Wage Variations across Sectors and Types of Employment

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Abstract

This paper focuses on the role of the sector and nature of employment in determining wages. However, a serious endogeneity problem is encountered as sector/type of employment itself is a decision which is based on several factors. After correcting for the endogeneity findings confirm that wages still vary across sectors and types of employment. Human capital is an important determinant of wages/earnings though it is not adequate to explain the variations. Similarly, the caste specific disadvantages cannot be ignored but even after considering the important controls the wages/earnings show their sensitivity to sector/type of employment. This has important policy implications: sector or type of employment with gross disadvantages will have to be brought under the attention of the policy makers. Even with the same human capital endowment, caste background and other characteristics workers face disadvantages in certain jobs which could be related to recruitment practices, employment clauses, possibilities of exploitation by the contractors, and low levels of productivity.

Keywords: sector/type of employment, wages, human capital, caste, informal

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1. Introduction

Growth is not a sufficient condition for creating employment because labour is substitutable not only by physical capital but also a wide range of other variables, combinedly and individually, which include technology, intangible capital, energy and ICT, to name a few. Accordingly, the labour demand changes: given the supplies of labour, wages depend significantly on labour demand which may also vary remarkably across activities/sectors. In this paper we focus on the role of the sector and nature of employment in determining wages. The other important control variables considered in the analysis relate to human capital formation and background specific characteristics such as caste. While reflecting on how sector and nature of employment, given other control variables, impinge on wages we encounter a serious endogeneity problem. For example, the sector and nature of employment that a worker ultimately gets absorbed into, may depend on a wide range of both supply and demand side characteristics. Hence, instead of simply pursuing a Mincer wage function it may be pertinent to embed the sector selection process of the worker in the wage function. The structure of the paper is as follows: section 2 reviews the literature on the key determinants of the wage function, section 3 refers to the data sources and the descriptive statistics and section 4 based on an empirical strategy carries out the estimation process and interprets the results. Finally, section 5 summarises the major findings.

2. Sector/Type of Employment as a Determinant

Industrialisation in the economic literature has been considered as a key to inclusiveness (Kuznets, 1966). More recent studies lay emphasis on industrialisation of workforce and not just value added. Mismatches are possible between the changes in the value added composition and that of the work force structure. These incongruities may lead to rising inequality, sluggish urbanisation, labour absorption in low productivity jobs and occurrence of poverty in a persistent manner. Szirmai and Verspagen (2015) (see also Djidonou and Foster-McGregor, 2020) presented a list of six arguments, underlining the significance of the manufacturing sector: (i) compared to other sectors productivity is relatively high in the manufacturing sector; (ii) capital accumulation is favoured in the manufacturing sector; (iii) opportunities for economies of scale are plentily available in the manufacturing sector; (iv) rates of technological progress are higher in the manufacturing sector; (v) in comparison to agriculture and services the linkage and spill-over effects are stronger in the manufacturing sector; and (vi) the demand effects associated with Engel's law diversify demand away from agricultural products towards manufacturing. However, within a given sector, for example, manufacturing, wages can vary widely for a number of reasons.

The efficiency wage hypothesis suggests that the efficient worker may receive a premium to his productivity by the employer. It is profitable for the employer to pay higher than the on-going market wage because the worker's contribution in terms of value added is much more than the extra cost the employer incurs. The basic efficiency wage hypothesis envisages a positive relationship between worker's productivity and wages because the wage that minimizes a firm's labour costs per efficiency unit of labour may not be the wage that clears the labour market. Employers attempts to cut wages in the face of unemployment may be counter-productive (more than proportionate), raising the labour costs. High paying industries

may benefit by reducing labour turnover, leading support to the efficiency wage theories. On the other hand, human capital theory emphasises on returns to improvements in human capital. At times some of the human capital specific variables are unmeasurable and they are often picked up by the industry/sector specific variables, which in turn demolishes the role of sector in forming variation in wages. However, Krueger and Summers (1988) argued that even after controlling for all possible human capital variables wages do vary across industries. Focussing on the role of industry affiliation in explaining relative wages their findings suggest that a worker's industry exerts a substantial impact on his wage even after controlling for human capital variables and a variety of job characteristics. The important variations in wages cannot be explained by standard competitive theories and the findings complement important relationships between firm size and wages (Brown and Medoff, 1985). The existence of large intra-industry wage differences (Groshen, 1986), suggests the importance of developing and testing alternative models of wage determination even if one ignores the role of unions and considers non-union settings. Even after controlling for working conditions the dispersion of wages across industries rises in their study. Krueger and Summers (1988) argued that more profitable industries, those with more monopoly power, and those where labour's share is smaller, pay higher wages.

It is quite possible that compensating differentials, unions, and other factors may account for the inter-industry wage differentials. The compensating differentials argument propagates that agreeable and disagreeable job attributes vary systematically with one's industry of employment, and therefore, require wage differentials to compensate employees for nonwage aspects of the industry. So, it could be argued that the observed industry wage differentials merely represent compensating differentials. It may also be pointed out at this juncture, as argued by Krueger and Summers (1988), that rent sharing explanations are not independent of the efficiency wage theory. First of all, firms may share rents with their work force because failure to do so may lead to non-cooperation of employees - quitting, shirking, or interfering with production - resulting in profit-losses. Second, in an efficiency wage situation rent sharing is less expensive for firms as wage-change has no first order effect on costs. However, the major finding of Krueger and Summers (1988) reinforces that industry wage differentials appear robust and remain unchanged in response to additional competitive and institutional accounts. The efficiency wage hypothesis or compensating differential argument is not adequate to capture these wage variations. Sectors/activities/industries may be characterised by a wide range of variables including size, productivity, employer-specific attributes, location-particulars, trade openness and so on. Hence, it would be erroneous to ignore the effect of these factors in explaining the wage-variations.

The role of unobserved ability suggests that it results in uncertainty as the unobserved quality of the labour force might not be randomly distributed across industries. In other words, high-paying industries might simply be those in which unmeasured labour quality is highest. The findings of Abowd et al. (1999), Goux and Maurin (1999) and Murphy and Topel (1990), bring out the individual fixed effects in explaining a large fraction of estimated inter-industry wage differentials (also see Benito, 2000 and Carruth et al. 2004). However, rent sharing and firm profits-per-employee both appear as explanation of inter-industry wage differences, implying that the efficiency wage hypothesis as well as the one favouring the industry-specific characteristics are relevant (Caju, Rycx and Tojerow, 2009).

In this study we hypothesise that the wages vary between formal and informal sector even after controlling for human capital differences. Besides, wages and earnings vary across nature of employment such as self-employment, regular wage empoyment and casual wage employment. Combinning both the statements, it may mean that the regular wage workers in the informal sector do not earn the same wages as those in the formal sector. And similarly it applies to oter categories of workers across the formal and informal sectors. Analytically, it may be argued that the self-employmed workers in the formal are engaged in more productive activities in comparison to their peer groups in the informal sector. Similarly, the regular wage workers in the formal sector are entitled to several benefits incuding the applicability of minimum wage legislation etc. Even the casual wage earners may be better off in the formal sector as the size of the work that they are engaged in and productivity gains from such work coud be higher. All this is expected to be reflected in the wages.

Returns to skill and educational attainments is a well-established view. With improvements in the levels of skill, employability of an individual progresses. Occupational flexibility is also associated with acquisition of skills, hence, the duration of unemployment and job search cost decline remarkably for an individual with higher levels of skills. The network theory also suggests that networks through which the information on the job market is accessed vary: individuals with greater skills access networks with less redundancy or structural holes. caste and/or community specificities are prevalent too: certain groups/communities subscribe to certain specific channels thus, resulting in variations in group behaviour and diversity in outcome variables. Job market information flow fast and the set of information is large too, which results in better matching between the employer and employee (Elliott, 1999; Ioannides and Loury, 2004 and Montgomery, 1991). With increased bargaining power of the employee because of a large choice set the wage outcomes are better off too (Mitra, 2010).

Nature of networks tend to vary significantly across different ethnic groups. The familial disadvantages for example, in terms of poor parental education, caste and other factors are expected to get dissipated with improvements in educational levels. However, there is a relatively new body of literature which tends to refute such optimism and suggests that in societies where perceptions and prejudices relating to caste are dominant and persistent, the discriminations that certain castes suffer from, remain even after their acquisition of employable skills.

Workers engaged in the lower rungs in the urban sector could be self-employed or wage-dependant or both, and their cost of living is relatively higher (rent, food, transport, etc) than the workers in the rural sector. They are more dependent on market for their daily requirements, unlike the workers in the rural sector, where market dependency for daily requirements is relatively low. In the rural sector, most of the crop producers retain a share of produce for self-consumption, while marginal farmers and agriculture labour are largely dependent on the market for food. Another disadvantage faced by the urban workers is that they have to pay house rent, which is a substantial part of their total expenditure. Moreover, in the rural areas, jobs are mostly located in the close proximity of the workers' residence, unlike the urban areas where workers have to spend time and money on travelling to access the workplace. The absence of public transport or costly transport facility reduces significantly the job opportunities for the urban workers though much of the formal sector is located in the urban spaces. Urban migrant workers face a number of disadvantages which may add up in terms of higher consumption expenditure.

Inadequacies of income from a specific source or risks associated with the present income force households seek for additional sources. Unforeseen contingency associated with the current occupation motivate people to develop coping strategies so that one may adapt to the perceived changes. Once individuals start diversifying, they may experience higher levels incomes and, in certain cases much higher than the amount to meet their subsistence requirements. Such increase in income may change their consumption pattern and may improve the ability to spend on children's education and health. On the other hand, a decline in income may not immediately result in a fall in consumption due to Dusenberry's 'ratchet effect'. Once consumption habits develop, it is difficult to undo those practices. Hence, income shocks have different effects on consumption. Some of the consumption habits are acquired at high-income levels which are irreversible with a fall in income. Hence, while specifying the wage function it is important to include the per capita consumption expenditure of the household that the worker belongs to. Workers with higher consumption per capita may have to strive hard to raise their earnings, which would mean that they may look for jobs in those sectors/types of employment where earnings are higher given all other factors the same. Hence, the job search spans over a wide spectrum, encompassing the sectoral attributes as well as the nature of employment.

3. Data and Descriptive Statistics

This study uses four rounds of nation-wide large sample survey data for India: periodic labour force survey (PLFS), 2017-18, 2028-19, 2019-20 and 2020-21. The unit (household) level data cover certain demographic, educational and employment specific characteristics of each of the members. In order to make a distinction between the formal and the informal sector the definition of National Commission on Enterprises in the Unorganised Sector (2008) has been used: size and the type of enterprise are the two criteria. Informal sector enterprises are those which employ less than 10 workers and are other than the government and public sector enterprises/public limited/private limited companies (like proprietary and partnership etc.). Further, the nature of employment considers those who are self-employed or engaged in own account enterprises and those earning a livelihood from casual wage and regular wage jobs.

Wages and earnings are calculated in the following manner: the wages of the casual workers are reported from the surveys for each of the days in a week. The weekly summation is divided by the number of days to arrive at the average daily wage rate. For the regular wage/salaried employees in current weekly status the wages/earnings are reported during the preceding calendar month. Per day wages have been calculated by dividing the sum by 30. Similarly, the gross earnings during the last 30 days from self-employment are reported in current weekly status, from which the daily earnings are derived by diving the magnitude by 30.

The all-India averages from Table 1 are indicative of the fact that the regular wage workers both in the rural and urban areas earn higher in the formal sector compared to their counterparts in the informal sector. By and large similar patterns are discernible among the self-employed workers with a few exceptional instances of rural females in the formal sector having received lower earnings than in the informal sector. Among the casual wage earners also the formal sector wages are not invariably higher than the informal sector wages. Though the rural male casual workers mostly earned higher wages in the formal sector than in the informal sector, the urban patterns are not the same. Possibly because of the excess supplies of labour in the urban areas and the absence of MGNREGA the formal sector wages turned out to be lower than the informal sector wages in certain instances. However, it would still be important to verify if the

wages vary significantly across sectors and the nature of employment after controlling for other crucial variables.

Table 1: Variation in Wages (in Rupees and in nominal terms) across Sectors and the Nature of Employment

| | Formal | | | | Informal | | | |
| | Rural | | Urban | | Rural | | Urban | |
	Male	Female	Male	Female	Male	Female	Male	Female
Regular 2017-18								
All India Average	605	359	787	675	296	183	392	237
Coefficient of Variation	22.7	65.2	21.8	28.5	23.3	47.1	20.2	27.6
Self-employed 2017-18								
All India Average	533	65	1119	383	297	137.5	508	211
coeff of v	131.6	141.4	33.7	243.2	36.5	40.4	26.5	56.3
Casual 2017-18								
All India Average	268.5	180.5	314	197	257	164	323	197.5
coeff of v	34.5	37.5	21.9	122.5	32.5	46.8	19.4	27.2
Regular 2018-19								
All India Average	580	343	827.5	734	310.5	172	392	252
coeff of v	28	67.1	23.4	27.5	31.5	44.8	16.8	35.1
Self-employed 2018-19								
All India Average	562	119	2509.5	1443.7	313	141	544	224
coeff of v	1256.6	1256.6	1265.7	1266	682.2	189.4	191.5	199
Casual 2018-19								
All India Average	309	178	359	257	280	182	367	225
coeff of v	44.1	45.1	25.9	22.9	37.8	34	28.8	31.8
Regular 2019-20								
All India Average	616	405.9	868	734.6	325.6	198.4	439.5	281.3
coeff of v	32.1	46.7	20	24.1	27.8	55.1	27.5	44.5
Self-employed 2019-20								
All India Average	563	76	1177	387	322.5	158.5	561	244.5
coeff of v	90.4	234.1	40.3	217.8	41.6	59	29.5	96.6
Casual 2019-20								
All India Average	337	202	379	271	297	194	395	258
coeff of v	31.3	48.4	27.8	50.8	46.2	36.5	25	34.2
Regular 2020-21								

All India								
Average	686	389	899	755	328	207	434	256
coeff of v	30.74	67.66	19.32	26.16	24.92	84.85	19.74	38.88
Self-employed 2020-21								
All India								
Average	545	169	1078	735	339	152	546.5	218
coeff of v	66.77	220.32	129.94	104.87	32.96	61.87	23.03	56.69
Casual 2020-21								
All India								
Average	345.5	220	418	308	332	217	427	272
coeff of v	35.81	52.55	28.09	50.77	35.04	37.98	29.62	37.37

Source: Author's calculation from various waves of PLFS data.

4. Estimation of Wage Equation:

In the wage equation we include education, occupational categories and gender, region, age, caste and marital status as the determinants. A standard mincer wage equation would also consider these variables for reflecting on the returns to education. The occupational categories, however, are not exogenous; rather the decision to join a particular sector and type of employment is determined by a number of variables. This endogeneity needs to be dealt with.

In addition to the variables mentioned above consumption expenditure per capita is also used as a determinant in the wage function. Usually, in a standard consumption function income is treated as a determinant but in the wage/earning equation we have consumption expenditure per capita as an instrument for a household's standard of living which motivates the labour market participants to seek earnings that can ensure an envisioned standard of living.

Because of the endogeneity issue, the application of OLS to the wage function may not result in consistent estimates. Hence, based on the occupational choice function we estimate for each worker the probabilities for joining different occupational categories. Based on the largest magnitude we then generate the estimated occupational category of each of the workers. In the next step on the basis of the estimated occupational categories the occupational dummies are formed which are incorporated in the wage/earnings equation. This process may be termed as 2SLS estimates. However, for treating both the occupational choice function and the wage equation as inter-linked we need to verify that the exclusion principle is satisfied, else the identification problem is likely to arise. The wage function excludes religion specific dummies and the household size included in the occupational choice function while the latter does not consider consumption expenditure per capita as a determinant though it is inserted in the wage equation.

Heteroscedasticity is expected, given the wide cross-sectional variations. Therefore, based on the robust standard errors the t-ratios have been calculated corresponding to the OLS and 2SLS estimation. However, the OLS estimates are retained for comparison purposes and for indicating the efficiency gain, if any.

As there are six categories of employment a multinomial logistic function is proposed which is presented below in relation to each of the outcomes:

$$\Pr(Y_i = 1) = \frac{e^{\beta'_1 \cdot X_i}}{1 + \sum_{k=1}^{K-1} e^{\beta'_k \cdot X_i}}$$

$$\cdots\cdots\cdots$$

$$\Pr(Y_i = K - 1) = \frac{e^{\beta'_{K-1} \cdot X_i}}{1 + \sum_{k=1}^{K-1} e^{\beta'_k \cdot X_i}}$$

$$\Pr(Y_i = K) = \frac{1}{1 + \sum_{k=1}^{K-1} e^{\beta'_k \cdot X_i}}$$

K is the comparison category, labelled by 0.

In the multinomial logit model, the identification problem is serious for which the equations for all the categories cannot be estimated. Hence, in order to overcome the identification problem, in one of the categories the coefficients are assumed to be zero, i.e., which is then termed as comparison class. Since there is no rule to fix any category as the comparison class, the estimates of the parameters in other occupational classes change with variation in the selection of the comparison category. But the marginal effects are independent of the selection of the base category. Even for the base category the marginal effects can be calculated though the parameters in the base category are assumed to be zero.

Formulae:

$\delta P_j / \delta X_m = P_j[\beta_m - \Sigma P_i \beta_i]$

where, β_m is the coefficient of X_m in the j th category and β_i is the coefficient of X_m in the ith category where i varies from 1 to K (all the categories).

Needless to add that the coefficients in a multinomial logit framework are not the marginal effects as it happens in a linear regression framework. The marginal effects are calculated separately to be interpreted as the effect of the variables on the probability of different outcomes.

The following are the occupational categories considered in our analysis: informal casual, informal self-employed, informal regular wage, formal casual, formal self-employed and formal regular wage.

Table 2 presents the marginal effects from the occupational choice model estimated on the basis of 2017-18 wave. For the other years the results are supressed for the want of space.

The findings confirm that caste and religion play an important role in determining the selection of sector ad nature of employment. This is indicative of a serious segmentation process being involved in the job market along the lines of caste and religion. Similarly, along the lines of gender job market discriminations exist. While job accessibility improves with age (a proxy

for experience), beyond a limit, certain jobs show a declining accessibility. The crucial variable in the choice of occupation is education. While poor educational attainments reduce the absorption in petty jobs, better human capital formation and skill raise the probability of acquiring regular jobs. However, exceptions are discernible in certain categories: highly educated professionals coexist with petty traders and street vendors within the self-employed category.

Turning to the wage equation in Table 3 we make the following observations. Treating informal casual wage job as the base category, the wages/earnings of the informal self-employed, informal regular wage and formal casual wage workers turn out to be lower. On the other hand, the formal self-employed and the formal regular wage workers earn more in relation to the comparison category (Table 3, 2017-18). These patterns are evident from the OLS estimates. The 2SLS estimates also provide similar patterns though the magnitudes differ widely.

For 2018-19 again, the OLS results are similar to those of 2017-18, though the 2SLS estimates are a bit different: the formal casual workers and the formal self-employed do not earn statistically different magnitude while the formal regular workers' wages are statistically higher than the comparison group (Table 3).

For 2019-20, again, the OLS results are by and large same with those of 2017-18 and 2018-19. However, the 2SLS estimates show higher wages for all the three components within the formal sector though the self-employed and regular wage workers within the informal sector are seen to earn a bit lower than the comparison group.

For 2020-21, the OLS results are quite similar to those for 2019-20. As per the 2SLS estimates the self-employed and the regular wage workers in the informal sector are associated with lesser earnings than the casual workers while all the three categories within the formal sector earn more than the comparison category.

The results do not change substantially over time or across different estimation techniques applied to the wage equation, though the differences in the wages in terms of magnitudes get wider across sector/type of employment. On the whole, evidence is indicative of the presence of sector/type of employment effect on wages even after accounting for other important controls such as human capital, caste background and region. The region dummy (Urban) is statistically significant, indicating that the rural wages are lower than their urban counterparts. Further, the married participants in the job market earn more than the unmarried ones. Possibly the familial onuses oblige individuals to seek better paying jobs which may get actualised through wider networks. Interestingly monthly consumption expenditure per capita turns out to be a significant factor determining the wage rate.

The scheduled caste and the other backward castes (OBCs) are seen to receive lower wages in relation to the comparison group (scheduled tribes) while the general category workers are by and large not associated with lower wages/earnings.

The most important point emerges in relation to the educational attainments. For all the four years and as per both OLS and 2SLS techniques, wages/earnings show improvements in response to higher levels of education. Interestingly, the magnitude of increase with rise in education is more at higher levels of education than at lower levels of education.

Based on these results it may be argued that human capital is no doubt, an important determinant of wage outcomes. With improved human capital the positive returns to education are discernible. However, even after controlling for the human capital variable and other

important determinants the wages are seen to vary significantly across the formal and the informal sectors and types of employment within each of the sectors. The hiring practices, the sector specific norms, the employer-employee relationship and the productivity gains associated with each of the categories considered in our analysis seem to vary widely, and these variations are indeed reflected in the wage outcomes. So, the wage differences cannot simply be reduced through skill formation. Why with regular workers the employers may like to share a greater portion of productivity vis-à-vis the casual workers can possibly be answered in terms of efficiency wage hypothesis. But why wages tend to vary among the casual workers themselves across the formal and the informal sectors will have to be answered going beyond the rent sharing argument. Within the informal sector the own account enterprises and the self-employed workers engaged therein encounter a completely different set of challenges and adopt altered strategies in comparison to the enterprises in which the regular and the casual workers are employed. The limited market size, credit constraints, resource constraints, and many other challenges reduce productivity and earnings in the former. The self-employed individuals in the formal sector, on the other hand, may be those who are highly professional, and are capable of conducting their activities in a highly productive manner. Apparently one will be tempted to argue that these differences are merely due to human capital differences. But our analysis brings out the fact that even after controlling for the human capital, the sectoral differences in terms of earnings are non-negligible. Hypothetically speaking, with similar human capital endowment a self-employed individual in the formal sector can be better-off in comparison to his peer group in the informal sector. This is reflective of differences associated with the sectors of operation. Possibly in one sector the activity which appears to be lucrative is not so in another sector due to differences in accessibility to resources. Or the activity which is pursued by a self-employed worker, given the human capital, in the formal sector is different from the one pursued in the informal sector, which then translates itself in terms of earnings differentials.

Table 2: Marginal Effects from Multinomial Logit Model for Employment Outcome 2017-18
(Dependent Variable = Labour Market Outcomes

Variables	(1) Informal Casual Worker mfx dydx	(2) Informal Self Emp mfx dydx	(3) Informal Regular Worker mfx dydx	(4) Formal Casual Worker mfx dydx	(5) Formal Self Emp mfx dydx	(6) Formal Regular Worker mfx dydx
Gender	0.042***	-0.023***	0.0134***	-0.0044***	0.0015***	-0.0299***
	(0.0023)	(0.0033)	(0.002)	(0.0011)	(0.0003)	(0.002)
Urban	-0.072***	-0.183***	0.153***	0.0015	0.00618***	0.094***
	(0.0023)	(0.0032)	(0.0025)	(0.00098)	(0.00052)	(0.002)
SC	0.097***	-0.161***	0.0451***	0.0158***	0.00049	0.0023
	(0.004)	(0.0053)	(0.0045)	(0.002)	(0.00092)	(0.0028)
OBC	-0.0303***	0.008*	0.0315***	0.0037**	0.00286***	-0.0157***
	(0.003)	(0.0048)	(0.0036)	(0.0015)	(0.0009)	(0.0025)
Others	-0.0867***	0.0507***	0.0478***	-0.0057***	0.0051***	-0.011***
	(0.0033)	(0.0053)	(0.0043)	(0.0015)	(0.00136)	(0.0025)
Hindu	-0.0033	0.0385***	-0.0201***	-0.00024	-0.0011*	-0.0138***
	(0.0045)	(0.0059)	(0.0037)	(0.0019)	(0.00056)	(0.0023)
Muslim	0.0465***	-0.012*	-0.0116***	0.0082***	-0.0015***	-0.0296***
	(0.0063)	(0.0072)	(0.0036)	(0.0028)	(0.0004)	(0.00245)
Primary	-0.0537***	-0.0339***	0.0124***	-0.0013	0.0029***	0.0736***
	(0.0025)	(0.005)	(0.003)	(0.0011)	(0.0009)	(0.005)
Middle	-0.106***	-0.0629***	0.017***	-0.0123***	0.004***	0.16***

	(0.0023)	(0.0054)	(0.003)	(0.00096)	(0.0009)	(0.0059)

Variable						
Sec& Higher Sec	-0.164***	-0.130***	0.0158***	-0.0199***	0.0031***	0.295***
	(0.002)	(0.0061)	(0.0029)	(0.0009)	(0.0008)	(0.007)
Diploma	-0.178***	-0.429***	-0.0292***	-0.0238***	0.00937***	0.650***
	(0.0021)	(0.0092)	(0.0046)	(0.00099)	(0.0027)	(0.0118)
Graduate	-0.217***	-0.334***	-0.0140***	-0.0284***	0.0087***	0.585***
	(0.0017)	(0.0069)	(0.003)	(0.00073)	(0.0017)	(0.0086)
Post Graduate & above	-0.204***	-0.457***	-0.0309***	-0.0296***	0.00668***	0.714***
	(0.0015)	(0.0062)	(0.0034)	(0.00057)	(0.0017)	(0.0081)
Married	-0.0073*	0.0578***	-0.0286***	-0.003*	0.00109***	-0.0204***
	(0.0038)	(0.0049)	(0.0029)	(0.0016)	(0.00038)	(0.0024)
Other Married	0.0542***	-0.0935***	0.0294***	-0.004*	0.00544***	0.0085**
	(0.0068)	(0.0082)	(0.0055)	(0.0021)	(0.0018)	(0.0042)
Age	0.00046	-0.00609***	-0.00097**	-0.00056***	0.00011	0.0071***
	(0.00054)	(0.00071)	(0.00044)	(0.00022)	(6.69e-05)	(0.00038)
Age square	-5.01e-05***	0.00015***	-1.77e-05***	1.01e-06	-8.48e-07	-8.09e-05***
	(6.25e-06)	(8.13e-06)	(5.20e-06)	(2.52e-06)	(7.40e-07)	(4.51e-06)
HH size	-0.0123***	0.0241***	-0.0044***	-0.0023***	0.00016***	-0.0053***
	(0.00053)	(0.00065)	(0.00038)	(0.00022)	(5.07e-05)	(0.00032)

Note: N=150,039, Log pseudolikelihood=-165604.86,   Pseudo R2=0.15

Base category for explanatory variables: Gender = Female; Religion = Other Religion; Social Category= Scheduled Tribes; Marital Status = Unmarried; Education = Illiterate; Continuous Variables = Age, Age Square, Household Size.

Robust Standard Errors (RSE) in parentheses

*** indicates significance at 1 percent level, ** at 5 per cent level and * at 10 per cent level

Table 3: Wages/Earnings Equation Estimated from OLS and 2SLS for 2017-18, 2018-19, 2019-20 and 2020-21

Explanatory Variables	OLS with Occup. Dummies Model 1 (RSE)	2SLS Model 2 (RSE)	OLS with Occup. Dummies Model 1 (RSE)	2SLS Model 2 (RSE)	OLS with Occup. Dummies Model 1 (RSE)	2SLS Model 2 (RSE)	OLS with Occup. Dummies Model 1 (RSE)	2SLS Model 2 (RSE)
Year	2017-18	2017-18	2018-19	2018-19	2019-20	2019-20	2020-21	2020-21
Estimated (Informal Self Employed)		-72.92***		-88.77***		-60.96***		-58.15***
		(2.35)		(17.63)		(4.27)		(4.60)
Estimated (Informal Reg. Worker)		-30.30***		-32.67**		-54.75***		-63.93***
		(3.14)		(15.11)		(5.17)		(4.58)
Estimated (Formal Casual Worker)		-21.60***		-6.862		15.91***		18.32***
		(3.11)		(26.38)		(3.85)		(4.25)
Estimated (Formal Self Employed)		10.23***		-6.501		50.39***		19.98***

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
		(3.06)		(16.97)		(7.40)		(6.06)
Estimated (Formal Reg. Worker)		112.7***		133.0***		69.45***		60.37***
		(6.21)		(36.18)		(11.30)		(5.66)
Informal Self Employed	-33.36***		-68.58***		-67.39***		-114.6***	
	(1.39)		(13.73)		(2.25)		(3.28)	
Informal Reg. Worker	-60.86***		-102.5***		-87.89***		-81.37***	
	(2.17)		(8.52)		(2.86)		(4.37)	
Formal Regular Worker	144.4***		85.06**		161.8***		233.2***	
	(2.93)		(42.19)		(6.506)		(7.35)	
Formal Casual Worker	-17.05***		-6.166		-2.315		-13.78***	
	(2.79)		(5.41)		(3.39)		(3.68)	
Formal Self Employed	234.1***		523.6***		265.2***		262.3***	
	(17.78)		(161.5)		(30.63)		(36.33)	
Gender	157.0***	148.8***	180.4***	170.9***	169.1***	148.1***	198.4***	192.2***
	(2.25)	(2.28)	(7.61)	(11.23)	(2.399)	(2.60)	(2.14)	(2.32)
Urban	29.21***	23.43***	-13.54	-28.24	68.91***	62.89***	106.0***	131.8***
	(1.66)	(2.81)	(41.99)	(45.80)	(5.69)	(8.51)	(4.90)	(8.23)
Schedule Caste	-47.27***	-71.12***	-47.58***	-73.12***	-55.90***	-66.90***	-44.88***	-54.00***
	(2.39)	(2.58)	(2.82)	(4.24)	(2.75)	(3.09)	(2.75)	(2.85)
Other Backward Class	-37.01***	-39.50***	-39.89***	-43.16***	-42.36***	-44.62***	-32.45***	-41.07***
	(2.16)	(2.26)	(2.71)	(4.39)	(2.56)	(2.89)	(2.62)	(3.45)
Others	-8.550***	-3.780	-24.29	-21.24**	0.960	-4.614	11.14***	6.520**
	(2.52)	(2.66)	(16.06)	(10.04)	(3.74)	(3.53)	(2.89)	(3.22)
Primary	13.10***	21.07***	5.935	8.83	15.75***	24.50***	32.65***	37.08***
	(1.67)	(1.72)	(9.67)	(10.45)	(2.26)	(2.60)	(2.12)	(2.34)
Middle	37.49***	58.61***	25.12	41.80**	46.99***	59.05***	68.75***	85.79***
	(1.88)	(2.03)	(18.15)	(16.65)	(2.91)	(3.06)	(2.950)	(3.46)
Secondary & Higher Secondary	67.99***	98.69***	48.58*	77.68***	83.51***	102.8***	108.0***	141.1***
	(2.13)	(2.51)	(26.65)	(20.95)	(3.88)	(4.267)	(3.87)	(4.75)
Diploma	143.4***	199.0***	90.30	134.5**	174.3***	216.8***	224.3***	302.9***
	(8.04)	(9.11)	(64.24)	(61.09)	(12.22)	(14.59)	(12.44)	(15.54)
Graduation	199.2***	251.9***	144.6**	188.7***	264.1***	295.8***	290.4***	360.2***
	(4.02)	(5.36)	(58.69)	(49.95)	(10.00)	(11.21)	(9.26)	(11.78)
Post-Graduation & Above	336.8***	401.5***	257.9**	306.2***	439.3***	482.4***	523.5***	629.7***
	(8.64)	(9.43)	(105.4)	(99.48)	(17.15)	(19.06)	(20.79)	(22.74)
Married	32.94***	38.99***	39.18***	42.30***	46.95***	33.48***	54.10***	42.95***
	(2.88)	(3.02)	(3.30)	(6.7)	(3.34)	(3.99)	(3.21)	(3.23)
Other Marital	62.56***	56.55***	100.0***	79.10***	58.62***	35.56***	61.82***	54.95***
	(4.28)	(4.47)	(25.68)	(20.79)	(5.91)	(6.38)	(5.57)	(5.64)
Age	14.74***	15.29***	14.36***	14.86***	16.52***	16.38***	20.50***	22.33***
	(0.37)	(0.39)	(1.66)	(1.12)	(0.48)	(0.51)	(0.435)	(0.46)
Age square	-0.136***	-0.133***	-0.138***	-0.135***	-0.151***	-0.151***	-0.180***	-0.202***
	(0.004)	(0.004)	(0.013)	(0.013)	(0.005)	(0.006)	(0.0051)	(0.0053)

Monthly per Capita Consumption Expenditure	0.0221***	0.0239***	0.0378***	0.0390***	0.014***	0.0145***	0.0027	0.003
	(0.00031)	(0.0003)	(0.013)	(0.013)	(0.0018)	(0.002)	(0.0019)	(0.002)
Constant	-388.0***	-412.3***	-465.7***	-494.1***	-367.4***	-341.1***	-431.7***	-490.5***
	(7.28)	(7.85)	(39.22)	(76.07)	(11.40)	(13.80)	(15.37)	(17.57)

2017-18, N=126449; Adjusted R^2: Model 1=0.47; Model 2=0.44

2018-19, N=125074, Adjusted R^2: Model 1=0.26; Model 2=0.25

2019-20, N=123505, Adjusted R^2: Model 1=0.38; Model 2=0.35

2020-21, N=148289, Adjusted R^2: Model 1=0.33; Model 2=0.27

Note: Base category for explanatory variables: Occupation Category= Informal casual; Gender = Female; Place of Residence= Rural; Social Category= Scheduled Tribes; Education = Illiterate; Marital Status = Unmarried; Continuous Variables = Age, Age Square, Household MPCE.
Robust Standard Errors (RSE) in parentheses
*** indicates significance at 1 percent level, ** at 5 per cent level and * at 10 per cent level.

5. Conclusion

This paper focuses on the role of the sector and nature of employment in determining wages. If some of the human capital specific variables are unmeasurable, they may be picked up by the industry/sector/employment type specific variables. Employers' attempts to cut (more than proportionate) wages in certain activities, in the face of unemployment, may be counter-productive), as it would raise the labour costs significantly. Therefore, high paying activities may benefit by reducing labour turnover – a view which leads support to the efficiency wage theories. However, after reviewing the literature the paper notes that the efficiency wage hypothesis or compensating differential argument is not adequate to capture these wage variations. Sectors/activities/types of employment may be characterised by a wide range of variables including size, productivity, employer-specific attributes, location-particulars, trade openness and so on. Hence, it would be erroneous to ignore the effect of these factors in explaining the wage-variations. Some of the earlier studies (as mentioned in the text) argued that even after controlling for all possible human capital-oriented variables and other necessary determinants wages/earnings still vary across industries.

Following this line of argument, we hypothesised that the sector and type of employment unravel significant differences in wages/earnings which simply cannot be explained by the human capital variables. In other words, one need to go beyond the efficiency wage framework to explain the earning differentials. Income variations across industries, as considered by the earlier studies, is much easily comprehensible compared to what the present study tries to address. Reflecting on how sector and nature of employment, given other control variables, impinge on wages is much more challenging than the industry-wise variations. Moreover, in pursuing this task we encounter a serious endogeneity problem. The sector and the type of employment that a worker ultimately gets absorbed into, may depend on a wide range of both supply and demand side characteristics. Hence, instead of simply pursuing a Mincer wage function it is important to address the endogeneity problem. So, in the first stage an occupation

choice function, representing sectors and nature of employment, is estimated using a multinomial logit model. In the second stage occupational dummies are generated using the estimated probabilities from the occupational choice function and they are used in the wage/earning functions. Theis sort of an exercise is pursued for four different years using very large samples from the nation-wide surveys conducted by the government department.

The findings, after correcting for the endogeneity, confirm that wages still vary across sectors and types of employment. Human capital is an important determinant of wages/earnings though it is not adequate to explain the variations. Similarly, the caste specific disadvantages cannot be ignored but even after considering the important controls, the wages/earnings show their sensitivity to sector/type of employment. Among the other controls the gender dummy is statistically significant, indicating the occurrence of gender discrimination at various levels. Both within the formal and the informal sectors and, further within each sector across types of employment the gender differences in terms of earnings exist. Besides, a specific type of employment in a given sector may yield higher earnings in the urban areas in comparison to the rural areas. All this would tend to suggest that even within the informal sector which, generally speaking, is considered to be disadvantaged, women could be more vulnerable than the men and the urban areas may decipher greater wage inequality across sector/type of employment instead of leading to convergence. However, turning to the main concern of the paper, evidence is traceable in favour of our hypothesis that the variations in earnings/wages exist across sectors/types of employment exist even after controlling for the important correlates and determinants. So, the sector/type of employment related factors cannot be ignored. These factors may be immeasurable or unperceivable or they are existent through complex processes but the significance of the sector/type of employment fixed effect is brought out through the dummies

This has important policy implications: sector or type of employment with gross disadvantages will have to be brought under the attention of the policy makers. Even with the same human capital endowment, caste background and other characteristics, workers face disadvantages in certain jobs which could be related to recruitment practices, employment clauses, possibilities of exploitation by the contractors, and low levels of productivity associated with the job that the workers pursue.

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