# Determinants of Employment in India's National Rural Employment Guarantee Scheme*

**Raghbendra Jha**,
Australia South Asia Research Centre, College of Asia & the Pacific, Australian National University

**Raghav Gaiha**,
MIT, Dept of Urban Studies & Planning, and Faculty of Management Studies, University of Delhi

**Manoj K. Pandey**,
Australia South Asia Research Centre, CAP, Australian National University

**ABSTRACT**

Using household level data this paper provides systematic evidence on the employment impact of the National Rural Employment Guarantee Scheme in three Indian states: Rajasthan, Andhra Pradesh and Maharashtra. We model this as a two stage Heckman procedure where we model selection for NREGS in the first phase and the determinants of hours worked in the second. A number of significant insights into the employment impact of the National Rural Employment Guarantee Scheme are obtained.

KEYWORDS:

National Rural Employment Guarantee Scheme, Heckman Models, Asia: India

JEL Classification Number: C34, I32, J21, J43

All correspondence to:
Prof. Raghbendra Jha,
Australia South Asia Research Centre (ASARC),
College of Asia & the Pacific (CAP),
H.C. Coombs Building (09)
Australian National University,
Canberra, ACT 0200, Australia
Phone: + 61 2 6125 2683; Fax: + 61 2 6125 0443; Email: r.jha@anu.edu.au

---

Jha: ASARC, Arndt–Corden Division of Economics, The Australian National University, Canberra (email: r.jha@anu.edu.au). Gaiha: University of Delhi, Delhi (email rdg@bol.net.in), Pandey, ASARC, The Australian National University (email manojkp23@gmail.com). We gratefully acknowledge financial support from Australian Research Council–AusAID Linkage grant LP0775444 and Raj Bhatia for expert statistical assistance. The usual caveat applies.

# Determinants of Employment in India's National Rural Employment Guarantee Scheme

## I. Introduction

According to latest available figures (for the 61st Round of the National Sample survey conducted in 2004–05) the rate of unemployment in rural India on a currant daily status basis was 8.9 percent of the labour force (Ministry of Finance, Government of India, 2009). In addition to this open unemployment there is considerable underemployment in rural India.

Policymakers considered a strategy of enhanced employment important for its own sake as for redressing the stubbornly high incidence of poverty in rural India. Recent figures show that poverty in India has declined, albeit slowly, over the period 1993 to 2005 (Himanshu, 2007).[1]

The National Rural Employment Guarantee Act (NREGA) of 2005 was a direct response to these indices of deprivation in rural India and represents, perhaps, the most significant social policy initiative in India in the last decade. The NREGA states that,

> [its main objective is] to provide enhancement of livelihood security of the households in rural areas of the country by providing at least 100 days of guaranteed wage employment to every household in unskilled manual work. (Ministry of Law and Justice, 2005)

This commitment is clearly a landmark event in the history of rural development policies in India. During its first year of operation NREGS involved an expenditure of $4.5 billion and was expected to generate 2 billion days of employment. The NREGS's performance is also crucial to the success of the Millennium Development Goal of halving global poverty by 2015 (compared to 1990 levels) as rapid reduction in poverty in India will have an important bearing on the global poverty numbers. However, the challenge is to sustain and improve this trend. Perhaps it is fair to say that a considerable amount depends on the success of the National Rural Employment Guarantee Scheme.

[1] See also Gaiha et al. (2008) for a further corroboration, based on the new World Bank poverty estimates.

There is often a presumption that participation in National Rural Employment Guarantee (NREG) Projects is considerably lower than expected and therefore the extension of the Scheme to cover all of rural India with effect from 1 April 2008, is not likely to make a significant dent in rural poverty. As awareness of NREGS has grown, the number of participants has risen sharply — especially those who completed 100 days of employment in a year. The total employment generated under the NREGS is clearly much larger than earlier employment Schemes, for example, Sampoorna Grameen Rozgar Yojana (SGRY) and National Food for Work Program (NFFWP), although the public outlay on NREGS is of a much higher magnitude. These programs together generated 748 million person days in 2002–03 and 856 million in 2003–04. It has been claimed based on aggregate data that, under the NREGS, the figure was 905 million in 2006–07 for only 200 districts and 1437 million in 2007–08, in part reflecting the expansion to 330 districts and better awareness. Arguing along these lines Mehrotra (2008) claimed that the number who completed 100 days of work rose from 2.1 million (10 percent of all participating households) in 2006–07 to 3.5 million (or 11 percent of all households) in 2007–08. Chhattisgarh, Madhya Pradesh (MP), AP, and Rajasthan — all poor states — were reported to have the highest number of households completing 100 days of work (Mehrotra, 2008).

However, the employment impact of the NREGS can be accurately estimated only at the level of the household. As of yet, there is very little evidence on this. However, there is evidence of substantial capture of NREGS by non-poor segments of the rural sector (Jha et al., 2009). The purpose of this paper is to provide systematic evidence on the employment impact of the NREGS. We model this as a two stage Heckman procedure where we model selection for NREGS in the first phase and the determinants of hours worked in the second. The plan of this paper is as follows. In section II we sketch the methodology and data for this paper. Section III presents and analyses the results and section IV concludes. To the best of our knowledge this is the first paper to analyse the employment impact of NREGS using household level data.

## II. Data and Methodology

The present analysis draws upon household data drawn from three Indian states: Rajasthan, Andhra Pradesh and Maharashtra. The modus operandi for collecting the data was as follows. First, a list of NREGS districts was compiled for each state. From these districts, three were selected on the basis of probability proportional to size (in this case, rural

population as reported in the 2001 Census) in the case of Rajasthan. In a similar manner six districts were selected for each of Andhra Pradesh and Maharashtra. The next step proceeded as follows. In the case of Rajasthan, for example, three villages were randomly selected from each district in Rajasthan, followed by a random selection of households. Twenty five households were selected from each of twenty villages spread over three districts in Rajasthan. In Andhra Pradesh and Maharashtra these 25 villages were spread over 6 districts each. In each village 20 households were randomly selected giving us samples of 500 households in each of the three states surveyed. Apart from household level information individuals within households were also interviewed. The data include information on caste, occupation, landholdings, household size, NREG participation, type of ration card, and PDS participation.[2] The number of individuals interviewed for Rajasthan, Andhra Pradesh and Maharashtra were, respectively, 2664, 2190, and 2270.

When modelling the determinants of the numbers of days of employment offered in NREGS we use sample selection models. Sample selection models have the advantage that a different set of variables and coefficients determine the probability of censoring and the value of the dependent variable given that it is observed. Second, sample selection models allow for greater theoretical development because the observations are said to be censored by some other variable, which we call *Z*. This allows us to take account of the censoring process since selection and outcome are not independent. A popular empirical strategy to pursue this is the Heckman procedure. We use this procedure here. This methodology allows consistent estimates of the individual parameters.

The problem of sample selection arises when the data in the survey are incidentally truncated or non-randomly selected. Our model determining days employed contains the following main regression equation:

$$Y_i = \beta' X_i + \varepsilon_i \qquad (1)$$

where $Y_i$ is the number of days worked by individual *i*, and $X_i$ is a vector comprising household and social characteristics. It is important to emphasize that the model is observed only for those who are actually employed. Hence the model is truncated as the sample is selected on the basis of employment (in NREGS).

[2] NREG participation is measured using the question — are you a beneficiary of NREGP? PDS participation is measured using the questions — whether the household draws food grain from PDS, whether the household draws sugar from PDS, whether the household draws kerosene from PDS?

Formally, days worked are observed only if:

$$Z_i^* = \gamma' W_i + u_i \quad (2)$$

where $W_i$ are independent variables that contribute to the employment probability of an individual. $W_i$ may or may not overlap with the $X_i$.

Equation (2) is called the selection equation. The sample rule thus becomes that $Y_i^*$ (number of days worked) is observed only when $Z_i^* > 0$ (or the person under consideration is employed in NREGS).

Our choice of variables for the two stages of the estimation is as follows. We check whether there is a male bias in the choice of whom to employ in NREGS and the number of hours worked. We also establish whether probability of employment in NREGS and hours worked rise with age and also to check whether there are limits to this relationship we include the square of age. We include a dummy variable for marital status. Then using illiterate workers as the base category we include dummies for primary education, middle level education, secondary education, and above secondary education. We also check whether the selection of workers and the number of hours worked are influenced by their social background. Hence, using 'others' as the base category we use dummies for Scheduled Castes (SC), Scheduled Tribes (ST) and Other Backward Castes (OBC). We also check whether the amount of land owned influences whether a person gets selected for NREGS and hours worked. Land inequality as proxied by the Gini coefficient of land holdings and its square are used in the selection and hours worked equations. We also use the number of adult males and adult females in the household to see whether individuals who are members of households with larger number of adult members are more likely to be chosen for employment in NREGS and/or work longer hours. We also use a dummy for whether the household of which the worker chosen is a member is close to an official and whether this influences hours worked. We include district dummies to see if there are district level effects. We also include the ratio of the male NREG wage to male agricultural wage at the village level and the square of this ratio to check whether the relative magnitude of the NREG wage influences whether a worker is chosen for the NREGS and/or hours worked

## III. Results

Basic Characteristics of employment under NREG are given in Table 1.

**Table 1 here**

The shares of males and females among participating individuals were nearly equal in Rajasthan and Andhra Pradesh. However, a slightly higher share of males was observed in Maharashtra (53 percent males as against 47 percent females). As expected, a high proportion (about 56–62 percent) of the population in these states was under the age of 30 years (about 56 percent in Andhra Pradesh and Maharashtra and 62 percent in Rajasthan); about 30–40 percent are in the age group 30 years to 60 years and the rest 5–7 percent are 60 years and older. More than 95 percent of the population in Andhra Pradesh was below 60 years of age. The share of population in the age group below 60 years was nearly equal in Rajasthan and Maharashtra (about 93 percent).

The education level of population varied in these states. The share of illiterate population was the highest (about 43 percent) in Rajasthan; the lowest in Maharashtra (under 26 percent) and somewhat higher in Andhra Pradesh (about 34 percent). A similar pattern existed for all higher education levels except for the second education level (literate but up to primary education), where Andhra Pradesh was at the top, with 35 percent of its population, and other two states had nearly equal shares of population (about 32 percent). The shares of Scheduled Castes (SCs), Scheduled Tribes (STs) and other backward castes (OBCs) differed from one state to another. In Rajasthan, the proportion of others was the lowest (about 10 percent), followed by SCs (nearly 25 percent), STs (about 32 percent) while that of OBCs (about 34 percent) was the highest. In Andhra Pradesh, the share of STs was the lowest (less than 9 percent), followed by others (12 percent) and SCs (about 30 percent). OBCs share was the highest, accounting for nearly half of the population. In Maharashtra, the share of OBCs was highest (about 52 percent), others came next with about 23 percent, followed by STs (14 percent) whereas SCs had the lowest share (below 12 percent). It is interesting to note that in all three states, OBCs were the largest social group with highest share in Maharashtra, followed by Andhra Pradesh and then Rajasthan.

The share of poor individuals[3] was highest in Rajasthan (about 47 percent), followed by Andhra Pradesh (about 32 percent) and then Maharashtra (about 29 percent). Andhra

[3] An individual is referred to as poor if the per capita monthly expenditure of the household he or she belongs to is below state level poverty cut-off point. The state level rural poverty cut-off points for Rajasthan, Andhra Pradesh and Maharashtra are 450.5857, 352.4016 and 435.7654 rupees to per month per person, respectively.

Pradesh had the highest share of landless population[4] (about 41 percent). However, in Rajasthan and Maharashtra, the proportion of landless population was nearly the same (about 32 percent). While the share of population in the land-owned group 0–1 acre was the lowest in Maharashtra (about 5 percent); Rajasthan and Andhra Pradesh had nearly the same share of the population in this land owning category (about 25 percent). Further, as compared to Andhra Pradesh, a little higher proportion of population was observed in Rajasthan in the landholding group more than 2 acres. The share of population in the same land owning group was as high as 48 percent.

While little less than one-fourth of the population in Rajasthan came from a household of size 4 or less; nearly 46 percent population in Andhra Pradesh and 40 percent population in Maharashtra came from households with 4 or less members. Most of the population lived in households of size between 4 and 8 members with 65 percent of the population of Rajasthan, 52 percent of the population of Andhra Pradesh and 55 percent of the population of Maharashtra living in households of this size range. Rajasthan had the largest share of population from the largest household size group of more than 8 persons (11 percent) as compared to less than 2 percent in Andhra Pradesh and about 5 percent in Maharashtra.

The share of NREGS participants among individuals surveyed is highest in Andhra Pradesh (about 41 percent), followed by Maharashtra (nearly 25 percent) and lowest in Rajasthan (under 18 percent). The gender composition of NREGS participants in the three states is given in Table 2. Rajasthan has the highest share of female participants (about 58 percent), followed by Andhra Pradesh (about 49 percent), and then Maharashtra (about 45 percent). This indicates that, while in Rajasthan the proportion of female population in NREGS participation is higher than their male counterparts, this is nearly equal in Andhra Pradesh and lower in Maharashtra.

**Table 2 here**

In the total female population, the share of female participants in NREGS was lowest in Rajasthan (21 percent), followed by Maharashtra (about 24 percent) and as high as 41 percent in Andhra Pradesh. A similar pattern of ranking was observed for their male counterparts with slightly higher shares, except in Rajasthan where less than 15 percent of the

[4] An individual is said to be landless if the household he or she belongs does not own any land.

male population participated in NREGS. Most of the NREGS participants were in the age group 30–60 years with more than 70 percent in Maharashtra, 63 percent in Rajasthan, and 62 percent in Andhra Pradesh in this age group.

While interpreting row percentages, we find that the age group 30–60 years constituted highest share of participants among all the age categories. In all three states, the share of participants in this age group was the highest for Andhra Pradesh (about 65 percent), followed by Maharashtra (47 percent) and lowest in Rajasthan (about 36 percent). A similar pattern existed within the youngest (0–30 years) and the oldest (60 years and above) age groups.

Among all NREGS participants, the share of illiterate participants was as high as 68 percent in Rajasthan, followed by 48 percent in Andhra Pradesh and 26 percent in Maharashtra. Among literate NREGS participants, the highest share was in the lowest educational level (i.e. up to primary level). Maharashtra had the highest share in this level with 39 percent participants; Andhra Pradesh came second with 32 percent and Rajasthan was in the last position with only 19 percent of primary educated NREGS participants. For all higher levels of education, a similar pattern follows.

Illiterates in Andhra Pradesh had the highest participation in NREGS (about 59 percent), followed by illiterates in Rajasthan (about 28 percent) and then illiterates in Maharashtra (about 25 percent). Further, while among literate participants the share of participation generally fell sharply with increases in the level of education; in Andhra Pradesh the share first declined from primary to middle education and then increased through to the highest level of education. In Maharashtra, the share first fell between primary to middle level education and then went up at the secondary level of education before falling down at the highest level of education (higher secondary and above).

In all three states, the shares of SCs, STs and OBCs among NREGS participants broadly corresponded to their respective shares in the population. While in Rajasthan and Andhra Pradesh, share of poor NREGS participants was slightly higher than their respective shares in the population; the opposite was true in the case of Maharashtra.

Among NREGS participants, the share of landless participants was nearly equal in Andhra Pradesh (45 percent) and Maharashtra (44 percent); followed by Rajasthan (about 26 percent). Among landowner NREGS participants nearly 60 percent in Rajasthan, 45 percent

in Andhra Pradesh and less than one-fourth in Maharashtra owned 2 acres or less land. An interesting pattern is observed in landholding among NREGS participants. While among landholder NREGS participants, in general, the share of participation declined sharply with increases in the size of landholdings in Rajasthan and Andhra Pradesh; in Maharashtra this first increased through lowest till land owning group 2–5 acres and then fell dramatically in the highest land owning category (>5 acres).

As far as the pattern of household size and NREGS participation is concerned, while Andhra Pradesh and Maharashtra follow similar pattern, Rajasthan differed. In both Andhra Pradesh and Maharashtra, more than half of the participants are from households of size 4 or less and the highest share of NREGS participants came from households of sizes 4–8 (about 53 percent) in Rajasthan. Again, participants in Rajasthan were from relatively larger households as compared to Andhra Pradesh and Maharashtra.

The mean number of days worked in a year under NREGS was highest in Rajasthan (about 45 days), followed by Andhra Pradesh (about 38 days) and Maharashtra (about 23 days). As compared to males, higher employment duration was observed for females in Rajasthan and Andhra Pradesh. However, the opposite is true in the case of Maharashtra.

In Rajasthan and Andhra Pradesh, the share of participants with duration of employment under NREGS increased till the 30–60 day range and then fell off sharply. However, in Maharashtra the threshold was 15–30 days. A similar pattern for employment duration under NREGS existed for male and female participants in these states. Table 3 provides information on distribution of duration of employment by age group.

**Table 3 here**

In Rajasthan, participants in the age group 30–60 years were employed for the highest number of days in a year (about 47 days), followed by those below 30 years (about 43 days) and elderly[5] (about 28 days). In Andhra Pradesh, the average duration of employment was highest for the age group 30–60 years (about 40 days), followed by elderly participants (about 39 days) and participants below 30 years (about 35 days). In Maharashtra, the average number of days worked under NREGS falls off with age group where average number of days worked is observed as 24 days, 22 days and 20 days, respectively, for participants in the age group below 30 years, between 30–60 years and 60 years and above.

[5] 60 years and older

Further, in Rajasthan and Andhra Pradesh, the proportion of all age group participants increases till the 30–60 work days interval and then declines sharply. In the case of Maharashtra the threshold duration interval is 15–30 days for participants of all age groups. Table 4 provides information on duration of employment by education level.

**Table 4 here**

In Rajasthan and Maharashtra, those with education level '*educated but up to primary*' worked highest employment days (about 49 days and 24 days, respectively). In Andhra Pradesh, highest employment days (about 42 days) were observed for participants with education level '*up to middle school*'. Among illiterates in Rajasthan and Andhra Pradesh, the share of participation increases till the 30–60 work day interval and then falls off. In Maharashtra, this share increases till 15–30 days interval and then declines. Table 5 provides information on duration of employment by social group.

**Table 5 here**

In Rajasthan and Maharashtra, participants belonging to "others" had the highest number of employment days under NREGS (52 days in Rajasthan and 29 days in Maharashtra). In Andhra Pradesh, STs were employed for the highest number of days (41 days) in a year. In general, SCs worked the lowest number of days in Rajasthan and Maharashtra. In Andhra Pradesh, participants belonging to "others" were observed to have lower employment duration. Table 6 provides information on the provision of employment by landownership status.

**Table 6 here**

Among landless participants, the highest number of employment days was observed in Rajasthan (about 51 days), followed by Andhra Pradesh (about 37 days) and Maharashtra (about 22 days) in a year. No specific pattern of association was observed between duration of employment and land holdings. In Rajasthan, among land owner participants, mean days worked varied from 32 days to 47 days, respectively, for highest and the lowest land holding groups. In Andhra Pradesh, this varied from 36 days (for land category 2–5 acres) to 40 days for lowest landholding category. In Maharashtra, the least duration of employment (about 17 days) was observed for lowest land holding group.

Table 7 shows substantial variation in employment duration according to worker's poverty status. In most of the poverty categories, proportion of participants first increases with number of days employed and then falls. In Rajasthan, the average number of days employed varied between 41 days (for moderately poor) to 47 days (acutely poor). The affluent with 42 days employment and the moderately poor with 46 days employment came in between. In Andhra Pradesh, affluent participants had the highest duration of employment (39 days), followed by acutely poor (38 days), moderately non-poor and moderately poor (both about 37 days). In Maharashtra, affluent participants worked for the least average days (19 days), followed by acutely poor (22 days), moderately non-poor (25 days) and then moderately poor workers (27 days). In general, irrespective of poverty status, the share of workers increased with duration of employment till the 30–60 day interval and then fell off.

**Table 7 here**

In the case of Rajasthan, both Heckman's two step and maximum likelihood procedures confirm selection bias in NREGS participation (Table 8). The estimation results from both methods showed consistent results. The results show that there was no significant gender difference of males over females. However, the probability of participation for work rose with age but this effect became weaker for older persons. The probability of participation was higher for married individuals. Illiterates tended to participate more than those with any level of education. Similarly various socially disadvantaged groups such as SC, ST and OBC participated more than 'others'. The probability of participation in NREGS declined with amount of land-owned and household size and participation in NREGS were inversely related. The propensity to participate in NREGS decreased with increase in village level inequality in the distribution of land holdings. However, this effect became positive when combined with the ratio of NREGS wage to the agriculture wage rate at the village level. The chances of participation in the scheme increased with increase in distance of village from NREGS work site but this effect turned negative when combined with the ratio of NREGS wage to the agriculture wage rate at the village level. On it own the effect of ratio of NREGS wage to the agriculture wage rate at the village level on NREGS participation was not significant. However, when interacted with village level inequality in the distribution of land holding and average distance of worksite from village, these effects became significantly positive and negative, respectively. The probability of participation in NREGS was higher for

participants in villages with higher percentages of households attending Gram Sabha meetings in the past one year. However, household's social networking did not have a significant effect on NREGS participation. As compared to Sirohi district in Rajasthan, participation was significantly higher in Udaipur. However, no significant difference was observed between Sirohi and Jhalawar districts.

**Table 8 here**

***Duration Equation***

The duration of work for males was higher than for females. Duration was higher also for participants of villages with higher inequality in the distribution of land owning, and higher percentage of households attending meetings in the past one year. However, the effect of inequality in the distribution of land owned at the village level weakened when higher proportions of households attend Gram Sabha meetings. The employment duration for literate participants was, in general, higher than for their illiterate counterparts. Though there was no significant difference among 'others', STs and OBCs in respect of duration of employment, SCs worked fewer days as compared to 'others'. Table 9 discusses the duration results for Andhra Pradesh.

**Table 9 here**

In the case of Andhra Pradesh also, both Heckman's two step and maximum likelihood procedures confirmed selection bias in NREGS participation. The estimation results from both method s showed consistent results.

***Participation (Selection Equation)***

Males tended to participate more than females in NREGS. The probability of participation in NREGS work increased with age. However, this effect weakened for older persons. Marital status did not have a significant effect on NREGS participation. Illiterates tended to participate more than persons with any levels of education. Various socially disadvantaged groups such as SC, ST and OBC were more likely to participate than 'others'. The participation probability decreased with increase in the amount of land owned by the household. The probability of participation in NREGS declined as the distance between village and work site increased. However, this effect was not significant when combined with village level ratio of NREGS wage rate to the agricultural wage rate.

As compared to Karimnagar district, participation in Mahbubnagar and Nalgonda was not significantly different. However, participation in Karimnagar district was significantly higher than in Warangal, Vizianagaram and Chittoor districts. Surprisingly, household size did not have significant effect on its members' participation in the Scheme. Similarly, social networking, percentage of households in the villages attending village meetings, ratio of village NREGS wage rate to agricultural wage rate and village level inequality in the distribution of land holding did not have significant effect in the selection equation.

***Duration Equation***

The duration of work was lower for males than for females. The number of days worked under NREGS by married participants was lower than for unmarried persons. The duration of employment fell with age up to a point but this effect weakened at older ages. Education had a positive effect on the duration of employment, relative to illiterates. Once a worker has started participating his/her work duration is not influenced by the worker's social group, amount of landholding and household size. The duration of employment increased with increase in proportions of households attending meetings at the village level. However, this effect weakened with increased inequality in the distribution of land holdings at the village level.

In the case of Maharashtra also, both Heckman's two step and maximum likelihood procedures confirmed selection bias in the NREGS participation (Table 10). Moreover, the estimation results from both methods show consistent results, except for a limited number of variables.

**Table 10 here**

***Participation (Selection) Equation***

Males' propensity to participate in the Scheme was higher than that of females. The chances of being included in the NREGS increased with age of individuals, but up to a threshold level and this effect weakened after that. The probability of participation was higher for married individuals. In general, there was no statistically significant difference in participation between educated and illiterate. However, those educated up to secondary education had higher probability of participation as compared to illiterates. While individuals from 'others' are not preferred over 'OBCs'; SCs and STs had higher

probability of participation in the Scheme. The chances of participation in the scheme declined with increase in the size and land holdings of the household. The propensity of participation of individuals was higher in villages with higher NREGS to agricultural wage rate ratio. However, the effects weakened where values of this ratio were higher. Ownership of motorcycle by the household, a sign of affluence, decreased the probability of participation in the Scheme. Members of villages with greater proportions of households with TV and Cellphones had greater chances of participation in NREGS. As compared to Gondia district, participation in Yavatmal and Hingoli was not different. However, the probability of participation in Chandrapur, Nanded, and Ahmednagar districts was lower as compared to Gondia. Village level inequality in the distribution of land holdings, proportion of households who attended village meetings in the past one year and work site distance from the villages did not possess significant coefficients in the selection equation.

***Duration Equation***

Males worked longer than females. Age had negative effect on employment duration. However, this effect weakened at higher age. Marital status of participants did not have any effect on duration of employment. A positive effect of education on number of days worked by a NREGS participant was observed only for education levels secondary and above. Workers of disadvantaged groups (SCs, STs and OBCs) worked for shorter periods. Household's landholdings and household size did not have any effect on the duration of work. Village level inequality in the distribution of landholding had a significant and positive effect on work duration under NREGS. However, this effect weakened with an increase in the proportion of households attending village level meetings.

In Rajasthan, both Heckman's two step and maximum likelihood procedures confirmed selection bias in the NREGS participation and the estimation results from both methods show consistent results, except for few variables. Correlates of participation in NREGS are the same as in case of duration of employment discussed above.

***Earning Equation***

We glean the following results from the earning equation. Females earned more than males. Married participants had higher earnings as compared to their unmarried counterparts. NREGS earnings fell with age of workers. However, this effect weakened at

higher age.[6] As compared to illiterates, NREGS wage earnings increased with the level of education of the participant. Participants of socially disadvantaged groups (SCs, STs and OBCs) had lower annual earnings as compared to others. Earnings increased with increase in household size. However, this effect weakened in larger households. Participants in the villages with higher proportions of households attending meetings in past one year had higher earnings. However, the effect weakened with higher level of inequality in the distribution of land holding at the village level. Household's landholding did not have a significant effect on NREGS earnings (Table 11).

**Table 11 here**

In the case of Andhra Pradesh also, both Heckman's two step and maximum likelihood procedures confirmed selection bias in the NREGS participation and the estimation results from both methods show consistent results, except only for a few variables. Correlates of participation in NREGS are the same as in case of duration of employment discussed above.

***Earning Equation***

We now report on the estimation of the earning equation for Andhra Pradesh. Female workers earned more than males. Married participants had higher earnings as compared to those unmarried. NREGS earnings fell with age of workers; however, this effect diminished at higher age.[7] In comparison to illiterates, NREGS wage earnings increased with education level (any level). Though no significant difference between SC workers and workers from others was observed, STs and OBCs have higher annual wage earnings from NREGS as compared to others.[8] Participants in villages with higher proportions of households attending meetings in the past one year had higher earnings. However, the effect weakened with higher level of inequality in the distribution of land holdings at the village level. Household size and size of landholding did not have any effect on NREGS earnings (Table 12).

[6] In two step estimations, age and its square are not significant. So, the interpretation is based on the MLE estimates.

[7] In two step estimations, age and its square are not significant. So, the interpretation is based on the MLE estimates.

[8] MLE estimation shows that there is no difference in any of the SCs, STs and OBCs as compared to other castes.

**Table 12 here**

In Maharashtra too, both Heckman's two step and maximum likelihood procedures confirmed selection bias in the NREGS participation and the estimation results from both the methods show consistent results, except only for a few variables. Correlates of participation in NREGS were the same as in case of duration of employment estimation discussed earlier.

***Earning Equation***

We now report on our estimation of the earning equation. Females had higher earnings than male participants. NREGS earnings declined with age, but at higher ages this effect weakened. Annual earnings of participants with education level below middle schooling did not differ from those who are illiterate. However, surprisingly, workers with secondary and higher education earned less than illiterates. Workers of socially disadvantaged groups (SC, ST and OBC) had lower annual earnings as compared to others. The higher a household's landholding, the higher was the annual wage earned from NREGS.[9] NREGS earnings increased with increase in the household size. However, this effect weakened for larger households. Village level inequality in the distribution of land holdings and proportions of households who attended meetings in past one year did not have a significant effect on the NREGS earnings of workers in the village (Table 13).

**Table 13 here**

Table 14 reports results on earnings from NREGS.

**Table 14 here**

The average NREGS wage rate per person per day was the highest in Maharashtra (about Rs. 81), followed by Andhra Pradesh (about Rs. 79) and Rajasthan (about Rs. 59). Though there the gap in wage rate between males and females in Andhra Pradesh was not large, males received relatively higher wages in Rajasthan and Maharashtra. Further, the male–female wage rate difference is highest in Maharashtra, followed by Rajasthan and Andhra Pradesh. There was no pattern in average wage rate among participants of different age groups. In Rajasthan, for participants classified by their educational level, wage rate was highest for those with middle school education (Rs. 65). In Andhra Pradesh, the average

[9] However, two step procedure results confirm that land owned variable is not significant.

wage rate was nearly the same for all educational levels. In Maharashtra, workers with primary education received the highest wage rate (Rs. 83). In Rajasthan and Maharashtra, "others" received the highest wage rate. In Andhra Pradesh, OBCs received higher wage rate than SCs, STs and Others. In Rajasthan and Maharashtra, non-poor received highest wage rate whereas poor participants received higher wage rate than the non-poor in the case of Andhra Pradesh.

Average wage rates were nearly the same for all households with different landholding groups in all three states. Interestingly, in all three states, highest household size group received highest average wage rate in NREGS, followed by lowest household size group (4 or fewer members).

In terms of NREGS wage earnings, Andhra Pradesh was on top with annual median earning of Rs. 2644, followed by Rajasthan (Rs. 2400) and Maharashtra (Rs. 1520). There was a large gap in the annual earnings of male and female participants in the three states. While in Rajasthan and Andhra Pradesh, female participant earned more than male participants; the opposite was the case in Maharashtra.

An interesting pattern in annual earnings by age group is also observed. In Maharashtra the participants in the youngest age group (below 30 years) earned the highest amount. Middle age group (30–60 years) and elderly had highest earnings in Rajasthan and Andhra Pradesh, respectively. The pattern in median annual earnings was similar to that of the average wage rate by social group and poverty status in all the three states. There was no clear pattern in wage earnings by landholdings of the participating households. Wage earnings fell from the lowest to the highest household size group in Rajasthan and Andhra Pradesh, but not in Maharashtra.

## IV. Conclusions

Employment in NREGS appears to be desirable in each of the three states studied in this paper. Yet, the employment offered to various workers varies a great deal depending upon gender, social status and other factors. Thus, it is important to study the determinants of employment in NREGS as well as to model the determinants of the duration of employment in NREGS. This can only be done with household level data. This is the first paper to do so. We are able to shed light on some of the key causal factors affecting NREG employment, its duration and earnings there from using data from three states.

While it is broadly true that the selection of workers for NREGS favours illiterate workers and those from deprived backgrounds, female workers appear to have a lower chance of being selected. In two of the three states, the ratio of NREGS wage to agricultural wage has significant effects. Marital status and age also affect the chances of getting employment in NREGS. Within each state workers in some districts have higher chances of being employed in NREGS.

Once employed in NREGS, the duration of such employment is affected by social background or educational status. Factors relevant for selection for NREGS are not necessarily so for the duration of employment. This is an important conclusion of this paper.

## References

Gaiha, R., Thapa, G., Imai, K. and V. Kulkarni (2008) 'Disparity, Deprivation and Discrimination in Rural India: Has Anything Changed?', *Brown Journal of World Affairs*, 14(2): 113–25.

Heckman, J. (1976) The common structure of statistical models of truncation, sample selection, and limited dependent variables and a simple estimator for such models, *Annals of Economic and Social Measurement*, 5: 475–92.

Heckman J. (1979) Sample selection bias as a specification error, *Econometrica*, 47: 153–61.

Himanshu (2007), 'Recent Trends in Poverty and Inequality: Some preliminary results', *Economic and Political Weekly*, 42(6), 497–508, 10 February.

Jha, R. Bhattacharyya, S. Gaiha, R. and S. Shankar (2009) 'Capture' of anti-poverty programs: An analysis of the National Rural Employment Guarantee Program in India, ***Journal of Asian Economics*** 20(4): 456–64

Mehrotra (2008) NREG two years on: Where do we go from here? *Economic and Political Weekly*, 43(31), 27–35.

Ministry of Finance, Government of India (2009) *Economic Survey of the Government of India*, New Delhi.

Ministry of Law and Justice (2005) *National Rural Employment Guarantee Act 2005*.

## Annex 1: Definitions of the Variables used in the Analysis

| Variables | Definition |
|---|---|
| Dependent Variable | |
| NREGS Participation | =1 if participated in NREGS; 0 otherwise |
| Duration of employment | Number of days worked in NREGS in the past one year |
| Log of NREGS earnings | Log of annual NREGS earnings (in INR.) |
| Explanatory Variables | |
| Gender | =1 if male, 0 if female |
| Age | Age of household member |
| Square of age | Square of age of household member |
| Marital status: Married | =1 if married; 0 otherwise |
| Illiterate (Reference) | Omitted group |
| Primary education | =1 if literate but upto primary education, 0 otherwise |
| Middle school | =1 if literate but upto middle school, 0 otherwise |
| Secondary education | =1 if literate but upto secondary education, 0 otherwise |
| Higher secondary and above | =1 if literate but upto higher secondary and above, 0 otherwise |
| SC | =1 if social group is SC, 0 otherwise |
| ST | =1 if social group is ST, 0 otherwise |
| OBC | =1 if social group is OBC, 0 otherwise |
| Others (Reference) | Omitted group |
| Landowned | Amount of land owned (in acre) |
| Square of Landowned | Square of amount of land owned |
| Household size | Size of the household |
| Square of household size | Square of size of the household |
| Ratio of NREG to AGR wage rate | Ratio of NREG wage to agricultural wage rate at the village level |
| Square of Ratio of NREG to AGR wage rate | Square of ratio of NREG wage to agricultural wage rate at the village level |
| Land Gini index | Land Gini index to measure inequality in the distribution of landholdings at the village level |
| Square of Land Gini index | Square of Land Gini index |
| Interaction of Ratio NREGAGRWR with LGI | Interaction of Ratio of NREG wage to agricultural wage rate with inequality in the distribution of landholdings at village level |
| AVGSITEVILLDIST | Average distance of site from the village |
| Interaction of Ratio NREGAGRWR with AVGSITEVILLDIST | Interaction of Ratio of NREG wage to agricultural wage rate at village level with average distance of site from the village |
| %hhs MEETATTEND | %households attending meetings at village level |
| Interaction of LGI with %hhs MEETATTEND | Interaction of %households attending meetings with inequality in the distribution of landholdings at village level |
| Household's having motorcycle | =1 if household own a motorcycle, 0 otherwise |
| %hhs with both TV and Cellphone | %households with both TV and Cell phone at village level |
| Household's social networking | =1 if household has a social network; 0 otherwise |
| District: Sirohi (reference) | Omitted group |
| District: Udaipur | =1 if Udaipur district in Rajasthan; 0 otherwise |
| District: Jhalawar | =1 if Jhalawar district in Rajasthan; 0 otherwise |
| District: Karimnagar (reference) | Omitted group |
| District: Mahbubnagar | =1 if Mahbubnagar district in Andhra Pradesh; 0 otherwise |
| District: Nalgonda | =1 if Nalgonda district in Andhra Pradesh; 0 otherwise |
| District: Warangal | =1 if Warangal district in Andhra Pradesh; 0 otherwise |
| District:Vizianagaram | =1 if Vizianagaram district in Andhra Pradesh; 0 otherwise |
| District: Chittoor | =1 if Chittoor district in Andhra Pradesh; 0 otherwise |
| District: Gondia (reference) | Omitted group |
| District: Chandrapur | =1 if Chandrapur district in Maharashtra; 0 otherwise |
| District: Yavatmal | =1 if Yavatmal district in Maharashtra; 0 otherwise |
| District: Nanded | =1 if Nanded district in Maharashtra; 0 otherwise |
| District: Hingoli | =1 if Hingoli district in Maharashtra; 0 otherwise |
| District: Ahmednagar | =1 if Ahmednagar district in Maharashtra; 0 otherwise |

## Annex 2: Definition of Different Levels of Poverty

| Levels of poverty | Rajasthan | Andhra Pradesh | Maharashtra |
|---|---|---|---|
| Acute poverty | If per capita monthly consumption expenditure<Rs.383 | If per capita monthly consumption expenditure<Rs.299 | If per capita monthly consumption expenditure< Rs. 371 |
| Moderate poverty | If per capita monthly consumption expenditure>=Rs. 383 but < Rs.450 | If per capita monthly consumption expenditure>=Rs.299 but<Rs.352 | If per capita monthly consumption expenditure>=Rs.371 but<Rs.436 |
| Moderate Non-poverty | If per capita monthly consumption expenditure>=Rs.450 but < Rs.585 | If per capita monthly consumption expenditure>=Rs.352 but < Rs.458 | If per capita monthly consumption expenditure>=Rs. 436 but <Rs.567 |
| Affluent | If per capita monthly consumption expenditure>= Rs.585 | If per capita monthly consumption expenditure>=Rs.458 | If per capita monthly consumption expenditure>=Rs.567 |

Table 1: Characteristics of Participating Population and NREGS Participants in Rajasthan, Andhra Pradesh and Maharashtra

| Characteristics | Rajasthan | | Andhra Pradesh | | Maharashtra | |
|---|---|---|---|---|---|---|
| | SPOP | SNREGSPART | SPOP | SNREGSPART | SPOP | SNREGSPART |
| Gender | | | | | | |
| Female | 49.20 | 58.12(20.72) | 49.80 | 49.37(41.01) | 47.03 | 45.21(23.76) |
| Male | 50.80 | 41.88(14.45) | 50.20 | 50.63(41.71) | 52.97 | 54.79(25.57) |
| All | 100.00 | 100.00(17.54) | 100.00 | 100.00(41.36) | 100.00 | 100.00(24.72) |
| Age group | | | | | | |
| Less than 30 years | 62.46 | 31.46(8.83) | 55.69 | 35.39(26.29) | 55.80 | 24.30(10.76) |
| Above 30 and below 60 years | 30.37 | 62.85(36.29) | 39.43 | 62.13(65.17) | 37.00 | 70.35(47.00) |
| 60 years and above | 7.18 | 5.69(13.89) | 4.87 | 2.48(21.04) | 7.20 | 5.35(18.36) |
| All | 100.00 | 100.00(17.54) | 100.00 | 100.00(41.36) | 100.00 | 100.00(24.72) |
| Education Level | | | | | | |
| Illiterate | 42.82 | 67.59(27.68) | 33.72 | 47.98(58.94) | 25.47 | 25.71(24.95) |
| Literate but up to primary | 32.44 | 19.03(10.29) | 34.75 | 31.80(37.91) | 32.11 | 38.57(29.69) |
| Middle | 10.45 | 6.38(10.71) | 11.96 | 5.98(20.74) | 16.33 | 14.11(21.36) |
| Secondary | 6.21 | 3.60(10.16) | 10.32 | 6.96(27.95) | 15.51 | 15.32(24.40) |
| Secondary and above | 8.09 | 3.41(7.39) | 9.25 | 7.27(32.59) | 10.58 | 6.29(14.70) |
| All | 100.00 | 100.00(17.54) | 100.00 | 100.00(41.43) | 100.00 | 100.00(24.72) |
| Social Group | | | | | | |
| SC | 24.81 | 26.12(18.46) | 29.89 | 33.42(46.25) | 11.63 | 16.70(35.49) |
| ST | 31.62 | 34.61 (19.19) | 8.74 | 11.74(55.54) | 14.10 | 16.81(29.46) |
| OBC | 33.41 | 34.48(18.10) | 49.35 | 49.71(41.67) | 51.62 | 45.84(21.95) |
| Others | 10.17 | 4.79(8.26) | 12.02 | 5.13(17.66) | 22.65 | 20.65(22.53) |
| All | 100.00 | 100.00(17.54) | 100.00 | 100.00(41.36) | 100.00 | 100.00(24.72) |
| Poverty Status | | | | | | |
| Non-poor | 53.38 | 49.78(16.35) | 67.85 | 69.50(42.37) | 70.99 | 71.78(24.99) |
| Poor | 46.62 | 50.22(18.89) | 32.15 | 30.50(39.23) | 29.01 | 28.22(24.05) |
| All | 100.00 | 100.00(17.54) | 100.00 | 100.00(41.36) | 100.00 | 100.00(24.72) |
| Land owned group (in acres) | | | | | | |
| Landless | 32.10 | 25.54(13.95) | 41.27 | 45.02(45.11) | 32.26 | 43.76(33.52) |
| >0-≤1 | 25.36 | 30.89(21.36) | 25.49 | 29.06(47.16) | 5.26 | 6.73(31.60) |
| >1–≤2 | 24.87 | 29.20(20.58) | 17.09 | 15.88(38.42) | 14.46 | 16.81(28.72) |
| >2–≤5 | 13.11 | 11.04(14.77) | 12.50 | 8.96(29.65) | 29.87 | 25.31(20.95) |
| >5 | 4.56 | 3.33(12.82) | 3.65 | 1.09(12.31) | 18.14 | 7.40(10.08) |
| All | 100.00 | 100.00(17.54) | 100.00 | 100.00(41.36) | 100.00 | 100.00(24.72) |
| Household size group | | | | | | |
| 4 or less | 24.16 | 39.02(28.32) | 45.72 | 50.68(45.85) | 40.01 | 53.35(32.96) |
| >4–≤8 | 64.65 | 53.40(14.48) | 52.36 | 47.83(37.79) | 55.10 | 45.46(20.39) |
| >8–≤12 | 10.86 | 7.52(12.15) | 1.92 | 1.48(32.01) | 4.27 | 1.18(6.85) |
| >12 | 0.33 | 0.06(3.15) | 0.00 | 0.00 | 0.62 | 0.00(0.00) |
| All | 100.00 | 100.00(17.54) | 100.00 | 100.00(41.36) | 100.00 | 100.00(24.72) |

*Notes*: An individual is said to be a NREGS participant if he/she has worked for sometime under NREGS in the past one year.
SPOP and SNREGSPART refer to share (in %) in population and NREGS participation, respectively. Figures in brackets represent share within group (row %).

Table 2: Distribution of Duration of Employment (%) by Gender

| Number of days worked | Mean number of days worked by gender | | | % participants by gender | | |
|---|---|---|---|---|---|---|
| | Female | Male | All | Female | Male | All |
| Rajasthan | | | | | | |
| <= 7 | 3.20 | 4.99 | 3.73 | 4.70(70.74) | 2.70(9.26) | 3.87 |
| >7–<=15 | 13.26 | 12.73 | 12.98 | 11.60(47.31) | 17.92(52.69) | 14.24 |
| >15–<=30 | 26.17 | 25.70 | 25.93 | 16.10(47.63) | 24.57(52.37) | 19.65 |
| >30–<=60 | 45.94 | 44.33 | 45.29 | 42.10(60.05) | 38.88(39.95) | 40.75 |
| >60–<=90 | 74.13 | 78.00 | 75.57 | 11.03(62.87) | 9.04(37.13) | 10.20 |
| >90 | 99.74 | 99.43 | 99.66 | 14.47(74.48) | 6.88(25.52) | 11.29 |
| All | 47.85 | 39.86 | 44.50 | 100.00(58.12) | 100.00(41.88) | 100.00 |
| Andhra Pradesh | | | | | | |
| <= 7 | 4.42 | 4.84 | 4.65 | 7.17(44.36) | 8.77(55.64) | 7.98 |
| >7–<=15 | 11.95 | 12.03 | 12.00 | 12.39(41.96) | 16.72(58.04) | 14.58 |
| >15–<=30 | 23.47 | 23.33 | 23.40 | 23.06(48.18) | 24.18(51.82) | 23.63 |
| >30–<=60 | 43.35 | 43.61 | 43.48 | 36.84(48.99) | 37.41(51.01) | 37.13 |
| >60–<=90 | 74.15 | 71.51 | 73.00 | 13.55(56.75) | 10.07(43.25) | 11.79 |
| >90 | 112.20 | 115.24 | 113.10 | 6.98(70.51) | 2.85(29.49) | 4.89 |
| All | 41.07 | 34.88 | 37.93 | 100.00(49.37) | 100.00(50.63) | 100.00 |
| Maharashtra | | | | | | |
| <= 7 | 4.98 | 6.01 | 5.41 | 4.97(58.07) | 2.96(41.93) | 3.87 |
| >7–<=15 | 12.42 | 12.45 | 12.43 | 42.78(54.69) | 29.25(45.31) | 35.37 |
| >15–<=30 | 22.37 | 21.44 | 21.82 | 34.19(40.06) | 42.21(59.94) | 38.59 |
| >30–<=60 | 40.78 | 40.93 | 40.87 | 17.87(38.37) | 23.69(61.63) | 21.06 |
| >60–<=90 | - | 75.00 | 75.00 | 0.00(0.00) | 1.28(100.00) | 0.70 |
| >90 | 95.00 | 97.50 | 97.00 | 0.19(20.00) | 0.62(80.00) | 0.42 |
| All | 20.68 | 24.13 | 22.57 | 100.00(45.21) | 100.00(54.79) | 100.00 |

*Note*: Figures in bracket represents share within group (row %).

Table 3: Distribution of Duration of Employment (%) by Age group

| Number of days worked | Mean number of days worked by age group | | | % participants by age group | | |
|---|---|---|---|---|---|---|
| | Less than 30 years | Above 30 and below 60 years | 60 years and above | Less than 30 years | Above 30 and below 60 years | 60 years and above |
| Rajasthan | | | | | | |
| <= 7 | 5.45 | 3.23 | 3.44 | 2.40(19.50) | 3.14(51.10) | 19.98(29.40) |
| >7-<=15 | 12.56 | 13.11 | 13.70 | 13.24(29.25) | 14.93(65.88) | 12.20(4.87) |
| >15-<=30 | 26.33 | 25.63 | 26.18 | 22.85(36.59) | 17.48(55.91) | 25.92(7.50) |
| >30-<=60 | 46.00 | 45.21 | 41.32 | 45.81(35.38) | 38.66(59.63) | 35.81(5.00) |
| >60-<=90 | 76.25 | 75.50 | 72.52 | 7.30(22.51) | 12.02(74.09) | 6.09(3.40) |
| >90 | 99.65 | 99.66 | - | 8.40(23.41) | 13.76(76.59) | 0.00(0.00) |
| All | 42.82 | 46.81 | 28.36 | 100.00(31.46) | 100.00(62.85) | 100.00(5.69) |
| Andhra Pradesh | | | | | | |
| <= 7 | 4.91 | 4.57 | 2.82 | 10.00(44.36) | 6.61(51.47) | 13.42(4.17) |
| >7-<=15 | 12.13 | 11.96 | 10.23 | 18.73(45.47) | 12.28(52.33) | 12.96(2.20) |
| >15-<=30 | 23.85 | 23.16 | 20.69 | 27.55(41.27) | 21.64(56.90) | 17.40(1.83) |
| >30-<=60 | 44.36 | 42.96 | 48.11 | 29.17(27.80) | 41.57(69.55) | 39.59(2.64) |
| >60-<=90 | 72.76 | 72.85 | 80.21 | 8.80(26.42) | 13.52(71.22) | 11.21(2.36) |
| >90 | 113.26 | 113.63 | 100.00 | 5.75(41.59) | 4.38(55.66) | 5.42(2.75) |
| All | 35.19 | 39.47 | 38.76 | 100.00(35.39) | 100.00(62.13) | 100.00(2.48) |
| Maharashtra | | | | | | |
| <= 7 | 5.87 | 5.27 | 6.00 | 3.36(21.11) | 4.21(76.69) | 1.59(2.21) |
| >7-<=15 | 12.48 | 12.36 | 13.16 | 36.87(25.34) | 34.86(69.34) | 35.16(5.32) |
| >15-<=30 | 22.41 | 21.72 | 21.18 | 32.49(20.46) | 39.22(71.51) | 57.94(8.03) |
| >30-<=60 | 41.05 | 40.92 | 32.00 | 26.36(30.41) | 20.55(68.65) | 3.72(0.94) |
| >60-<=90 | 90.00 | 71.25 | - | 0.58(20.00) | 0.80(80.00) | 0.00(0.00) |
| >90 | 95.00 | 95.00 | 105.00 | 0.35(20.00) | 0.36(60.00) | 1.58(20.00) |
| All | 23.75 | 22.37 | 19.84 | 100.00(24.30) | 100.00(70.35) | 100.00(5.35) |

Note: Figures in bracket represents share within group (row %).

Table 4: Distribution of Duration of Employment (%) by Education level

| Number of days worked | Mean number of days worked by educational level | | | | | % participants by educational level | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Illiterate | Up to Primary | Middle | Secondary | Secondary and above | Illiterate | Up to primary | Middle | Secondary | Secondary and above |
| Rajasthan | | | | | | | | | | |
| <= 7 | 3.45 | 4.53 | 5.00 | 5.67 | 5.00 | 4.63 (80.91) | 2.20 (10.86) | 1.05 (1.73) | 5.59 (5.20) | 1.47 (1.30) |
| >7-<=15 | 13.30 | 12.50 | 12.58 | 11.56 | 13.56 | 12.32 (58.45) | 14.18 (18.95) | 20.52 (9.19) | 26.36 (6.65) | 28.23 (6.75) |
| >15-<=30 | 25.95 | 25.09 | 24.49 | 29.06 | 28.23 | 18.72 (64.39) | 19.70 (19.08) | 22.49 (7.30) | 24.46 (4.48) | 27.46 (4.76) |
| >30-<=60 | 45.55 | 44.87 | 39.25 | 48.08 | 44.85 | 44.14 (73.21) | 37.14 (17.35) | 22.81 (3.57) | 43.59 (3.85) | 24.27 (2.03) |
| >60-<=90 | 74.71 | 71.24 | 82.66 | - | 70.50 | 10.81 (71.65) | 4.66 (8.69) | 26.18 (16.37) | 0.00 (0.00) | 9.85 (3.29) |
| >90 | 100.11 | 99.02 | 98.96 | - | 100.00 | 9.38 (56.15) | 22.12 (37.29) | 6.95 (3.93) | 0.00 (0.00) | 8.71 (2.63) |
| All | 44.23 | 48.70 | 45.61 | 31.43 | 38.20 | 100.00 (67.59) | 100.00 (19.03) | 100.00 (6.38) | 100.00 (3.60) | 100.00 (3.41) |
| Andhra Pradesh | | | | | | | | | | |
| <= 7 | 4.56 | 4.78 | 3.60 | 5.16 | 4.72 | 7.41 (44.45) | 6.75 (26.86) | 7.38 (5.52) | 12.97 (11.29) | 13.07 (11.89) |
| >7-<=15 | 11.63 | 12.46 | 12.74 | 12.06 | 11.99 | 15.26 (50.09) | 12.18 (26.50) | 18.21 (7.45) | 17.30 (8.24) | 15.52 (7.72) |
| >15-<=30 | 23.37 | 23.00 | 25.68 | 25.60 | 22.39 | 20.64 (42.25) | 26.96 (36.59) | 17.52 (4.47) | 21.99 (6.53) | 32.73 (10.16) |
| >30-<=60 | 43.63 | 43.90 | 42.62 | 42.32 | 42.08 | 39.75 (51.24) | 36.21 (30.94) | 37.54 (6.03) | 32.47 (6.07) | 29.25 (5.71) |
| >60-<=90 | 73.80 | 70.92 | 74.08 | 76.24 | 75.31 | 12.44 (50.49) | 13.06 (35.14) | 8.28 (4.19) | 9.41 (5.54) | 7.54 (4.64) |
| >90 | 107.84 | 112.19 | 118.39 | 130.44 | 129.00 | 4.50 (44.04) | 4.83 (31.34) | 11.07 (13.51) | 5.85 (8.30) | 1.89 (2.80) |
| All | 38.31 | 38.62 | 42.32 | 36.93 | 30.23 | 100.00 (47.98 | 100.00 (31.80) | 100.00 (5.98) | 100.00 (6.96) | 100.00 (7.27) |
| Maharashtra | | | | | | | | | | |
| <= 7 | 5.58 | 5.70 | 6.00 | 5.50 | 3.12 | 3.18 (21.13) | 4.61 (45.95) | 4.38 (16.00) | 1.35 (5.34) | 7.12 (11.58) |
| >7-<=15 | 12.52 | 12.75 | 13.08 | 11.69 | 11.28 | 41.46 (30.14) | 31.29 (34.12) | 28.84 (11.51) | 38.24 (16.56) | 43.11 (7.67) |
| >15-<=30 | 21.74 | 21.98 | 21.91 | 21.40 | 22.20 | 35.69 (23.78) | 34.69 (34.68) | 40.96 (14.98) | 48.48 (19.25) | 44.85 (7.31) |
| >30-<=60 | 41.61 | 41.16 | 37.62 | 42.50 | 52.48 | 17.92 (21.88) | 28.25 (51.74) | 25.81 (17.30) | 11.01 (8.01) | 3.57 (1.07) |
| >60-<=90 | 75.00 | 67.50 | - | 90.00 | - | 1.09 (40.00) | 0.73 (40.00) | 0.00 (0.00) | 0.92 (20.00) | 0.00 (0.00) |
| >90 | 95.00 | 100.00 | - | 5.50 | 95.00 | 0.66 (40.00) | 0.44 (40.00) | 0.00 (0.00) | 0.00 (0.00) | 1.34 (20.00) |
| All | 22.03 | 24.44 | 22.72 | 20.43 | 18.20 | 100.00 (25.71) | 100.00 (38.57) | 100.00 (14.11) | 100.00 (15.32) | 100.00 (6.29) |

*Note*: Figures in bracket represents share within group (row %).

Table 5: Distribution of Duration of Employment (%) by Social group

| Number of days worked | Mean number of days worked by Social group | | | | % participants by Social group | | | |
|---|---|---|---|---|---|---|---|---|
| | SC | ST | OBC | Others | SC | ST | OBC | Others |
| Rajasthan | | | | | | | | |
| <= 7 | 3.27 | 3.58 | 3.79 | 7.00 | 3.87(26.13) | 1.63(14.58) | 6.29(56.13) | 2.54(3.15) |
| >7-<=15 | 12.89 | 13.09 | 12.58 | 15.00 | 16.98(31.13) | 9.21(22.38) | 16.02(38.77) | 22.93(7.71) |
| >15-<=30 | 24.51 | 25.86 | 26.97 | 27.00 | 20.22(26.87) | 19.76(34.80) | 21.39(37.54) | 3.21(0.78) |
| >30-<=60 | 45.26 | 47.22 | 43.35 | 40.97 | 42.85(27.47) | 46.15(39.19) | 34.61(29.28) | 34.48(4.06) |
| >60-<=90 | 75.74 | 77.06 | 74.81 | 76.17 | 8.08(20.69) | 6.42(21.77) | 15.38(52.01) | 11.77(5.53) |
| >90 | 99.22 | 99.95 | 101.01 | 96.56 | 8.00(18.51) | 16.83(51.59) | 6.31(19.26) | 25.06(10.64) |
| All | 40.73 | 49.93 | 40.91 | 51.78 | 100.00(26.12) | 100.00(34.61) | 100.00(34.48) | 100.00(4.79) |
| Andhra Pradesh | | | | | | | | |
| <= 7 | 4.17 | 6.56 | 4.76 | 5.25 | 9.56(40.04) | 3.54(5.20) | 7.71(48.03) | 10.46(6.73) |
| >7-<=15 | 12.27 | 11.85 | 11.83 | 11.75 | 16.70(38.29) | 8.01(6.45) | 14.42(49.17) | 17.31(6.09) |
| >15-<=30 | 23.83 | 23.19 | 23.25 | 22.69 | 23.21(32.83) | 24.29(12.06) | 23.19(48.78) | 29.14(6.33) |
| >30-<=60 | 43.22 | 40.59 | 44.21 | 47.05 | 36.50(32.85) | 44.81(14.16) | 36.62(49.03) | 28.60(3.95) |
| >60-<=90 | 73.78 | 76.48 | 71.91 | 71.50 | 7.32(20.74) | 15.95(15.87) | 13.82(58.25) | 11.82(5.14) |
| >90 | 112.24 | 112.59 | 114.14 | 112.50 | 6.71(45.86) | 3.41(8.18) | 4.25(43.16) | 2.67(2.80) |
| All | 36.69 | 41.03 | 38.44 | 34.10 | 100.00(33.42) | 100.00(11.74) | 100.00(49.71) | 100.00(5.13) |
| Maharashtra | | | | | | | | |
| <= 7 | 5.93 | 6.00 | 4.55 | - | 9.22(39.82) | 4.99(21.69) | 3.25(38.48) | 0.00(0.00) |
| >7-<=15 | 12.01 | 13.11 | 12.45 | 12.01 | 34.25(16.18) | 37.12(17.64) | 40.04(51.90) | 24.46(14.28) |
| >15-<=30 | 19.78 | 22.10 | 22.23 | 22.48 | 40.03(17.33) | 42.84(18.66) | 42.66(50.69) | 24.90(13.32) |
| >30-<=60 | 42.53 | 50.76 | 37.70 | 40.54 | 16.50(13.09) | 10.88(8.68) | 13.13(28.58) | 50.64(49.65) |
| >60-<=90 | - | 75.00 | - | - | 0.00(0.00) | 4.17(100.00) | 0.00(0.00) | 0.00(0.00) |
| >90 | - | - | 97.00 | | 0.00(0.00) | 0.00(0.00) | 0.92(100.00) | 0.00(0.00) |
| All | 19.60 | 23.29 | 20.46 | 29.06 | 100.00(16.70) | 100.00(16.81) | 100.00(45.84) | 100.00(20.65) |

*Note*: Figures in bracket represents share within group (row %).

Table 6: Distribution of Duration of Employment (%) by Land-ownership

| Number of days worked | Mean number of days worked by land owned | | | | | % participants by land owned | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Landless | >0-<=1 | >1-<=2 | >2-<=5 | >5 | Landless | >0-<=1 | >1-<=2 | >2-<=5 | >5 |
| Rajasthan | | | | | | | | | | |
| <= 7 | 2.00 | 3.97 | 4.72 | 5.94 | 5.50 | 5.32 (35.14) | 3.47 (27.75) | 2.90 (21.92) | 4.10 (11.72) | 4.02 (3.47) |
| >7-<=15 | 13.14 | 13.32 | 13.00 | 12.17 | 13.37 | 2.29 (4.11) | 14.86 (32.22) | 17.76 (36.40) | 24.35 (18.88) | 35.86 (8.39) |
| >15-<=30 | 26.19 | 26.26 | 25.08 | 26.46 | 28.00 | 16.70 (21.71) | 18.33 (28.82) | 24.79 (36.83) | 12.07 (6.78) | 34.56 (5.86) |
| >30-<=60 | 44.68 | 47.58 | 43.97 | 43.92 | 47.71 | 48.30 (30.27) | 38.95 (29.53) | 40.16 (28.77) | 37.50 (10.16) | 15.50 (1.27) |
| >60-<=90 | 75.77 | 78.24 | 74.87 | 70.28 | - | 12.52 (31.36) | 11.56 (34.99) | 5.94 (17.00) | 15.38 (16.65) | 0.00 (0.00) |
| >90 | 98.48 | 100.05 | 100.88 | 99.37 | 100.00 | 14.86 (33.62) | 12.83 (35.09) | 8.45 (21.86) | 6.61 (6.46) | 10.07 (2.97) |
| All | 50.49 | 47.34 | 39.29 | 40.24 | 32.15 | 100.00 (25.54) | 100.00 (30.89) | 100.00 (29.20) | 100.00 (11.04) | 100.00 (3.33) |
| Andhra Pradesh | | | | | | | | | | |
| <= 7 | 4.46 | 4.49 | 5.39 | 5.33 | - | 10.38 (58.56) | 5.84 (21.29) | 7.27 (14.46) | 5.07 (5.69) | 0.00 (0.00) |
| >7-<=15 | 11.60 | 12.18 | 12.55 | 12.38 | - | 14.93 (46.09) | 13.91 (27.72) | 16.22 (17.66) | 13.87 (8.52) | 0.00 (0.00) |
| >15-<=30 | 22.39 | 25.18 | 22.83 | 22.69 | 26.84 | 21.92 (41.76) | 24.88 (30.60) | 21.78 (14.63) | 30.96 (11.74) | 27.67 (1.27) |
| >30-<=60 | 42.74 | 43.52 | 46.28 | 43.47 | 35.70 | 35.72 (43.31) | 38.17 (29.88) | 36.82 (15.74) | 39.04 (9.42) | 56.39 (1.65) |
| >60-<=90 | 73.44 | 72.91 | 70.92 | 76.27 | 74.63 | 11.94 (45.58) | 10.65 (26.25) | 14.87 (20.02) | 8.79 (6.68) | 15.94 (1.47) |
| >90 | 111.76 | 109.93 | 122.12 | 136.50 | - | 5.11 (47.04) | 6.55 (38.94) | 3.04 (9.87) | 2.27 (4.15) | 0.00 (0.00) |
| All | 36.85 | 39.80 | 38.70 | 35.78 | 39.45 | 100.00 (45.02) | 100.00 (29.06) | 100.00 (15.88) | 100.00 (8.96) | 100.00 (1.09) |
| Maharashtra | | | | | | | | | | |
| <= 7 | 4.83 | 6.00 | 6.13 | 5.63 | - | 3.89 (43.97) | 12.47 (21.69) | 2.54 (11.03) | 3.56 (23.31) | 0.00 (0.00) |
| >7-<=15 | 12.19 | 11.59 | 13.02 | 12.79 | 12.30 | 32.86 (40.65) | 34.00 (6.47) | 30.60 (14.54) | 33.80 (24.19) | 67.62 (14.15) |
| >15-<=30 | 21.98 | 21.92 | 21.20 | 21.86 | 21.12 | 43.51 (49.34) | 46.79 (8.16) | 25.96 (11.31) | 40.75 (26.73) | 23.26 (4.46) |
| >30-<=60 | 39.67 | 33.73 | 40.93 | 43.24 | 42.38 | 18.78 (39.03) | 6.74 (2.15) | 40.40 (32.24) | 19.79 (23.78) | 7.97 (2.80) |
| >60-<=90 | 68.33 | - | - | 85.00 | - | 0.96 (60.00) | 0.00 (0.00) | 0.00 (0.00) | 1.11 (40.00) | 0.00 (0.00) |
| >90 | - | - | 105.00 | 95.00 | 95.00 | 0.00 (0.00) | 0.00 (0.00) | 0.50 (20.00) | 1.00 (60.00) | 1.14 (20.00) |
| All | 21.87 | 17.22 | 26.70 | 23.88 | 17.69 | 100.00 (43.76) | 100.00 (6.73) | 100.00 (16.81) | 100.00 (25.31) | 100.00 (7.40) |

*Note*: Figures in bracket represents share within group (row %).

Table 7: Distribution of Duration of Employment (%) by Poverty status

| Number of days worked | Mean number of days worked by poverty status | | | | % participants by poverty status | | | |
|---|---|---|---|---|---|---|---|---|
| | Acutely poor | Moderately poor | Moderately non-poor | Affluent | Acutely poor | Moderately poor | Moderately non-poor | Affluent |
| Rajasthan | | | | | | | | |
| <= 7 | 5.24 | 2.17 | 3.83 | 5.34 | 1.63 (14.62) | 11.34 (45.72) | 2.01 (9.94) | 3.74 (29.72) |
| >7-<=15 | 13.06 | 12.68 | 12.52 | 13.24 | 14.90 (36.22) | 9.13 (9.99) | 14.49 (19.42) | 15.95 (34.38) |
| >15-<=30 | 26.40 | 25.61 | 26.14 | 25.40 | 20.53 (36.17) | 13.08 (10.38) | 19.77 (19.20) | 21.92 (34.25) |
| >30-<=60 | 44.68 | 48.12 | 46.26 | 43.12 | 39.42 (33.50) | 54.49 (20.84) | 41.24 (19.32) | 34.96 (26.34) |
| >60-<=90 | 76.39 | 81.74 | 76.74 | 72.84 | 7.66 (26.02) | 8.03 (12.27) | 9.76 (18.26) | 14.44 (43.45) |
| >90 | 98.95 | 100.00 | 100.27 | 100.45 | 15.86 (48.65) | 3.93 (5.42) | 12.73 (21.52) | 8.98 (24.41) |
| All | 46.61 | 41.47 | 46.39 | 42.49 | 100.00 (34.63) | 100.00 (15.59) | 100.00 (19.09) | 100.00 (30.70) |
| Andhra Pradesh | | | | | | | | |
| <= 7 | 4.20 | 5.08 | 4.39 | 4.86 | 9.48 (14.66) | 9.07 (20.55) | 8.57 (33.11) | 6.52 (31.68) |
| >7-<=15 | 11.90 | 11.95 | 12.40 | 11.81 | 17.18 (14.54) | 16.54 (20.52) | 11.93 (25.22) | 14.95 (39.72) |
| >15-<=30 | 23.98 | 22.10 | 23.75 | 23.75 | 10.37 (5.42) | 29.03 (22.21) | 23.58 (30.77) | 25.37 (41.60) |
| >30-<=60 | 41.68 | 44.70 | 44.65 | 42.56 | 44.69 (14.85) | 29.68 (14.45) | 42.98 (35.70) | 33.54 (34.99) |
| >60-<=90 | 72.41 | 69.88 | 74.18 | 73.34 | 14.80 (15.49) | 8.12 (12.45) | 10.70 (27.97) | 13.42 (44.08) |
| >90 | 101.15 | 115.11 | 109.82 | 115.04 | 3.48 (8.79) | 7.56 (27.96) | 2.25 (14.18) | 6.19 (49.08) |
| All | 37.80 | 36.50 | 37.05 | 39.35 | 100.00 (12.34) | 100.00 (18.08) | 100.00 (30.84) | 100.00 (38.74) |
| Maharashtra | | | | | | | | |
| <= 7 | 3.50 | 4.00 | 5.50 | 6.09 | 5.39 (14.42) | 1.12 (5.18) | 3.57 (33.37) | 5.10 (47.03) |
| >7-<=15 | 13.74 | 12.83 | 12.16 | 12.00 | 50.44 (14.76) | 29.01 (14.66) | 31.77 (32.43) | 37.81 (38.15) |
| >15-<=30 | 21.81 | 24.47 | 22.31 | 20.54 | 24.70 (6.62) | 33.07 (15.32) | 35.66 (33.36) | 48.34 (44.70) |
| >30-<=60 | 41.99 | 40.04 | 40.72 | 42.57 | 17.84 (8.77) | 36.80 (31.24) | 26.98 (46.25) | 8.12 (13.75) |
| >60-<=90 | - | - | 73.75 | 80.00 | 0.00 (0.00) | 0.00 (0.00) | 1.55 (80.00) | 0.39 (20.00) |
| >90 | 95.00 | - | 100.00 | 95.00 | 1.63 (40.00) | 0.00 (0.00) | 0.47 (40.00) | 0.24 (20.00) |
| All | 21.55 | 26.59 | 24.62 | 18.77 | 100.00 (10.35) | 100.00 (17.88) | 100.00 (36.10) | 100.00 (35.68) |

*Note*: Definition of different poverty levels for each state is detailed in annex 2. Figures in bracket represents share within group (row %).

Table 8: Estimation of Employment Duration Conditional on NREGS Participation: Rajasthan

| | Two-step | | MLE | |
|---|---|---|---|---|
| Dependent variable | NREGS Participation | Number of days worked | NREGS Participation | Number of days worked |
| Explanatory variables | Coeff (t-value) | Coeff (t-value) | Coeff (t-value) | Coeff (t-value) |
| Gender | -0.03(-0.47) | -9.36***(-3.44) | -0.03(-0.44) | -9.30***(-3.47) |
| Age | 0.16***(13.04) | -0.67(-0.54) | 0.16***(13.13) | -0.29(-0.38) |
| Square of age | -0.002***(-12.94) | 0.01(0.52) | -0.002***(-13.01) | 0.00(0.34) |
| Marital status: Married | 0.18*(1.71) | -2.51(-0.63) | 0.17w(1.62) | -1.95(-0.52) |
| Primary education | -0.25***(-2.88) | 8.86**(2.41) | -0.25***(-2.93) | 8.23**(2.47) |
| Middle school | -0.44***(-3.39) | 14.56**(2.43) | -0.43***(-3.3) | 13.70**(2.51) |
| Secondary education | -0.38**(-2.36) | -3.44(-0.48) | -0.37**(-2.32) | -4.61(-0.7) |
| Higher secondary and above | -0.64***(-3.98) | 14.55*(1.82) | -0.65***(-4.05) | 13.09*(1.85) |
| SC | 0.45***(2.71) | -14.60**(-1.96) | 0.44***(2.62) | -13.74**(-1.98) |
| ST | 0.59***(3.48) | -5.82(-0.77) | 0.56***(3.34) | -4.65(-0.68) |
| OBC | 0.37**(2.25) | -10.17(-1.42) | 0.37**(2.23) | -9.47(-1.39) |
| Land owned | -0.06*(-1.84) | -2.16(-1.43) | -0.05w(-1.6) | -2.23(-1.5) |
| Square of Land owned | 0.00(0.31) | 0.08(0.57) | 0.00(0.24) | 0.08(0.54) |
| Household size | -0.14***(-3.14) | 2.74(1.38) | -0.14***(-3.14) | 2.43(1.35) |
| Square of household size | 0.00(1.46) | -0.13(-1.00) | 0.00(1.41) | -0.12(-0.96) |
| Ratio of NREG to AGR wage rate | 0.26(0.39) | | 0.87(1.28) | |
| Land Gini index | -5.15***(-4.33) | 131.23***(5.32) | -4.97***(-4.29) | 131.31***(5.35) |
| Interaction of Ratio NREGAGRWR with LGI | 5.15***(4.06) | | 5.28***(4.31) | |
| AVGSITEVILLDIST | 1.13***(3.34) | | 1.28***(3.88) | |
| % hhs MEETATTEND | 0.005**(2.19) | 1.19***(4.06) | 0.01**(2.35) | 1.20***(4.19) |
| District: Udaipur | 0.27*(1.87) | | 0.39*(2.64) | |
| District: Jhalawar | 0.23(1.33) | | 0.18(1.08) | |
| Interaction of AVGSITEVILLDIST with Ratio of NREG to AGR wage rate | -1.14***(-3.44) | | -1.34***(-4.14) | |
| Household's social networking | 0.15(1.21) | | 0.18(1.56) | |
| Interaction of LGI with %hhs MEETATTEND | | -2.90***(-4.96) | | -2.91***(-5.06) |
| Constant | -3.53***(-4.17) | 22.09(0.65) | -4.26***(-4.94) | 12.66(0.54) |
| Mill's Lamda | -16.93*(-1.76) | | | |
| /athrho | | | -0.54***(-2.81) | |
| /lnsigma | | | 3.33***(51.86) | |
| Rho | -0.58 | | -0.49 | |
| Sigma | 29.16 | | 28.05 | |
| Lambda | -16.93 | | -13.72 | |
| Number of obs | 2684 | | 2684 | |
| Number of censored obs | 2108 | | 2108 | |
| Number of uncensored obs | 576 | | 576 | |
| Wald chi-square | 550.268*** | | 81.36*** | |
| Log Likelihood | | | -3670.38 | |
| LR test of indep. eqns. (rho = 0) i.e. chi-square(1) | | | 4.43** | |

*Note*: ***,**,* refer to significance at the 1 %, 5 % and 10 % level, respectively; and w denotes weakly significant (>10 % level). Figures in the parenthesis are the t-values.

Table 9: Estimation of Employment Duration Conditional on NREGS Participation: Andhra Pradesh

| Heckman Selection models | Two-step | | MLE | |
|---|---|---|---|---|
| Dependent variable | NREGS Participation | Number of days worked | NREGS Participation | Number of days worked |
| Explanatory variables | Coeff (t-value) | Coeff (t-value) | Coeff (t-value) | Coeff (t-value) |
| Gender | 0.19***(2.77) | -9.28***(-4.18) | 0.18***(2.60) | -7.37***(-3.84) |
| Age | 0.21***(14.84) | -3.33***(-3.73) | 0.21***(15.05) | -1.34**(-2.24) |
| Square of age | -0.003***(-14.80) | 0.04***(3.67) | -0.003***(-15.03) | 0.02**(2.14) |
| Marital status: Married | -0.03(-0.27) | -13.56***(-3.42) | -0.01(-0.11) | -14.32***(-3.96) |
| Primary education | -0.27***(-2.99) | 5.27**(2.04) | -0.25***(-2.76) | 3.29(1.49) |
| Middle school | -0.63***(-4.92) | 18.01***(3.85) | -0.62***(-4.83) | 12.23***(3.05) |
| Secondary education | -0.50***(-3.96) | 14.96***(3.45) | -0.49***(-3.85) | 10.33***(2.73) |
| Higher secondary and above | -0.37***(-2.66) | 10.11**(2.12) | -0.38***(-2.72) | 6.46(1.49) |
| SC | 0.55***(4.48) | -2.06(-0.50) | 0.55***(4.51) | 1.28(0.36) |
| ST | 0.57***(3.40) | -4.36(-0.89) | 0.55***(3.34) | 0.68(0.16) |
| OBC | 0.29***(2.64) | 3.56(0.93) | 0.31***(2.83) | 5.25(1.50) |
| Landowned | -0.09**(-2.01) | 0.91(0.63) | -0.10**(-2.22) | -0.23(-0.19) |
| Square of Landowned | 0.00(0.50) | 0.02(0.09) | 0.00(0.60) | 0.07(0.45) |
| Household size | -0.05(-0.53) | 1.47(0.49) | -0.09(-0.89) | 1.15(0.43) |
| Square of household size | 0.00(0.24) | -0.29(-1.00) | 0.01(0.55) | -0.28(-1.07) |
| Ratio of NREG to AGR wage rate | -0.75(-0.42) | | -0.83(-0.48) | |
| Land Gini index | -1.38(-0.53) | 81.39***(2.81) | -2.12(-0.84) | 98.84***(3.61) |
| Interaction of Ratio NREGAGRWR with LGI | 0.36(0.15) | | 0.94(0.40) | |
| AVGSITEVILLDIST | -0.91**(-2.13) | | -0.95**(-2.30) | |
| %hhs MEETATTEND | 0.00(-0.05) | 1.03***(4.24) | 0.00(-0.41) | 1.11***(4.68) |
| District: Mahbubnagar | -0.07(-0.36) | | -0.12(-0.62) | |
| District: Nalgonda | -0.19(-1.08) | | -0.45***(-2.56) | |
| District: Warangal | -0.37**(-2.18) | | -0.33**(-2.03) | |
| District:Vizianagaram | -1.56***(-5.90) | | -1.73***(-6.85) | |
| District: Chittoor | -0.66***(-3.77) | | -0.73***(-4.31) | |
| Interaction of Ratio NREGAGRWR with AVGSITEVILLDIST | 0.17(0.49) | | 0.09(0.27) | |
| Household's social networking | 0.02(0.24) | | 0.08(0.97) | |
| Interaction of LGI with %hhs MEETATTEND | | -1.50***(-3.84) | | -1.78***(-4.79) |
| Constant | -0.40(-0.19) | 60.92**(2.08) | 0.14(0.07) | 12.37(0.52) |
| Mill's Lamda | -31.26***(-5.36) | | | |
| /athrho | | | -0.56***(-5.80) | |
| /lnsigma | | | 3.31***(101.46) | |
| Rho | -0.93 | | -0.51 | |
| Sigma | 33.61 | | 27.40 | |
| Lambda | -31.26 | | -13.96 | |
| Number of obs | 2190 | | 2190 | |
| Number of censored obs | 1250 | | 1250 | |
| Number of uncensored obs | 940 | | 940 | |
| Wald chi-square | 672.25*** | | 97.93*** | |
| Log Likelihood | | | -5354.28 | |
| LR test of indep. eqns. (rho = 0) i.e. chi-square(1) | | | 21.89*** | |

*Note*: ***,**,* refer to significance at the 1 %, 5 % and 10 % level, respectively; and w denotes weakly significant (>10 % level). Figures in the parenthesis are the t-values.

Table 10: Estimation of Employment Duration Conditional on NREGS Participation: Maharashtra

| Heckman Selection models | Two-step | | MLE | |
|---|---|---|---|---|
| Dependent variable | NREGS Participation | Number of days worked | NREGS Participation | Number of days worked |
| Explanatory variables | Coeff (t-value) | Coeff (t-value) | Coeff (t-value) | Coeff (t-value) |
| Gender | 0.31***(4.02) | 4.23***(3.10) | 0.31***(3.96) | 3.57***(2.65) |
| Age | 0.19***(11.21) | -0.85*(-1.78) | 0.19***(11.25) | -1.27***(-2.95) |
| Square of age | -0.002***(-11.76) | 0.01(1.48) | -0.002***(-11.73) | 0.01***(2.69) |
| Marital status: Married | -0.49***(-3.24) | -1.88(-0.66) | -0.47***(-3.10) | -0.97(-0.35) |
| Primary education | 0.07(0.68) | 0.63(0.42) | 0.05(0.45) | 0.40(0.25) |
| Middle school | -0.03(-0.25) | -2.26(-1.06) | -0.01(-0.10) | -2.24(-1.04) |
| Secondary education | 0.22w(1.63) | -5.99***(-2.85) | 0.27**(1.98) | -6.29***(-2.93) |
| Higher secondary and above | -0.20(-1.21) | -6.55**(-2.14) | -0.14(-0.88) | -5.67*(-1.87) |
| SC | 0.34**(2.33) | -11.98***(-5.43) | 0.43***(2.99) | -12.29***(-5.56) |
| ST | 0.20(1.39) | -5.47***(-2.67) | 0.30**(2.11) | -5.45***(-2.60) |
| OBC | -0.01(-0.10) | -8.70***(-5.09) | 0.13(1.15) | -8.67***(-4.99) |
| Landowned | -0.06***(-3.05) | 0.44(0.96) | -0.06***(-2.83) | 0.62(1.38) |
| Square of Landowned | 0.00(0.83) | -0.01(-0.26) | 0.00(0.62) | -0.01(-0.29) |
| Household size | -0.29***(-3.58) | 1.97(1.40) | -0.29***(-3.60) | 2.50*(1.78) |
| Square of household size | 0.01*(1.85) | -0.13(-1.03) | 0.01*(1.87) | -0.15(-1.24) |
| Ratio of NREG to AGR wage rate | 3.53***(4.94) | | 4.08***(5.90) | |
| Square of Ratio of NREG to AGR wage rate | -0.89***(-4.35) | | -1.12***(-5.56) | |
| Land Gini index | 0.16(0.22) | 32.72***(4.25) | 0.39(0.55) | 31.61***(4.04) |
| AVGSITEVILLDIST | -0.09(-1.07) | | -0.02(-0.25) | |
| %hhs MEETATTEND | -0.01(-1.17) | 0.23***(3.53) | 0.00(-1.00) | 0.23***(3.52) |
| District: Chandrapur | -0.48*(-1.94) | | -0.65***(-2.71) | |
| District: Yavatmal | -0.12(-0.43) | | -0.31(-1.10) | |
| District: Nanded | -0.56**(-2.19) | | -0.30(-1.18) | |
| District: Hingoli | 0.02(0.08) | | 0.26(1.22) | |
| District: Ahmednagar | -0.36*(-1.73) | | -0.42**(-2.13) | |
| Interaction of LGI with %hhs MEETATTEND | 0.01(0.96) | -0.47***(-4.10) | 0.01(1.12) | -0.47***(-3.99) |
| Household's having motorcycle | -0.76***(-6.31) | | -0.73***(-6.25) | |
| %hhs with both TV and Cellphone | -0.01**(-2.52) | | -0.01**(-2.25) | |
| Constant | -4.94***(-5.44) | 28.59***(2.57) | -5.78***(-6.41) | 37.31***(3.64) |
| Mills Lamda | -4.54*(-1.74) | | | |
| /athrho | | | -0.57***(-4.15) | |
| /lnsigma | | | 2.70***(56.72) | |
| Rho | -0.32 | | -0.52 | |
| Sigma | 14.11 | | 14.84 | |
| lambda | -4.54 | | -7.67 | |
| Number of obs | 2270 | | 2270 | |
| Number of censored obs | 1698 | | 1698 | |
| Number of uncensored obs | 572 | | 572 | |
| Wald chi-square | 516.38*** | | 94.42*** | |
| Log Likelihood | | | -3109.52 | |
| LR test of indep. eqns. (rho = 0) i.e. chi-square(1) | | | 9.49*** | |

*Note*: ***,**,* refer to significance at the 1 %, 5 % and 10 % level, respectively; and w denotes weakly significant (>10 % level). Figures in the parenthesis are the t-values.

Table 11: Estimation of Log of NREGS Earnings Conditional on NREGS Participation: Rajasthan

| Heckman Selection models | Two-step | | MLE | |
|---|---|---|---|---|
| Dependent variable | NREGS Participation | Log of NREGS earnings | NREGS Participation | Log of NREGS earnings |
| Explanatory variables | Coeff (t-value) | Coeff (t-value) | Coeff (t-value) | Coeff (t-value) |
| Gender | -0.04(-0.50) | -0.17**(-2.09) | -0.02(-0.22) | -0.13(-1.45) |
| Age | 0.16***(12.98) | -0.02(-0.67) | 0.15***(12.97) | -0.12***(-6.22) |
| Square of age | -0.002***(-12.88) | 0.00(0.54) | -0.002***(-12.78) | 0.001***(6.07) |
| Marital status: Married | 0.18*(1.76) | -0.12(-0.98) | 0.19*(1.96) | -0.21w(-1.62) |
| Primary education | -0.25***(-2.91) | 0.18*(1.66) | -0.23***(-2.77) | 0.31***(2.79) |
| Middle school | -0.45***(-3.43) | 0.40**(2.22) | -0.39***(-3.08) | 0.65***(3.74) |
| Secondary education | -0.37**(-2.32) | -0.29(-1.37) | -0.37**(-2.37) | -0.13(-0.60) |
| Higher secondary and above | -0.63***(-3.97) | 0.27(1.17) | -0.61***(-4.00) | 0.65***(3.04) |
| SC | 0.45***(2.66) | -0.41*(-1.87) | 0.42***(2.59) | -0.70***(-3.15) |
| ST | 0.58***(3.41) | -0.24(-1.10) | 0.45***(2.76) | -0.60***(-2.71) |
| OBC | 0.36**(2.20) | -0.29(-1.39) | 0.33**(2.12) | -0.55**(-2.54) |
| Landowned | -0.05*(-1.76) | -0.05(-1.11) | -0.03(-0.93) | -0.03(-0.61) |
| Square of Landowned | 0.00(0.27) | 0.00(0.47) | 0.00(-0.07) | 0.00(0.45) |
| Household size | -0.14***(-3.20) | 0.14**(2.42) | -0.14***(-3.40) | 0.20***(3.30) |
| Square of household size | 0.00(1.50) | -0.01**(-2.24) | 0.005*(1.65) | -0.01**(-2.14) |
| Ratio of NREG to AGR wage rate | 0.31(0.46) | | 1.43***(3.14) | |
| Land Gini index | -5.15***(-4.33) | 2.90***(3.97) | -2.67***(-3.28) | 2.81***(4.14) |
| Interaction of Ratio NREGAGRWR with LGI | 5.18***(4.08) | | 3.14***(3.68) | |
| AVGSITEVILLDIST | 1.15***(3.40) | | 0.87***(3.84) | |
| %hhs MEETATTEND | 0.005**(2.20) | 0.02**(2.47) | 0.00w (1.60) | 0.01*(1.76) |
| District: Udaipur | 0.31**(2.06) | | 0.35***(3.87) | |
| District: Jhalawar | 0.25(1.44) | | -0.02(-0.18) | |
| Interaction of Ratio NREGAGRWR with AVGSITEVILLDIST | -1.16***(-3.50) | | -0.97***(-4.44) | |
| Household's social networking | 0.14(1.13) | | 0.21***(2.62) | |
| Interaction of LGI with %hhs MEETATTEND | | -0.06***(-3.35) | | -0.05***(-3.15) |
| Constant | -3.59***(-4.23) | 7.44***(7.41) | -4.56***(-7.35) | 9.88***(16.67) |
| Mills Lamda | -0.53*(-1.87) | | | |
| /athrho | | | -2.19***(-12.87) | |
| /lnsigma | | | 0.22***(4.97) | |
| Rho | -0.61 | | -0.98 | |
| Sigma | 0.87 | | 1.24 | |
| lambda | -0.53 | | -1.21 | |
| Number of obs | 2680 | | 2680 | |
| Number of censored obs | 2108 | | 2108 | |
| Number of uncensored obs | 572 | | 572 | |
| Wald chi-square | 537.27*** | | 150.33*** | |
| Log Likelihood | | | -1587.27 | |
| LR test of indep. eqns. (rho = 0) i.e. chi-square(1) | | | 90.50*** | |

*Note*: ***,**,* refer to significance at the 1 %, 5 % and 10 % level, respectively; and w denotes weakly significant (>10 % level). Figures in the parenthesis are the t-values.

Table 12: Estimation of Log of NREGS Earnings Conditional on NREGS Participation: Andhra Pradesh

| Heckman Selection models | Two-step | | MLE | |
|---|---|---|---|---|
| Dependent variable | NREGS Participation | Log of NREGS earnings | NREGS Participation | Log of NREGS earnings |
| Explanatory variables | Coeff (t-value) | Coeff (t-value) | Coeff (t-value) | Coeff (t-value) |
| Gender | 0.19***(2.77) | -0.27***(-3.80) | 0.17***(2.64) | -0.31***(-4.34) |
| Age | 0.21***(14.84) | -0.05(-1.56) | 0.20***(14.88) | -0.14***(-6.74) |
| Square of age | -0.003***(-14.80) | 0.00(1.55) | -0.002***(-14.82) | 0.002***(6.82) |
| Marital status: Married | -0.03(-0.27) | -0.39***(-3.12) | 0.04(0.37) | -0.38***(-2.88) |
| Primary education | -0.27***(-2.99) | 0.17**(2.07) | -0.20**(-2.44) | 0.21**(2.49) |
| Middle school | -0.63***(-4.92) | 0.35**(2.31) | -0.54***(-4.48) | 0.55***(3.82) |
| Secondary education | -0.50***(-3.96) | 0.39***(2.82) | -0.38***(-3.21) | 0.59***(4.31) |
| Higher secondary and above | -0.37***(-2.66) | 0.33**(2.13) | -0.33**(-2.52) | 0.36**(2.30) |
| SC | 0.55***(4.48) | 0.15(1.17) | 0.39***(3.46) | -0.06(-0.49) |
| ST | 0.57***(3.40) | 0.30*(1.92) | 0.29**(2.01) | 0.05(0.30) |
| OBC | 0.29***(2.64) | 0.32***(2.57) | 0.22**(2.17) | 0.16(1.32) |
| Landowned | -0.09**(-2.01) | 0.04(0.92) | -0.12***(-2.74) | 0.07(1.51) |
| Square of Landowned | 0.00(0.50) | 0.00(-0.01) | 0.00(0.70) | 0.00(-0.21) |
| Household size | -0.05(-0.53) | 0.03(0.34) | -0.09(-0.96) | 0.04(0.38) |
| Square of household size | 0.00(0.24) | -0.01(-0.92) | 0.01(0.70) | -0.01(-0.87) |
| Ratio of NREG to AGR wage rate | -0.75(-0.42) | | 0.23(0.17) | |
| Land Gini index | -1.38(-0.53) | 3.04***(3.17) | -2.34(-1.23) | 0.81(0.89) |
| Interaction of Ratio NREGAGRWR with LGI | 0.36(0.15) | | 1.72(1.00) | |
| AVGSITEVILLDIST | -0.91**(-2.13) | | -0.02(-0.06) | |
| %hhs MEETATTEND | 0.00(-0.05) | 0.04***(5.05) | 0.00(-0.79) | 0.02***(2.86) |
| District: Mahbubnagar | -0.07(-0.36) | | -0.09(-0.65) | |
| District: Nalgonda | -0.19(-1.08) | | -0.36***(-2.85) | |
| District: Warangal | -0.37**(-2.18) | | -0.08(-0.60) | |
| District:Vizianagaram | -1.56***(-5.90) | | -1.12***(-5.98) | |
| District: Chittoor | -0.66***(-3.77) | | -0.60***(-4.59) | |
| Interaction of Ratio NREGAGRWR with AVGSITEVILLDIST | 0.17(0.49) | | -0.53**(-1.99) | |
| Household's social networking | 0.02(0.24) | | 0.10*(1.65) | |
| Interaction of LGI with %hhs MEETATTEND | | -0.07***(-5.10) | | -0.03**(-2.53) |
| Constant | -0.40(-0.19) | 6.85***(7.13) | -1.62(-1.05) | 9.97***(12.51) |
| Mills Lamda | -0.66***(-3.47) | | | |
| /athrho | | | -1.82***(-12.64) | |
| /lnsigma | | | 0.16***(4.88) | |
| Rho | -0.67 | | -0.95 | |
| Sigma | 0.99 | | 1.17 | |
| lambda | -0.66 | | -1.11 | |
| Number of obs | 2190 | | 2190 | |
| Number of censored obs | 1250 | | 1250 | |
| Number of uncensored obs | 940 | | 940 | |
| Wald chi-square | 714.06*** | | 154.31*** | |
| Log Likelihood | | | -2141.92 | |
| LR test of indep. eqns. (rho = 0) i.e. chi-square(1) | | | 94.41*** | |

*Note*: ***,**,* refer to significance at the 1 %, 5 % and 10 % level, respectively; and w denotes weakly significant (>10 % level). Figures in the parenthesis are the t-values.

Table 13: Estimation of Log of NREGS Earnings Conditional on NREGS Participation: Maharashtra

| Heckman Selection models | Two-step | | MLE | |
|---|---|---|---|---|
| Dependent variable | NREGS Participation | Log of NREGS earnings | NREGS Participation | Log of NREGS earnings |
| Explanatory variables | Coeff (t-value) | Coeff (t-value) | Coeff (t-value) | Coeff (t-value) |
| Gender | 0.31***(4.02) | 0.19***(3.08) | 0.22***(2.97) | 0.05(0.84) |
| Age | 0.19***(11.21) | -0.08***(-3.62) | 0.18***(11.14) | -0.13***(-7.95) |
| Square of age | -0.002***(-11.76) | 0.001***(3.50) | -0.002***(-11.51) | 0.002***(8.10) |
| Marital status: Married | -0.49***(-3.24) | 0.04(0.32) | -0.41***(-2.83) | 0.15(1.20) |
| Primary education | 0.07(0.68) | 0.04(0.65) | 0.01(0.15) | -0.03(-0.34) |
| Middle school | -0.03(-0.25) | -0.02(-0.20) | 0.00(-0.01) | -0.06(-0.55) |
| Secondary education | 0.22w(1.63) | -0.26***(-2.73) | 0.31**(2.45) | -0.28***(-2.77) |
| Higher secondary and above | -0.20(-1.21) | -0.32**(-2.40) | -0.02(-0.12) | -0.15(-1.15) |
| SC | 0.34**(2.33) | -0.65***(-6.54) | 0.66***(5.07) | -0.63***(-5.92) |
| ST | 0.20(1.39) | -0.44***(-4.77) | 0.52***(4.02) | -0.44***(-4.35) |
| OBC | -0.01(-0.10) | -0.41***(-5.38) | 0.40***(3.91) | -0.39***(-4.73) |
| Landowned | -0.06***(-3.05) | 0.01(0.43) | -0.06***(-3.10) | 0.04**(1.98) |
| Square of Landowned | 0.00(0.83) | 0.00(0.84) | 0.00(0.30) | 0.00(0.18) |
| Household size | -0.29***(-3.58) | 0.15**(2.41) | -0.27***(-3.55) | 0.23***(3.61) |
| Square of household size | 0.01*(1.85) | -0.01(-1.22) | 0.01*(1.71) | -0.01**(-2.01) |
| Ratio of NREG to AGR wage rate | 3.53***(4.94) | | 3.57***(6.70) | |
| Square of Ratio of NREG to AGR wage rate | -0.89***(-4.35) | | -0.99***(-6.65) | |
| Land Gini index | 0.16(0.22) | 0.15(0.44) | 1.33**(2.20) | -0.02(-0.05) |
| AVGSITEVILLDIST | -0.09(-1.07) | | 0.12*(1.93) | |
| %hhs MEETATTEND | -0.01(-1.17) | 0.00(1.32) | 0.00(0.14) | 0.00(1.49) |
| District: Chandrapur | -0.48*(-1.94) | | -0.65***(-3.65) | |
| District: Yavatmal | -0.12(-0.43) | | -0.30(-1.50) | |
| District: Nanded | -0.56**(-2.19) | | 0.29(1.52) | |
| District: Hingoli | 0.02(0.08) | | 0.70***(5.33) | |
| District: Ahmednagar | -0.36*(-1.73) | | -0.16(-1.20) | |
| Interaction of LGI with %hhs MEETATTEND | 0.01(0.96) | -0.01(-0.97) | 0.00(-0.03) | 0.00(-0.75) |
| Household's having motorcycle | -0.76***(-6.31) | | -0.29***(-3.97) | |
| %hhs with both TV and Cellphone | -0.01**(-2.52) | | 0.00(-0.95) | |
| Constant | -4.94***(-5.44) | 8.81***(17.92) | -6.69***(-9.06) | 9.92***(23.10) |
| Mills Lamda | -0.45***(-3.96) | | | |
| /athrho | | | -2.16***(-13.04) | |
| /lnsigma | | | -0.16***(-4.15) | |
| Rho | -0.67 | | -0.97 | |
| Sigma | 0.68 | | 0.85 | |
| lambda | -0.45 | | -0.83 | |
| Number of obs | 2270 | | 2270 | |
| Number of censored obs | 1698 | | 1698 | |
| Number of uncensored obs | 572 | | 572 | |
| Wald chi-square | 539.33*** | | 210.75*** | |
| Log Likelihood | | | -1238.12 | |
| LR test of indep. eqns. (rho = 0) i.e. chi-square(1) | | | 151.57*** | |

*Note*: ***,**,* refer to significance at the 1 %, 5 % and 10 % level, respectively; and w denotes weakly significant (>10 % level). Figures in the parenthesis are the t-values.

Table 14: Average NREGS wage rate and Average annual NREGS earnings in Rajasthan, Andhra Pradesh and Maharashtra

| Worker's characteristics | Rajasthan | | Andhra Pradesh | | Maharashtra | |
|---|---|---|---|---|---|---|
| | Average NREGS wage rate | Average NREGS earnings | Average NREGS wage rate | Average NREGS earnings | Average NREGS wage rate | Average NREGS earnings |
| Gender | | | | | | |
| Female | 58.83 | 2621 | 79.38 | 2751 | 76.23 | 1292 |
| Male | 60.10 | 2000 | 79.51 | 2562 | 84.31 | 1600 |
| Age group | | | | | | |
| Less than 30 years | 59.41 | 2250 | 78.04 | 2163 | 82.59 | 1552 |
| Above 30 and below 60 years | 59.38 | 2650 | 80.27 | 2802 | 79.94 | 1470 |
| 60 years and above | 58.92 | 1560 | 78.90 | 2931 | 81.38 | 1340 |
| Education Level | | | | | | |
| Illiterate | 59.34 | 2475 | 79.99 | 2772 | 78.73 | 1327 |
| Literate but up to primary | 58.36 | 2340 | 79.18 | 2610 | 83.18 | 1620 |
| Middle | 65.20 | 2500 | 78.90 | 2644 | 79.97 | 1552 |
| Secondary | 54.47 | 1350 | 79.77 | 2400 | 80.17 | 1430.8 |
| Secondary and above | 59.53 | 1950 | 78.16 | 1928 | 75.77 | 1197 |
| Social Group | | | | | | |
| SC | 58.94 | 1992 | 50.84 | 2462 | 77.42 | 1314 |
| ST | 57.69 | 2750 | 80.71 | 2802 | 82.80 | 1552 |
| OBC | 60.86 | 2340 | 82.10 | 2689 | 78.04 | 1360 |
| Others | 63.00 | 2785 | 78.23 | 1928 | 87.33 | 2500 |
| Poverty Status | | | | | | |
| Non-poor | 61.34 | 2520 | 76.91 | 2689 | 80.99 | 1470 |
| Poor | 57.40 | 2340 | 79.93 | 2468 | 79.82 | 1600 |
| Land owned group (in acres) | | | | | | |
| Landless | 59.46 | 2750 | 78.35 | 2539 | 78.37 | 1552 |
| >0-<=1 | 59.35 | 2847 | 78.31 | 2744 | 78.16 | 1400 |
| >1-<=2 | 59.94 | 1896 | 79.95 | 2790 | 82.31 | 1680 |
| >2-<=5 | 57.64 | 1950 | 80.32 | 2509 | 83.22 | 1552 |
| >5 | 59.43 | 1800 | 81.72 | 2680 | 83.92 | 1310 |
| Household size group | | | | | | |
| 4 or less | 62.37 | 2590 | 81.21 | 2689 | 80.12 | 1552 |
| >4-<=8 | 58.14 | 2340 | 79.93 | 2542 | 80.75 | 1470 |
| >8-<=12 | 52.39 | 2275 | 78.73 | 1260 | 101.43 | 3600 |
| >12 | 67.00 | 268 | 85.91 | | | |
| All | 59.36 | 2400 | 79.45 | 2644 | 80.66 | 1520 |