Working Paper 363

Informal Employment in India: An Analysis of Forms and Determinants

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ISBN 978-81-7791-219-7

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INFORMAL EMPLOYMENT IN INDIA:
AN ANALYSIS OF FORMS AND DETERMINANTS

Rosa Abraham*

Abstract

This paper disaggregates informal employment into different forms, with particular focus on the growing informalisation of the labour force by formal enterprises. The analysis of the determinants of forms of informal employment moves beyond the standard binary approach to informal employment and uses a multinomial probit model with correction for sample selection bias. The results reveal a clear distinction amongst the workers in different types of informal employment. The informally employed in informal enterprises and the self-employed were generally the relatively young and uneducated. However, the more recent form of informal employment, i.e., the informal employment in formal enterprises, is comprised of relatively older and well-educated individuals. The results challenge conventional notions of the informal labour force as being comprised of the very old or very young, illiterate or under-educated individuals. We find, for instance, that a young graduate was far more likely to be engaged informally in formal enterprises, rather than formally. The results provide a direction for policy to supplement education reform with reform of employment conditions.

Introduction

The informally employed constitute an overwhelming majority of the workforce in India accounting for between 70 to 90 per cent of the labour force depending on the definition used (NSSO, Government of India, 2011). Identified by the lack of social security benefits attached to their employment, these jobs occur in different guises and forms. Traditionally seen as a temporary phenomenon, undertaken due to surplus labour and/or stagnant economy, this form of employment was expected to disappear over the course of a country's development (Harris & Todaro, 1970; Lewis, 1954). These conventional models would then describe the informally employed as being the very young, or very old, who are illiterate or undereducated, with minimal training/skills (Hart, 1973) and lack access to the formal market.

However, the persistence of this form of employment despite economic growth has given rise to alternative conceptualisations. Some theorise that the informal economy is intrinsically linked to the formal and hence grows in tandem ('structuralists') through subcontracting and outsourcing arrangements (Ghose & Chandrasekhar, 2015; Unni & Naik, 2013) while others opine that participation in the informal economy may be voluntary because the benefits of informal employment outweigh those of the formal employment ('voluntarists') (Amuedo-Dorantes, 2004; Günther & Launov, 2012; Maloney, 2003). In such cases, the informally employed may be highly educated, skilled professionals working independently in non-formal employment arrangements. Indeed, in recent years, more 'hybrid'

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This paper is based on the author's ongoing doctoral dissertation at ISEC under the ICSSR Institutional Doctoral Fellowship scheme. The author is very grateful to her supervisor Prof M R Narayana for his guidance and valuable suggestions. Thanks are also due to the anonymous reviewer for their comments and suggestions. However, the usual disclaimers apply.

conceptualisations have emerged which suggest that all of these motivations may simultaneously operate in the informal economy (Fields, 2004; Maloney, 2004).

This paper investigates these possibilities within the informal labour market in India. Aggregating all of these varieties of informal employment to a single statistic as is often done, overlooks its varied manifestations and motivations. Here, the major employment types as distinguished in this paper include the formally employed, the informal workers in informal enterprises, the informal workers in formal enterprises and the self-employed. In the context of the growing informalisation of the labour force by the formal sector through subcontracting and outsourcing arrangements, such a disaggregation provides a unique insight into the nature of the workers engaged thus and if and how they are different from their counterparts in the informal enterprises.

Having disaggregated informal employment into its forms, the analysis proceeds to throw light on the nature of these distinct forms of employment and the implications of the growing informalisation of the labour force. The results of the econometric analysis challenge the conventional understanding of informal employment. There is a considerable difference in the forms of informality in terms of the nature of individuals engaged in them. Highly educated individuals, men and women, were increasingly likely to be employed informally particularly in formal enterprises. The analysis throws light on how human capital, particularly educational attainment and socio-economic factors influence the nature of employment that an individual is engaged in. Education is expected to further an individual's advantages in the labour market with more favourable jobs. This assumption is empirically examined to see whether educational attainment has indeed provided individuals with greater bargaining power to secure better jobs with basic security.

The next section provides an overview of the trends in informal employment types, across rural and urban India. Section 3 describes the methodology used for the econometric analysis. Section 4 provides the estimation results and Section 5 comprises the conclusions.

Trends in Informal Employment, 1999-2000 to 2011-`12

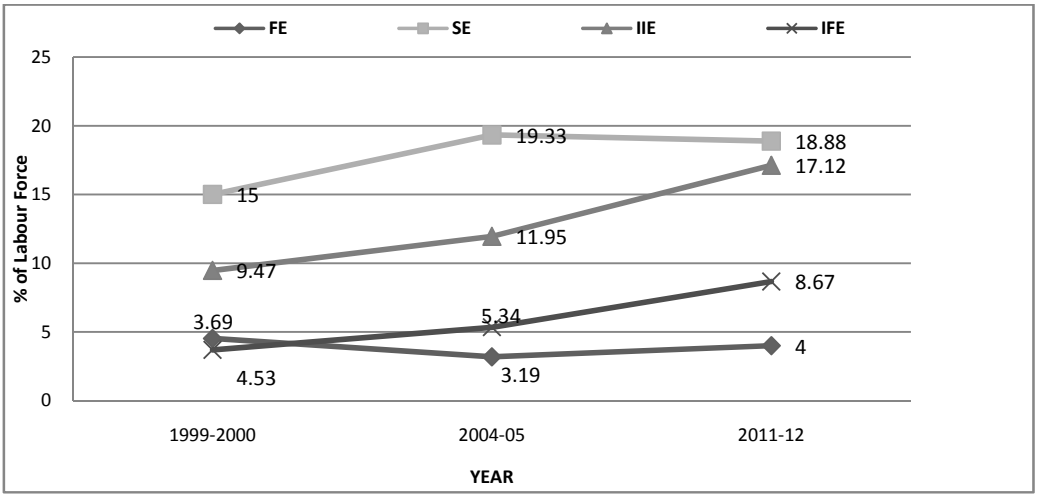
Informal employment comprises individuals "... working in the unorganised enterprises or households, excluding regular workers with social security benefits and the workers in the formal sector without any employment/social security benefits provided by the employers" (NCEUS, 2008). Social security benefits may be proxied by the presence of insurance facilities, provident fund contributions or gratuity (NCEUS, 2007; Sastry, 2004; Unni & Naik, 2013). Other indicators of 'formality' of employment include having paid leave (Unni & Rani, 2003) or a written contract (Kolli & Sinharay, 2011, 2014) or full-time employment status (Sastry, 2004). An analysis of the distribution of these benefits reveals that the provision of PF is an overriding indicator, i.e., the majority of individuals who were not given PF also did not have other social security benefits including gratuity/healthcare, paid leave or a written contract (see Appendix A)[i]. Given the considerable overlap between the provision of PF and the presence of other benefits, this paper uses PF as a benchmark indicator of basic social security[ii]. Therefore, any employment without the provision of PF is considered as informal employment. Based on this definition of employment, all employment is henceforth categorised into self-employment (SE), informal

employment in formal enterprises (IFE), informal employment in informal enterprises (IIE), formal employment (FE) and in the case of rural areas, agricultural labourers.

As per the NSSO Employment Unemployment Survey (EUS), the informal enterprises include private unincorporated proprietary or partnership enterprises. The formal enterprises include public sector institutions and private limited companies. The self-employed include own-account workers (enterprises with no hired labourers), unpaid workers and employers. In rural areas, the self-employed will include the cultivators as identified by their occupation status, but excludes agricultural labourers who are separately categorised. The analysis of trends uses unit-level data for respective NSS EUS Rounds (NSSO, Government of India, 1999, 2004, 2011)

In India, the self-employed have formed the majority of the workforce and are the most prominent of the informally employed. Since 2004-05, there has been a slight decline in the share of self-employed in urban and rural areas (Figure 1 & 2). This may be due to a number of reasons including individuals pursuing higher education and individuals (particularly women) withdrawing from distressful self-employment activities thanks to higher wage earnings of other working family members (A K Ghose, 2013), However, they continue to be the largest among the employment groups. Given the ease of entry into such activities and the unavailability of formal employment, it is not surprising that self-employment was the most prevalent economic activity.

Figure 1: Trends in Employment Statuses in Rural India, 1999-2000 – 2011-12

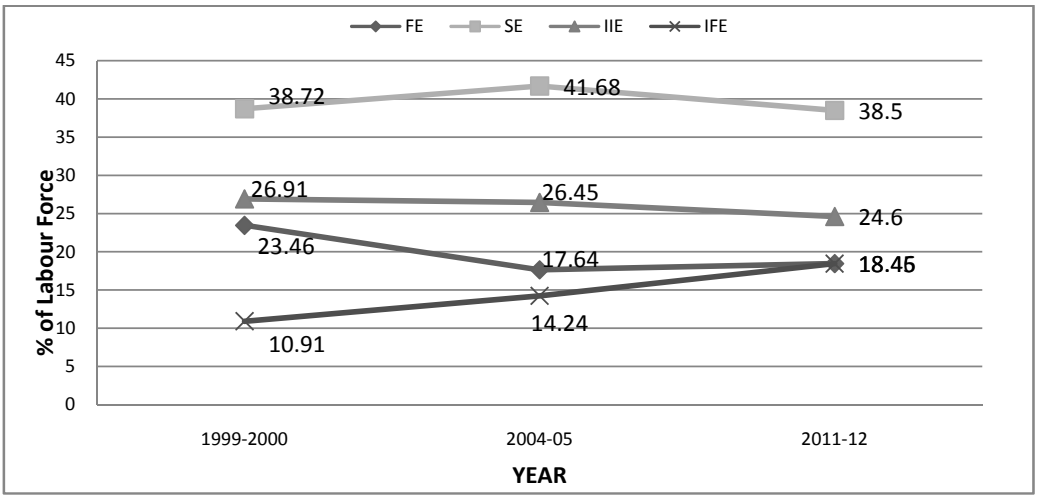


Source: Author's computations using unit-level data from relevant rounds of NSS EUS

Note: FE- formal employment, IIE-informal employment in informal enterprises, IFE- informal employment in formal enterprises, SE- self-employment.

The trend line for agricultural labourers is not shown here.

Figure 2: Trends in Employment Statuses in Urban India, 1999-2000 – 2011-12



Source: Author's computations using unit-level data from relevant rounds of NSS EUS

Note: FE - formal employment, IIE - informal employment in informal enterprises, IFE - informal employment in formal enterprises, SE - self-employment.

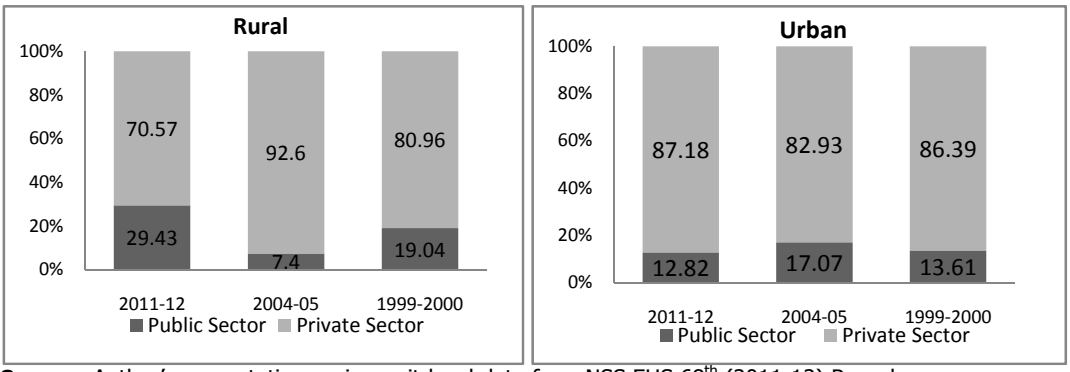
In rural areas, the agricultural labour force constituted another important segment. Most were engaged as casual labourers in farms, the work often being temporary and vulnerable. Since 2004-05 there has been a steady decline in self-employment (some authors even attribute the increase in self-employment in 2004-05 to inaccuracies in data collection (Ghose, 2013)) and an increase in enterprise-based employment.

The most interesting aspect in the analysis of trends in forms of informal employment is the gradual growth in enterprise-based informality. Almost 80 per cent of jobs created between 1999-2000 and 2011-12 were generated by the informal enterprises and the majority were informal (NCEUS 2007). The informally employed in informal enterprises (henceforth IIE) increased in rural areas from 9 per cent in 1999-2000 to 17 per cent in 2011-12. This may be a consequence of the greater proliferation of informal enterprises in these regions (Ghani, Goswami & Kerr, 2012) On the other hand, the share of IIE has remained fairly stagnant in urban areas at around 25 per cent. Formal enterprises on the other hand have contributed less than 20 per cent to employment creation in the last decade (NCEUS 2007). These jobs have been mainly in the urban areas, having increased from 10 per cent of the labour force to 18 per cent in 2011-12. In fact, the hiring of formal workers by these formal enterprises (FE) has declined over the years. Instead they have increasingly hired informal workers, creating a new form of informal employment, i.e. informal employment in formal enterprises (henceforth IFE). This trend, i.e. the *informalisation of the formal sector*, indicates the growing tendency of large, formal firms to hire workers under vulnerable and insecure employment arrangements. Labour laws in India have also implicitly facilitated the informalisation of the labour force (Chakraborty, 2015).

In rural areas, informal enterprises have been the major driver of informal employment, while in urban areas, it is formal enterprises. Moreover, in the rural areas, a large proportion of informal employment created by formal enterprises was by the public sector. The subsequent increase in public

sector informal employment can be attributed to the enactment of the National Rural Employment Guarantee Scheme 2005. In urban areas, the private sector continues to be the major source of informal employment (Figure 3).

Figure 3: Relative Contribution of Public and Private Enterprises to Informal Employment in Formal Enterprises (IFE), rural & urban



Source: Author's computations using unit-level data from NSS EUS 68th (2011-12) Round

A comparison of the broad socio-economic profile of these employment types reinforces the inherent heterogeneity and distinctness of each employment type (Table 1). The formally employed are in general older highly educated and predominantly male. Among the informally employed, the self - employed are relatively older. They also contain a moderate proportion of illiterates as well as highly educated individuals indicating the heterogeneity and the 'mixed bag' (Papola & Sahu, 2012) nature of this group of individuals. In the case of informal wage employment, the average age is lower. The informally employed in informal enterprises have the highest proportion of illiterates whereas the informally employed in formal enterprises (IFE) comprise a relatively high proportion of well-educated individuals.

Table 1: Average Characteristics of Individuals by Employment Status, 2011-12

	RURAL					URBAN				
	Mean Age	Proportion Illiterate	Proportion with High Secondary & Above	Proportion Male	Average MPCE	Mean Age	Proportion Illiterate	Proportion with High Secondary & Above	Proportion Male	Average MPCE (Rs.)
FE	41.5	0.03	0.66	0.85	2235	41.7	0.03	0.72	0.82	3649
SE	38.8	0.23	0.15	0.84	1445	39.5	0.15	0.29	0.85	2073
IIE	34.5	0.31	0.09	0.89	1198	35.1	0.24	0.15	0.80	1574
IFE	35.8	0.26	0.21	0.75	1397	34.5	0.13	0.39	0.79	2330
AgriLab	35.9	0.40	0.09	0.59	1239					

Source: Author's computations using unit-level data from NSS EUS 68th (2011-12) Round

Note: FE - formal employment, IIE - informal employment in informal enterprises, IFE - informal employment in formal enterprises, SE - self-employment, AgriLab - agricultural labourers.

While this descriptive analysis confirms the distinction between various forms of informality, it does not provide an insight into the extent and nature of these differences. For further insight into the influence of these and others factors on employment choice, an econometric estimation is required. The next section describes the econometric method used.

Methodology

1. Econometric Framework

Existing empirical studies on informal employment use a binary choice approach, i.e., they estimate the probability of an individual being in informal employment vis-a-vis formal employment (Bairagya, 2012; Unni & Naik, 2013). However, this binary approach overlooks the various forms of informal employment and does not capture its polychotomous characteristics. A multinomial/polychotomous model is useful to estimate the probability of being in each employment type and allows for the marginal impact of explanatory variables to vary across the employment types. This acknowledges that each explanatory variable may have differing marginal contributions depending on the type of employment outcome. The model also assumes that there is no ordering between the choices.

For the problem at hand, the employment statuses include formal salaried employment and informal employment, viz., self-employment, wage employment in formal or informal enterprises and agricultural labour in rural regions. The employment choice is broadly divided into two 'nests' — formal and informal employment. Nested within the informal employment category are its various forms - self-employed, informally employed in formal enterprises, informally employed in informal enterprises and agricultural labour (in rural areas). The final alternative chosen can be represented as an outcome of two stages. For example, the probability of being self-employed is given by

$$P(SE) = P(SE/IE)P(IE) \qquad .....(1)$$

i.e., it involves the conditional probability of being self-employed given an individual is informally employed, multiplied by the probability of the individual being in informal employment.

Such a decision choice can be empirically modelled using the nested logit model (Greene, 2012; Maddala, 1983; Schroeder, 2010). An important feature of such frameworks is that it does not require the restrictive assumption of the Independence of Irrelevant Alternatives (IIA). Under the IIA assumption, if any one alternative is removed then the relative odds associated with all other alternatives will remain unchanged. Alternatively, the odds of choosing alternative A over alternative B is independent of the presence of another alternative, say C. In the employment choice model described in Figure 3, it is difficult to maintain the IIA assumption. It is highly likely that certain alternatives are closely substitutable with another, particularly alternatives within a particular nest. For example, wage employment in formal enterprises is likely to be highly substitutable with wage employment in informal enterprises. The nested logit model allows for partial relaxation of the IIA assumption. In the nested logit model, IIA holds within nests, i.e., the ratio of probabilities for any two alternatives in the same nest is independent of other alternatives but IIA does not hold for alternatives in different nests, i.e., the ratio of probabilities for any two alternatives in different nests can depend on attributes of other alternatives (Schroeder, 2010). For example, the relative probability of being IIE compared to SE

remains unchanged whether formal employment is present as an alternative or not. However, the relative probability of IIE with respect to SE will vary depending on whether IFE is present or not.

The nested logit model can be motivated using a latent utility framework (Maddala 1983). Suppose an individual obtains utility Uij from employment status (i,j) where i represents the informal/formal branch (i= 1...C) and j represents the final status within either branch (j = 1...N). Here i may be formal/informal employment and j = salaried employment, IFE, IIE, or self-employment.

The individual's utility can be represented as $U_{ij} = V_{ij} + e_{ij}$ where V_{ij} is a function of measured attributes and e_{ij} is a random error term capturing unobserved and/or unmeasured features. e_{ij} is assumed to follow an extreme-value distribution. Then the probability of employment outcome (i,j) is given by

$$P_{ij} = e^{V_{ij}} \Big/ \sum_{m=1}^{C} \sum_{n=1}^{N_m} e^{V_{mn}} \qquad \ldots\ldots (2)$$

Suppose that

$$V_{ij} = \beta' X_{ij} + \alpha' Y_i \qquad \ldots\ldots (3)$$

Where X_{ij} is a vector of variables that vary between all the employment statuses and Yi is a vector of attributes that vary between formal and informal employment, but is invariant amongst the informal employment outcomes themselves. Then

$P_{ij} = P_{j/i} * P_i$

The conditional probability is given by

$$P_{j/i} = e^{\beta' X_{ij}} \Big/ \sum_{k=1}^{N_i} e^{\beta' X_{ij}} \qquad \ldots\ldots (4)$$

And,

$$P_i = e^{\alpha' Y_i} \sum_{j=1}^{N_i} e^{\beta' X_{ij}} \Big/ \sum_{m=1}^{C} e^{\alpha' Y_i} \sum_{n=1}^{N_m} e^{\beta' X_{ij}} \qquad \ldots\ldots (5)$$

The nested logit model requires information on attributes that vary between formal and informal employment but remain invariant *within* the forms of informal employment (i.e., the vector Yi). For example, there must be at least one independent variable that differs between formal and informal employment but is the same for the different forms of informal employment. However, the nature of data available from the National Sample Survey Employment Unemployment Surveys is such that this kind of information is not available. Therefore, though theoretically appropriate, the nested logit model is not empirically tenable owing to limitations in the nature of data available.

The multinomial discrete choice models (multinomial logit/probit models) offer the next best alternative to estimating the problem at hand. While these do not estimate the outcomes as conditional probabilities, they closely approximate the structure of the employment choice. Within the multinomial models, either the probit or the logit model can be adopted. The former is adopted here for two primary reasons. Firstly, the multinomial probit model does not require the IIA assumption unlike the

multinomial logit, making it more appropriate for this occupational choice problem. Secondly, the multinomial probit, unlike the multinomial logit, allows use of the Heckmen selection procedure to correct sample selection bias.

Sample selection bias emerges when the sample being analysed is non-random. Here, the employment choice for *all* working-age individuals is not observed since some individuals did not enter the labour force for various reasons. In this case, the employment outcome is available only for a subset of the population and there is 'incidental truncation' of the data. It is likely that some unobserved factors that influence an individual's decision to be employed also closely influence his/her *choice* of employment. This results in a sample selection bias (Wooldridge, 2013).

The standard procedure to correct for selection bias is the Heckman procedure (Heckman 1976). The Heckman procedure involves two models – the selection equation (estimating the probability of an individual participating in the labour force) and the regression equation (estimating the likelihood of various employment outcomes). One of the assumptions maintained in order to apply the Heckman procedure is that the errors of the selection equation and regression equation are normally distributed. The multinomial probit will ensure that error terms are normally distributed unlike the multinomial logit. This provides the second justification for the use of the multinomial probit.

The final model for estimation is described below. The selection model can be motivated using a latent utility framework. Suppose an individual's utility function (Ui) is dependent on a set of variables represented by vector X and she chooses to be employed if and only if her utility is positive. So,

$$U_i = X_i'a + e_i \qquad \ldots\ldots (6)$$

Although utility is not observable, employment choice (P_i) is. So,

$P_i = 1$ if and only if $U_i > 0$, or, $e_i > X_i'a$ where Pi = 1 indicates the individual is employed,

$P_i = 0$ otherwise.

The probability of employment (Pi=1) can be estimated using a probit model.

Now for the employed individuals, let the final choice of employment be indicated by Yi. Let Vij represent the utility gained by individual i in employment outcome j. This utility is represented by

$$V_{ij} = Z_i'\beta_j + \varepsilon_{ij} \qquad \ldots\ldots (7)$$

where z_i' is a vector of individual-specific characteristics. In the multinomial probit model it is assumed that the ε_{ij} follow a multivariate normal distribution with covariance matrix ∑ where ∑ is not restricted to be a diagonal matrix, i.e., the error terms may be correlated (Long 1997).

The individual will choose j if and only if it maximises his utility, amongst all the choices available(Greene, 2012).. Therefore, if an individual chooses j, then

$$\left(V_{ij} > V_{ik}\right) \quad for\ all\ k \neq j \quad \text{k=1....M}$$

$$\text{i.e., } \left(z_i'\beta_j + \varepsilon_{ij} > z_i'\beta_k + \varepsilon_{ik}\right) \qquad \ldots\ldots (8)$$

Now this outcome is observed only for the employed individuals. So, if the choice of employment by individual i is j, then from equation (6) and (8),

$$Prob(Yi = j|Z, P_i = 1) \quad \ldots(9)$$

$$= Prob\left(z_i'\beta_j + \varepsilon_{ij} > z_i'\beta_k + \varepsilon_{ik}|Z, P_i = 1,\ k \neq j\right) \quad \ldots\ldots(10)$$

$$= Prob\left(z_i'(\beta_j - \beta_k) > \varepsilon_{ik} - \varepsilon_{ij}|z, P_i = 1\right) \quad for\ all\ k \neq j \quad \ldots\ldots (11)$$

which represents the multinomial probit model.

$$E(Yi = j|Z, Pi = 1) = Prob\left(z_i'\beta_j + \varepsilon_{ij} > z_i'\beta_k + \varepsilon_{ik}|Z,\ Pi = 1,\ k \neq j\right) \quad \ldots\ldots (12)$$

$$Prob\left(z_i'\beta_j + \varepsilon_{ij} > z_i'\beta_k + \varepsilon_{ik}|Z,\ \ e_i > X_i'a\ \ ,\ k \neq j\right) \quad \ldots\ldots (13)$$

Therefore, the error terms are bounded from below in the case of the second regression. In order to account for this the Heckman procedure is adopted. The Heckman two-step equation involves first estimating a probit equation for the probability of being employed.

$$P(P_i = 1\ |Xi) = F(X_i'a)\ , \quad \ldots\ldots (14)$$

Where F is the normal cumulative distribution function and equation (14) is a probit equation representing the selection model. The identification of this model requires the inclusion of at least one variable in estimation equation (14) which does not appear in the second stage regression model.

From this, the inverse mills ratio (λi) is estimated as below

$$\lambda i = \frac{f(X_i'a)}{F(X_i'a)} \quad \ldots\ldots(15)$$

where f (.) represents the standard normal distribution function. The estimated inverse mills ratio is then included in the second state multinomial probit regression equation as one of the explanatory variables so as to correct for the sample selection bias. The Heckman model also uses the following assumptions:

$$(\varepsilon, e) \sim N(0,0,\sigma^2_{\varepsilon}, \sigma^2_{u}\rho_{\varepsilon u}) \quad \ldots\ldots(16)$$

That is, both error terms are normally distributed with mean 0, variances as indicated and the error terms are correlated where $\rho_{\varepsilon e}$ indicates the correlation coefficient. This is the reason for estimating the multinomial probit rather than logit.

Therefore, for any given individual, the multinomial probit will estimate

$$P(Yi = j|zi) = a_{ij} + Z_i'b_{ij} + \varepsilon_{ij} \quad \ldots\ldots\ldots(17)$$

Where j =0...4 and Zi contains a set of explanatory variables and the Inverse Mills Ratio.

To enable identification of the model, one alternative is chosen as the base alternative. The marginal effects are computed for each outcome type and estimated relative to the reference category. The dependent variable of interest here, employment status (Yi) is coded as follows:

Yi = 0 if formally employed,

Yi = 1 if self employed

Yi = 2 if informally employed in informal enterprises (IIE),

Yi = 3 if informally employed in formal enterprises (IFE),

Yi = 4 if agricultural labourer.

This multinomial probit model will therefore provide the marginal impact of various individual/household attributes on the final employment choice while also allowing for these marginal impacts by employment types.

2. Estimation Strategy

For the probit selection model (Equation 14), estimated on the employed and unemployed population, a set of individual and household level attributes are adopted as potential determinants of the decision to join the workforce. These include age[iii], marital status, educational attainment[iv], the number of young dependents in the household and social and caste identity. The ownership of land, the average monthly per capita consumption expenditure and whether an individual is the head or married child of the head are included too. The latter three are identifying variables because they do not appear in the second stage regression equation. It is tenable that an individual's household income, wealth and status in the household can have an impact on his/her decision to participate in the labour market but not the actual *form* of employment. The inverse Mills' ratio is estimated from this probit regression.

In the second stage regression (Equation 17), the multinomial probit model is estimated to determine the likelihood of each employment outcomes, i.e., formal employment, self-employment, informal employment in informal enterprise and informal employment in formal enterprises and agricultural labour for rural areas. The choice of employment is estimated to be determined by a combination of individual attributes, household demographics and regional factors. Individual attributes include gender, age, educational level and skill attainment. Household factors include religious and caste identity, the number of young dependents in the household and the extent of connectivity with the informal labour market as measured by the presence of other informally employed members. Labour supply is also influenced by conditions of local labour markets, the presence of credit for local businesses, the nature of employment contract (Bardhan 1984), infrastructural facilities, legal environment and overall levels of development. Although these are not available within the NSS EUS data, alternative data sources are used to include indicators to control for regional idiosyncrasies and differences in labour market functioning. These include the Human Development Index (IAMR, 2011) to capture differences on socio-economic development, the Labour Law Index (Debroy & Bhandari, 2009) to capture the effectiveness of labour legislations and overall conduciveness of labour environment and the state level unemployment rate to account for the labour market status. The Inverse Mills' Ratio estimated from the selection equation is also included as an explanatory variable so as to control for

selection bias as per the Heckman procedure. In the multinomial probit model, the marginal impact of each of these factors will vary by the employment outcome. The rationale for adopting these and their estimated relation with employment outcome is further explained in the next section.

3. Data Source

This model is estimated using unit level data from the 68th Round of NSS Employment Unemployment Survey. The analysis is restricted to 14 major states[v] of Punjab, Rajasthan, Uttar Pradesh, Bihar, Assam, West Bengal, Orissa, Madhya Pradesh, Maharashtra, Gujarat, Andhra Pradesh, Karnataka, Kerala and Tamil Nadu. The model is estimated separately for rural and urban areas and is restricted to all individuals above 15 years of age. The model is estimated in Stata 10 and uses the maximum likelihood estimation for the multinomial probit. Descriptive statistics and correlation matrix of the variables used are provided in Appendix B

Results

The estimation involves two-steps. Firstly, modelling the probability of an individual being in the labour force (selection equation), followed by a multinomial probit estimation of the choice of employment for those in the labour force, with correction for sample selection bias. These estimates are done separately for rural and urban areas. The variables used for the estimation are described in Table 2.

Table 2: Variable Names and Descriptions

Variable Name	Definition
women	Dummy variable: 1 if woman, 0 otherwise
age26_35	Dummy variable: 1 if age between 26-35 years, 0 otherwise
age36_45	Dummy variable: 1 if age between 36-45 years, 0 otherwise
age46_60	Dummy variable: 1 if age between 46-60 years, 0 otherwise
age60	Dummy variable: 1 if age 60 years and above, 0 otherwise
age26_35(Woman)	Dummy variable: 1 if woman and age between 26-35 years, 0 otherwise
age36_45(Woman)	Dummy variable: 1 if woman and age between 36-45 years, 0 otherwise
age46_60(Woman)	Dummy variable: 1 if woman and age between 46-60 years, 0 otherwise
age60(Woman)	Dummy variable: 1 if woman and age 60 years and above, 0 otherwise
Primary edu	Dummy variable: 1 if educated up to primary, 0 otherwise
Middle edu	Dummy variable: 1 if educated up to middle, 0 otherwise
Secondary edu	Dummy variable: 1 if educated up to secondary, 0 otherwise
Highersec edu	Dummy variable: 1 if educated up to higher secondary, 0 otherwise
Graduate	Dummy variable: 1 if educated up to graduation and above, 0 otherwise
Primary edu (woman)	Dummy variable: 1 if woman and educated up to primary, 0 otherwise
Middle edu (woman)	Dummy variable: 1 if woman and educated up to middle, 0 otherwise
Secondary edu (woman)	Dummy variable: 1 if woman and educated up to secondary, 0 otherwise
Highersec edu (woman)	Dummy variable: 1 if woman and educated up to higher secondary, 0 otherwise
Grad edu (woman)	Dummy variable: 1 if woman and educated up to graduation and above, 0 otherwise
Has vocat training	Dummy variable: 1 if individual has formal/informal training, 0 otherwise
Has vocat training (woman)	Dummy variable: 1 if individual is woman and has formal/informal training, 0 otherwise
In Prof/Tech/Mg Occ	Dummy variable: 1 if occupation is professional, technical or managerial, 0 otherwise
In Prof/Tech/Mg Occ (Woman)	Dummy variable: 1 if woman and occupation is professional, technical or managerial, 0 otherwise
SC/ST household	Dummy variable: 1 if household belongs to Schedule Caste/Scheduled Tribe household, 0 otherwise
OBC household	Dummy variable: 1 if household belongs to Other Backward Caste household, 0 otherwise
Hindu	Dummy variable: 1 if individual belongs to Hindu household
Hindu Woman	Dummy variable: 1 if woman and belongs to Hindu household
Muslim	Dummy variable: 1 if individual belongs to Muslim household
Muslim Woman	Dummy variable: 1 if woman and belongs to Muslin household
Child per HH member	Number of children per household member
Prop InformallyEmployed	Number of informally employed per household member
HDI	Ordinal Variable indicating HDI score of states. Higher value implies higher levels of socio-economic development
LabourLaw Environment Index	Ordinal Variable indicating ranking of states by nature of labour law environment. Higher value implies more conducive labour ecosystem
Unemployment	State-level Unemployment rate
IMRR	Inverse Mills Ratio (derived from selection equation)

1. Determinants of Labour Force Participation: Selection Equation

The first step in the estimation, i.e., the probability of being in the labour force, is estimated using the binary probit model described in Equation 14. The estimates are presented in Table 3.

Table 3 : Probit Model of Labour Force Participation (Selection equation), Rural and Urban, 2011-12

	Marginal Effects	
Explanatory Variables	**RURAL**	**URBAN**
Constant	1.05*** (54.36)	1.02*** (2.12)
age15_25*	0.44*** (79.36)	1.46*** (60.32)
age26_35*	0.54*** (143.92)	2.06*** (85.5)
age36_45*	0.51*** (153.68)	1.99*** (85.13)
age46_60*	0.43*** (107.2)	1.52*** (68.66)
Married Male	0.34*** (55.27)	1.02*** (47.06)
Primary	0.21*** (30.28)	0.77*** (30.44)
Middle	0.1*** (14.39)	0.56*** (23.22)
Secondary	-0.01*** (-1.26)	0.21*** (9.07)
Higher Secondary	-0.03*** (-3.48)	0.14*** (5.72)
Graduate	0.06*** (5.41)	0.41*** (16.47)
Primary Woman	-0.035*** (-49.11)	-1.16*** (-40.39)
Middle Edu Woman	-0.32*** (-45.17)	-1.2*** (-43.05)
Secondary Edu Woman	-0.27*** (-33.18)	-0.99*** (-35.89)
Higher Sec Edu Woman	-0.26*** (-27.66)	-0.79*** (-28.18)
Graduate Woman	-0.25*** (-20.02)	-0.59*** (-22.27)
Child Per Household Member	-0.09*** (-9.21)	-0.39*** (-12.58)
SC household	0.05*** (8.98)	0.1*** (5.84)
ST household	0.14*** (23.19)	0.11*** (3.42)
OBC household	0.04*** (10.46)	0.1*** (8.27)
Hindu	-0.06*** (-8.3)	-0.14*** (-6.46)
Muslim	-0.14*** (-16.32)	-0.17*** (-6.86)
No land owned	0.03*** (3.3)	0.11*** (8.47)
MPCE (log)	0.21*** (4.58)	-0.7*** (-5.58)
MPCE (log) Squared	-0.01*** (-4.41)	0.04*** (4.68)
Is Head or Married Child of Head	0.27*** (48.22)	0.73*** (42.46)
MODEL STATISTICS		
Number of OBS	127161	92500
LR chi-squared(25)	56665.62	51994.6
Prob > chi squared	0	0
Pseudo R squared	0.3215	0.4065

Source: Author's computations using unit-level data from NSS EUS 68th (2011-12) Round

Note: Figures in brackets indicate t-statistic. *, **, *** indicates significance at 10%, 5% and 1% levels, respectively

The decision to participate in the labour force is influenced by an individual's age and educational status, the household attributes including caste, the presence of young dependents, average income levels (as proxied by monthly per capita expenditure) and overall wealth (measured by land owned). Moreover, an individual's status in the household is also an important determinant because heads of the household and other adult members are highly likely to participate in the labour force.

The estimates revealed that older individuals were more likely to work, although the marginal increase in probability declined as age increased. On an average, individuals at either ends of the educational attainment spectrum – primary education and graduate education — were more likely to be in the workforce. Gender-specific interaction dummies were introduced to account for the differential impact of education on women's work. Interestingly, women with any level of education were less likely to work, compared to the base category of illiterate women, similar to the findings of Dasgupta and Goldar (2006) . In fact, women with primary education were 4 percentage points less likely to work than illiterate women and women graduates were 25 percentage points less likely to work in rural areas. Individuals from households with young dependents were less likely to join the workforce indicating the burden of household responsibilities. Owning no land or being the head/married child of the head increased the probability of participation in the labour force by 3 and 27 percentage points respectively. All of these results were consistent across rural and urban areas. However, the impact of household income varied between rural and urban areas. In rural regions, as monthly per capita expenditure increased, the probability of being in the workforce increased 21 percentage points, indicating that the income effect was stronger than the substitution effect between labour and leisure. However, the marginal impact reduced at higher levels of expenditure as shown by the negative value of the quadratic term. In urban areas, on the other hand, the substitution effect was stronger implying that as incomes increased, individuals were more likely to withdraw from the labour force, although the marginal impact reduced as income increased.

The Likelihood Ratio (LR) test is significant for both the models, as shown by the P-value indicating the goodness of fit of the models.

2. Determinants of Employment Type: Multinomial Probit Model

The Inverse Mills Ratio computed from the above selection model (Table 2) is used in the second stage multinomial probit model to control for selection bias. The polychotomous choice model (Equation 17) estimated below with correction for sample selection bias will reveal the relative influence of each of these, allowing for the marginal impacts to vary by the nature of employment. For the multinomial probit model, the base category is the self-employed. Therefore all probabilities are relative and are interpreted with respect to the base category. So, if the coefficient of a regressor is positive in the case of alternative *j*, then it implies that as the regressor increases and is more likely to be chosen rather than the base alternative (i.e. self-employment).

2.1. Rural

The marginal effect of each explanatory variable on each employment outcome is presented in Table 4. The marginal effects for agricultural labourers are not shown here since they are not the focus of this analysis.

Age is often taken as a proxy for experience (Goldar, 2010) and in general, older individuals are preferred in the formal labour market. However, the relation is not monotonic and beyond a certain age, due to hiring restrictions and general preferences of the industry, older individuals may not be preferred. For men, as age increased, the probability of being engaged in formal employment (vis-a-vis self-employment) increased. However, beyond the age of 60 years, the probability begins to decline, although marginally by .2 percentage points, which can be attributed to the age cut-offs in most formal employment in the public and private sectors. For women, however, the decline in probability began earlier and an increase in age beyond their mid-30s resulted in a reduction in their probability of being in formal employment.

Informal employment is usually assumed to be the employment option of the very old (who have been forced out of the formal labour market) or very young (who do not have adequate experience to enter the formal labour market and hence use the informal labour market as a stepping stone (Cano-Urbina, 2015; Maloney, 2003). In the case of rural men, informal employment is confirmed to be an employment option for the very young. For IIE and IFE, the base age group of 15 to 25 year olds were the most likely to be in this form of employment, with the probability reducing successively with each progressive age category. Older men, despite being more experienced, were more likely to opt for self -employment, rather than enterprise-based informal employment. For women, while age did not have a significant impact on the probability of being IIE, in the case of IFE, there was a strong likelihood for older women to be hired. In this case, the more experience of these women, as well as reduced responsibilities at home could lead to these women participating relatively more in the labour market, particularly in enterprise-based jobs.

As would be expected, educational attainment, in general, greatly increased the probability of being formally employed. Each level of education had a higher marginal contribution towards increasing the probability of formal employment, than the previous. So, middle school education increased the likelihood of formal employment by 0.01 points while graduate education increased the outcome by 0.08 points. In the case of IIE, educational attainment reduced the probability of being engaged thus. Primary education reduced the chances of being IIE by 3 points, while graduate education reduced it by 10 percentage points. In the case of IFE, while primary and middle school education reduced the probability of being IFE by 1 percentage point, notably education of higher secondary and above *greatly increased* the probability of IFE. So, individuals with higher secondary and graduate education were 3 and 12 percentage points more likely to be IFE. So unlike in the case of IIE, highly educated individuals were likely to be hired informally within formal enterprises.

Many studies on women's labour force participation observe an insignificant, often negative impact of education on their decision to be employed. The latter is sometimes attributed to the 'sanskritisation' process whereby improved standards of living are often accompanied by women leaving the work force owing to issues of prestige and the notion that working women are indicative of a poorer

household (Srinivas, 1996). This is confirmed in our selection model (Table C) and in other studies of female labour supply where education of women is negatively or insignificantly associated with probability of their being in employment (Goldar, 2010; Kingdon & Unni, 2001; Klasen & Pieters, 2013).

Table 4: Determinants of Employment Outcomes (sample selection bias corrected), Rural (2011-12)

Variable Group	Explanatory Variable	Marginal Effects		
		FE	IIE	IFE
Gender: *Base category – Men*	Woman	-0.0004 (-0.3)	-0.17*** (-12.9)	-0.09*** (-7.6)
Age: *Base category 15-25*	age26- 35	0.00*** (2.7)	-0.03*** (-5.3)	-0.01 (-1.7)
	age36 – 45	0.00*** (4.5)	-0.06*** (-8.9)	-0.02*** (-2.5)
	age46 -60	0.02*** (7.2)	-0.09*** (-14.8)	-0.03*** (-5.1)
	age 60 & above	-0.0021*** (-4.8)	-0.14*** (-25.3)	-0.07*** (-12)
Women's Age: *Base category 15-25*	age26- 35 (woman)	0 (-0.7)	0.01 (0.8)	0.05*** (4.4)
	age36 - 45 (woman)	-0.001* (-2.3)	-0.01 (-0.6)	0.07*** (5.6)
	age46 -60 (woman)	-0.002*** (-3.1)	-0.001 (-0.07)	0.09*** (6.1)
	age 60 & above (woman)	0.02 (1.2)	0.03 (1.3)	0.23 (6.8)
Education: *Base category - Illiterates*	Primary Edu	0.00*** (2.9)	-0.03*** (-6.4)	-0.01*** (-2.9)
	Middle Edu	0.01*** (5.4)	-0.05*** (-9.1)	-0.01*** (-2.2)
	Secondary Edu	0.02*** (7)	-0.08*** (-14.8)	-0.005*** (-0.8)
	Higher Secondary Edu	0.05*** (8.5)	-0.10*** (-16.9)	0.03*** (3.6)
	Graduate	0.08*** (9.1)	-0.10*** (-15.2)	0.12*** (10.6)
Women's Education: *Base category* – Illiterate	Primary Edu (woman)	0 (0.7)	0.02*** (2.1)	0.07*** (5.8)
	Middle Edu (woman)	0 (1.4)	-0.02*** (-1.5)	0.12*** (7.6)
	Secondary Edu (woman)	0 (0.9)	-0.03*** (-1.7)	0.15*** (7.7)
	Higher Secondary Edu (woman)	0 (0.8)	0.10*** (4.1)	0.14*** (5.9)
	Graduate (women)	0 (0.1)	0.15*** (4.4)	0.14*** (5.4)
Skill: *Base category* - no vocational training, not professional occupation	Has Vocational Training	0.00*** (2.9)	-0.004 (-0.8)	-0.003 (-0.7)
	Has Vocational Training (woman)	0 (1.04)	-0.04*** (-3.7)	-0.04*** (-5.3)
	In Prof/Tech/Manag Occupation	0.01*** (8.3)	-0.15*** (-39.8)	-0.02*** (-4.5)
	In Prof/Tech/Manag Occupation (woman)	0.01*** (3.6)	0.18*** (6.9)	0.14*** (7.3)
Household Attributes: *Base category* - General category, Minority religions	SC/ST household	0.00*** (4.6)	0.09*** (15.5)	0.05*** (9.9)
	OBC household	0.00** (2.0)	0.03*** (7.2)	0.01*** (3.7)
	Hindu	0 (1.2)	-0.07*** (-7.6)	-0.003 (-0.4)
	Hindu Woman	-0.001 (-0.7)	-0.02 (-1.4)	-0.01 (-0.9)
	Muslim	-0.002*** (-4.6)	-0.04 (-4.1)	0 (0.5)
	Muslim Woman	0 (1.2)	-0.01 (-0.7)	-0.02 (-1.1)
	Child Per Household Member	-0.02*** (-12.7)	0.01 (0.55)	-0.03*** (-3.17)
	Proportion Informally Employed	-0.05*** (-14.73)	-0.02 (-1.65)	-0.01 (-1.36)
Regional Factors	HDI	0.01*** (7.72)	-0.13*** (-13.71)	0.01 (1.25)
	Labour Law Environment Index	-0.001 (-1.16)	0.01 (1.19)	0.11*** (10.84)
	State Unemployment rate	-0.001*** (-8.37)	-0.01*** (-6.98)	-0.005*** (-4.56)
	IMRR	-0.001*** (-0.94)	-0.02*** (-2.97)	-0.03*** (-4.38)

Model Statistics	
Number of Observations	64588
Wald Chi2	19544
Log Likelihood	-7546
Prob > Chi2	0

Source: Same as Table 3

Note: Figures in brackets indicate t-statistic.

*, **, *** indicates significance at 10%, 5% and 1% levels, respectively

Self-employment was base category. Agricultural labour category though included in estimation, is not shown here as it is not the focus of the analysis.

What is the experience of educated women, who *do* participate, with regard to the returns from their education vis-a-vis the nature of their employment? With regard to formal employment, the benefits of educational attainment as seen in the case of men, is not witnessed as successive levels of education had insignificant impact on the probability of securing formal employment. While men in IIE witnessed a linear decrease in probability of their IIE employment as education increased, this linear impact of education was not seen amongst the women. Illiterate and primary education contributed positively to being IIE while secondary education reduced the probability of being IIE by 3 percentage points. Women with education beyond higher secondary were significantly more likely to be IIE by 10 and 15 percentage points respectively for higher secondary and graduate education. Moreover, the probability of being IFE increased for all levels of education. Highly educated women were likely to be employed informally in both formal and informal enterprises.

While vocational training increased the probability of formal employment for men, it had no significant impact for women. In fact, women with vocational training were more likely to be in self-employment. Men in skilled occupations (professionals, technical or managerial) were highly likely to be formally employed, as were women in similar occupations. However, women in similar occupations were also significantly likely to be employed informally in formal/informal enterprises. The probability of being IIE/IFE increased by 18 and 14 percentage points for professional women, while the probability of being formally employed increased only by 1 percentage points for the same category of women.

The presence of young dependents reduced the probability of being formally employed or IFE. This is suggestive that these are more rigid forms of employment, which households with young dependents do not prefer because of the lack of flexibility they afford. In rural areas there did not seem to be significant network effects in informal employment because the presence of other informally employed members did not have a significant impact on the probability of being in any of the forms of informal employment.

Individuals from states with higher levels of socio-economic development and more conducive labour legislations were more likely to be formally employed. Higher levels of socio-economic development reduced the probability of IIE. Higher unemployment rates reduced the probability of IIE compared to self-employment, which may be expected in rural areas. Moreover, individuals from states with an inconducive legal infrastructure with respect to labour were more likely to be IFE.

The Wald Chi-Squared test, which tests the significance of at least one of the predictors being zero, is rejected, as reflected in the p-value.

2.2. Urban

The multinomial probit estimates of employment outcomes in urban areas are given in Table 5. In urban areas, overall, age did not have significant impact on the probability of being formally employed, except for men between 45-60 years for whom there was a significant increase in the probability indicating perhaps the preference for experienced individuals. For women, as expected, the probability of being formally employed increased as age increased, up to 60 years of age. In the case of enterprise-based informal employment, an increase in age reduced the probability of being either IIE/IFE for men. So in urban areas too, enterprises were hiring young men informally and wage employment was not a viable option for older men. For women, the marginal impact of an increase in age was in general insignificant.

Education from middle school onwards significantly increased the probability of formal employment for men. For women, the increase in probability of formal employment was seen only on attaining secondary level education onwards (by 2 percentage points for secondary and higher secondary education), although curiously, graduate education did not have a significant impact on the probability. In the case of IIE, among men, as their educational attainment increased, the probability of IIE declined and men with graduate-level education and above were less likely to be IIE by 15 percentage points. Among women, however, such a linear relation was not seen. Education up to secondary level reduced the chances of being IIE. While higher secondary education had an insignificant impact, women with graduate education and above were more likely to be IIE by 11 percentage points. In the case of IFE, educational attainment up to secondary level had no significant impact on the probability of being engaged thus. However, men with higher secondary education, or graduate education were significantly more likely to be IFE, by 3 and 13 percentage points respectively. For women too, education increased the probability of IFE and these impacts were significant from middle-school education onwards. Therefore, the educated labour force in urban areas was increasingly likely to be informally employed in formal enterprises. In fact, being a graduate increased the probability of securing formal employment by 5 percentage points while the probability of securing IFE for graduates increased by 13 percentage points.

Table 5: Determinants of Employment Outcomes (sample selection bias corrected), Urban (2011-12)

		Marginal Effect		
		FE	IIE	IFE
Gender: Base - Men	Woman	0.0002 (0.03)	-0.02 (-0.63)	-0.01 (-0.5)
Age: Base 15-25	Age 26- 35	0 (0.35)	-0.04*** (-4.4)	-0.04*** (-4.51)
	Age 36 – 45	0 (1.16)	-0.08*** (-8.1)	-0.06*** (-7.6)
	Age 46 -60	0.02*** (5.63)	-0.13*** (-15.)	-0.11*** (-15.4)
	Age 60 & above	0.0026 (0.77)	-0.18 (-22.32)	-0.11*** (-16.5)
Women's Age: Base 15-25	Age 26- 35 (women)	0.02*** (2.81)	0.02 (1.15)	0.01 (0.69)
	Age 36 - 45 (women)	0.025*** (2.77)	0.01 (0.56)	0 (0.2)
	Age 46 -60 (women)	0.036*** (2.92)	0.051* (2.39)	0.04** (2.12)
	Age 60 & above (women)	0.01 (0.44)	0.02 (0.52)	0.08* (1.96)
Education: Base - Illiterates	Primary Edu	0 (1.53)	-0.01 (-1.22)	-0.01 (-1.4)
	Middle Edu	0.01** (2.41)	-0.05*** (-6.2)	-0.01 (-0.85)
	Secondary Edu	0.02*** (4.45)	-0.09*** (-11.)	-0.008 (-0.88)
	Higher Secondary Edu	0.03*** (5.8)	-0.12*** (-14.4)	0.03*** (2.96)
	Graduate	0.05*** (8.26)	-0.15*** (-16.6)	0.13*** (10.9)
Women's Education: Base - Illiterate	Primary Edu (women)	0.01 (1)	-0.04*** (-2.75)	0.01 (0.67)
	Middle Edu (women)	0.01 (1.19)	-0.09*** (-5.74)	0.06*** (2.67)
	Secondary Edu (women)	0.02* (1.83)	-0.06*** (-2.96)	0.07*** (2.99)
	Higher Second Edu (women)	0.02* (1.67)	0.01 (0.4)	0.18*** (5.89)
	Graduate (women)	0 (0.51)	0.11*** (4.04)	0.15*** (5.76)
Skill: Base - no vocational training, not professional occupation	Has Vocational Training	0.00*** (3.63)	-0.005 (-0.74)	0.007 (1.33)
	Has Vocational Train. (women)	-0.01*** (-3.38)	-0.13*** (-12.4)	-0.06*** (-6.4)
	In Prof/Tech/Manag Occup	0.00*** (2.75)	-0.26*** (-48.3)	-0.08*** (-15.36)
	In Prof/Tech/Manag Occu (w)	0 (1.45)	0.04** (2.29)	0.11*** (6.33)
Household Attributes: Base - General category, Minority religions	SC/ST household	0.01*** (5.59)	0.11*** (14.3)	0.04*** (6.2)
	OBC household	0 (0.3)	0.03*** (5.97)	-0.03*** (-5.7)
	Hindu	0 (-0.77)	-0.01 (-1.19)	0.015 (1.55)
	Hindu Woman	-0.004 (-1.48)	0 (-0.17)	-0.04** (-2.34)
	Muslim	-0.009*** (-7.76)	-0.02* (-1.89)	-0.03*** (-3.1)
	Muslim Woman	0.01 (1.22)	-0.04* (-1.78)	-0.04** (-2.23)
	Child Per Household Member	-0.06*** (-17.12)	-0.02 (-1.39)	-0.08*** (-5.8)
	Prop Informally Employed	-0.27*** (-23.95)	0.11*** (8.84)	0.08*** (7.72)
Regional Factors	HDI	0.01*** (3.27)	-0.01 (-0.96)	0.11*** (8.23)
	Labour Law Environment Index	0.006*** (2.26)	0.03* (1.66)	-0.03** (-2.22)
	State Unemployment rate	0.000* (1.89)	0.00*** (-4.56)	-0.008*** (-10.43)
	IMRR	0.004* (1.9)	0.02** (2.07)	-0.06*** (-6.24)

Model Statistics	
Number of Observations	43517
Wald Chi2	15902.8
Log Likelihood	-38870
Prob > Chi2	0

Source: Same as Table 3

Note: Figures in brackets indicate t-statistic.

*, **, *** indicates significance at 10%, 5% and 1% levels, respectively

Self-employment was base category.

Vocationally trained men and those in professional/technical/managerial occupations were more likely to be formally employed, while a similar impact was not seen in the case of women. Vocationally trained women were more likely to be self-employed, similar to rural areas. In 2013-14, about 39 per cent of women who were vocationally trained did not join the labour force bringing into question the nature of the training imparted and the target population that it reaches (Labour Bureau, 2015).

However, women from professional, technical or managerial occupations were more likely to be IIE while men from similar occupations were more likely to be engaged in self-employment. The presence of young dependents greatly reduced the chances of being IFE, again similar to the observations in rural areas. So, besides not providing employment security, these jobs were also relatively inflexible as individuals with household responsibilities were also less likely to be engaged thus. However, unlike in rural areas, there were significant network effects in urban areas with the presence of other informally employed members in the same household greatly increasing the chance of the individual being informally employed themselves. The Wald Chi-Squared test, which tests the significance of at least one of the predictors being zero, is rejected, as reflected in the p-value.

Conclusion

Informal employment constitutes more than three-quarters of the workforce in India. Over time, this proportion has remained high, irrespective of how informal employment is defined and measured. However, within informal employment, there have been interesting developments. By explicitly accounting for the increasing informalisation of the formal labour market by separating informal employment in terms of the nature of the employer (self , formal enterprise , informal enterprise), the disaggregate analysis of informal employment provided some interesting insights.

The analysis of determinants of employment outcome revealed the varied motivations and profile of the labour force. While the self-employed informal workers largely fit the typical profile of informally employed – old and uneducated – the enterprise-based informal workers challenged these notions. Instead, young and experienced individuals, with educational qualifications were increasingly employed by the formal sector, reinforcing the 'structuralists' hypothesis of the formal and informal sector being intrinsically linked. Therefore, while certain forms of informal employment may be expected to disappear alongside economic growth, other forms may persist despite and because of economic growth. The informal hiring in formal enterprises is a representation of this perverse form of growth, where educated and qualified individuals are working in less than ideal employment arrangements. This is indicative of the exploitative practices prevalent in formal enterprises where profits and returns on investments are being secured by supporting services provided by the informal economy rather than increasing productivity or through innovations. Implicitly facilitated by ineffective

and counter-productive labour laws (Chakraborty, 2015) , this 'low road to growth' led by lowering wages and labour standards rather than innovating or improving productivity ('high road to growth') signals a race to the bottom (Sharma, 2006) in the pursuit of economic growth.

The increase in informal employment is as much a cause as it is a symptom of the way in which the benefits of economic growth in India has bypassed the majority of its population. This is unlike the experience of China where economic growth has been accompanied by an increase in medium and large scale units which provide formal employment to its workers (J. Ghose, 2014).

Public policy calls for increased attention to providing quality education and skills to Indian youth (Labour Bureau 2015, Economic Survey 2014). While education is touted as a means of enhancing skills and the bargaining powers of workers, this analysis showed otherwise. Highly educated individuals were more likely to be engaged informally by formal enterprises, rather than formally. This is a worrying trend. As India's youth population swells, further additions to the labour force are expected. As the analysis of determinants showed, these individuals were highly likely to be employed informally, either in formal or informal enterprises. There is likely to be a problem of overqualified individuals in the labour force who are either unemployed or discontented with the nature/quality of their jobs, a phenomenon that has already become a reality in Kerala (Rasheeda & Wilson, 2014).

Therefore, policy aimed towards education and skilling the labour force needs to go hand-in-hand with ensuring employment security and provision of basic social security benefits. Most labour reform policies are targeted towards BPL households since it is difficult to target the informally employed directly. It is possible, however, for governments to monitor formal enterprises. Therefore, initiating formalisation of the labour force should begin with the informal labourers in the formal enterprises. It will be more effective in terms of the reach and relative ease of implementation. Besides being a growing component, it is also relatively 'more' exploitative since human capital (education/skills) is not being adequately rewarded by this sector. The analysis in this paper dispelled the conventional notion of informal employment while providing direction for policy for enhancing employment security and labour force formalisation.

Notes

[i] Appendix A describes the distribution of different forms of social security benefits across individuals.

[ii] This is a purely empirical conclusion for the purpose of facilitating analysis. It is not to be taken to mean that PF is ideal/only necessary form of social security. Indeed, other provisions are necessary but the analysis suggests that provision of PF is the most basic form of support being provided. Data limitations also justify the use of this indicator, as elaborated in Appendix A.

[iii] Age splines are introduced rather than retaining age as a continuous variable. This was done since there was found to be high multicollinearity between age and its squared term.

[iv] Educational splines are introduced to differentiate the marginal impact of each level of education.

[v] For the smaller states, not all employment forms were represented and hence they have been excluded.

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Appendix A

Defining Informal Employment

The 17th ICLS in 2003 defined informal employment as those jobs where "…employment relation is, in law or in practice, not subject to national labour legislation, income taxation, social protection or entitlement to certain employment benefits…". (Hussmanns, 2004). So, informal employment may exist in formal and informal enterprises.

In India, the definition of informal employment has broadly reflected the international consensus. The Report of the National Commission on Employment in the Unorganised Sector (NCEUS) in 2008 (NCEUS, 2008) defines informal employment as "those working in the unorganised enterprises or households, excluding regular workers with social security benefits and the workers in the formal sector without any employment/ social security benefits provided by the employers". But the interpretation of what constitutes social security benefits has been largely ambiguous. Essentially, social security, in the labour context, refers to some form of support that ensures consumption-smoothing and protection against economic risks. This may be in the form of paid leave (enabling consumption smoothing in the face of a stoppage/reduction of earning), a written contract (provides economic security and reduces risks), contributory funds such as the Public Provident Fund (assured savings and financial support) or other implicit forms of economic security attached to the employment.

In light of the multiple definitions of informal employment available in the literature, a single definition needs to be adopted for comparative analysis of trends over the years. Therefore, for all subsequent analysis, informal employment is identified using the social security criterion of provision of PF. The use of only PF as a social security indicator is justified below.

In the NSS EUS social security benefits include (i) PF and pension, (ii) gratuity and (iii) health care and maternity benefits. The EUS also collects information on whether workers have paid leave or a written job contracts. An analysis of the distribution of these benefits reveals that the provision of PF is an overriding indicator i.e. the majority of individuals who were not given PF did not have other social security benefits including gratuity/healthcare, paid leave or a written contract

Table A1: Distribution of Individuals by Their Access to PF, Gratuity, Healthcare

	2011-12	2004-05
Only PF	6%	6%
PF & gratuity	2%	2%
PF & health care	2%	2%
PF, Gratuity & healthcare	17%	19%
Gratuity & healthcare	1%	1%
Only gratuity	1%	1%
Only healthcare	1%	1%
Not eligible for any	70%	69%

Source: Author's computation using NSS EUS 68th (2011-12) and 61st (2004-05) Rounds

Table A2: Distribution of Employed Individuals by Availability of PF and Paid Leave

	2011-12	2004-05
Paid Leave & has PF	24%	25%
No Paid Leave, has PF	2%	1%
Paid Leave & No PF	10%	12%
Neither Leave Nor PF	64%	62%

Source: Author's computation using NSS EUS 68th (2011-12) and 61st (2004-05) Rounds

Table A3: Distribution of Employed Individuals by Availability of PF and Written Contract

	2011-12	2004-05
No Contract & has PF	8%	6%
Contract & PF	18%	21%
No Contract & No PF	67%	65%
Contract , No PF	7%	8%

Source: Author's computation using NSS EUS 68th (2011-12) and 61st (2004-05) Rounds

As Table A.1, A.2 & A.3 reveal, it is very rare for non-PF benefits to be provided on their own. Instead, such benefits/security i.e. gratuity, healthcare, paid leave, or written contracts, are provided along with the provision of PF. The provision of PF can then be justifiably used as an overriding benchmark indicator of basic social security as it proxies for the provision of other employment and social security benefits as well. Moreover, in the 55th Round of the EUS collected information on only the provision of PF. Data on written contracts/leave or other forms of social security were not collected. Given this data limitation, the use of PF as a proxy for social security benefits is further justified.

Appendix B

Table B1: Summary Statistics for Dependent Variable

(as percentage of labour force), 2011-12

	RURAL	URBAN
FE	7	17
SE	34	44
IIE	18	26
IFE	10	14
AgriLab	30	-

Source: Author's computation using NSS EUS 68th (2011-12).

Note: FE - formal employment, IIE - informal employment in informal enterprises, IFE - informal employment in formal enterprises, SE - self-employment, AgriLab - agricultural labourers.

Table B2: Summary Statistics of Independent Variables

	RURAL				URBAN			
	Mean	**Standard Deviation**	**Min**	**Max**	**Mean**	**Standard Deviation**	**Min**	**Max**
Women	0.32	0.47	0	1	0.20	0.40	0	1
Age26_35	0.29	0.46	0	1	0.29	0.45	0	1
Age36_45	0.25	0.43	0	1	0.26	0.44	0	1
Age46_60	0.20	0.40	0	1	0.22	0.42	0	1
Age60	0.04	0.20	0	1	0.04	0.20	0	1
Age26_35W	0.09	0.29	0	1	0.06	0.24	0	1
Age36_45W	0.09	0.28	0	1	0.06	0.23	0	1
Age46_60W	0.07	0.26	0	1	0.04	0.20	0	1
Age60w	0.01	0.12	0	1	0.01	0.09	0	1
Primary	0.24	0.43	0	1	0.19	0.39	0	1
Middle	0.18	0.38	0	1	0.17	0.38	0	1
Secondary	0.13	0.33	0	1	0.15	0.36	0	1
Highersec	0.09	0.28	0	1	0.13	0.34	0	1
Grad	0.07	0.26	0	1	0.21	0.40	0	1
Primaryw	0.07	0.25	0	1	0.04	0.20	0	1
Middlew	0.04	0.20	0	1	0.03	0.16	0	1
Secondaryw	0.02	0.16	0	1	0.02	0.14	0	1
Highersecw	0.02	0.12	0	1	0.02	0.14	0	1
Gradw	0.01	0.11	0	1	0.04	0.20	0	1
Vocat	0.16	0.37	0	1	0.22	0.41	0	1
Vocatw	0.04	0.20	0	1	0.04	0.20	0	1
Occ_ptm	0.15	0.36	0	1	0.30	0.46	0	1
Occ_ptmw	0.03	0.18	0	1	0.06	0.24	0	1
Hhscst	0.30	0.46	0	1	0.18	0.39	0	1
hhOBC	0.46	0.50	0	1	0.44	0.50	0	1
Hindu	0.84	0.37	0	1	0.77	0.42	0	1
HinduW	0.28	0.45	0	1	0.16	0.37	0	1
Muslim	0.10	0.31	0	1	0.16	0.37	0	1
MuslimW	0.02	0.15	0	1	0.03	0.16	0	1
Childphh	0.25	0.21	0	0.9	0.21	0.21	0.0	0.8
Infempphh	0.48	0.25	0	1	0.40	0.27	0	1
Hdi	0.42	0.17	0	0.6	0.45	0.16	0	0.6
Labourlaw	0.32	0.17	0	0.6	0.33	0.18	0	0.6
Unemp	2.33	1.73	0	8	3.72	3.16	0	13

Table B3: Correlation Matrix (Rural)

	IEPF	Women	AGE 26_35	AGE 36_45	AGE 46_60	AGE 60	AGE 26_35 W	AGE 36_45 W	AGE 46_60 W	AGE 60W	PRIMA RY	MIDDLE	SECON DARY	HIGHER SEC	GRAD	PRIMA RYW	MIDDLE W	SECON DARY W	HIGHER SECW
IEPF	1.00																		
Women	0.12	1.00																	
Age26_35	0.01	-0.01	1.00																
Age36_45	-0.06	0.03	-0.37	1.00															
Age46_60	-0.06	0.04	-0.32	-0.28	1.00														
Age60	0.01	0.00	-0.14	-0.12	-0.11	1.00													
Age26_35w	0.04	0.46	0.49	-0.18	-0.16	-0.07	1.00												
Age36_45w	0.05	0.44	-0.20	0.54	-0.15	-0.06	-0.10	1.00											
Age46_60w	0.07	0.40	-0.18	-0.16	0.55	-0.06	-0.09	-0.08	1.00										
Age60w	0.03	0.17	-0.08	-0.07	-0.06	0.56	-0.04	-0.04	-0.03	1.00									
Primary	0.04	-0.03	-0.03	0.00	0.00	0.01	0.00	-0.02	-0.04	-0.03	1.00								
Middle	0.00	-0.09	0.03	-0.03	-0.08	-0.06	-0.03	-0.05	-0.08	-0.05	-0.26	1.00							
Secondary	-0.05	-0.11	0.04	-0.03	-0.06	-0.04	-0.03	-0.06	-0.08	-0.04	-0.21	-0.18	1.00						
Highersec	-0.10	-0.10	0.04	-0.03	-0.06	-0.05	-0.03	-0.06	-0.07	-0.03	-0.17	-0.14	-0.12	1.00					
Grad	-0.18	-0.10	0.06	0.01	-0.02	-0.04	-0.03	-0.05	-0.06	-0.03	-0.16	-0.13	-0.11	-0.09	1.00				
Primaryw	0.05	0.40	0.01	0.01	-0.02	-0.02	0.20	0.17	0.11	0.03	0.49	-0.13	-0.10	-0.08	-0.08	1.00			
Middlew	0.01	0.30	0.02	0.00	-0.04	-0.03	0.17	0.12	0.03	-0.01	-0.12	0.44	-0.08	-0.06	-0.06	-0.06	1.00		
Secondaryw	0.00	0.23	0.02	-0.02	-0.04	-0.03	0.15	0.07	0.02	-0.01	-0.09	-0.07	0.42	-0.05	-0.05	-0.04	-0.03	1.00	
Highersecw	-0.05	0.18	0.01	-0.01	-0.03	-0.02	0.11	0.05	0.01	-0.01	-0.07	-0.06	-0.05	0.40	-0.04	-0.03	-0.03	-0.02	1.00

Table B3: contd(...)

	IEPF	WOMEN	AGE 26_35	AGE 36_45	AGE 46_60	AGE 60	AGE 26_35W	AGE 36_45W	AGE 46_60W	AGE 60W	PRIMARY	MIDDLE	SECONDARY	HIGHERSEC	GRAD	PRIMARYW	MiddleW	secondaryW	HighersecW	GRADW
Gradw	-0.06	0.16	0.03	0.00	-0.03	-0.02	0.12	0.06	0.01	-0.01	-0.06	-0.05	-0.04	-0.03	0.38	-0.03	-0.02	-0.02	-0.01	1.00
Vocat	-0.12	-0.06	0.04	0.01	-0.04	-0.09	-0.02	-0.03	-0.04	-0.05	-0.01	0.04	0.03	0.06	0.01	-0.02	-0.01	0.01	0.02	0.02
Vocatw	-0.05	0.30	0.01	0.01	-0.01	-0.04	0.16	0.14	0.09	-0.02	-0.01	-0.02	-0.01	0.00	-0.01	0.12	0.11	0.11	0.12	0.10
Occ_PTM	-0.37	-0.10	0.01	0.04	0.04	0.00	-0.03	-0.04	-0.05	-0.03	-0.11	-0.04	0.04	0.15	0.35	-0.08	-0.04	0.02	0.09	0.16
Occ_Ptmw	-0.12	0.26	0.02	0.01	0.00	-0.01	0.16	0.12	0.09	0.02	-0.06	-0.03	0.01	0.07	0.12	0.02	0.06	0.15	0.27	0.41
Hhscst	0.08	0.04	0.01	-0.01	-0.01	-0.02	0.02	0.01	0.01	0.00	0.03	-0.05	-0.07	-0.07	-0.08	-0.01	-0.03	-0.03	-0.02	-0.04
Hhobc	0.00	0.01	-0.01	0.01	0.00	0.01	0.00	0.01	0.01	0.01	-0.01	0.03	0.01	0.00	-0.02	0.01	0.01	0.00	0.00	0.01
Hindu	0.08	0.05	0.01	0.01	0.01	0.00	0.02	0.02	0.03	0.01	-0.04	0.01	-0.01	0.00	0.03	0.00	0.01	-0.01	-0.01	0.00
Hinduw	0.15	0.90	-0.01	0.03	0.04	0.00	0.41	0.40	0.37	0.16	-0.04	-0.08	-0.10	-0.09	-0.09	0.34	0.27	0.19	0.15	0.13
Muslim	-0.07	-0.07	0.00	-0.02	-0.02	-0.02	-0.03	-0.04	-0.04	-0.02	0.06	0.00	-0.02	-0.03	-0.04	-0.01	-0.03	-0.02	-0.02	-0.02
Muslimw	-0.03	0.23	0.00	0.00	-0.01	-0.01	0.11	0.09	0.06	0.01	0.02	-0.03	-0.03	-0.03	-0.03	0.13	0.05	0.04	0.03	0.02
Childphh	-0.02	0.03	0.30	0.10	-0.23	-0.09	0.23	-0.05	-0.12	-0.05	0.02	-0.01	-0.04	-0.05	-0.04	0.02	0.00	0.00	-0.02	-0.01
Infempphh	0.28	0.25	-0.16	-0.15	0.07	0.10	-0.01	0.08	0.20	0.10	0.05	0.00	-0.05	-0.09	-0.20	0.11	0.07	0.04	0.00	-0.04
Hdi	0.07	0.05	0.02	-0.02	-0.02	-0.01	0.03	0.01	0.01	0.01	0.01	-0.08	0.03	0.01	-0.04	0.03	-0.01	0.02	-0.01	-0.04
Labourlaw	0.05	0.06	0.00	0.00	0.01	0.01	0.03	0.02	0.03	0.02	-0.01	-0.04	-0.01	-0.03	-0.02	0.01	-0.03	0.00	0.00	0.01
Unemp	-0.05	-0.14	0.02	0.00	0.00	-0.03	-0.05	-0.06	-0.07	-0.04	0.03	-0.04	0.00	0.00	0.02	-0.05	-0.06	-0.04	-0.03	-0.03
IMRR	0.13	0.72	-0.17	-0.20	-0.08	0.20	0.26	0.20	0.26	0.31	-0.07	-0.02	0.02	0.02	-0.08	0.32	0.30	0.27	0.22	0.14

Table B3: contd (...)

	Vocat	Vocatw	Occ_Ptm	Occ_Ptmw	Hhscst	Hhobc	Hindu	Hinduw	Muslim	Muslimw	Childphh	Infempphh	Hdi	Labourlaw	Unemp	IMRR
Vocat	1.00															
Vocatw	0.47	1.00														
Occ_ptm	0.02	-0.01	1.00													
Occ_ptmw	0.01	0.13	0.43	1.00												
Hhscst	-0.03	-0.01	-0.09	-0.02	1.00											
Hhobc	0.00	-0.01	-0.01	-0.01	-0.61	1.00										
Hindu	-0.09	-0.05	0.00	0.00	0.15	0.07	1.00									
Hinduw	-0.09	0.22	-0.09	0.23	0.07	0.03	0.27	1.00								
Muslim	0.02	0.00	0.01	-0.02	-0.22	0.01	-0.77	-0.21	1.00							
Muslimw	0.01	0.11	-0.02	0.07	-0.10	0.00	-0.35	-0.10	0.45	1.00						
Childphh	-0.01	0.00	-0.04	-0.02	0.05	0.00	-0.03	0.02	0.08	0.05	1.00					
Infempphh	0.00	0.07	-0.20	-0.02	0.06	0.01	0.05	0.24	-0.09	0.03	-0.50	1.00				
Hdi	-0.08	-0.05	-0.02	-0.03	-0.01	-0.04	-0.04	0.03	-0.02	0.00	-0.01	0.05	1.00			
Labourlaw	0.06	0.04	-0.03	0.01	0.02	0.13	0.06	0.07	-0.08	-0.02	-0.04	0.09	-0.05	1.00		
Unemp	-0.11	-0.05	0.05	-0.02	-0.02	-0.05	-0.02	-0.13	0.11	0.02	0.08	-0.17	0.09	-0.37	1.00	
IMRR	-0.04	0.23	-0.09	0.23	-0.05	0.01	-0.03	0.63	0.02	0.21	-0.13	0.32	0.03	0.01	-0.11	1

Table B4: Correlation Matrix (Urban)

	IEPF	women	age26_35	age36_45	age46_60	age60	age2~35W	age3~45W	age4~60W	age60W	primary	middle	second~y	higher~c	grad	primaryW	middleW	second~W	higher~W	gradW
IEPF	1																			
Women	0.0279	1																		
Age26_35	0.0688	0.0034	1																	
Age36_45	-0.0593	0.0209	-0.3851	1																
Age46_60	-0.1648	-0.0204	-0.3452	-0.3216	1															
Age60	-0.011	-0.0125	-0.1363	-0.127	-0.1139	1														
Age26_35w	0.0302	0.5004	0.3937	-0.1516	-0.1359	-0.0537	1													
Age36_45w	-0.0041	0.4883	-0.1588	0.4123	-0.1326	-0.0524	-0.0625	1												
Age46_60w	-0.0293	0.4147	-0.1349	-0.1256	0.3907	-0.0445	-0.0531	-0.0518	1											
Age60w	0.0067	0.1747	-0.0568	-0.0529	-0.0474	0.4166	-0.0224	-0.0218	-0.0185	1										
Primary	0.1123	0.0112	-0.0309	-0.0216	0.0021	0.0314	0.0053	0.0107	0.0053	-0.0005	1									
Middle	0.076	-0.0622	0.0175	-0.0196	-0.0455	-0.0235	-0.02	-0.0368	-0.0464	-0.026	-0.2185	1								
Secondary	-0.0086	-0.0811	0.0008	-0.0034	-0.0007	-0.0144	-0.0398	-0.0393	-0.0399	-0.0307	-0.2036	-0.1907	1							
Highersec	-0.0663	-0.059	0.0209	0.002	-0.0263	-0.0382	-0.0287	-0.0384	-0.0368	-0.0292	-0.1894	-0.1773	-0.1653	1						
Grad	-0.2169	-0.0082	0.0562	0.0218	0.0128	-0.0408	0.0305	-0.0203	-0.0239	-0.0372	-0.2459	-0.2303	-0.2147	-0.1996	1					
Primaryw	0.0295	0.4052	0.001	0.014	-0.0077	-0.0072	0.2021	0.2084	0.1693	0.0659	0.4243	-0.0927	-0.0864	-0.0803	-0.1043	1				
Middlew	0.0161	0.3178	0.015	-0.0015	-0.0303	-0.0196	0.1856	0.1399	0.0823	0.0193	-0.0776	0.3554	-0.0678	-0.063	-0.0818	-0.0329	1			
Secondaryw	-0.0041	0.2755	0.0021	0.0061	-0.0135	-0.0221	0.14	0.1353	0.0979	0.0049	-0.0673	-0.063	0.3306	-0.0546	-0.071	-0.0286	-0.0224	1		
Highersecw	-0.0091	0.2757	0.0019	-0.0069	-0.0204	-0.0238	0.1399	0.1106	0.0836	0.0011	-0.0674	-0.0631	-0.0588	0.3557	-0.071	-0.0286	-0.0224	-0.0194	1	
Gradw	-0.0481	0.4067	0.0384	-0.0091	-0.0286	-0.0367	0.2744	0.1653	0.1266	-0.0022	-0.0994	-0.093	-0.0867	-0.0807	0.404	-0.0422	-0.0331	-0.0287	-0.0287	1

Table B4: contd (...)

	IEPF	women	age26_35	age36_45	age46_60	age60	age2~35W	age3~45W	age4~60W	age60W	primary	middle	second~y	higher~c	grad	primaryW	middleW	second~W	higher~W	gradW	vocat
Vocat	-0.0046	-0.014	0.0661	-0.0093	-0.0497	-0.1119	0.0218	-0.0187	-0.0384	-0.0466	-0.017	0.0236	0.0139	0.0542	0.0003	-0.0284	0.0093	0.0205	0.0497	0.0231	1
Vocatw	-0.0219	0.4142	0.0324	-0.0042	-0.0408	-0.0444	0.2666	0.1779	0.1048	-0.0185	-0.0188	-0.0139	-0.0144	0.0199	0.0256	0.1212	0.16	0.1643	0.2244	0.2278	0.397
Occ_ptm	-0.267	0.0038	0.0063	0.0281	0.0474	0.01	0.0141	-0.0037	-0.0023	-0.0218	-0.1737	-0.1219	-0.0365	0.0876	0.409	-0.0788	-0.0471	-0.0079	0.0797	0.2145	0.0149
Occ_ptmw	-0.0652	0.5105	0.0139	0.0051	-0.014	-0.0248	0.2787	0.2388	0.2043	0.0465	-0.0709	-0.07	-0.0479	0.0301	0.1932	0.0542	0.0706	0.1237	0.2902	0.6121	0.0224
Hhscst	0.087	0.0367	0.0196	-0.0155	-0.0275	-0.0286	0.0249	0.0131	0.0128	0.0075	0.0508	0.0207	-0.0384	-0.0384	-0.1089	0.0265	0.0143	-0.0123	-0.0093	-0.0422	-0.0171
Hhobc	0.0289	0.018	-0.0018	0.002	-0.0197	0.0145	0.0076	0.0068	0.0018	0.0194	0.0538	0.0335	0.0065	-0.0216	-0.1108	0.0325	0.0099	0.0105	-0.0036	-0.0451	-0.007
Hindu	-0.0183	0.0204	0.0176	0.0213	0.0296	0.0018	0.0192	0.0244	0.0131	0.0075	-0.0516	-0.0156	0.0027	0.0283	0.0877	-0.0003	0.0119	0.0164	-0.0012	0.0178	-0.0446
HinduW	0.0308	0.8669	0.0083	0.0268	-0.0152	-0.0089	0.444	0.4398	0.3649	0.1559	0.0048	-0.0514	-0.0656	-0.0542	-0.0018	0.3416	0.2816	0.2511	0.2312	0.3634	-0.025
Muslim	0.0223	-0.0407	-0.0089	-0.0227	-0.051	-0.0154	-0.0263	-0.0341	-0.0325	-0.0147	0.0798	0.0267	-0.0184	-0.0549	-0.1221	0.0042	-0.0147	-0.0304	-0.0268	-0.0511	0.0106
MuslimW	-0.0029	0.3296	-0.006	-0.0102	-0.0239	-0.0116	0.1513	0.1286	0.1011	0.0402	0.0272	-0.0222	-0.0434	-0.0337	-0.0411	0.1805	0.1007	0.0472	0.0555	0.0554	0.0026
Childphh	0.0153	0.006	0.2188	0.1927	-0.2451	-0.0767	0.1557	-0.0166	-0.0934	-0.039	0.037	0.0153	-0.0131	-0.0444	-0.0825	0.0305	0.0102	-0.0102	-0.0284	-0.052	-0.0124
Infempphh	0.4219	0.1951	-0.0548	-0.1542	-0.0424	0.0974	0.0389	0.0707	0.1054	0.096	0.146	0.0632	-0.0161	-0.0851	-0.2582	0.1267	0.0885	0.061	0.017	-0.0583	0.018
Hdi	0.0264	0.0004	0.0181	-0.0076	-0.0235	-0.0331	0.0123	-0.0058	-0.016	-0.0104	0.0239	-0.0734	0.0323	0.0194	-0.0096	0.0185	-0.0171	-0.0007	-0.0052	-0.019	0.0102
Labourlaw	0.0294	0.0349	0.0067	0.0062	0	-0.0016	0.0204	0.0211	0.0143	0.0096	0.0187	-0.0133	-0.0019	-0.0163	-0.035	0.0188	0.002	0.0053	0.0018	-0.0064	0.0337
Unemp	-0.0564	-0.0331	-0.0145	0.011	0.0147	-0.0054	-0.0134	-0.0246	-0.01	-0.0133	0.0452	-0.0237	-0.0323	-0.0129	0.0282	0.0016	-0.0128	-0.0178	-0.0178	-0.0112	-0.0649
IMRR	0.0877	0.7005	-0.1181	-0.2111	-0.1466	0.1611	0.2974	0.2446	0.2729	0.2496	-0.0443	-0.0278	0.0001	0.0335	-0.0323	0.2735	0.2623	0.2596	0.2691	0.3135	0.0062

Table B4: contd (...)

	vocatW	occ_ptm	occ_ptmW	hhSCST	hhOBC	Hindu	HinduW	Muslim	MuslimW	childphh	infemp~h	hdi	labour~w	unemp	IMRR
Vocat															
Vocatw	1														
Occ_ptm	0.0336	1													
Occ_ptmw	0.2723	0.3913	1												
Hhscst	-0.0068	-0.1187	-0.0322	1											
Hhobc	0.0043	-0.0712	-0.0224	-0.4228	1										
Hindu	-0.0148	0.0114	0.0083	0.1666	-0.0436	1									
Hinduw	0.3327	0.002	0.4402	0.0702	0.0101	0.2364	1								
Muslim	-0.0103	-0.0362	-0.0388	-0.2027	0.0947	-0.8169	-0.1931	1							
Muslimw	0.1514	-0.0204	0.1272	-0.0758	0.0396	-0.3093	-0.0731	0.3786	1						
Childphh	0.0029	-0.0628	-0.0454	0.0417	0.0417	-0.0746	-0.0081	0.111	0.0507	1					
Infempphh	0.0655	-0.1872	-0.002	0.0226	0.0594	0.0022	0.1743	0.0015	0.0719	-0.3587	1				
Hdi	0.0004	0.0051	-0.0087	0.0173	-0.0616	0.0204	0.0068	-0.0488	-0.0166	-0.0323	0.0362	1			
Labourlaw	0.0181	-0.0347	-0.001	-0.0419	0.2055	0.0342	0.0395	-0.025	0.0011	0.0046	0.0389	-0.115	1		
Unemp	-0.03	0.0108	-0.0103	0.0592	-0.2335	0.079	-0.0136	-0.0233	-0.0105	-0.0295	-0.0142	0.1427	-0.4977	1	
IMRR	0.3159	-0.0087	0.4051	-0.021	0.0082	-0.0692	0.5876	0.0763	0.2791	-0.1513	0.2874	-0.0039	-0.003	-0.0098	1

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