WHAT DETERMINES EMPLOYABILITY IN INDIA?

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Abstract
The present paper tries to investigate the relevant household level determinants of employment and unemployment situation in India with special reference to North East states of India. For the analysis, Multinomial Logit model is estimated by using latest NSS unit level data on 'Employment and unemployment' in 2011-12.The estimated results show that higher amount of land holding increases the probability of becoming self employed persons. But it decreases the probability of becoming casual labourer of the rural worker. Rural females have the lowest probability of becoming wage/salaried worker. It finds that higher level of education (technical and general) reduces the probability of becoming casual worker/ self employed and increases the chance of becoming wage/salaried worker. Finally, the paper suggests that government needs to consider various household level factors such as age, marital status, religion groups, social groups, and education level for updating and formulating employment enhancement policies. Further, it urges that macro level policies need to be strengthened by emphasizing on micro level policies, giving due consideration to the development status (backward states/ region, e.g. North East states) for increasing employment opportunities. Emphasis also needs to be laid on level of investment, educational level, social benefits and security of the worker for a healthy and quality employment.
Keywords: Employment; Unemployment; Multinomial Logit Model; India.

1. INTRODUCTION

The Central government under Hon'ble Prime Minister Shri Narendra Modi is making a fresh attempt to boost manufacturing activity and job creation in the country. Basically, government is trying to increase factory or industrial production to absorb the huge backlog of unemployed or under employed youth by providing jobs. As per the latest economic survey, about 3.5 lakh jobs were created mostly in IT/BPO, textiles, auto and metal industries during April-June, 2015. Last year's Economic Survey highlighted the era of jobless growth especially during 2004-2012 as the employment growth rate had declined sharply during that period. Mainly, the present government wants to increase the contribution of manufacturing in the national economy to 25 % from the 12% of previous years. Moreover, the National Manufacturing Policy has set a target of creating 100 million jobs by 2022 through promoting growth of micro, small, and medium enterprises (MSME) for enhanced job creation. A labour ministry survey puts the number of jobs created between July and December 2014 at 2.75 lakh, as against 1.2 lakh jobs created between July and December 2014, i.e. a 118% year- on- year increase.

Government has set up the National Skill Development Corporation (NSDC), a Public Private Partnership entity to enlist private training providers to set up Skill Development Centers in various parts of the Country. Besides, the Pradhan Mantri Kaushal Vikas Yojana (PMKVY) launched by the Government on 15th July, 2015 as reward

based, demand driven scheme, envisages to impart skill training to a total of 24 lakh persons (14 lakh fresh entrants and certification of 10 lakh persons under Recognition of Prior Learning (RPL) scheme). The Government is also implementing "Deendayal Antyodaya Yojana- National Urban Livelihoods Mission (DAY-NULM)" to reduce poverty and vulnerability of urban poor households by enabling them to access gainful self-employment and skilled wage employment opportunities to bring about improvement in their livelihoods on a sustainable basis. Further, the other important government policies like National Urban Livelihood Mission (NULM), Make in India, 100 Smart City Mission, and "Start-up India" initiatives will transform our nation from country of job seekers to a country of job creators.

The structure of the paper is a follows. The next section presents the brief review of literatures.

Section 3 explains trends and patterns of employment and unemployment in North East states of India. Section 4 presents the econometric model as well as data used for the empirical analysis. Estimated results are presented in Section 5. Section 6 presents the discussion on major findings. Finally, section 7 highlights the conclusions and policy options.

2.   LITERATURE REVIEW

There are several studies (Mehrotra et al. 2014; Maiti, 2015; IHD, 2014; Bhalla and Kaur, 2011; Papola and Sahu, 2012, Tripathi, 2014; and Tripathi, 2018) that have tried to understand the trends and patterns of employment and unemployment in India. Chowdhury's (2011) analysis reveals the grim employment situation in India. The author cites the drastic reduction seen in total employment in India during the years 2004-05 to 2009-210 due both to the widespread withdrawal of population from the labour force (especially women) and the slow growth of employment in the non-agricultural sector, in support of his argument. The paper also finds that the spread of education among the youth is a positive development, but it does not by itself explain the decline in labour force participation rate. Mehrotra et al. (2014) found that India is experiencing a structural transformation with an absolute fall in agricultural employment and rise in non-agricultural employment. Also, the paper estimates that approximately 17 million jobs per annum need to be created in non-agriculture. Bhalla and Kaur (2011) found that India has been witnessing one of the lowest labour force participation rates for women in the world, especially, urban women. Maiti (2015), using Behavior over Time Graph (BOT) variables such as economic growth, education and labour force, found that unemployment is decreasing over time, and employment in India is challenged by major factors like economic crisis, gap between curriculum and industry demand, and jobless growth. Most importantly, India Labour and Employment Report (IHD, 2014), states that while India is counted as one of the most important emerging economies of the world, its employment scenario is abysmal. Overall, labour-force to population ratio (age group 15 years and above) at 56 per cent is low in India compared to nearly 64 per cent in the rest of the world. In India, a large proportion of workers (i.e., 49 %) are

engaged in agriculture; in contrast, employment share in service sector (or industry) is just 27 % (or 13 %). About 92 % of workers are engaged in informal employment with low earning with limited or no social protection. A study by Kapoor (2016) revealed that firms with higher capital intensity employed a higher share of skilled workers and the wage differential between skilled and unskilled workers was higher in these firms. Abraham (2009) found that the working condition in the agricultural distress ridden regions show feminisation of work, higher levels of under-employment and greater dependence on unpaid family labour. Mitra (2006) showed that the policies of liberalisation have had deteriorating effects on employment of urban females which involves low paid inferior working conditions. Sundaram (2007) in his study, draws attention to the complex scenerio of acceleration in workforce growth and slowdown in the rate of growth of labour productivity, decline in real wage growth in India, small rise in the number of working poor, self- employed and regular wage workers in the APL households, etc.

On the other hand, while there are numbers of studies dealing with the national employment scenario, state specific studies are not many to come by. Especially, the north-eastern region (NER) has not received due attention in labour research and policy, partly due to the problem of inadequacy or non-availability of statistically authentic data (Sahu, 2012). However, Census 2011 data shows some strange and disturbing trends on employment situation in the north east region. Data reveals that just 4% growth in workers in a decade in Mizoram – the lowest among all states. Three states – Mizoram, Nagaland, and Sikkim – were below the national average of 20% growth in workers from 2001 to 2011. Three states — Meghalaya, Mizoram and Arunachal Pradesh — witnessed a decline in the number total workers during the same period.

In this backdrop, the present paper tries to present the current employment and unemployment scenerio in the eight North East states: Sikkim, Meghalaya, Assam, Tripura, Mizoram, Manipur, Nagaland, and Arunachal Pradesh. In addition, the paper investigates the relevant household level economic determinants of employment and unemployment in India by focusing on North East India. Finally, the paper suggests relevant policy options for increasing employment in India in general and North East states of India in particular.

3. EMPLOYMENT AND UNEMPLOYMENT SITUATION IN NORTH EAST STATE INDIA

Table 1 presents the percentage share of geographical area in the Indian Himalayan Region by different states. It can be seen that Jammu & Kashmir occupies the highest (i.e., 41.65) percentage of the Indian Himalayan Region, followed by Arunachal Pradesh (15.69 %) and Himachal Pradesh (10.43 %) among twelve states in the Himalayan region of India. The percentage share of the eight North East states, i.e Sikkim, Meghalaya, Assam, Tripura, Mizoram, Manipur, Nagaland, and Arunachal Pradesh is about 37.3. This indicates that a large portion of the Indian Himalayan Region (IHR) belongs to North East states of India. Though IHR provides huge natural

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resources, but it makes difficult to set up industry as it faces transportation problem along with unfavorable mountain conditions makes it hard to create the employment opportunities.

TABLE 1 - STATE SHARE OF GEOGRAPHICAL AREA IN THE INDIAN HIMALAYAN REGION (IHR)

No.	State/region	% share of geographical area in the Indian Himalayan Region (IHR)
1	Jammu & Kashmir	41.65
2	Himachal Pradesh	10.43
3	Uttarakhand	10.02
4	Sikkim	1.33
5	Meghalaya	4.20
6	Assam hills	2.87
7	Tripura	1.97
8	Mizoram	3.95
9	Manipur	4.18
10	Nagaland	3.11
11	Arunachal Pradesh	15.69
12	West Bengal hills	0.59

Source: http://gbpihedenvis.nic.in/him_states.htm

Table 2 presents employment and unemployment situation in different states in North-East India, contrasted with the all India level as of 2011-12. It can be seen that per thousand worker, the number of self-employed is the highest (i.e., 593) for rural female and lowest (i.e., 417) for urban male at the all India level. The number of regular wage/salaried employee is highest among urban males (i.e., 434) and lowest among rural females (i.e., 56) per thousand population at the all India level. At the all India level, the number of casual labourers is the highest among rural males (i.e., 355) and lowest among urban females (i.e., 143) per thousand workers.

TABLE 2 - EMPLOYMENT AND UNEMPLOYMENT STATUS: NORTH EAST STATES IN INDIA IN 2011-12

State	Distribution (per 1000) of workers according to usual status (ps+ss) by broad employment status for each State												Proportion Unemployed (per 1000) for persons of age 15-59 years according to usual status (ps+ss) for each State			
	Self-employed				Regular wage/ salaried employee				Casual labour							
	Rural		Urban		Rural		Urban		Rural		Urban		Rural		Urban	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Arunachal Pradesh	780	895	321	491	150	56	567	388	67	48	111	421	13	7	26	19
Assam	711	643	549	469	104	175	353	449	185	182	98	82	39	11	46	10
Manipur	731	503	686	846	157	46	252	139	112	451	62	15	21	13	47	35
Meghalaya	676	756	322	433	114	89	507	484	210	156	170	84	3	2	18	12
Mizoram	832	813	420	723	125	43	472	257	43	144	107	20	12	17	32	28
Nagaland	801	949	362	645	189	29	599	355	11	22	39	0	129	82	140	110
Sikkim	709	902	351	463	225	67	597	537	66	30	52	0	9	7	26	1
Tripura	465	272	434	201	80	82	398	667	455	645	167	133	58	85	102	209
All India	545	593	417	428	100	56	434	428	355	351	149	143	16	7	25	12

Source: Author's compilation using data from "Key Indicators of employment and unemployment in India, NSS 68th Round (July 2011-June 2012), NSS KI (68/10)

On the other hand, proportion of unemployed (per 1000) persons is the highest among urban males (25) and lowest among rural females (7) all India level in compare to rural and urban areas. Among the eight North-Eastern states, Mizoram has the highest number of self-employed rural workers (i.e., 832) and Tripura has the lowest number of self-employed worker (i.e., 465) per 1000 of workers. Nagaland has the highest number of rural female workers (i.e., 949) per 1000 of workers among other North East Indian states. On the other hand, Manipur has the highest number of female (or male) self employed urban workers per 1000 workers among other North East Indian states. Among the other states, Sikkim (or Assam) has the highest number of rural regular male (or female) regular wage/salaried employees and Tripura (or Nagaland) has the lowest number of urban male (or female) worker per 1000 workers among Indian states. In contrast, Nagaland (or Tripura) has the highest

number of regular male (or female) wage/salaried employed and Manipur has the lowest number of male (or female) wage/salaried employees per 1000 workers among other Indian North East states. Tripura has the highest number of rural male (or female) casual workers per 1000 of workers among other North East Indian states.
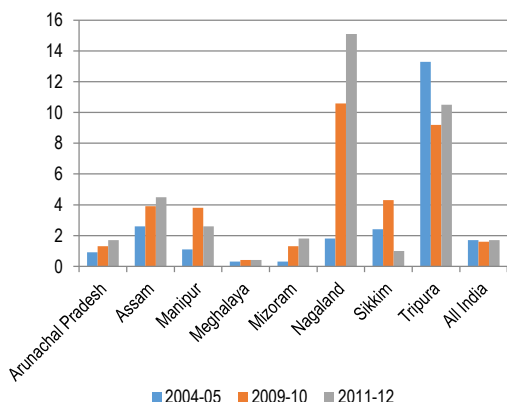

FIGURE 1 - RURAL UNEMPLOYMENT RATE

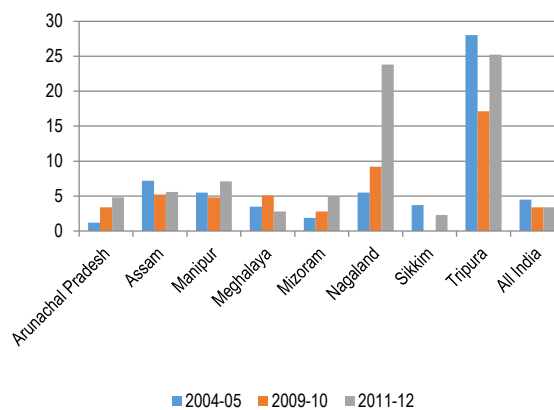Source: NSSO Reports, 2004-05, 2009-10 & 2011-12, GOI

FIGURE 2 - URBAN UNEMPLOYMENT RATE

Source: NSSO Reports, 2004-05, 2009-10 & 2011-12, GOI

Meghalaya (or Arunachal Pradesh) had the highest number of urban male (or female) casual laborer per 100 of workers among Indian states in 2011-12. Most importantly, Nagaland had the lowest number of rural and urban male (or female) casual laborer per 100 of workers among other states in 2011-12. In regard to the number of unemployed persons, Nagaland has the highest number of rural (or urban) male unemployed persons per 1000 persons among North East Indian states. Finally, Meghalaya has the lowest number of unemployed rural male (or female) and urban male per 1000 persons than other states. Further, Figure 1 and 2 clearly show that an increasing trend of rural and urban employment was witnessed in different time-periods in North-East India. Among the different states of North-East India Nagaland, Tripura, Assam, and Manipur have higher unemployment rate than other North-East states.

4. ECONOMETRIC MODEL AND DATA USED

4.1. Model Specification: The Multinomial Logit Model

The dependent variable y is a categorical, unordered variable. An individual may select only one alternative.[1] The choices/categories are called alternatives and are coded as j =1, 2,…, m. The numbers are only codes;

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[1] This part of explanation of the multinomial Logit model mainly has taken from Katchova (2013)

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therefore, their magnitude cannot be interpreted. The data are recorded in wide format, i.e., the data for each individual i is recorded in one row. The dependent variable is: $y = j$

The multinomial density for one observation is defined as:

$$f(y) = p_1^{y_1} \times \ldots \ldots \times p_m^{y_m} = \prod_{j=1}^m p_j^{y_j} \tag{1}$$

The probability that individual i chooses the jth alternative is:

$$P_{ij} = pr[y_i = j] = F_j(X_i, \beta) \tag{2}$$

The functional form of F_j is being selected so that the probabilities lie between 0 and 1 and sum over j to one. Different functional forms of F_j lead to multinomial, conditional, mixed, and ordered Logit and Probit models. However, as the regressors (e.g., age, caste, and education) vary over individuals i but do not vary over the alternative j, the multinomial Logit model is used.

The probability that individual i will select alternative j is:

$$P_{ij} = p(y_i = j) = \frac{\exp(w_i' \gamma_j)}{\sum_{k=1}^m \exp(w_i' \gamma_k)} \tag{3}$$

This model is a generalization of the binary logit model. The probabilities for choosing each alternative sum up to 1.

$$\sum_{j=1}^m p_{ij} = 1 \tag{4}$$

In this case, one set of coefficients have been normalized to zero to estimate the models (usually $\gamma_1 = 0$), so there are (j-1) sets of coefficients estimated. The coefficients of other alternatives are interpreted with reference to the base outcome.

The marginal effect of an increase of regressor on the probability of selecting alternative j is:

$$\partial p_{ij} / \partial w_i = p_{ij}(\gamma_j - \bar{\gamma}_i) \tag{5}$$

It is assumed that workers put themselves into five categories of labour market situations, i.e. not in labour force, unemployed, self-employed, regular wage/salaried employee, and casual laborer. These five categories are thus the outcomes of our multinomial selection equation. The set of exogenous explanatory variables is standard. It includes age, status of land owned, marital status, religious classification, social group references, general educational level, and technical education level. The dummies are included for each level such as general educational attainment (the omitted category is "*not literate*"), each level of technical educational attainment (the omitted category is "no *technical education*"), different categories of *social group (*the omitted category is "*other backward class"), different religion groups (*the omitted category is "*Hinduism"),* marital status (the omitted category is "never married"), and different age group classes (the omitted category is 35 to 44 years old).

4.2. Data used

For the analysis the study has used National Sample Survey 68th Round unit (or individual) level data on 'Employment and Unemployment' (Schedule 10). In this round, total number of households surveyed was 1,01,724 (59,700 in rural areas and 42,024 in urban areas) and number of persons surveyed was 4,56,999 (2,80,763 in rural areas and 1,76,236 in urban areas). In this survey, 'self-employed' is defined as a person persons who has worked in household enterprises (self-employed) as own-account worker, worked in household enterprises (self-employed) as an employer and worked in household enterprises (self-employed) as helper. 'Casual labour' is defined as a person who worked as casual wage labour in public works other than Mahatma Gandhi NREG public works, worked as casual wage labour in Mahatma Gandhi NREG public works, worked as casual wage labour in other types of works, did not work owing to sickness though there was work in household enterprise, did not work owing to other reasons though there was work in household enterprise, did not work owing to sickness but had regular salaried/wage employment, did not work owing to other reasons but had regular salaried/wage employment. 'Unemployed' is defined as a person who has sought work or did not seek but was available for work (for usual status approach); sought work (for current weekly status approach); did not seek but was available for work (for current weekly status approach). 'Neither working nor available for work' (or not in labour force) is defined as a person who has attended educational institutions; attended to domestic duties only; attended to domestic duties and was also engaged in free collection of goods (vegetables, roots, firewood, cattle feed, etc.), sewing, tailoring, weaving, etc. for household use; rentiers, pensioners, remittance recipients, etc.; not able to work owing to disability; others (including beggars, prostitutes, etc.); did not work owing to sickness (for casual workers only) and children of age 0-4 years.

5. EMPIRICAL RESULTS: THE DETERMINANTS OF EMPLOYMENT STATUS

A multivariate analysis is made in this study to find out the determinants of the labor market status by using Multinomial Logit Model. The multinomial logit model explains the allocation of labor force participants into 'unemployment', 'salaried work', 'casual wage work', 'self-employment' and 'not in labour force'.[2] Separate regressions are conducted here for both urban and rural male sub-samples and for urban and rural female sub-samples. 'Not in labour force' is the base outcome in the multinomial logit models.[3] To begin with, the factors that affect male labor force participation are examined. The marginal effects from the multinomial logit participation equation for males are shown in Table 3. The marginal effects are computed for a reference individual who is 35

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[2] Hausmann tests confirmed that the assumption of the independence of irrelevant alternatives, implied by the multinomial logit model, was satisfied for these outcomes estimated for all India level. However, to maintain the assumptions of independence of irrelevant alternatives for the outcome estimated for only North-east states of India we drop some of the independent variables from the regression model.

[3] National Sample Survey provides three broad activity statuses (viz.'employed', 'unemployed' and 'not in labour force'). Again 'employed' persons have three different categories 'self-employed' , 'regular wage/ salaried employee', and 'casual labour'. With this available information, we have chosen these five categories for the analysis as it covers entire workforce of India.

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to 44 years old, never married, Hindu by faith, Other Backward Class, not literate, and with no technical education, for the entire analysis.

5.1. All India level analysis

Table 3 presents the marginal effects for the probability of being self employed for persons of age 15-64 years according to 'usual' status. The results show that the probability of self employment for the reference individuals which include urban male (or rural male) and urban female (or rural female), is positive. For urban (or rural) males in 15-24 age group, the probability of self employment decreases by 4.3 (or 4.6) percentage points. However, the probability of self employment increases for urban females and rural males in age group the 25-34 and for urban females in 45-54 age group compared to persons in the reference age group of 35-44. The probability of self employment decreases for currently married urban males by 3.9 percentage point compared to the reference category of never married persons. This result also stands true for rural windowed women. The probability of self employment also increases for urban males belonging to Christianity and Jainism, urban female belonging to Islam and Jainism, rural male belonging to Buddhism and rural female belonging to Sikhism and Buddhism, compared to the reference category, i.e. those belonging to Hinduism. On the other hand, the probability of self employment increases for rural males belonging to Islam (or Christianity or Sikhism or Buddhism) and rural females belonging to Islam and Christianity. Across the different education levels, the probability of being self employed for persons having medicine degree increases is more than those in the reference category, i.e. persons having no technical education. The probability of being self employed also declines for urban males and females having diploma or certificate (graduate and above level). The probability of being self employed declines for urban males and rural persons (male+ female) who have achieved literacy through Total Literacy Campaign (TLC). The probability is also less for urban males, and rural males and females. Most importantly, the results clearly show that the probability of being self employed declines with higher the level of education for males and females living in both rural and urban areas. For instance, the probability of self employment decreases by 8.4 percentage point for urban males having postgraduate and above level education.

TABLE 3 - MARGINAL EFFECTS FROM MULTINOMIAL LOGIT MODEL—PROBABILITY OF BEING SELF EMPLOYED (FOR PERSONS OF AGE 15-64 YEARS ACCORDING TO USUAL ACTIVITY STATUS (PS+SS))

	India				North East India			
	Urban		Rural		Urban		Rural	
	Male	Female	Male	Female	Male	Female	Male	Female
Land owned	0.00002***	0.00002***	0.00003***	0.00003***	0.00003	0.00002	0.00002	0.00003
	(0.00001)	(0.00001)	(.00001)	(0.000)	(0.00004)	(0.002)	(0.00002)	(0.0001)
Age group (reference is 35-44)								
Age 15-24	-0.043***	0.003	-0.046***	0.002	-0.109	-0.039	-0.132	-0.006
	(0.009)	(0.013)	(0.007)	(0.006)	(0.088)	(3.002)	(0.099)	(0.047)
Age 25-34	0.016	0.014**	0.013*	0.003	0.012	0.016	0.0004	0.048*
	(0.014)	(0.007)	(0.008)	(0.005)	(0.070)	(1.464)	(0 .160)	(0.023)
Age 45-54	0.012	0.014	0.012	0.031***	-0.010	0.011	-0.024	0.049
	(0.009)	(0.016)	(0.012)	(0.007)	(0.025)	(3.538)	(0.207)	(0.083)
Age 55+ -	0.013	-0.002	0.024	0.004	0.0529	-0.023	0.014	0.017
	(0.016)	(0.012)	(0.016)	(0.007)	(0.227)	(4.738)	(0.380)	(0.117)

	India				North East India			
	Urban		Rural		Urban		Rural	
	Male	Female	Male	Female	Male	Female	Male	Female
Marital status (reference is never married)								
Currently married	-0.039** (0.018)	0.019 (0.015)	0.004 (0.01)	0.045 (0.006)	-0.072 (0.175)	-0.028 (3.139)	-0.091 (0.122)	-0.022 (0.091)
Widowed	-0.012 (0.017)	-0.01 (0.015)	0.015 (0.015)	-0.017* (0.009)	0.0005 (0.065)	-0.004 (1.768)	-0.077 (0.078)	-0.033 (0.113)
Divorced/separated	-0.008 (0.032)	-0.019 (0.026)	0.017 (0.035)	-0.017 (0.024)	0.188 (0.139)	-0.029 (2.855)	-0.093 (0.099)	-0.036 (0.243)
Religion(reference is Hinduism)								
Islam	0.002 (0.007)	0.016*** (0.006)	-0.049*** (0.007)	-0.058*** (0.005)	-0.003 (0.044)	-0.004 (0.673)	0.005 (0.04)	-0.001 (0.037)
Christianity	0.021* (0.013)	0.019* (0.012)	-0.056*** (0.009)	-0.015** (0.008)	0.088* (0.050)	0.022 (1.778)	0.017 (0 .026)	0.052 (0.046)
Sikhism	0.015 (0.018)	0.022 (0.014)	-0.105*** (0.012)	0.071*** (0.011)	0.192 (0.237)	0.461 (8.029)	0.348 (0.049)	0.223 (0.308)
Jainism	0.135*** (0.033)	0.093*** (0.029)	-0.042 (0.046)	0.005 (0.047)	0.159 (0.296)	0.601 (1.554)	-0.309 (0.224)	-0.297 (0.242)
Buddhism	0.013 (0.027)	0.012 (0.026)	0.034** (0.016)	0.046*** (0.016)	0.203 (0.181)	0.106 (6.495)	0.100 (0.133)	0.106 (0.098)
others	0.037 (0.027)	0.134*** (0.029)	-0.041** (0.016)	0.004 (0.015)	0.047 (0.069)	0.119 (6.999)	0.016 (0.069)	0.052 (0.063)
Social Group (Reference Is Other Backward Class)								
Scheduled tribe	-0.054*** (0.011)	-0.048*** (0.007)	0.029*** (0.008)	0.038*** (0.006)	-0.121** (0.054)	-0.078 (5.669)	-0.019 (0.037)	-0.034 (0.073)
Scheduled caste	-0.051*** (0.009)	-0.058*** (0.006)	-0.06*** (0.005)	-0.06*** (0.006)	-0.003 (0.031)	-0.024 (1.909)	-0.053 (0.064)	-0.066 (0.055)
Others	-0.003 (0.011)	-0.014 (0.011)	0.020*** (0.005)	0.028*** (0.004)	-0.052** (0.017)	-0.049 (3.707)	-0.038 (0.036)	-0.056 (0.111)
Educational level – technical (reference no technical education)								
Technical degree in agriculture/ engineering/ technology/ medicine, etc.	-0.031 (0.021)	-0.043 (0.029)	-0.024 (0.036)	0.008 (0.074)			-0.011 (0.145)	0.184 (0.234)
Diploma or certificate (below graduate level)								
Engineering/ technology	-0.012 (0.019)	0.006 (0.038)	0.010 (0.025)	0.056 (0.052)	-0.148 (0.112)	-0.201 (19.199)	-0.167 (0.158)	-0.025 (0.239)
Medicine	0.104** (0.051)	-0.011 (0.046)	-0.008 (0.047)	0.058 (0.062)	-0.023 (0.145)	-0.205 (0.375)	-0.205 (0.197)	0.202 (0.288)
Other subjects	-0.035 (0.021)	0.012 (0.028)	0.018 (0.029)	0.034 (0.041)	-0.050 (0.109)	-0.007 (1.820)	0.083 (0.142)	-0.109 (0.216)
Diploma or certificate (graduate and above level) in								
other subjects	-0.048* (0.027)	-0.049** (0.025)	-0.014 (0.036)	-0.003 (0.055)	0.073 (0.166)	-0.031 (2.925)	0.018 (0.169)	0.027 (0.322)
Educational level – general (reference is not literate)literate without formal schooling								
EGS/ NFEC/ AEC	0.047 (0.061)	-0.032 (0.046)	0.032 (0.038)	-0.041 (0.031)			-0.126 (0.111)	-0.067 (0.08)
TLC	-0.193*** (0.021)	-0.018 (0.111)	-0.169** (0.066)	-0.118* (0.061)			-0.309 (0.223)	-0.298 (0.226)
Others	0.014 (0.058)	0.027 (0.046)	0.0439 (0.042)	-0.029 (0.035)			0.085 (0.123)	0.001 (0.102)
Literate:								
Below primary	0.012 (0.011)	0.002 (0.01)	0.012 (0.008)	-0.027*** (0.006)	0.024 (0.113)	0.0532 (3.723)	0.048 (0.077)	-0.003 (0.017)
Primary	0.014 (0.012)	0.009 (0.01)	0.011 (0.008)	-0.016*** (0.005)	0.023 (0.049)	0.036 (2.599)	0.039 (0.078)	-0.003 (0.031)
Middle	-0.009 (0.017)	-0.011 (0.013)	-0.006 (0.009)	-0.048*** (0.005)	-0.013 (0.070)	0123984 1.32634	-0.008 (0.091)	-0.067 (0.115)
Secondary	-0.023 (0.023)	-0.027* (0.015)	-0.036*** (0.012)	-0.073*** (0.005)	-0.044 (0.083)	. -0.026 (2.123)	-0.075 (0.114)	-0.122 (0.165)
Higher secondary	-0.033 (0.027)	-0.039** (0.018)	-0.062*** (0.014)	-0.103*** (0.006)	-0.064 (0.089)	-0.079 (6.231)	-0.134 (0.165)	-0.166 (0.196)
Diploma/certificate course	-0.062** (0.026)	-0.06*** (0.022)	-0.124*** (0.019)	-0.154*** (0.018)	-0.029 (0.139)	-0.038 (3.385)	-0.172 (0.224)	-0.213 (0.179)
Graduate	-0.054 (0.033)	-0.05*** (0.019)	-0.114*** (0.015)	-0.136*** (0.008)	-0.125 (0.126)	-0.117 (9.589)	-0.219 (0.193)	-0.182 (0.199)
Postgraduate and above	-0.084*** (0.028)	0.069*** (0.019)	-0.141*** (0.016)	-0.166*** (0.013)	-0.164* (0.090)	-0.159 (14.224)	-0.261 (0.223)	-0.237 (0.189)

	India				North East India			
	Urban		Rural		Urban		Rural	
	Male	Female	Male	Female	Male	Female	Male	Female
Log-likelihood function	-52501.78	-50369.475	-101959.5	-97820.75	-6471.39	-6477.13	-16040.58	-15530.59
Number of Observations	47835	47424	88234	87515	5960	6000	13792	13424

Note: The standard error (in parenthesis) is that of the associated coefficient from the multinomial logit model, where 'not in labour force' is the base outcome. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively

TLC: Total Literacy Campaign; AEC: Adult Education Centres; NFEC: Non-formal Education Courses; Education Guarantee Scheme (EGS).

Table 4 presents the marginal effects for the probability of persons of 15-64 years with 'usual' status of being in salaried employment. The results indicate that the persons who own higher extent of land have less probability of being in salaried employment except for urban females. The probability of being in salaried employment increases for urban males above 25 years in age. On the other hand, the probability of urban females below 34 years being in salaried employment is less and the probability of urban females of 45-54 years in salaried employment is more. The probability of being in salaried employment is positive for urban persons of 45-54 years but negative for rural persons of 15-24 and for rural females of 25-34, compared to the reference category, i.e. 35-44 age group. The probability is negative for urban male belonging to currently married (or widowed) and for males currently married, but it is positive for rural widowed and divorced/separated females compared to the reference category, i.e. never married. The probability of being in salaried employment decreases for the persons belonging to Islam compared to the reference category, i.e. of Hindus. The probability of being in salaried employment is positive for rural persons belonging to Christianity and Buddhism and for rural males belongs to Sikhism. But, it is negative for rural males belonging to Jainism and for urban (or rural) females belonging to other religions compared to the reference category, i.e. Hindus. Most importantly, the estimated results show that different persons belonging to different castes (i.e., scheduled tribe, scheduled caste and other category of social group) have positive probability of being in salaried employment compared to the reference category, i.e. other Backward Class.

The probability of being in salaried employment increases for the urban persons with technical degrees (or graduate and above level diploma in other subject) and for urban males with engineering/technological diploma and diploma in other subjects (below graduate level). The results also show high probability of being in salaried employment for those who have acquired diploma in other subjects (below graduate level). However, it is negative for rural female with diploma in medicine (below graduate level). The probability also declines for urban males who have achieved literacy through Total Literacy Campaign (TLC). Most importantly, the probability of being in salaried employment increases for persons having higher level of educational qualifications. For instance, the probability of being in salaried employment increases by 16 percentage point for urban males who have postgraduate and above level education. However, the probability of being in salaried employment is much higher for rural persons than urban persons having post graduate and above educational level than the reference category, i.e. not literate persons.

TABLE 4 - MARGINAL EFFECTS FROM MULTINOMIAL LOGIT MODEL—PROBABILITY OF BEING SALARIED EMPLOYED (FOR PERSONS OF AGE 15-64 YEARS ACCORDING TO USUAL ACTIVITY STATUS (PS+SS))

	India				North East India			
	Urban		Rural		Urban		Rural	
	Male	Female	**Male**	Female	**Male**	Female	**Male**	Female
Land owned	-.0000154** (.00001)	-8.72e-06 (.00001)	-7.33e-06*** (.00000)	-4.91e-06*** (.00000)	-.0000114 .00003	-5.52e-06 (.00056)	-1.19e-06 .00001	-9.08e-07 .00002
Age group (reference is 35-44)								
Age 15-24	-0.002 (0.008)	-0.019** (0.009)	-0.015*** (0.003)	-0.022*** (0.002)	0.008 (0.026)	-0.008 (0.858)	-0.007 (0.034)	-0.026 (0.045)
Age 25-34	0.019* (0.012)	-0.012** (0.005)	-0.002 (0.002)	-0.014*** (0.002)	0.013 (0.052)	-0.002 (0.501)	-0.001 (0.033)	-0.010 (0.018)
Age 45-54	0.049*** (0.011)	0.047* (0.019)	0.024*** (0.004)	0.027*** (0.003)	0.038 (0.044)	0.039 (2.924)	0.023 (0.106)	0.031 (0.052)
Age 55+	0.046*** (0.015)	-0.009 (0.009)	0.022*** (0.005)	0.002 (0.003)	0.075 (0.199)	0.026 (3.871)	0.009 (0.091)	0.018 (0.038)
Marital status (reference is never married)								
Currently married	-0.034** (0.014)	-0.017 (0.013)	-0.015*** (0.003)	0.003 (0.003)	-0.020 (0.096)	-0.019 (1.735)	-0.008 (0.037)	0.0003 (0.022)
Widowed	-0.042*** (0.013)	0.017 (0.014)	-0.008 (0.006)	0.028*** (0.006)	-0.028 (0.059)	-0.028 (1.176)	-0.004 (0.027)	0.003 (0.036)
Divorced/separated	-0.031 (0.025)	-0.004 (0.021)	-0.015 (0.012)	0.035** (0.014)	0.018 (0.102)	-0.035 (1.444)	0.023 (0.094)	-0.010 (0.056)
Religion(reference is Hinduism)								
Islam	-0.045*** (0.009)	-0.039** (0.012)	-0.008*** (0.002)	-0.005* (0.002)	-0.050 (0.047)	-0.005 (0.424)	-0.009 (0.036)	-0.022 (0.038)
Christianity	0.006 (0.009)	0.004 (0.008)	0.007* (0.004)	0.008** (0.003)	0.003 (0.023)	0.002 (0.577)	-0.021 (0.082)	0.013 (0.024)
Sikhism	-0.003 (0.014)	0.0001 (0.010)	0.015* (0.006)	0.003 (0.005)	-0.019 (0.133)	0.223 (23.953)	-0.013 (0.049)	-0.065 (0.092)
Jainism	-0.082*** (0.015)	-0.039* (0.019)	-0.041*** (0.01)	-0.018 (0.016)	-0.007 (0.145)	-0.121 (3.065)	-0.024 (0.091)	-0.065 (0.071)
Buddhism	-0.005 (0.018)	0.014 (0.019)	0.032*** (0.009)	0.022*** (0.008)	-0.050 (0.059)	0.034 (2.855)	0.008 (0.030)	0.039 (0.066)
Others	-0.028 (0.019)	-0.039* (0.019)	-0.002 (0.008)	-0.013** (0.006)	-0.012 (0.054)	-0.029 (0.930)	0.119 (0.446)	-0.020 (0.035)
Social Group (Reference Is Other Backward Class)								
Scheduled tribe	0.046*** (0.012)	0.049*** (0.017)	0.012*** (0.003)	0.014*** (0.003)	0.066 (0.055)	0.074 (1.113)	0.205 (0.623)	-0.015 (0.031)
Scheduled caste	0.049*** (0.012)	0.035*** (0.012)	0.005* (0.002)	0.014*** (0.002)	0.051 (0 .051)	0.038 (1.156)	0.054 (0.194)	-0.009 (0.018)
Others	0.024*** (0.006)	0.012* (0.007)	0040255** (0.002)	0.006*** (0.002)	0.058 (0.054)	0.032 (0.804)	-0.005 (0.026)	-0.007 (0.025)
Educational level – technical (reference no technical education)								
Technical degree in agriculture/ engineering/ technology/ medicine, etc.	0.062*** (0.016)	0.079** (0.034)	0.005 (0.011)	0.018 (0.023)			0.016 (0.069)	-0.038 (0.073)
Diploma or certificate (below graduate level)								
Engineering/ technology	0.082*** (0.022)	0.002 (0.023)	0.0001 (0.007)	0.009 (0.014)	0.117 (0 .098)	-0.121 (3.099)	-0.021 (0.084)	0.078 (0.138)
Medicine	0.002 (0.032)	0.049 (0.039)	0.0004 (0.013)	-0.022** (0.010)	0.082 (0.139)	0.410 (0.709)	0.035 (0.139)	0.019 (0.085)
Other subjects	0.043** (0.020)	-0.004 (0.017)	-0.003 (0.008)	-0.002 (0.009)	0.064 (0.122)	-0.121 (3.092)	-0.027 (0.104)	0.006 (0.059)
Diploma or certificate (graduate and above level) in								
Other subjects	0.060*** (0.022)	0.056* (0.028)	0.038*** (0.014)	0.021 (0.017)	-0.036 (0 .089)	0.215 (4.029)	0.020 (0.087)	0.015 (0.097)
Educational level – general (reference is not literate)literate without formal schooling								
EGS/ NFEC/ AEC	0.035 (0.063)	0.083 (0.061)	0.054 (0.034)	0.008 (0.021)			0.029 (0.138)	0.022 (0.069)
TLC	0.252 (0.293)	-0.124*** (0.011)	0.002 (0.055)	-0.021 (0.032)			-0.063 (0.227)	0.212 (0.415)

	India				North East India			
	Urban		Rural		Urban		Rural	
	Male	Female	**Male**	Female	**Male**	Female	**Male**	Female
Others	0.095 (0.075)	-0.036 (0.039)	-0.011 (0.025)	0.024 (0.025)			-0.065 (0.110)	0.079 (0.133)
Literate:								
Below primary	0.005 (0.012)	0.004 (0.009)	0.021*** (0.006)	0.015*** (0.004)	0.019 (0 .095)	-0.025 (0.168)	0.036 (0.132)	0.012 (0.022)
Primary	0.043*** (0.011)	0.024** (0.010)	0.034*** (0.006)	0.028*** (0.004)	0.092 (0 .068)	-0.003 (0.520)	0.044 (0.159)	0.037 (0.057)
Middle	0.041*** (0.012)	0.024** (0.011)	0.052*** (0.005)	0.049 (0.004)	0.116 (0 .082)	0.016 (0.849)	0.069 (0.246)	0.074 (0.104)
Secondary	0.041*** (0.016)	0.036*** (0.014)	0.076*** (0.006)	0.088*** (0.006)	0.129 (0 .088)	0.059 (1.384)	0.109 (0.368)	0.142 (0.183)
Higher secondary	0.052*** (0.019)	0.073*** (0.022)	0.118*** (0.009)	0.133*** (0.008)	0 .166 (0.141)	0.111 (2.711)	0.202 (0.602)	0.236 (0.269)
Diploma/certificate course	0.086*** (0.027)	0.186*** (0.051)	0.254*** (0.028)	0.239*** (0.031)	0.166 (0.290)	0.116 (2.048)	0.379 (0.816)	0.238 (0.345)
Graduate	0.109*** (0.023)	0.108*** (0.029)	0.207*** (0.014)	0.199*** (0.014)	0.254 (0 .268)	0.172 (4.248)	0.299 (0.766)	0.277 (0.306)
Postgraduate and above	0.165*** (0.024)	0.188*** (0.051)	0.279*** (0.024)	0.283*** (0.028)	0.368 (0.299)	0.283 (9.455)	0.367 (0.835)	0.296 (0.359)
Log-likelihood function	-52501.78	-50369.48	-101959.5	-97820.75	-6471.3967	-6477.13	-16040.58	-15530.59
Number of Observations	47835	47424	88234	87515	5960	6000	13792	13424

Note: The standard error (in parenthesis) is that of the associated coefficient from the multinomial logit model, where 'not in labour force' is the base outcome. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively

TLC: Total Literacy Campaign; AEC: Adult Education Centres; NFEC: Non-formal Education Courses; Education Guarantee Scheme (EGS).

Table 5 presents the marginal effects for the probability of being casual labourer for persons of 15-64 years according to 'usual' status. The results indicate that being casual labouer is a rural phenomenon than urban, as the estimated probabilities of persons becoming urban casual labour is not statistically significant. However, for urban females having technical degree the probability of being casual labour is negative compared to the reference category, i.e. persons having no technical education.

The results show that probability of being casual worker is negative for rural persons who own land. The probability of being casual worker is positive for rural persons of 15-24 years, while it is negative for rural persons in 55 + age group. However, it is positive for urban males of 45-54 years, while it is negative for urban female in 45-54 age group compared to the reference category, i.e. persons in 35-44 age group. The probability of being casual labour is also positive for both widowed and separated men and currently married female of rural worker. However, the probability is negative for rural persons belonging to Islam, Christianity, Sikhism, and other category of religions compared to the reference category, i.e. Hindus. The results also holds true for rural male belonging to Jainism. The probability of being casual labour increases for rural persons belonging to scheduled tribe, scheduled caste and declines for other social groups, compared to the reference category, i.e. Other Backward Class. The probability is also negative for rural female having engineering/technological diploma (below graduate level). The results hold true for urban female having EGS/NFEC/AEC and other education level and for rural male having TLC education level. Finally, the results show that the probability of being casual labour decreases with higher level of education. It is also significantly higher for higher levels of education than for lower

levels of education. For instance, the probability of being casual labour decreases by 8.6 percentage point for rural male having post graduate and above education , but it decreases by 1.2 percentage point for rural male having below primary level education, compared to the reference category, i.e., not literate rural persons.

Table 6 presents the marginal effects for the probability of being unemployed for persons of 15-64 years according to 'usual' status. The results show that probability of being unemployed decreases by 1.3 (or 1.2) percentage points for rural male (or female) belonging to Jainism compared to the reference category, i.e. of Hindu religion. . However, none of the other variables are statistically significant.

TABLE 5 - MARGINAL EFFECTS FROM MULTINOMIAL LOGIT MODEL—PROBABILITY OF BEING CASUAL LABOURER (FOR PERSONS OF AGE 15-64 YEARS ACCORDING TO USUAL ACTIVITY STATUS (PS+SS))

	India				North East India			
	Urban		Rural		**Urban**		Rural	
	Male	Female	**Male**	Female	**Male**	Female	**Male**	Female
Land owned	-0.00001 (0.00004)	-0.00002 (0.00004)	-0.00005*** (0.00002)	-0.00005*** (0.00000)	-7.33e-06 (0.0002)	-0.00001 (0.004)	-0.00004 (0.00006)	-0.00003 (0.0002)
Age group (reference is 35-44)								
Age 15-24	0.009 (0.032)	0.022 (0.052)	0.011** (0.005)	0.011*** (0.003)	-0.004 (2.59)	0.013 (3.864)	-0.009 (0.028)	-0.014 (0.117)
Age 25-34	0.015 (0.047)	0.005 (0.011)	0.026*** (0.009)	0.0004 (0.002)	0.004 (0.111)	0.003 (0.779)	0.032 (0.074)	-0.007 (0.056)
Age 45-54	-0.001 (0.005)	0.002 (0 .005)	-0.007 (0.004)	-0.007*** (0.002)	0.001 (0.041)	-0.004 (1.104)	-0.007 (0.047)	-0.011 (0.090)
Age 55+	-0.006 (0.018)	-0.009 (0.022)	-0.025** (0.009)	-0.027*** (0.002)	-0.005 (0.138)	-0.005 (1.653)	-0.033 (0.068)	-0.035 (0.289)
Marital status (reference is never married)								
Currently married	-0.005 (0.016)	0.006 (0.015)	-0.0007 (0.004)	0.012*** (0.003)	-0.006 (0.179)	0.007 (2.113)	0.017 (0.030)	0.025 (0.208)
Widowed	0.008 (0.026)	0.021 (0.049)	0.017* (0.009)	0.037*** (0.006)	-0.005 (0.164)	0.021 (6.168)	0.014 (0.029)	0.049 (0.379)
Divorced/separated	0.013 (0.042)	0.037 (0.085)	0.049* (0.026)	0.064*** (0.015)	-0.006 (0.178)	0.034 (9.809)	0.055 (0.096)	0.107 (0.762)
Religion(reference is Hinduism)								
Islam	-0.008 (0.028)	-0.006 (0.014)	-0.019*** (0.007)	-0.024*** (0.002)	-0.001 (0.033)	-0.001 (0.433)	-0.027 (0.046)	-0.009 (0.079)
Christianity	-0.003 (0.010)	-0.005 (0.012)	-0.022** (0.009)	-0.009*** (0.003)	0.0009 (0.026)	0.011 (3.254)	-0.020 (0.033)	0.002 (0.015)
Sikhism	-0.021 (0.069)	-0.011 (0.027)	-0.029** (0.012)	-0.014*** (0.005)	-0.009 (0.295)	-0.013 (3.963)	-0.069 (0.088)	-0.061 (0.522)
Jainism	-0.033 (0.059)	-0.025 (0.060)	-0.089*** (0.001)	-0.035 (0.023)	-0.009 (0.293)	-0.013 (3.981)	-0.069 (0.088)	-0.061 (0.520)
Buddhism	0.006 (0.019)	0.008 (0.020)	0.005 (0.008)	0.009 (0.007)	0.007 (0.219)	0.014 (4.279)	-0.018 (0.032)	0.004 (0.036)
others	-0.0168 (0.056)	-0.019 (0.046)	-0.043** (0.017)	-0.015* (0.008)	-0.003 (0.099)	0.003 (1.051)	-0.041 (0.069)	-0.002 (0.020)
Social Group (Reference Is Other Backward Class)								
Scheduled tribe	0.002 (0.008)	0.006 (0.013)	0.030*** (0.011)	0.016*** (0.003)	0.002 (0.047)	-0.009 (2.830)	0.016 (0.028)	-0.017 (0.135)
Scheduled caste	0.007 (0.022)	0.005 (0.013)	0.036*** (0.013)	0.026*** (0.003)	0.004 (0.117)	0.002 (0.753)	0.002 (0.018)	-0.0009 (0.012)
Others	-0.015 (0.050)	-0.019 (0.045)	-0.019*** (0.007)	-0.033*** (0.002)	0.003 (0.084)	-0.001 (0.332)	0.002 (0.009)	-0.031 (0.255)
Educational level – technical (reference no technical education)								
Technical degree in agriculture/ engineering/ technology/ medicine	-0.015 (0.049)	-0.031* (0.016)	0.007 (0.037)	0.056 (0.084)			0.097 (0.204)	-0.061 (0.511)
Diploma or certificate (below graduate level)								
Engineering/ technology	0.006 (0.022)	0.028 (0.071)	-0.011 (0.018)	-0.049*** (0.019)	-0.010 (0.300)	-0.013 (3.974)	-0.027 (0.069)	-.0615781 .51002
Medicine	-0.031 (0.089)	0.029 (0.082)	-0.037 (0.033)	0.032 (0.046)	-0.009 (0.296)	-0.013 (0.554)	0.023 (0.116)	-.0612384 (0.519)

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	India				North East India			
	Urban		Rural		Urban		Rural	
	Male	Female	**Male**	Female	**Male**	Female	**Male**	Female
Other subjects	0.004 (0.018)	0.005 (0.024)	0.031 (0.028)	0.044 (0.036)	-0.010 (0.297)	-0.013 (4.001)	0.092 (0.174)	-0.062 (0.518)
Diploma or certificate (graduate and above level) in								
other subjects	-0.015 (0.051)	0.019 (0.051)	-0.052 (0.032)	0.072 (0.067)	-0.009 (0.296)	-0.013 (4.071)	0.113 (0.229)	-0.061 (0.522)
Educational level – general (reference is not literate)literate without formal schooling								
EGS/ NFEC/ AEC	-0.017 (0.058)	-0.015 (0.037)	-0.015 (0.015)	-0.021* (0.012)			0.080 (0.137)	0.011 (0.095)
TLC	-0.030 (0.101)	-0.029 (0.071)	-0.051* (0.028)	0.0003 (0.028)			-0.016 (0.069)	0.058 (0.449)
Others	-0.009 (0.032)	-0.021 (0.051)	-0.021 (0.016)	-0.035*** (0.011)			0.057 (0.107)	-0.016 (0.136)
Literate:								
Below primary	-0.005 (0.016)	-0.009 (0.023)	-0.012** (0.005)	-0.011*** (0.002)	-0.002 (0.060)	0.008 (2.372)	0.015 (0.032)	0.0002 (0.006)
Primary	-0.012 (0.038)	-0.015 (0.036)	-0.028 (0.011)	-0.025*** (0.002)	-0.003 (0.083)	-0.002 (0.623)	-0.012 (0.022)	-0.007 (0.056)
Middle	-0.021 (0.070)	-0.025 (0.059)	-0.051*** (0.019)	-0.041*** (0.002)	-0.010 (0.306)	-0.013 (3.962)	-0.040 (0.065)	-0.029 (0.236)
Secondary	-0.031 (0.103)	-0.028 (0.068)	-0.072*** (0.027)	-0.056*** (0.002)	-0.011 (0.341)	-0.014 (4.376)	-0.064 (0.105)	-0.040 (0.333)
Higher secondary	-0.037 (0.121)	-0.033 (0.080)	-0.081*** (0.031)	-0.065*** (0.002)	-0.013 (0.394)	-0.013 (3.926)	-0.076 (0.128)	-0.048 (0.407)
Diploma/certificate course	-0.027 (0.089)	-0.028 (0.069)	-0.073* (0.028)	-0.058*** (0.005)	-0.011 (0.315)	-0.014 (4.201)	-0.055 (0.095)	0.027 (0.222)
Graduate	-0.045 (0.149)	-0.035 (0.084)	-0.092*** (0.035)	-0.071*** (0.002)	-0.018 (0.541)	-0.014 (4.198)	-0.077 (0.130)	-0.049 (0.414)
Postgraduate and above	-0.036 (0.119)	-0.032 (0.079)	-0.086* (0.034)	-0.071*** (0.002)	-0.016 (0.299)	-0.017 (5.127)	-0.069 (0.119)	-0.065 (0.294)
Log-likelihood function	-52501.78	-50369.475	-101959.5	-97820.75	-6471.3967	-6477.1324	-16040.584	-15530.59
Number of Observations	47835	47424	88234	87515	5960	6000	13792	13424

Note: The standard error (in parenthesis) is that of the associated coefficient from the multinomial logit model, where 'not in labour force' is the base outcome. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively

TLC: Total Literacy Campaign; AEC: Adult Education Centres; NFEC: Non-formal Education Courses; Education Guarantee Scheme (EGS).

TABLE 6 - MARGINAL EFFECTS FROM MULTINOMIAL LOGIT MODEL—PROBABILITY OF BEING UNEMPLOYED (FOR PERSONS OF AGE 15-64 YEARS ACCORDING TO USUAL ACTIVITY STATUS (PS+SS))

	India				North East India			
	Urban		Rural		Urban		Rural	
	Male	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**
Land owned	1.43e-07 .00000	-2.75e-07 (.00000)	-4.88e-07 (.00000)	-2.08e-07 (.00000)	2.84e-06 .00004	4.23e-06 .00101	1.81e-06 .00002	1.72e-06 .00001
Age group (reference is 35-44)								
Age 15-24	-0.003 (0.007)	-0.006 (0.017)	0.004 (0.005)	-0.004 (0.003)	-0.008 (0.118)	-0.003 (0.790)	0.031 (0.273)	-0.003 (0.021)
Age 25-34	0.009 (0.019)	0.003 (0.009)	0.010 (0.012)	-0.003 (0.002)	0.017 (0.263)	0.016 (3.738)	0.055 (0.474)	0.002 (0.014)
Age 45-54	0.015 (0.031)	0.024 (0.064)	0.028 (0.031)	0.013 (0.010)	0.008 (0.119)	0.065 (14.446)	0.077 (0.650)	0.029 (0.193)
Age 55+	0.031 (0.062)	0.016 (0.044)	0.035 (0.039)	0.009 (0.007)	0.051 (0.748)	0.104 (21.727)	0.126 (0.994)	0.031 (0.208)
Marital status (reference is never married)								
Currently married	-0.028 (0.058)	-0.028 (0.075)	-0.022 (0.025)	-0.012 (0.009)	-0.036 (0.544)	-0.043 (9.816)	-0.028 (0.246)	-0.029 (0.199)
Widowed	-0.011 (0.022)	-0.014 (0.039)	-0.009 (0.011)	-0.009 (0.007)	-0.007 (0.108)	-0.025 (5.861)	-0.015 (0.136)	-0.018 (0.128)
Divorced/separated	-0.014 (0.029)	-0.005 (0.015)	-0.011 (0.013)	-0.007 (0.006)	-0.029 (0.405)	-0.010 (2.413)	-0.023 (0.173)	-0.009 (0.063)
Religion(reference is Hinduism)								
Islam	0.002 (0.004)	-0.0007 (0.003)	0.003 (0.004)	0.004 (0.003)	-0.011 (0.176)	-0.012 (2.804)	-0.005 (0.049)	-0.007 (0.051)
Christianity	0.013 (0.026)	0.009 (0.024)	0.014 (0.016)	0.011 (0.008)	-0.005 (0.072)	-0.006 (1.513)	-0.005 (0.044)	-0.009 (0.067)

	India				North East India			
	Urban		Rural		Urban		Rural	
	Male	Female	Male	Female	Male	Female	Male	Female
Sikhism	0.00004 (0.004)	-0.004 (0.012)	-0.004 (0.005)	-0.007 (0.006)	-0.029 (0 .449)	-0.031 (7.485)	-0.022 (0.199)	-0.021 (0.147)
Jainism	-0.016 (0.033)	-0.011 (0.032)	-0.013*** (0.0004)	-0.012*** (0.0004)	-0.029 (0.449)	-0.031 (7.523)	-0.022 (0.198)	-0.021 (0.144)
Buddhism	-0.005 (0.013)	-0.002 (0.009)	-0.003 (0.004)	-0.004 (0.004)	-0.034 (0 .367)	-0.013 (3.093)	-0.017 (0.155)	-0.018 (0.126)
others	-0.005 (0.013)	-0.005 (0.014)	-0.006 (0.007)	-0.007 (0.006)	-0.021 (0.325)	-0.020 (4.841)	-0.022 (0.201)	-0.025 (0.170)
Social Group (Reference Is Other Backward Class)								
Scheduled tribe	0.007 (0.014)	0.010 (0.028)	0.003 (0.004)	0.005 (0.004)	0.005 (0 .083)	0.011 (2.668)	0.011 (0.097)	0.013 (0.089)
Scheduled caste	0.005 (0.011)	0.007 (0.019)	0.004 (0.004)	0.006 (0.005)	0.0003 (0.010)	0.019 (4.366)	0.020 (0.178)	0.008 (0.053)
Others	0.003 (0.006)	0.006 (0.015)	0.0008 (0.001)	0.0007 (0.001)	0.005 (0.078)	0.016 (3.661)	0.005 (0.042)	0.006 (0.041)
Educational level – technical (reference no technical education)								
Technical degree in agriculture/ engineering/ technology/ medicine, etc.	0.003 (0.008)	0.013 (0.036)	0.029 (0.032)	-0.0002 (0.007)			-0.023 (0.161)	0.001 (0.024)
Diploma or certificate (below graduate level)								
Engineering/ technology	-0.008 (0.017)	0.003 (0.013)	0.0008 (0.005)	0.033 (0.028)	-0.019 (0.305)	-0.031 (7.512)	0.007 (0.063)	0.001 (0.030)
Medicine	-0.013 (0.028)	-0.018 (0.015)	0.004 (0.006)	0.035 (0.032)	0.0005 (0.035)	-0.031 (1.078)	0.004 (0.050)	0.014 (0.108)
Other subjects	0.003 (0.009)	-0.003 (0.011)	-0.004 (0.007)	0.021 (0.018)	0.016 (0.251)	-0.031 (7.561)	-0.007 (0.060)	0.026 (0.173)
Diploma or certificate (graduate and above level) in								
other subjects	0.005 (0.012)	0.004 (0.014)	-0.002 (0.004)	0.002 (0.007)	-0.029 (0.443)	-0.032 (7.708)	-0.007 (0.069)	-0.021 (0.146)
Educational level – general (reference is not literate)literate without formal schooling								
EGS/ NFEC/ AEC	-0.018 (0.011)	0.002 (0.020)	0.007 (0.009)	0.007 (0.012)			0.013 (0.125)	-0.022 (0.121)
TLC	-0.018 (0.036)	-0.018 (0.048)	-0.005 (0.009)	0.019 (0.034)			-0.022 (0.199)	-0.021 (0.141)
Others	0.008 (0.031)	-0.003 (0.017)	0.023 (0.044)	0.002 (0.009)			0.007 (0.068)	-0.022 (0.128)
Literate:								
Below primary	0.011 (0.023)	0.007 (0.020)	0.003 (0.012)	0.004 (0.004)	0.026 (0 .396)	0.009 (2.271)	0.003 (0.029)	0.002 (0.015)
Primary	-0.002 (0.005)	0.005 (0.014)	0.004 (0.005)	0.005 (0.004)	-0.011 (0.170)	0.011 (2.481)	-0.006 (0.056)	-0.002 (0.015)
Middle	0.006 (0.012)	0.002 (0.006)	0.003 (0.004)	0.008 (0.006)	-0.00007 (0.016)	0.010 (2.417)	-0.001 (0.015)	0.003 (0.021)
Secondary	0.0005 (0.004)	0.002 (0.006)	0.004 (0.005)	0.008 (0.006)	-0.001 (0.026)	0.012 (2.787)	0.002 (0.025)	0.011 (0.072)
Higher secondary	0.005 (0.010)	0.006 (0.018)	0.004 (0.005)	0.017 (0.013)	0.011 (0.163)	0.034 (7.702)	0.009 (0.089)	0.021 (0.139)
Diploma/certificate course	0.024 (0.049)	0.015 (0.043)	0.006 (0.007)	0.011 (0.011)	0.038 (0.564)	-0.033 (7.874)	0.012 (0.119)	0.005 (0.045)
Graduate	0.014 (0.029)	0.011 (0.031)	0.023 (0.027)	0.029 (0.023)	0.027 (0.414)	0.044 (9.830)	0.015 (0.143)	0.036 (0.237)
Postgraduate and above	0.007 (0.015)	0.025 (0.067)	0.018 (0.021)	0.059 (0.044)	0.014 (0.217)	0.074 (15.887)	0.044 (0.394)	0.065 (0.415)
Log-likelihood function	-52501.78	-50369.47	-101959.5	-97820.75	-6471.39	-6477.1324	-16040.584	-15530.59
Number of Observations	47835	47424	88234	87515	5960	6000	13792	13424

Note: The standard error (in parenthesis) is that of the associated coefficient from the multinomial logit model, where 'not in labour force' is the base outcome. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

TLC: Total Literacy Campaign; AEC: Adult Education Centres; NFEC: Non-formal Education Courses; Education Guarantee Scheme (EGS).

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5.2. North East India level analysis

Table 3 presents the marginal effects for the probability of being self-employed for the persons of 15-64 years age according to 'usual' status. The results indicate that probability of being self-employed is positive for rural females in 25-34 age group. The probability is also positive for the urban males belonging to Christianity compared to the reference category, i.e. Hindus. The probability of being self-employed is negative for the urban males belonging to Scheduled Tribe and 'other religion' category compared to the reference category, i.e. Other Backward Class. Finally, it shows that the probability of being self employed decreases by 16.4 percentage point for urban male having postgraduate and above educational qualification compared to the reference category, i.e., 'Not literate' persons. However, none of the variables have any significant effect of being self-employed for persons in North East India. Most surprisingly, none of the variables are statistically significant in Tables 4, 5, and 6. The statistical insignificance of the effect in urban and rural areas simply means that it is not statistically different from the effect of being in different age groups, marital status, religious groups, social groups, and having different educational level on the probability of being salaried employed or casual labour or unemployed.

6. DISCUSSIONS ON THE MAJOR FINDINGS

The results show that the persons who own more land has more chance to become self employed. As per the latest employment-unemployment survey by NSS, as of 2011-12, in the total workforce of *usual status (ps+ss)* at the all-India level, the share of self employed is about 52 per cent. However, the figure is higher in rural areas (i.e., 56 per cent) than in urban areas (i.e., 42 per cent). The females, particularly rural females have a higher chance to become the self employment. In fact, at the all India level, almost 60 percent (or 43 percent) female workers were self employed in 2011-12. Rural persons belonging to Scheduled Tribe and "other category" of social group, have more chance to become self employed. Finally, the results show that higher level of education reduces the probability of being self employed. This indicates that higher education leads to reduction in the probability of being self employed. The problem of self-employed worker is that they face problem of getting loan from the lenders as it involves good amount of paper work and lenders are suspicious about profitability of the business.

In the total workforce of *usual status (ps+ss)* at the all-India level, the share of *regular wage/salaried employees* is 18 per cent. Most importantly, rural areas (i.e., 9 per cent) had less regular wage/salaried worker than in urban areas (43 per cent) in 2011-12. The percentage of regular wage/salaried employees is the lowest among' the other' categories (6 percent). Study results suggest that female workers in rural (or urban) in age group 25-34 years have probability of becoming wage/salaried employees. Overall, the results suggest that except for those with higher education level, women have less chance for getting salaried jobs. Therefore, women's education, especially higher level education is essential. Provisional Report of the All India Survey on Higher Education

(AISHE) for the year 2014-15 puts has estimated the total number of teachers as 14,18,389, of which 39% are women. This report has estimated that during 2014-15 women students constituted 39% of the total enrolment in Ph.D programme in higher educational institutions in the country. This clearly indicates that though some progress has been made in providing higher level of education to women, more needs to be done in this direction. Most importantly, people belonging to Islam and Jainism have less chance to become wage/salaried worker. In fact, Muslims are the least educated religious group in India. NSS Report on Employment and Unemployment Situation among Major Religious Groups in India - 2009-10 found that in West Bengal, accounting for about 25 percent Muslim population in its total population, urban Muslim boys and girls have the highest drop-out rates in the state. The gap is also very high at higher education level; for every 1,000 Hindu males, 30 go on to complete post graduation while the corresponding figure for Hindu females is 32. But for every 1,000 Muslim boys, only 10 reach post-graduation, and for Muslim girls the figure is just 2. The results indicate that different social groups (i.e., Scheduled Tribe, Scheduled Caste and 'Others') have positive chance to get salaried/wage jobs, compared to the reference group i.e. Hindus. Finally, we find strong evidence to show that higher education have a positive effect on getting wage/salaried jobs for rural and urban persons.

In the total workforce of usual status (ps+ss) at the all-India level, the share of casual labour is 30 per cent. In the rural areas, the share of casual labour is 35 per cent. In the urban areas, it is about 15 %. The estimated results show that for rural workers who own land have less chance to become casual worker. On the other hand, rural worker belonging to 15-24 age group have a positive probability to become casual labour. Widowed and divorced/separated women also have higher probability to become casual labourer. Most importantly, male workers belonging to lower caste groups, Scheduled Tribe and Scheduled Castes have a positive probability of being casual labourer. Finally the results show that higher level of education reduces the chance of being casual labour. In 2011-12, the NSS Report on employment and unemployment found that the proportion of casual labourers without a written job contract was 95 per cent. This indicates that casual labourer face the problem of job security. The report also found that 72 per cent workers in the non-agriculture and agriculture sectors (excluding growing of crops, plant propagation and combined production of crops and animals (termed AGEGC), had no social security benefits, such as provident fund, pension, gratuity or health care. The growth rate of casual worker in rural non-farm employment has been increasing over the years, especially in the construction and service sector. Most importantly, casual workers face the problem of higher poverty, lack of educational qualification, and lack of land ownership etc.

However, the model could not predict the probability of being unemployed. This indicates that none of the household factors are responsible for being unemployed. According to the latest National Sample Survey report, India's employment rate has gone down to 38.6% in 2011-12 (July-June) from 39.2% in 2009-10. With this, unemployment rate has gone up from 2.5% to 2.7%.

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North East states also have experienced an increase in unemployment rate. Though North East states are endowed with rich natural resources yet it remains as industrially region. In addition, for a long time, the North East states have been a black-hole for business and enterprise. The recent Census data shows that the three north-east states of Meghalaya, Mizoram and Arunachal Pradesh, — are witnessing a decline in the total number of workers. In particular, Mizoram is facing a shocking crisis with a decline of over 19% in the number of workers. Among the several problems that haunt the north-east, lack of growth in non-farm employment, the difficult hilly terrain (in which about 70% is under forest cover) and policy failure could be the main reasons behind the decline in the total number of workers. In the context of policy failure, it is important to note that the MGNREGS that promises 100 days of employment to anybody who demands, in Mizoram 73 days work is provided on an average. On the other hand, Tripura (87 days), Assam (25 days), Nagaland (35 days) and Manipur (37 days) also have provided less numbers days of employment than it was proposed.

7. CONCLUSIONS AND POLICY SUGGESTIONS

The paper tries to investigate the relevant determinants of employment and unemployment situation in India with special reference to North East states of India. For the analysis, it estimated Multinomial Logit model by using NSS unit level data on 'Employment and unemployment' in 2011-12. The estimated results show that the workers who own land (or having higher level of education) have more (or less) chance to become self-employed. On the other hand, rural workers have low probability of being regular/salaried employees compared to urban workers. Most importantly, the number of rural women regular/salaried employees is the lowest among all categories. The results show that rural land owning workers have less chance of being casual workers. In addition, higher level of education reduces the chance of being casual labour. The results also show that none of the household factors are responsible for being unemployed. Finally, the results on North-East State show that rural females in 25-34 age group have a positive chance of being self-employed. However, self employment rate decreases with increasing level of higher education of the workers. In recent years, the North East states have experienced an increase in unemployment rate.

In regard to policy suggestions, the study puts forth the following policy options for improving employment status not only at the all India level but also in the North-east States of India. First, self employed worker needs to be given adequate credit facilities without insisting on cumbersome paper work, in addition to land for running his trade. To increase the profitability self employment land and capital are essentially required. Second, women's education with particular emphasis on rural female worker is essential to increase the number of regular wage/salaried worker not only in rural areas but also in urban areas. Raising educational levels of Muslims is essential for improving the number of regular wage/salaried Muslim workers. It will not only improve the standard of living of the Muslim community but also lead to the overall development of the country. Third, casual labourers seldom enjoy the same benefits and security as wage/salaried workers.Therefore, it is essential to increase the

benefits and security of casual labour along providing health benefits (such as, insurance) to them. Fourth, higher level of education is essential to reduce unprofitable self employment and also reduce the chance of becoming casual labourer. Therefore, educational improvement is essential not only for improving the chance of becoming salaried worker but also for overall development and sustainable economic growth. Fifth, to solve employment problem, the country needs to consider demand side and supply side problems together. Demand side problems include expansionary fiscal policy (i.e., cutting taxes and increasing government spending) and monetary policy which decreases the cost of borrowing in order to encourage people to spend and invest. Supply side policies mainly focus on micro economic issues to overcome imperfections in the labour market which tend to reduce unemployment caused by supply side factors. Education and training such as basic I.T. skills and learning of new technique and skills definitely improve the chance of getting absorbed in the labour market. Finally, employment policies need to be focused not only on the country as a whole but also on backward states (such as, North East states) or regions so that it reduces not only unemployment problem but also regional imbalances.

Government has already taken various steps for generation higher level of employment in the country by encouraging private sector of the economy, increasing investment in the various employment enhancement projects and increasing public expenditure on various schemes such as Prime Minister's Employment Generation Programme (PMEGP), Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGA), Deen Dayal Upadhyaya Grameen Kaushalya Yojana (DDU-GKY) and National Urban Livelihoods Mission (NULM). Apart from that, labour intensive manufacturing, tourism and agro-based industries are also being encouraged for higher employment creation. New scheme such as Pradhan Mantri Jan Dhan Yojana and Swatchh Bharat Mission (Gramin), and Seekho aur Kamao Scheme also have been launched for skill development of minority communities. In this perspective, it is hoped that this paper will be valuable for updating existing policies and introducing new policies and progremmes for employment generation by taking into account the age, marital status, religion, social group, technical and general education level and living place (region) of the worker.

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