literate – Primary	14.69	14.86	17.26	13.68	e. PF/pension and health care & maternity benefits	0.09	3.05	0.15	1.28
e. Literate – Middle	12.75	20.52	19.28	22.47	f. Gratuity and health care & maternity benefits	0.27	1.10	0.05	0.34
f. Literate – Secondary	6.18	14.65	9.05	19.15	g. All the above	3.11	5.98	0.78	2.56
g. Literate – Higher secondary	2.30	7.72	3.02	11.75	h. Not eligible for any of above	88.60	75.06	93.08	86.28
h. Literate – Diploma/ Certificate	0.16	4.56	0.83	2.26	i. Not known	5.00	3.62	4.77	3.84
i. Literate – Graduate	0.46	8.15	1.44	9.77	j. All	100.00	100.00	100.00	100.00
a. Literate – Post-Graduate & above	0.06	2.32	0.23	2.02	Presence of and membership in union/association				
b. All	100.00	100.00	100.00	100.00	a. No union/association	93.08	77.10	88.86	86.51
Vocational training					b. Union/association	2.90	14.90	5.23	6.63

					presents: Members				
a. Formal: Receiving	0.12	1.18	0.36	0.83	c. Union/association presents: Non-members	4.02	8.00	5.91	6.86
b. Formal: Received	0.37	5.05	1.25	3.89	d. All	100.00	100.00	100.00	100.00
c. Informal: Hereditary	3.57	1.78	1.18	0.39					
d. Informal: Self-learning	1.13	2.59	2.08	2.43					
e. Informal: On-the-job learning	2.9	20.65	7.08	8.38					
f. Informal: Others	0.11	0.87	0.36	0.62					
g. Not received	91.79	67.88	87.7	83.46					
h. All	100.00	100.00	100.00	100.00					

*Note: a) *Statistics were obtained using population multipliers. Hence, the statistics refer population rather than samples; b) Statistics refer only 'employed' population; b) † and †† refer 'below graduate' and 'graduate and above' level programs respectively; c) 'Field of training' was reported by only 4% of the samples. Still, the figures are displayed for understanding 'field of work'-vs-'field trained' behavior.*
Source: Authors' computations based on NSS-EUS data

Table 2. Quantile Regression Estimates of Wage Determinants

Variables	AgrFF		Const	
	Q=0.3	Q=0.7	Q=0.3	Q=0.7
Age	0.01	1.36***	2.27***	4.34***
Age^2	0.01	-0.01**	-0.03***	-0.05***
Sex (Female=o)	20.00***	43.35***	31.37***	54.23***
B.1. Literacy (Not literate=0)				
a. Informal schooling	0.01	-7.40	1.93	-2.95
b. Primary and below	0.01	7.94***	8.15***	12.30***
c. Middle	0.01	10.12***	14.91***	25.89***
d. Secondary	0.01	11.08***	18.78***	26.93***
e. Higher secondary	0.01	5.06	13.68***	25.00***
f. Diploma/Certificate course	17.86	57.16	53.30***	144.11***
g. Graduate	40.00***	154.67***	26.76***	103.08***
h. Post-graduate & above	33.29	100.43	84.20	271.83**
B.2. Training (No training=0)				
a. Receiving (formal)	-2.86	-10.42	18.15*	-22.02**
b. Received (formal)	20.00	106.61*	61.46***	98.56***
c. Hereditary (informal)	-15.00***	-9.40**	-20.83***	-21.88**
d. Self-learning (informal)	0.01	-6.25**	-1.97	21.80**
e. On-the-job learning (informal)	-10.00**	-5.89	8.15***	29.66***
f. Others (informal)	0.01	-2.18	54.08**	130.75***
C.1. Eligible for paid leave (No=0)	43.43**	35.82	24.83***	66.87***
C.2. Eligible for social security benefits (No=0)				
a. PF/Pension	243.71***	455.33***	136.58***	324.27***
b. Gratuity	100.00	91.17	-15.04	-28.57***
c. Healthcare & maternity	-23.43	-33.77	3.14	10.28
d. PF/Pension + Gratuity	356.57*	421.30***	306.12***	219.69
e. PF/Pension + Healthcare & maternity	305.14***	323.99*	106.90	434.96***
f. Gratuity + Healthcare & maternity	547.57*	522.89**	2.19	269.98*
g. PF/Pension + Gratuity + Healthcare & maternity	342.29***	441.00***	220.93***	372.03***
C.3. Membership in labor unions				

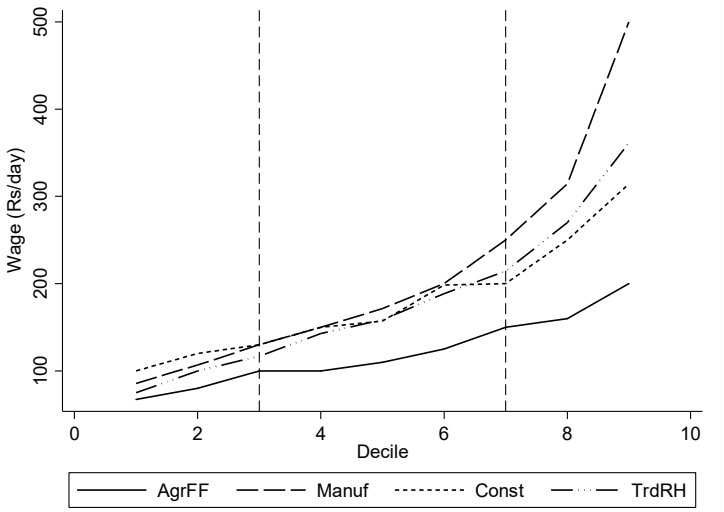
(No union+Non-member = 0)				
a. Union exists, but non-members	20.00***	47.42***	39.14***	82.98***
b. Union exists and members of union	0.01	39.31***	14.93***	37.20***
Marriage (Married=0)	0.01	-0.63	4.02***	1.46
Residence (Rural=0)	10.00***	11.99***	14.14***	22.57***
Constant	80.00***	73.71***	43.22***	33.07***
Sample size (n)	10,577		14,487	
Pseudo R^2	0.10	0.22	0.09	0.18

Table 2 Continued

Variables	TrdRH		Manuf	
	Q=0.3	**Q=0.7**	**Q=0.3**	**Q=0.7**
Age	4.62***	9.11***	3.09***	0.61
Age^2	-0.05***	-0.10***	-0.03***	0.02
Sex (Female=o)	34.32***	51.53***	56.24***	78.01***
B.1. Literacy (Not literate=0)				
a. Informal schooling	11.04	-16.28	-11.74	-18.26
b. Primary and below	10.87***	4.46	10.55***	15.82***
c. Middle	19.27***	19.17***	19.93***	32.61***
d. Secondary	34.24***	32.42***	29.03***	46.24***
e. Higher secondary	33.07***	53.37***	35.95***	82.70***
f. Diploma/Certificate course	62.39***	93.10***	90.10***	167.19***
g. Graduate	71.58***	125.71***	139.11***	337.13***
h. Post-graduate & above	108.69***	301.01***	283.57***	580.22***
B.2. Training (No training=0)				
a. Receiving (formal)	43.42***	-6.53	-4.38	37.11
b. Received (formal)	30.71***	34.98***	22.62***	44.32***
c. Hereditary (informal)	-36.71***	-3.52	-2.80	9.24
d. Self-learning (informal)	15.21	5.29	-12.44***	-0.21
e. On-the-job learning (informal)	10.30**	25.95***	3.62	8.02**
f. Others (informal)	26.38	78.06	-6.36	-9.44
C.1. Eligible for paid leave (No=0)	14.79***	35.45***	31.30***	63.83***
C.2. Eligible for social security benefits (No=0)				
a. PF/Pension	55.70***	113.24***	17.07***	26.89**
b. Gratuity	36.40	139.76***	8.49	-21.21
c. Healthcare & maternity	63.43***	88.03**	10.71	9.65
d. PF/Pension + Gratuity	172.98***	267.15***	23.45***	38.00*
e. PF/Pension + Healthcare & maternity	82.12***	147.42***	18.63***	62.74***
f. Gratuity + Healthcare & maternity	160.66***	349.32**	-12.84	55.52
g. PF/Pension + Gratuity + Healthcare & maternity	138.11***	316.13**	96.72***	267.46***
C.3. Membership in labor unions (No union+Non-member = 0)				
a. Union exists, but non-members	25.91***	45.70***	11.35***	14.82***
b. Union exists and members of union	17.61***	36.13***	14.86***	24.05***
Marriage (Married=0)	19.51***	19.14***	21.39***	26.70***
Residence (Rural=0)	8.15***	16.48***	11.57***	24.48***
Constant	-46.66***	-85.60***	-33.30***	17.35
Sample size (n)	5305		9,356	
Pseudo R^2	0.12	0.20	0.15	0.30

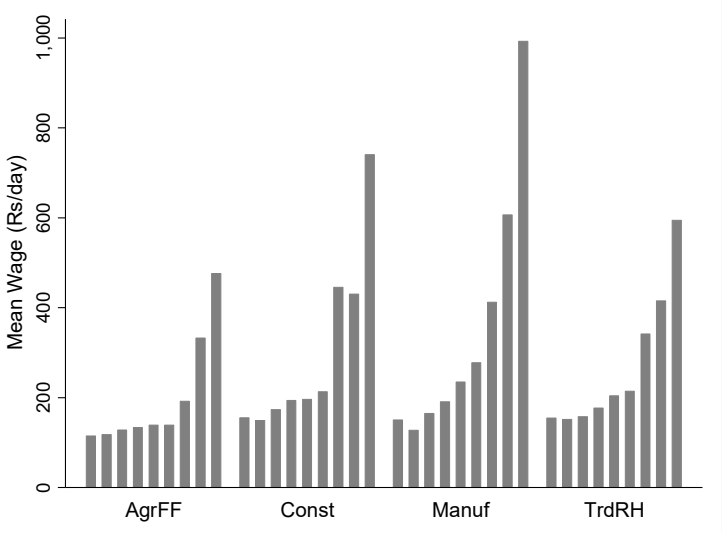
*Note: a) Coefficients for the quantiles 0.3 and 0.7 were estimated simultaneously; b) Significance reported are based on bootstrap standard errors; c) Number of bootstrap replications were set to be 1000. d) ***,**,* indicate significance at 1%, 5% and 10* respectively*

Figure 1. Wage Distribution across Deciles in Different Industries



Source: Authors' estimation

Figure 2. Inter Sectoral Wage Differences across Literacy Groups



Source: Authors' estimation
Note: The bars proceed from left to right to each industry in the following order a) Not literates, b) Had informal schooling, c) Literates-below primary, d) Literates-middle, e) Literates-Secondary, f) Literates-Higher secondary, g) Literates-Diploma, h) Literates-Graduates and i) Literates-Post-graduation and above

Appendix I. Relative Deviation of Quantile Regression Estimates from OLS Estimates