AN ANALYSIS OF POVERTY AND JOB INSECURITY AMONG THE FORMAL AND INFORMAL WORKERS IN INDIAN LABOR MARKET

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ABSTRACT

This paper aims to investigate incidence of poverty and that of job insecurity among formal and informal workers as well as determinants of poverty using 61st and 68th round National Sample Survey data on Employment and Unemployment for 2004-05 and 2011-12 respectively. In order to investigate whether poverty of the worker can be linked with the type of employment (i.e. formal/informal) and availability of written job contracts controlling personal characteristics of the worker we have used logistic regression model. Availability of written job contract has been considered as a proxy of the job security. The novelty of this paper is that here informal workers are identified as those workers who are deprived of any type of social security benefits and incidence of poverty and job insecurity of those workers have been measured. The results show that although incidence of poverty among the informal worker was higher than the formal worker during both the period, but percentages of poor informal workers in both rural and urban area reduced while incidence of poverty among the rural formal workers increased overtime. Besides, job security of both the formal and informal workers increased overtime. Logistic regression results show that compared to the formal workers, informal workers have ninety one percent higher chances of remaining impoverished and workers without written job contract face seventy eight percent higher chances of remaining poverty stricken than those with long term written job contract.

Keywords: Labour market, Poverty, job security, India

JEL classification: J28, I32, O17

1. INTRODUCTION

The period of nineteenth century witnessed economic reforms and along with that experienced increased growth in GNP, significant reduction in the balance of payment deficit and so on (Himanshu, 2008). However, economists and researchers are doubtful enough regarding poverty reduction and increase in economic wellbeing of the workers during this time. Moreover, the most serious criticism against the Indian economic reforms has been that the rate of job creation has not only been very low during this time but also whatever new jobs were created were mostly of very poor working environment along with long working hours, vulnerable working conditions, extremely poor remunerations and above all devoid of any type of social security benefits (Marjit et al., 2007; Naraynan,2015). In short employment opportunity deteriorated to a great extent and there has been significant expansion of informal employment in Indian labour market (Sanyal et al., and Goldar et al., 2010; Goldar et al.,2010). What is much more distressing is informal employment not only enhanced in the informal sector but also in the formal sector. Reduction of formal employment even in the formal sector surely highlights gloomy and perverse picture of Indian labour market. The established and registered enterprises with the objective of withstanding tremendous competition from the external world during the post reform period undertook cost cutting strategies and the immediate consequence was enhancement of "non standard" jobs precisely termed as informal employment. Informally employed workers can be attached with the formal and informal sectors but they are deprived of any type of any type of social security benefits (GOL, 2007; Standing, 1999, ILO)

As it is emphasized by Papola (2008, p.7) that incidence of poverty has been higher among the "working poor" than among the unemployed, these "working poor" are certainly none other than the informal workers. They come from very poor background with little opportunity to acquire skill and efficiency and are forced to accept non standard jobs as they hardly afford to remain unemployed to earn their livelihood. Besides, the job in which they are attached also fetch them very low remuneration. As a result of which they end up leading a worse standard of living and poor quality of life. So, they are forced to stick in vicious cycle of poverty.

Informal workers are not only forced to suffer severe poverty and impoverishment but also they are confronted with tremendous job insecurity in their workplace. Most of the informal workers who hardly get any written job contract at the time of their appointment suffer most from job insecurity. In this paper availability of written job contract has therefore been considered as a proxy of job security.

Here we have tried to investigate the extent of wellbeing of the informal workers by calculating the percentages of the impoverished workers across different educational and technical qualifications and among public and private enterprises both in the rural and urban area during

the post reform period and compared the same with the formal workers. Besides, in order to understand the extent of job insecurity among these workers we have also calculated percentages of workers not receiving any written job contract across different qualifications and enterprises. In order to carry out this analysis we have used household level data from 61st and 68th survey rounds on employment and unemployment survey conducted by National Sample survey office (NSSO). In this paper we have measured poverty according to the estimates provided by the Tendulkar Committee on the basis of monthly per capita consumption expenditure (MPCE) for respective states and also for rural and urban area for the time period 2004-05and 2011-12 respectively.

The rest part of the paper is organized as follows. Section two deals with the relevant available literature that deals with the incidence of poverty and job insecurity of the formal as well as informal workers in Indian labour market. Section three deals with the gaps in the literature and objectives of the paper. Section four describes the econometric methodology used in this paper. Section five provides the results of our paper including the summary estimates of poverty among formal and informal workers as well as the extent of job insecurity among formal and informal workers. Section six interprets the estimated results of the econometric model used in this paper. Section seven summarizes and concludes.

2. BRIEF REVIEW OF LITERATURE

We present some of the relevant literatures highlighting the aspect of poverty status and job insecurity of the formal and informal workers. Although it is true that informal workers are mostly poor and lead a worse standard of living compared to that of the formal workers, various research scholars and economists provide conflicting opinions. In fact there has been difference of opinion among various researchers about the relationship between informalisation of employment and poverty. Some researchers argue that informal workers are more impoverished than the formal workers. Other school of authors argues that the opposite is true. Below, we put forward some of the important literatures which highlight this contradiction.

Sundaram (2008), tried to present estimates of employment in the organized non-agricultural sector in India and found out some employment contracts of the regular wage/salary workers for 1999-2000 and 2004-05 based on the data from 55th to 61st round Employment and Unemployment Surveys. He found out that head count ratio is highest among the unorganized sector workers in comparison to that of the corporate segment of the organized sector who have lowest head count ratio and head count ratio for the non-corporate factory sector workers lie in between the above two sectors of workers. Moreover, Papola (2008) analyzed the employment challenges of Indian labour force and poverty-employment nexus using NSSO surveys of employment and unemployment and consumption expenditure for various rounds. His findings

are incidence of poverty is highest among the casual workers which are followed by self-employed workers. Regular wage earners are the least deprived class. According to Heintz et al. (2007), who analyzed the nexus between quality of employment and poverty for Indian and Chinese economy using NSSO data inferred hat informal workers are much more poverty stricken in comparison to that of the formal and regular salaried employee. In a general equilibrium framework Banerjee (2014) explained that there has been a visible reduction of informal sector wages during liberalized regime which increased the impoverishment of the informal workers without any doubt. Thus all these evidences point out that incidence of poverty is not only very much high among the informal workers in comparison to that of the formal workers but also post reform period witnessed clear increase in poverty and distress of the informal workers.

By contrast, some of the economists are of the opinion that increased informalization in the Indian Economy reduces poverty and deprivation of the informal workers. Post reform period enhanced the employment opportunities for the otherwise unemployed poor people. As a result deprivation of the informal workers reduced during this time (Marjit et al., 2009). In this paper, it is shown theoretically as well as empirically (using 61st round national sample survey data) that trade liberalization in import competitive sector increases informal wage across occupational types and expands production and employment in urban informal sectors only when capital is sufficiently mobile between formal and informal sector and hence reduces head count ration of the urban informal workers. Furthermore, it is also revealed that real wage and value added of the informal sector have also increased in different states during the post reform period which in turn reduces incidence of poverty among the informal workers. Besides, Marjit et al(2007) explained theoretically that informal wages and employment may increase together even without sufficient capital mobility during this time. Marjit (2003) explained in a general equilibrium framework that with increased informalisation of the workforce and reduction of the formal sector hardly cause impoverishment of the informal workers. Rather, informal workers are better off as a result of the increased informalisation of the employment during the post reform period.

Burki et al (1981) explained that in Pakistan economy, informal workers are significantly better off in comparison to that of the government employees. Kazi (1987), also claimed that skilled self-employed workers in the informal sector live a better standard of living in comparison to that of the formal sector workers in Pakistan.

The extent of workers' job insecurity has not been dealt in economic literature to a great extent. However, in Srivastava (2016) we are confronted with job insecurities of workers in terms of availability of written job contracts using NSSO data and found out those percentages of the workers without written job contracts and high job insecurity increased from 2004-05 to 2011-12

in most of the industries. Bhandari et al (2006) using data from a labour survey explained that both productivity related attributes and institutional attributes are responsible for workers' insecurity. Not only has that extent of job insecurity been greater among the permanent workers than contractual workers. According to the daily The Hindu (published on 28th August, 2014), a recent survey concluded that most of the casual workers hardly get any written job contracts. Even more than 60 percent of contractual and regular salaried workers also face the same problem. A sector-wise analysis initiated by recently released report on fifth annual employment unemployment survey(2015-16) shows that percentages of workers with no written job contracts was higher in the urban areas for both regular and contract workers.

Considering incidence of job security among the foreign countries, Manski et al (2000) with primary data concluded that expectation of job loss decreases with experience and education. Self-employed workers face lower job insecurity than those working for others. Campbell et al (2007) with primary data said that job insecurity is significantly associated with lower level of wage growth for men but hardly have significant link with wage growth for women.

3. RESEARCH GAP AND OBJECTIVE OF THE STUDY

The literature mentioned above clearly unfolds some of the interesting research gaps. These gaps in the literature are mentioned below-----

i) There has been a clear contradiction of opinion among the researchers and policy makers about the incidence of poverty among the formal as well as informal workers.

ii) Besides, none of the literature has made any attempt to find out the incidence of poverty among those informal workers who are deprived of any type of social security benefits

iii) Not only that, the literature mentioned above hardly captures changes in absolute and relative poverty among informal workers across several types of enterprises, general and technical qualification both in rural and urban areas.

iv) Not only that, the literatures mentioned above hardly provide a suitable econometric analysis showing important determining factors of poverty. There is only an exception in the Marjit et al. (2007) paper where econometric exercise   have been carried out. Though this paper attempts to find out the determinants of informal wage and not the determinants of poverty.

v) Apart from that, the concept of job stability and job security among the formal and informal workers across major dimensions in India have been almost untouched in the econometric literature to a great extent so far.

This paper is expected to fill up these gaps in the literature. We have also examined the effects of different household specific factors and personal characteristics on poverty in probabilistic sense. After estimating the logistic regression model, we are trying to investigate the determinants of poverty. We hypothesize that incidence of poverty has been higher among the informal workers and the workers suffering from job insecurity. Besides, we hypothesize that incidence of poverty declines with the increase in workers' qualification, experience. Moreover, incidence of poverty is higher among female workers as compared to male workers. Scheduled tribes and the Muslim workers are the most deprived social religions and groups respectively.

4. DATA AND METHODOLOGY

In this paper, we have used 61st and 68th rounds of Employment Unemployment data of National Sample Survey Organization for the period of 2004-05 and 2011-12 respectively.

This paper estimates the impacts of the major household specific and personal characteristics of the workers on the probability of an individual to be poor by using logistic regression model. In this paper we have used logistic regression model because the dependent variable is qualitative in nature and unobserved. We have created an unobserved binary variable based on the nature of the latent variable. Here y_i^* is the dependant variable which is taking binary values 0 and 1. 0 indicates that the person is non-poor while 1 indicates that the person is poor where non-poor people are identified as those individuals whose MPCE is higher than poverty line and that of the poor is below the poverty line.

We have taken worker's education level (x_1), experience (x_2), technical knowhow (x_3), informal workers(x_4), insecured workers (x_5) enterprise type (x_6) along with social groups (x_7), social religion (x_8),gender (x_9), time i.e. year (x_{10}) are the explanatory variables. These variables are qualitative in nature and so we have created dummy variables for each of these characteristics. Apart from that, another important independent variable is age of the worker. Considering a non-linear relationship between age and poverty of the worker we, have taken square of age as another important explanatory variable. Besides, we have also undertaken some of the important interaction dummy variables in order to understand how much incidence of poverty changes overtime among Muslims, scheduled tribes, postgraduates, females and government employees. We have as well considered interaction dummy variable in order to understand how much incidence of poverty changes among female schedule caste workers and female postgraduate workers.

We have constructed six dummies for each of the educational qualifications. Our aim is to find out whether the probability of a worker being poor is higher among each type of educational qualifications with reference to graduates and diploma holders. Separate dummies are as well

created for technically educated workers. We want to examine whether the concentration of poor is lower among the technically educated workers in comparison to that of the technically uneducated workers. Again separate dummy variables are also created for different types of enterprises and thus in this paper, it is investigated whether the probability of being poor among each of the enterprises is lower as compared to the government employees which is the reference group. In the same way separate dummy variables are created for different social groups and social religions. While the former has a reference group of general group of workers, the reference group of the latter is "Hindus". Moreover, in this paper we have also investigated whether women workers have higher poverty possibility compared to men or not. In addition, another important explanatory variable is informal workers and insecured workers where formal workers and secured workers respectively are the reference group. We want to examine whether, informal workers have larger extent of poverty as distinguished from the formal workers. Not only that we have also constructed year dummy in order to understand how much incidence of poverty among different dimensions changes with time. Furthermore, interaction dummies are used to see how the poverty of these variables change with time . Apart from that, chances of being poor among the postgraduate female and scheduled caste females are also understood with the interaction dummy.

The following model is estimated separately for rural and urban area.

$$y_i^* = \alpha_0 + \sum_{j=1}^{6} \alpha_j x_{1ij} + \beta_1 x_{2i} + \beta_2 x_{2i}^2 + \gamma x_{3i} + \Psi x_{4i} + \xi x_{5i}$$

$$+ \sum_{k=1}^{6} \theta_{ki} x_{6ki} + \sum_{l=1}^{3} \phi_l x_{7il} + \sum_{m=1}^{3} \delta_m x_{8im} + \pi x_{9i} + \mu x_{10i} + \tau_1 x_{8im} x_{10i}$$

$$+ \tau_2 x_{7im} x_{10i} + \tau_3 x_{7im} x_{9i} + \tau_4 x_{9i} x_{10i} + \tau_5 x_{1ij} x_{10i} + \tau_6 x_{6ki} x_{10i} + \tau_7 x_{1ij} x_{9i}$$

$$+ u_i \qquad (1)$$

In a binary response model, interest lies primarily in the response probability

$$P_i = P(y_i = 1) = P(y_i^* > 0) = P\left(u_i > -\left(\beta_0 + \sum_{j=1}^{k} \beta_j x_{ji}\right)\right) = 1 - P\left(u_i \le -\left(\beta_0 + \sum_{j=1}^{k} \beta_j x_{ji}\right)\right)$$

$$P_i = 1 - F\left(-\left(\beta_0 + \sum_{j=1}^{k} \beta_j x_{ji}\right)\right) = 1 - F(-z_i)$$

Here, $z_i = \beta_0 + \sum_{j=1}^{k} \beta_j x_{ji}$ and F is the cumulative distribution function of u. If the distribution of

u is symmetric,

$1 - F(-z_i) = F(z_i)$

Therefore,

$$P_i = F\left(\beta_0 + \sum_{j=1}^{k} \beta_j x_{ji} \right) = F(z_i) \qquad (2)$$

F is a function taking on values strictly between zero and one: $0 \leq F(z) \leq 1$, for all real numbers z. This ensures that the estimated response probabilities are strictly between zero and one. Various nonlinear functions have been suggested for the function F in order to make sure that the probabilities are between zero and one.

The functional form for F in (2.4) will depend on the assumption made about the error term u. If the cumulative distribution of u, is logistic we have what is known as the logit model. In this case

$$F(z_i) = \frac{\exp(z_i)}{1 + \exp(z_i)} \qquad (3)$$

$$\log\left(\frac{F(z_i)}{1 - F(z_i)} \right) = z_i \qquad (4)$$

$$\log\left(\frac{P_i}{1 - P_i} \right) = \beta_0 + \sum_{j=1}^{k} \beta_j x_{ji} \qquad (5)$$

The left-hand side of this equation is called the log-odds ratio. Thus the log-odds ratio is a linear function of the explanatory variables.

5. RESULTS

Poverty estimates among formal and informal workers (without any type of social security benefit)

We have calculated percentages of poor formal and informal workers across different educational qualifications, social groups and social religions. Moreover, we make a comparative

analysis of the incidence of poverty among formal and informal worker across rural and urban area. Here poverty is measured according to MPCE, i.e., individuals whose MPCE is lower than the Tendulkar committee prescribed poverty line MPCE for respective states are treated as poor in case of both and urban area.

5.1 Poverty status of the formal and informal workers

Table 1 displays the percentages of poor workers with formal and informal employment both in rural and urban area during 2004-05 and 2011-12. Concentration of poor people among the formal employment has been undoubtedly much lower than the informal employment both in the rural and urban area. Since rural area provides lesser employment opportunities, rural poverty is higher than urban poverty for both the formal as well as informal employment. Poverty percentages have reduced in the urban area over the years for all types of employment. This is undoubtedly due to rapid urbanisation and growing income opportunities in this area. Besides, Swarna Jayanti Shahari Rozgar Yojana (SJSRY) as well as National Urban Employment Guarantee Scheme have played a lot in generating suitable employment opportunities in the urban area. On the other hand, rural area have not improved in alleviating poverty the way urban area did. The reason is that incidence of poverty for all the workers have not equally reduced in the rural area. More specifically, percentages of poor workers in the informal employment reduced in the rural area while that of the rural formal workers increased. Though this result seems paradoxical however the fact is that lack of potential employment opportunities and extremely poor remuneration in the rural area causes formal workers' indigence to increase overtime. The reason is that there has been higher increase in food prices compared to the rural wage rates. As a result, real wage rate experienced a rapid decline. By contrast, informal workers in this location got the advantages of various government policies such as 100 days work, Mahatma Gandhi National Rural Employment Scheme and so on . So, they could improve their standard of living overtime. However, formal workers could hardly grasp this opportunity because these types of government policies mostly helped the unskilled and informal workers. It is therefore interesting to note that informal workers only got the advantage of these policies while formal workers could not.

Table 1: Percentages of poor workers in the formal and informal sectors both in rural and urban area

Types of workers	2004-05		2011-12	
	RURAL	URBAN	RURAL	URBAN
Formal Workers	10.47	6.27	14.9	3.58
Informal Workers	42.45	34.69	30.38	17.97

Source: Author's own calculation from NSS 61st and 68th round unit level data

5.2 Poverty status of formal and informal workers across public and private sectors in the rural and urban area

It is no surprise that there have been higher percentages of poor workers in the informal employment than in the formal employment for both the public and private enterprises. However, comparing incidence of poverty among the public and private enterprises, figures in table 2 indicate that percentages of poor workers have been slightly higher among the public enterprises than among the private enterprises. During the post reform period, public enterprises had started employing mostly casual workers These casual and contractual workers received very low wages and they were also deprived of any type of social security benefits. In other words, public workers mostly employed informal workers. On the contrary, the period of new economic reforms witnessed greater privatization and liberalization which not only helped to build up modern private enterprises but also created sufficient lucrative employment opportunities for the youth . Thus, during the post reform period economic condition of the public sector workers have even been worse off than that of private sector workers. However, incidence of poverty have reduced from the period 2004-05 to 2011-12 for all the workers excepting the rural formal workers. This impact has been consistent among both the public and private enterprises.

Table 2: Percentages of poor formal and informal workers across public and private sectors both in rural and urban area

Types of workers	2004-05		2011-12	
PUBLIC SECTOR	**RURAL**	**URBAN**	**RURAL**	**URBAN**
Formal Workers	8.69	5.69	10.63	2.26
Informal Workers	34.81	24.27	31.89	17
PRIVATE SECTOR	**RURAL**	**URBAN**	**RURAL**	**URBAN**
Formal Workers	7.69	5.17	10.8	2.08
Informal Workers	32.24	21.36	20.75	7.9

Source: Author's own calculation from NSS 61st and 68th round unit level data

5.3 Poverty status of formal and informal workers with different levels of education in the rural and urban area

Table 3 highlights that the economic status of the workers not only depend on the attachment in the formal or informal jobs, but also on the skill and efficiency of the workers. Undoubtedly, workers' skill and efficiency is positively correlated with the educational qualifications of the workers but there has been a clear mismatch between incidence of poverty between the formal workers and informal workers with same educational attainment. Moreover, this trend has been same among the illiterate workers, lower qualified workers and even highly qualified workers.

Table 3: Percentage of poor formal and informal workers and levels of education in the rural and urban area

Types of workers	2004-05		2011-12	
ILLITERATE	**RURAL**	**URBAN**	**RURAL**	**URBAN**
Formal Workers	30.24	29.17	37.14	19.37
Informal Workers	54.59	54.06	36.06	31.24
LOW EDUCATION	**RURAL**	**URBAN**	**RURAL**	**URBAN**
Formal Workers	12.14	9.47	16.36	6.66
Informal Workers	37.93	32.67	28.41	16.91
HIGH EDUCATION	**RURAL**	**URBAN**	**RURAL**	**URBAN**
Formal Workers	4.22	1.61	4.63	0.69
Informal Workers	12.31	8.37	11.31	4.48

Source: Author's own calculation from NSS 61st and 68th round unit level data

5.4 Poverty status of formal and informal workers with and without technical education in the rural and urban area

Needless to that there has been much lesser incidence of poverty among the technologically efficient workers compared to that of the technologically illiterate workers. However, among the technologically efficient workers in the rural area who have hardly managed to get formal employment have strikingly higher concentration of poor people compared to the formal workers. There has been lack of up gradation in the remote villages an hence cannot provide sufficient employment opportunities for the technologically sound skilled workers, though incidence of poverty among these workers have declined significantly overtime. Besides, there has been more than four times enhancement of poverty stricken informal workers overtime in the urban area.

Table 4: Percentage of poor formal and informal workers with and without technical education in the rural and urban area

Types of workers	2004-05			2011-12
NO TECHNICAL EDUCATION	**RURAL**	**URBAN**	**RURAL**	**URBAN**
Formal Workers	11.69	7.51	16.17	4.46
Informal Workers	43.12	35.85	30.69	18.59
TECHNICAL EDUCATION	**RURAL**	**URBAN**	**RURAL**	**URBAN**
Formal Workers	0.01	0	0	0.57
Informal Workers	40.23	0.72	**3.17**	**4.1**

Source: Author's own calculation from NSS 61st and 68th round unit level data

Estimates of job security among formal and informal workers (workers with and without written job contracts)

Job security of the workers have been estimated by calculating percentages of workers with and without written job contract across educational attainment, technical qualification and enterprises in which the worker is employed. Workers hardly getting any written job contract prior to appointment mostly suffer from insecurity. On the other hand workers getting long term written job contracts (more than 3 years) are much more better off in their workplace. Short term written job contract from 1 year to less than 2 year, 1 year to 3 year provide at least some security and stability to the workers.

5.5 Job security among formal and informal workers

Table 5 displays percentages of workers with and without written job contracts among the formal and informal workers across all the sectors. Besides, this table as well highlights that whether gender biasedness at all exists in this labour market or not. It is true that compared to that of the informal workers, formal workers are mostly employed in a secured job with long term written job contract. However, the surprising part is that a large part of the formal workers also hardly get any written job contract and thus suffers from job insecurity (though not as large as that of the informal workers) . This is true both for male and female workers. Besides, it is not at all surprising to find out that male workers suffer from greater job insecurity than that of the female workers. Women in India mostly lead a conservative lifestyle . So, in most cases they are not the breadwinners of their family. So, they work only when they feel safe and secured in their workplace with proper written job contract. However, there are off course some exceptions. For instance, during 2011-12, there has been higher percentage of female workers without any written job contract than the males. However, both male and female workers faced declined job security over time during post reform period.

Table 5: Percentages of workers by types of job contracts among the males and female workers in India

Types of workers	2004-05		2011-12	
Type of job contract among formal workers	**MALE WORKERS**	**FEMALE WORKERS**	**MALE WORKERS**	**FEMALE WORKERS**
No written contract	27.01	25.82	34.81	38.56
Written job contract for 1 year or less	1.43	1.63	2.99	3.60
Written job contract for 1 year to 3 year	2.16	2.84	3.19	3.75
More than 3 year	69.41	69.71	59.00	54.09
Type of job contract among informal workers				
No written contract	94.21	90.70	92.86	88.44
Written job contract for 1 year or less	1.58	1.84	3.24	6.27
Written job contract for 1 year to 3 year	1.00	1.62	1.08	0.77
More than 3 year	3.22	5.85	2.82	4.53

Source: Author's own calculation from NSS 61st and 68th round unit level data

5.6 Job security among formal and informal workers in the public and private sectors

Table 6 highlights incidence of poverty among the formal and informal workers working in different enterprises. As it is well known that public enterprises, private enterprises as well as co-operative enterprises are formal sectors while the rest two are considered as informal data. Therefore, workers in the informal sectors suffer considerably higher level of insecurity. Not only that, incidence of job insecurity increased irrespective of formal and informal employment as well as formal and informal sectors. However, it is also observed that during the former time

period informally employed people working in the public and private sectors have lesser incidence of job insecurity compared to the formal workers in the informal sectors. During the latter time period, informal workers in the informal workers are the least secured workers.

Table 6: Percentages of workers by types of job contracts across different types of enterprises in India

Formal Workers for 2004-05	Public Enterprise	Private Enterprise	Co-operative Agencies	Partnership Enterprises	Proprietary Enterprises
No written job contract	20.35	31.9	20.17	46.5	51.87
Written ob contract for 1 year or less	0.56	3.82	1.58	2.3	2.99
Written ob contract for 1 to 3 year	0.59	4.89	5.16	6.6	6.46
More than 3 year	78.49	59.39	73.09	44.6	38.69
Formal Workers for 2011-12	Public Enterprise	Private Enterprise	Co-operative Agencies	Partnership Enterprises	Proprietary Enterprises
No written job contract	27.82	43.18	32.39	43.87	61.74
Written ob contract for 1 year or less	0.93	4.34	3.91	3.56	7.49
Written ob contract for 1 to 3 year	0.85	5.75	3.7	12.24	5.33
More than 3 year	70.4	46.72	60	40.32	25.45
Informal Workers for 2004-05	Public Enterprise	Private Enterprise	Co-operative Agencies	Partnership Enterprises	Proprietary Enterprises
No written job contract	52.06	84.82	70.34	91.87	97.16
Written ob contract for 1 year or less	10.15	3.7	3.91	1.79	0.9
Written ob contract for 1 to 3 year	6.63	2.48	7	1.54	0.47
More than 3 year	31.16	8.99	18.74	4.8	1.48
Informal Workers for 2011-12	Public Enterprise	Private Enterprise	Co-operative Agencies	Partnership Enterprises	Proprietary Enterprises
No written job contract	74.62	82.31	76.02	94.05	97.13
Written ob contract for 1 year or less	12.62	5.35	6.69	1.88	1.24
Written ob contract for 1 to 3 year	1.78	3.44	2.76	1.88	0.47
More than 3 year	10.98	8.91	14.53	2.19	1.15

Source: Author's own calculation from NSS 61st and 68th round unit level data

5.7 Job security among formal and informal workers with different levels of education in the rural and urban area

Just like the incidence of poverty, incidence of job security is also positive related to that of levels of qualification as well as type of employment. More specifically, there has been lesser concentration of highly qualified workers without any formal employment getting longer term written job contract compared to the illiterate and just literate formal workers. Thus it can hardly be denied that informal workers are highly discriminated against the formal workers. Apart from that the problem of workers' job satisfaction is much more serious than that of the incidence of poverty. This is because incidence of poverty declines overtime but that of job security is increasing overtime. Thus table 7 highlights the gloomy picture of Indian labour market during post reform period.

Table 7: Percentages of workers by types of job contracts and levels of education in the India

Formal Workers for 2004-05				
	Illiterate	**Secondary**	**Graduate**	**Postgraduate**
No written job contract	42	25.85	23.96	22.37
Written ob contract for 1 year or less	2.68	1.43	1.58	1.01
Written ob contract for 1 to 3 year	0.82	2.43	2.76	2.8
More than 3 year	54.5	70.29	71.71	73.82
Formal Workers for 2011-12				
	Illiterate	**Secondary**	**Graduate**	**Postgraduate**
No written job contract	55.79	35.24	31.77	27.06
Written ob contract for 1 year or less	3.46	3.18	3.41	2.35
Written ob contract for 1 to 3 year	1.23	3.58	4.06	4.11
More than 3 year	39.52	57.99	60.76	66.49
Informal Workers for 2004-05				
	Illiterate	**Secondary**	**Graduate**	**Postgraduate**
No written job contract	97.85	88.21	72.74	61.95
Written ob contract for 1 year or less	0.6	3.21	7.16	7.11
Written ob contract for 1 to 3 year	0.32	1.75	3.83	12.55
More than 3 year	1.22	7	16.27	18.39
Informal Workers for 2011-12				
	Illiterate	**Secondary**	**Graduate**	**Postgraduate**
No written job contract	94.23	90.44	76	67.08
Written ob contract for 1 year or less	3.95	3.79	8.08	8.28
Written ob contract for 1 to 3 year	0.2	1.16	3.97	7.93

| More than 3 year | 1.62 | 4.6 | 12.14 | 16.71 |

Source: Author's own calculation from NSS 61st and 68th round unit level data

5.8 Job security among formal and informal workers with and without technical education in the rural and urban area

Table 8 shows that compared to the formal workers, informal workers with and without written job contract mostly work without any written job contract. Besides, incidence of discrepancy regarding the job security of the formal and informal workers is seen during both the time period. Moreover, this discrimination have enhanced further overtime. Among the technologically illiterate informal workers, percentages of workers without written job contract have slightly reduced overtime while among the technically proficient informal this concentration have enormously increased overtime. In all other cases, percentages of workers without written job contract have increased and that working with long term written job contracts have reduced from 2004-05 to 2011-12.

Table 8: Percentages of workers by types of job contracts with and without technical education in India

Formal Workers	2004-05		2011-12	
	No Technical Education	With Technical Education	No Technical Education	With Technical Education
No written job contract	28.25	22.72	35.5	30.81
Written ob contract for 1 year or less	1.25	2.7	2.67	5.3
Written ob contract for 1 to 3 year	1.96	4.65	2.91	7
More than 3 year	68.54	69.93	58.92	57.22
Informal Workers	2004-05		2011-12	
	No Technical Education	With Technical Education	No Technical Education	With Technical Education
No written job contract	94.19	47.69	92.32	60.56
Written ob contract for 1 year or less	1.43	11.17	3.79	13
Written ob contract for 1 to 3 year	0.94	15.93	0.9	8.38
More than 3 year	3.45	25.21	2.98	18.07

Source: Author's own calculation from NSS 61st and 68th round unit level data

6. DISCUSSION ON DETERMINANTS OF POVERTY: ESTIMATES USING LOGISTIC REGRESSION MODEL

The estimated results of the logistic regression model explaining the determinants of workers' poverty has been highlighted in table 9. As the value of the coefficients is meaningless in a logistic regression model, so marginal effects are as well found out. Similar to our hypothesis, there has been lowest chance of being poverty stricken among the highly qualified and technically proficient workers. This is true for both rural and urban area. On the other hand, contrary to what has been hypothesized, in spite of the rise in workers' experience, the possibility of the workers to remain poor enhances significantly in the rural area while in the urban area, this result is insignificant. Compared to that of the male workers, incidence of poverty has been significantly lower among the females in the rural area while in the urban area this result has been opposite. Besides, similar to our hypothesis, incidence of poverty has been higher among the informal workers and the workers hardly getting any written job contracts (workers suffering from job insecurity) compared to that of the formal workers and secured workers respectively. However, the chance of remaining poor among the informal workers who are not secured enough in their jobs are declining significantly overtime in both the rural and urban area.

Moreover, incidence of poverty has reduced significantly from the time period of 2004-05 to 2011-12 for both the rural and urban area. Besides, scheduled tribes and Muslims have the highest chances of being the most deprived social groups and religions respectively. In the rural area, probability of remaining impoverished among the government workers increase significantly overtime. On the contrary, incidence of poverty among the postgraduate females and scheduled caste female is declined significantly overtime in the urban area. While, chance of remaining poor among the scheduled tribes workers are increased but that of Muslim workers are decreased significantly overtime. Apart from that incidence of poverty among the highly insecuried informal workers is also reduced overtime.

Table 9: Determinants of poverty: Estimated results of logistic regression model for poverty

Workers' characteristics	RURAL AREA		URBAN AREA	
	Coefficient	Marginal effects	Coefficient	Marginal effects
Constant	-3.37***	__	-4.23***	__
Educational qualification: Reference group is highly qualified workers				
Illiterate	1.39***	0.30	1.99***	0.30
Low qualified workers	0.92***	0.17	1.23***	0.11
Technical education: Reference group is technically illiterate workers				
Technically educated workers	-0.56995***	-0.10	-0.43***	-0.03
Enterprise type: Reference group is government employees				
Proprietary enterprise	0.12	-0.10	0.33**	0.03
Partnership enterprise	-0.01	-0.10	-0.02	0.00
Private enterprise	-0.25*	-0.10	-0.15	-0.01
Co-operative enterprise	-0.10	-0.10	0.12	0.01
Employers' household	0.41***	-0.10	0.02	0.00
Other enterprises	0.47***	-0.10	1.00***	0.13
Age	0.03***	0.10	0.01	0.00
Age square	0.00***	-0.10	0.00*	0.00
Social group: Reference group is general workers				
Scheduled tribe	1.14***	0.26	1.06***	0.14
Scheduled caste	0.72***	0.15	1.13***	0.14
Other backward classes	0.32***	0.06	0.43***	0.04
Sex : Reference group is male workers				
Female	-0.03***	-0.01	0.23***	0.02
Year	-0.54***	-0.11	-0.88***	-0.08
Religion: Reference group is Hindu workers				
Muslim	0.34***	0.07	1.02***	0.12
Christian	-0.52***	-0.09	-0.58***	-0.04
Others religion	-0.28*	-0.05	0.24*	0.02
Employment type: Reference group is formal worker				
Informal workers	0.91***	0.16	1.08***	0.09
Job Security: Reference group is workers with job security				
Highly insecured workers	0.78***	0.14	0.59***	0.05
Interaction dummies				
Muslim and year	0.00	0.00	-0.32***	-0.03
Scheduled tribe and year	0.14	0.03	0.27*	0.03

Female and year	-0.12	-0.02	-0.12	-0.01
Postgraduate and year	0.03	0.01	-0.47	-0.04
Government and year	0.19*	0.04	0.11	0.01
Scheduled caste and female	0.00	0.00	-0.35***	-0.03
Postgraduate and female	-0.58	-0.10	-1.65***	-0.08
Informal workers with no job security	-0.50***	-0.11	-0.36*	-0.03

Source: Author's own calculation from NSS 61st and 68th round unit level data

Notes:

- ✓ All above mentioned variables are the explanatory variables. Dependant variable is poverty of the employee.
- ✓ Number of observations (in the rural area) :60,339 . Pseudo R^2 : 0.09
- ✓ Number of observations (in the urban area) ,: 66,512. Pseudo R^2 : 0.21
- ✓ Marginal effect is the discrete change of dummy variable from 0 to 1.

8. CONCLUSION

There has been greater impoverishment and poverty in the rural area compared to that of the urban area due to the absence of lucrative employment opportunities in this location. Though percentage of poverty stricken workers are reduced considerably overtime, incidence of poverty among the formal workers in the rural area have increased over the period 2004-05 to 2011-12. This is true across all dimensions. Rural area provides little employment opportunities. So, formal workers in the rural area face increase in impoverishment overtime. On the other hand, incidence of poverty among the informal workers in the rural area is reduced overtime. The reason is that the latter is not attached to a single employer and take all the advantages of various rural developing government policies making their total income higher than that of the formal workers.

It is obvious that formal workers are better off than the informal workers. Besides, it is as well observed that those workers who have higher chances of leading a tremendous indigent life also suffer from job insecurity. However, the good news is that incidence of poverty among the informal workers without job security is significantly lower than the formal worker with long term contracts. Needless to say that the economic condition of the formal workers and the workers with written job contracts are better off in comparison to that of the informal workers and workers without written job contracts respectively.

Unlike incidence of poverty, incidence of job security is increasing overtime. Besides, concentration of poor people among the informal employment has been higher than that of the formal employment. Besides, increase in educational qualification reduces the chance of remaining poor . Nevertheless, it is found that economic condition and job security of even

similar educated workers are different depending on the formal employment and informal employment.

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