Net Transfer Benefit under
National Rural Employment Guarantee Scheme

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ABSTRACT

This paper explores the important but relatively neglected issue of real income transfers, net of the opportunity cost of time, under India's National Rural Employment Guarantee Scheme. We use representative household level primary data for three states, Rajasthan, Andhra Pradesh and Maharashtra to depict various individual and social characteristics of the population in these states as well as those of the participants in the NREGS. We also model the stochastic dominance comparisons of the log of per capita monthly expenditures of participants with and without alternative employment opportunities in the absence of NREG as well as the determinants of such opportunities. As an approximate measure of the net transfer benefits under NREGS, we consider shares of NREG earnings net of the opportunity cost of time in household income net of NREG earnings net of the opportunity cost of time. The distribution of such net transfers across household characteristics as well as the distribution of benefits across villages in the three states are also discussed. In general net transfers under the NREGS are quite modest.

I.   Introduction

Despite rapid economic growth in recent times the nutritional status of a vast majority of Indians has not recorded commensurate improvement. Thus, between 1980 and 2005 real GDP per capita grew at a rate of 3.9 per cent per annum whereas this growth between 2000 and 2005 was an even more impressive 5.4 per cent. Even though less spectacular, real per capita consumption growth during the 2000 and 2005 period has also been strong at 3.9 per cent per annum. Yet, as Deaton and Dreze (2009) indicate, more than 75 per cent of the population has daily per capita calorie consumption below 2,100 in urban areas and 2,400 in rural areas. These magnitudes are cited as minimum requirements for Indians.[1]

When it comes to nutritional deprivation most attention is paid to calorie consumption. However, there are reasons to be concerned about the deprivation of the other macronutrient (protein) and various micronutrients. Apart from the consequences of such deprivation for health and well-being, there is evidence (Jha et al., 2009b) to support the contention that this deprivation is actually leading to a poverty nutrition trap where low nutrition leads to low productivity which leads to low wages which lead to low nutrition, thus completing a vicious cycle.

In view of this, it becomes important to understand the impact of various anti-poverty interventions on real incomes of households. This paper is addressed to the issue of modeling and estimating the net transfer benefit under the National Rural employment Guarantee Scheme. The National Rural Employment Guarantee Act (NREGA) came into effect in November, 2005. It was hailed as one of India's most creative social initiatives. The act guarantees 100 days of employment a year to at least one member of any rural household who is willing to perform unskilled labour for the minimum wage. By combining rural development with livelihood protection, the work is designed to develop infrastructure such as roads, irrigation and flood protection measures. Beginning with the poorest 200 districts, NREGA became a nationwide program in April, 2008. Thus the direct transfer net of opportunity cost of time could be viewed as a conditional cash transfer.   However, there does not as yet exist any robust estimate of the transfer implied by the NREG. Clearly, any assessment of the NREGS must take into account the real income transfers facilitated through this program.

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[1] FAO (2008) has used for India a lower calorie norm of 1770 calories per day.

This paper purports to fill this lacuna. The plan of this paper is as follows. Section II outlines the data. Section III describes some basic characteristic of the sample including the distribution of benefits. Section IV conducts stochastic dominance analysis and models the determinants of transfer benefits from the NREGS. Section V concludes.

II. Data

The present analysis draws upon primary household data drawn from three Indian states: Rajasthan, Andhra Pradesh and Maharashtra. The data were collected during 2007–08. The sample survey was designed to be a representative one for the following reasons. First, a list of NREG 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 AP and Maharashtra. The next step proceeded as follows. In the case of Rajasthan, for example, three villages were randomly selected from each district, followed by a random selection of households. Twenty five households were selected from each of twenty villages spread over three districts. In AP and Maharashtra, these 25 villages were spread over 6 districts each. In each village 20 households were randomly selected giving us a sample of 500 households in each of the three states surveyed (see table 12).[2] 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 Public Distribution Scheme (PDS) participation. The number of individuals interviewed for Rajasthan, AP and Maharashtra were, respectively, 2664, 2190, and 2270.

III. Characteristics of selected individuals in Rajasthan, Andhra Pradesh and Maharashtra

In Table 1 we outline the basic characteristics of the sample population in the three states and the participation of the population in NREGS.

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[2] The districts chosen in Rajasthan were Sirohi, Udaipur and Jhalwar. In Andhra Pradesh the six districts chosen were Karimnagar, Mahbubnagar, Nalgonda, Warangal, Vizianagaram and Chittoor. The districts selected in Maharashtra were Gondia, Chandrapur, Yavatmal, Nanded, Hingoli and Ahmednagar,

Table 1: Characteristics of Selected 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 and 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: SPOP and SNREGSPART refer to share (in %) in population and NREGS participation, respectively.

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

An individual is said to be a NREGS participant if he/she has worked for sometime under NREGS in the past one year.

The shares of male and female population among selected individuals are nearly equal in Rajasthan and Andhra Pradesh. However, Maharashtra has a higher share of males (53 per cent males as against 47 per cent females). The share of those under age 30 in these states is in the range of 56 to 62 per cent and ranges from 56 per cent in Andhra Pradesh and Maharashtra to 62 per cent in Rajasthan. 30 to 40 per cent of the population is in the age group 30 years to 60 years and rest 5–7 per cent is 60 years and older. More than 95 per cent of the population in Andhra Pradesh is below 60 years of age. The share of population in the age group below 60 years is nearly equal in Rajasthan and Maharashtra (at about 93 per cent).

The population in these states is also differentiated by level of education. The share of the illiterate in the population is the highest (about 43 per cent) in Rajasthan; the lowest in Maharashtra (under 26 per cent) and has an intermediate value of 34 per cent in the case of Andhra Pradesh. A similar pattern of distribution across the three states exists for the population with education at various levels except in the second education level (literate but up to primary education), where Andhra Pradesh has the highest share with 35 per cent of its population, and other two states have nearly equal shares of population (about 32 per cent each).

The shares of Scheduled Castes (SCs), Scheduled Tribes (STs) and other backward castes (OBCs) differ from one state to another. In Rajasthan, the proportion of other castes is the lowest (about 10 per cent), followed by SCs (nearly 25 per cent), STs (about 32 per cent) and OBCs (about 34 per cent). In Andhra Pradesh, the share of STs is the lowest (less than 9 per cent), followed by other castes (12 per cent), SCs (about 30 per cent) whereas OBCs have the highest share, accounting for nearly half of the population. In Maharashtra, the share of OBCs is highest (about 52 per cent), other castes come second with about 23 per cent, followed by STs (14 per cent) and SCs have the lowest share (below 12 per cent). It is interesting to note that in all three states, the OBCs are the largest social group with highest share in Maharashtra, followed by Andhra Pradesh and Rajasthan.

The share of poor individuals[3] in the population is highest in Rajasthan (about 47 per cent), followed by Andhra Pradesh (about 32 per cent) and Maharashtra (about 29 per cent). Andhra Pradesh has the highest share of landless population[4] (about 41 per cent) whereas the

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[3] An individual is referred to as poor if the per capita monthly expenditure of the household he or she belongs 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 per month per person, respectively.

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

proportion of landless is nearly the same (about 32 per cent) in Rajasthan and Maharashtra. The share of the population owning 0-1 acre land is the lowest in Maharashtra (about 5 per cent) whereas Rajasthan and Andhra Pradesh have nearly the same share of the population in this land owning category (about 25 per cent each). About 16 (18) per cent of the populations in Rajasthan (Andhra Pradesh) own more than 2 acres of land whereas this proportion is as high as 48 per cent in Maharashtra.

While little less than one-fourth of the population in Rajasthan comes from a household of size 4 and less; nearly 46 per cent population in Andhra Pradesh and 40 per cent population in Maharashtra come from a household with 4 and less members. Most of the populations in these three states live in households with more than 4 but less than 8 members. Thus, 65 per cent of the population in Rajasthan, 52 per cent in Andhra Pradesh and 55 per cent in Maharashtra live in households of with more than 4 and less than 8 members. Rajasthan has the largest share of population from the largest household size group of more than 8 (11 per cent) as compared to less than 2 per cent in Andhra Pradesh and about 5 per cent in Maharashtra.

Characteristics of NREGS Participants in Rajasthan, Andhra Pradesh and Maharashtra

After examining the characteristics of the population in the sample Table 1 sheds light on characteristics of the population participating in NREGS.[5]

The share of NREGS participants among the sample population is highest in Andhra Pradesh (about 41 per cent), followed by Maharashtra (nearly 25 per cent) and lowest in Rajasthan (under 18 per cent).

The distribution of NREGS participants by gender is as follows: Rajasthan has the highest share of female participants (about 58 per cent), followed by Andhra Pradesh (about 49 per cent) and Maharashtra (about 45 per cent). In the total female population, the share of female participants in NREGS is lowest in Rajasthan (21 per cent), followed by Maharashtra (about 24 per cent) and as high as 41 per cent in Andhra Pradesh. A similar pattern is observed for their male counterparts with slightly higher share, except in Rajasthan where less than 15 per cent of the male population participates in NREGS.

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[5] NREG participation is measured using the question — are you a beneficiary of NREGS?

More than 70 per cent of the NREGS participants in Maharashtra, 63 per cent in Rajasthan, and 62 per cent in Andhra Pradesh are in the age group 30–60 years. Interpreting row percentages, we find that workers in the age group 30–60 years constitute the largest share of participants among all age categories. Across the three states the share of this age group is highest for Andhra Pradesh (about 65 per cent), followed by Maharashtra (47 per cent) and lowest in Rajasthan (about 36 per cent). A similar ranking exists for the youngest (0–30 years) and the oldest (60 years and above) age groups.

Among all NREGS participants, the share of illiterate participants is as high as 68 per cent in Rajasthan, followed by 48 per cent in Andhra Pradesh and 26 per cent in Maharashtra. Among literate NREGS participants, the highest share is in the lowest educational level (i.e. up to primary level). Maharashtra has the highest share in this level with 39 per cent participants; Andhra Pradesh comes next with 32 per cent while Rajasthan has only 19 per cent primary educated NREGS participants. A similar ranking obtains for all the higher levels of education.

Among the illiterates, Andhra Pradesh has the highest participation in NREGS (about 59 per cent), followed by Rajasthan (about 28 per cent) and then Maharashtra (about 25 per cent). Further, among participants who are literate the share of participation working on NREGS broadly falls sharply with higher levels of education, except in Andhra Pradesh where this share first declines from primary to middle education and then increases through to the highest level of education. In Maharashtra, this share first falls between primary to middle and then goes up at the secondary level of education before falling at the highest level of education (higher secondary and above).

In all the three states, the shares of SCs, STs and OBCs among NREGS participants broadly correspond to their respective shares in the population.

Whereas in Rajasthan and Andhra Pradesh, the shares of poor NREGS participants are slightly higher than their respective shares in the population; the opposite is true in the case of Maharashtra. Among NREGS participants, the share of landless participants is nearly the same in Andhra Pradesh (45 per cent) and Maharashtra (44 per cent), followed by Rajasthan (about 26 per cent). Among NREGS participants who own land nearly 60 per cent in Rajasthan, 45 per cent in Andhra Pradesh and less than one-fourth in Maharashtra own 2 acres or less. An interesting pattern is observed in landholding among NREGS participants.

While among landholder NREGS participants, in general, the share of participation sharply declines with higher level of land holdings in Rajasthan and Andhra Pradesh; in Maharashtra it first increases till we reach the landowning class with 2-5 acres and then falls dramatically for the highest land owning category (those owning >5 acres).

As far as the association of household size and NREGS is concerned, while Andhra Pradesh and Maharashtra follow similar pattern, Rajasthan differs. In both Andhra Pradesh and Maharashtra, more than half of the participants are from households with 4 or fewer members, in Rajasthan the highest share (about 53 per cent) of NREGS participants comes from household with 4–8 members. Thus, those participating in NREGS in Rajasthan are from relatively larger households as compared to Andhra Pradesh and Maharashtra.

Distance of NREGS Worksite from participating households

As key elements of NREGS transaction cost, we focus here on the distance of NREGS work site from the participating households.[6] Table 2 provides some key details of distances to worksites.

Table 2: Distance from NREGS participating households to NREGS work site

Distance range from household to worksite (km)	Rajasthan		Andhra Pradesh		Maharashtra	
	Mean distance	% Participating households	Mean distance	% Participating households	Mean distance	% Participating households
0-1 km	0.45	2.76	0.48	9.74	0.53	6.25
1-2 km	1.04	33.32	1.02	35.45	1.06	47.10
2-3 km	2.02	37.88	2.01	42.22	2.09	39.21
3 km and above	3.65	26.04	3.32	12.59	3.04	7.45
Descriptive statistics for distance from NREGS participating households to NREGS work site						
Key Statistics			Rajasthan	AP		Maharashtra
Mean			2.09	1.71		1.58
Median			2.00	2.00		1.50
Standard deviation			1.24	0.89		0.71
Min			0.00	0.30		0.10
Max			10.00	6.00		4.00

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[6] We define a household as participating household if any member of the household has worked for sometime under NREGS during last one year.

The maximum distance that a NREGS participating worker needs to travel is highest for Rajasthan (10 km). It is important to note here that only 0.75 per cent of participating households in Rajasthan had to travel more than 8 kilometers to reach a NREGS worksite. In the case of Maharashtra and Andhra Pradesh, the maximum distance of NREGS worksite from the participating households was 4 km and 6 km, respectively.

A similar pattern can be observed for the average distance between NREGS worksite to the participating households. In Andhra Pradesh and Maharashtra, about 10 per cent and 6 per cent of the participating households, respectively, lived within a distance of 0–1 km from NREGS worksites. However, less than 3 per cent of the participating households in Rajasthan lived within this distance range. An overwhelming majority of participating households lived within a distance range of 1–3 kilometers from NREGS worksite. Thus, about 71 per cent of participating households in Rajasthan, 77 per cent in Andhra Pradesh and as high as 87 per cent in Maharashtra lived within this distance range. Whereas more than one-fourth of the participating households in Rajasthan resided in the highest distance range of 3 kilometers and above, with a mean of 3.65 kilometers; only less than 13 per cent in Andhra Pradesh and 7 per cent of the households in Maharashtra lived beyond 3 km from NREGS worksites.

Distribution of NREGS Participants with Alternative Employment Options in the Absence of NREGS [7]

In Table 3 we inquire into the distribution, within our sample, of NREGS participants with alternative employment options in the absence of NREGS.

Among all NERGS participants, 13 per cent in Rajasthan, 31 per cent in Andhra Pradesh and 33 per cent in Maharashtra had alternative employment options (hereafter AEO) in the absence of NREGS. Among NERGS participants with AEO, the share of men is as high as nearly 64 per cent in Andhra Pradesh, 55 per cent in Rajasthan whereas the share of men and women is roughly equal in Maharashtra. While the majority of the elderly[8] participants in Rajasthan (28 per cent) and Maharashtra (67 per cent) report AEO; in Andhra Pradesh, the share is highest for the age group 30-60 years (about 32 per cent). However, among all participants with AEO, the share in a particular age group corresponds broadly to the pattern of participation in NREGS in that age group. In all three states the majority of participants with AEO are illiterate.

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[7] Based on the self-reported options, if any. Selected NREGS participants were asked- are there options in village or nearby village in absence of NREGS?

[8] We define elderly as a person with age 60 years and above

Table 3: Distribution of NREGS Participants with Alternative Employment Options in the Absence of NREGS

Participants characteristics	Rajasthan		Andhra Pradesh		Maharashtra	
	Share in NREGS participation (%)	Share with alternative employment options (%)	Share in NREGS participation (%)	Share with alternative employment options (%)	Share in NREGS participation (%)	Share with alternative employment options (%)
Gender						
Female	58.12(20.72)	45.44(10.06)	49.37(41.01)	36.51(29.27)	45.21(23.76)	49.48(36.99)
Male	41.88(14.45)	54.56(17.40)	50.63(41.71)	63.49(32.48)	54.79(25.57)	50.52(29.71)
All	100.00(17.54)	100.00(13.06)	100.00(41.36)	100.00(31.23)	100.00(24.72)	100.00(32.92)
Age group						
Less than 30 years	31.46(8.83)	41.05(17.40)	35.39(26.29)	27.48(29.03)	24.30(10.76)	17.92(24.04)
Above 30 and below 60 years	62.85(36.29)	47.23(9.68)	62.13(65.17)	69.43(32.41)	70.35(47.00)	70.95(33.35)
60 years and above	5.69(13.89)	11.72(28.25)	2.48(21.04)	3.09(27.15)	5.35(18.36)	11.13(67.43)
All	100.00(17.54)	100.00(13.06)	100.00(41.43)	100.00(31.23)	100.00(24.72)	100.00(32.92)
Education Level						
Illiterate	67.59(27.68)	67.60(13.19)	47.98(58.94)	48.79(32.39)	25.71(24.95)	35.72(47.84)
Literate but up to primary	19.03(10.29)	8.96(6.60)	31.80(37.91)	35.40(32.79)	38.57(29.69)	29.33(25.86)
Middle	6.38(10.71)	10.97(19.64)	5.98(20.74)	4.86(26.79)	14.11(21.36)	6.73(14.81)
Secondary	3.60(10.16)	0.50(1.76)	6.96(27.95)	5.94(26.05)	15.32(24.40)	17.48(34.44)
Secondary and above	3.41(7.39)	11.97(36.41)	7.27(32.59)	5.00(27.93)	6.29(14.70)	10.74(55.01)
All	100.00(17.54)	100.00(13.06)	100.00(41.43)	100.00(31.50)	100.00(24.72)	100.00(32.92)
Social Group						
SC	26.12(18.46)	24.26(13.07)	33.42(46.25)	46.96(42.15)	16.70(35.49)	24.81(47.84)
ST	34.61(19.19)	23.57(9.13)	11.74(55.54)	8.47(22.64)	16.81(29.46)	10.61(21.61)
OBC	34.48(18.10)	52.18(18.98)	49.71(41.67)	38.04(24.88)	45.84(21.95)	58.32(43.21)
Others	4.79(8.26)	0.00(0.00)	5.13(17.66)	6.54(38.16)	20.65(22.53)	6.26(9.22)
All	100.00(17.54)	100.00(13.06)	100.00(41.36)	100.00(31.36)	100.00(24.72)	100.00(32.92)
Poverty Status						
Non-poor	49.78(16.35)	48.40(11.83)	69.50(42.37)	64.65(29.86)	71.78(24.99)	71.18(32.44)
Poor	50.22(18.89)	51.60(14.49)	30.50(39.23)	35.35(34.55)	28.22(24.05)	28.82(34.17)
All	100.00(17.54)	100.00(13.06)	100.00(41.36)	100.00(31.36)	100.00(24.72)	100.00(32.92)
Land owned group (Acres)						
Landless	25.54(13.95)	42.73(20.34)	45.02(45.11)	36.67(27.11)	43.76(33.52)	57.98(41.61)
>0-<=1	30.89(21.36)	28.15(12.91)	29.06(47.16)	28.02(27.49)	6.73(31.60)	7.03(33.96)
>1-<=2	29.20(20.58)	11.20(4.74)	15.88(38.42)	17.53(35.95)	16.81(28.72)	12.19(22.59)
>2-<=5	11.04(14.77)	17.92(21.69)	8.96(29.65)	15.55(51.13)	25.31(20.95)	19.51(26.77)
>5	3.33(12.82)	0.00(0.00)	1.09(12.31)	2.23(90.33)	7.40(10.08)	3.29(19.47)
All	100.00(17.54)	100.00(13.06)	100.00(41.36)	100.00(31.36)	100.00(24.72)	100.00(32.92)
Household size group						
4 and less	39.02(28.32)	36.29(11.98)	50.68(45.85)	44.89(27.99)	53.35(32.96)	57.31(35.27)
>4-<=8	53.40(14.48)	63.09(15.57)	47.83(37.79)	50.62(33.20)	45.46(20.39)	41.91(30.39)
>8-<=12	7.52(12.15)	0.62(1.09)	1.48(32.01)	4.49(74.54)	1.18(6.85)	0.78(22.86)
>12	0.06(3.15)	0.00(0.00)	0.00	0.00	0.00(0.00)	0.00
All	100.00(17.54)	100.00(13.06)	100.00(41.36)	100.00(31.36)	100.00(24.72)	100.00(32.92)

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

Among the educated, the pattern varies across different levels of education. Thus, in Rajasthan, while the share of participants in the lowest education level (upto primary) is 19 per cent the share among AEO workers is only 9 per cent. In Andhra Pradesh for those with primary education the share of participants with AEO is more than 35 per cent whereas only 32 per cent of those with primary education participated in NREGS. In Maharashtra, for those with primary education the share of AEO participants is lower than the share of persons with primary education participating in NREGS (only 29 per cent as compared to 39 per cent). Among the participants with AEO, about 12 per cent have completed secondary and higher education in Rajasthan, followed by 11 per cent in Maharashtra and 5 per cent in Andhra Pradesh.

A majority of the NREGS participants who report AEO status are OBCs in Rajasthan and Maharashtra, as in sharp contrast to Andhra Pradesh where SCs constitute the largest share. Thus, in Maharashtra the share of OBCs is about 58 per cent, followed by Rajasthan (52 per cent). In Andhra Pradesh the share of SCs is 46 per cent. In Rajasthan, none of the participants from the other castes have AEO.

While poor participants outnumber non-poor in Rajasthan (about 52 per cent poor as against 48 per cent non-poor); only 35 per cent participants in Rajasthan and 29 per cent in Maharashtra have AEO. The share of landless participants with AEO is the highest for Maharashtra (about 58 per cent), followed by Rajasthan (43 per cent) and Andhra Pradesh (37 per cent). In Rajasthan, while none of the participants have AEO in the land-owned category above 5 acres; a very small share is attributed to participants in this group in the case of Andhra Pradesh and Maharashtra.

In terms of comparison by the size of households of participants, in Rajasthan about 63 per cent with AEO live in households with 4 to 8 members. In the case of Andhra Pradesh and Maharashtra, household size group 4 and less constitute highest participants with AEO (about 51 per cent for Andhra Pradesh and about 57 per cent for Maharashtra).

IV. Stochastic Dominance

Stochastic dominance[9] comparisons of the log of per capita monthly expenditures of participants with and without AEO in the absence of NREGS are made by examining the cumulative distribution functions (CDF) of the log of per capita monthly household

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[9] For details see Atkinson (1987)

expenditure first with and without option for each state separately (Figures 1–3) and then for with and without option separately for all states together (Figures 4-5).

Our principal conclusions are as follows:

Figures 1–3 suggest that none of the states exhibits first order dominance in terms of the FGT class of poverty indices. However, second order dominance exists in all the states within different ranges of log of monthly per capita expenditures (indicated by the two thick vertical lines with dashes). For instance, in Rajasthan, second order dominance exists only in the range of log of per capita expenditure between 5.68 and 6.45. In this range of log of per capita monthly expenditures, NREGS participants with AEO dominate those without AEO. Similarly, in Andhra Pradesh, second order dominance is observed within a range of log of per capita expenditure of 5.95 to 6.56. Therefore, in contrast to Rajasthan, NREGS participants without AEO dominate over those with AEO in terms of the FGT class of poverty indices in this range of log per capita monthly expenditures. The stochastic dominance result in the case of Maharashtra is similar to that in Rajasthan where second order dominance exists in the range of log of per capita expenditure of 6.20 to 6.57 suggesting that in this range of log per capita monthly expenditures, NREGS participants with AEO dominate over those without AEO in terms of the FGT class of poverty indices.

Figure 1: CDFs for NREGS Participants with and without AEO: Rajasthan
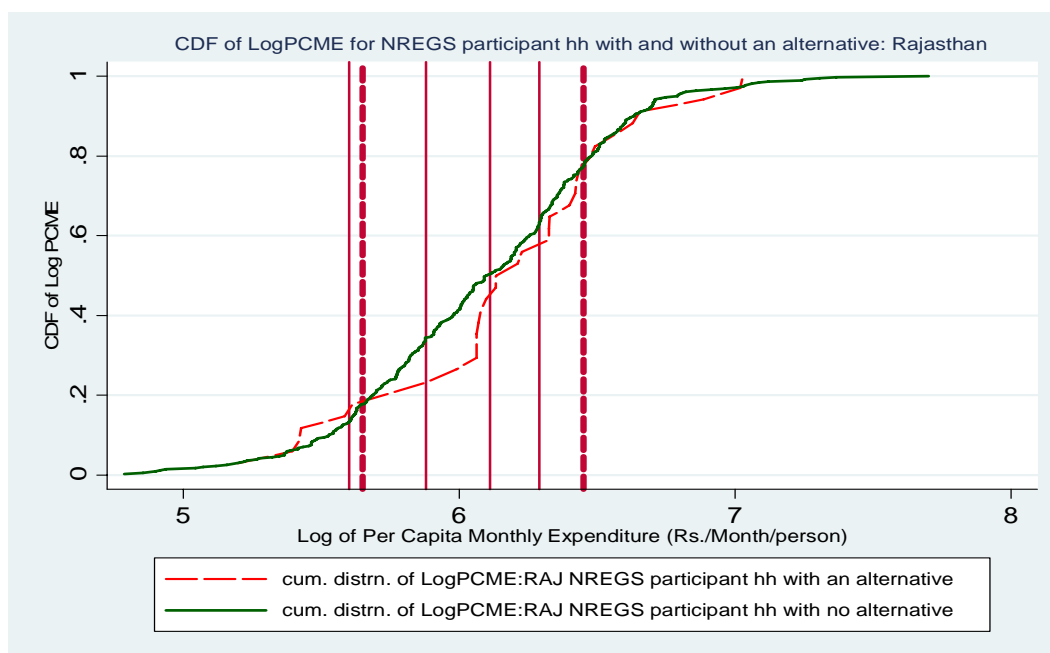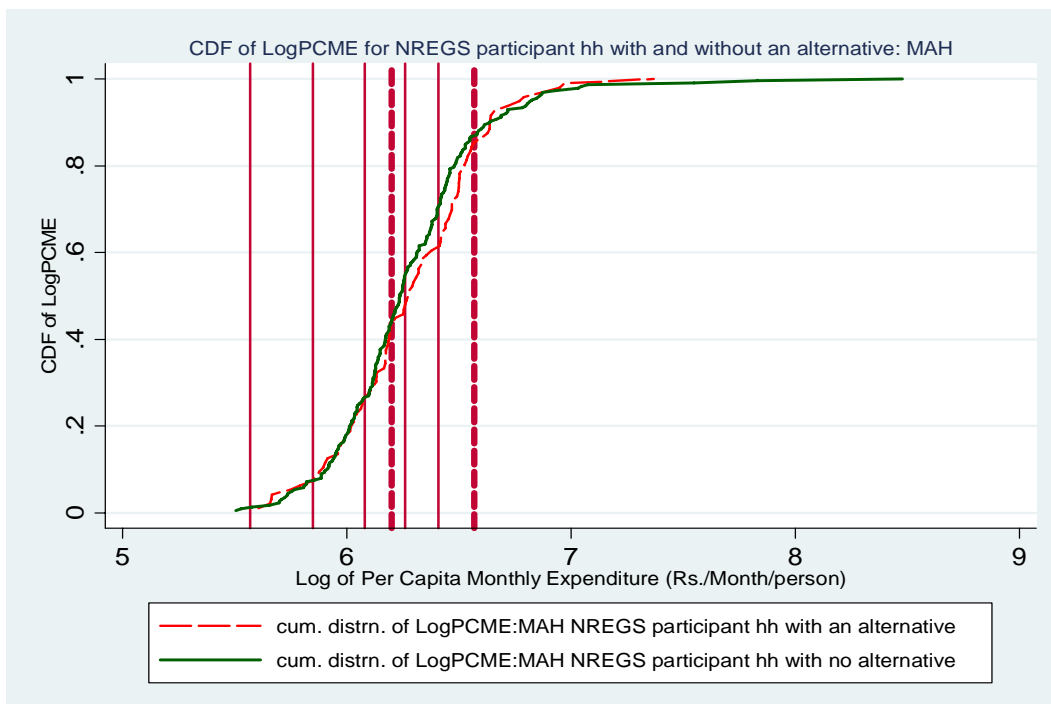

Note: vertical reference lines are drawn at log of poverty line (6.11), 40% below poverty line (at 5.60) 20% below poverty line (at 5.88) and 20% above poverty line (at 6.29) and 40% above poverty line (at 6.45), respectively. Thick vertical lines with dashes are drawn at 5.68 and 6.45, respectively.

Figure 2: CDFs for NREGS Participants with and without AEO: Andhra Pradesh
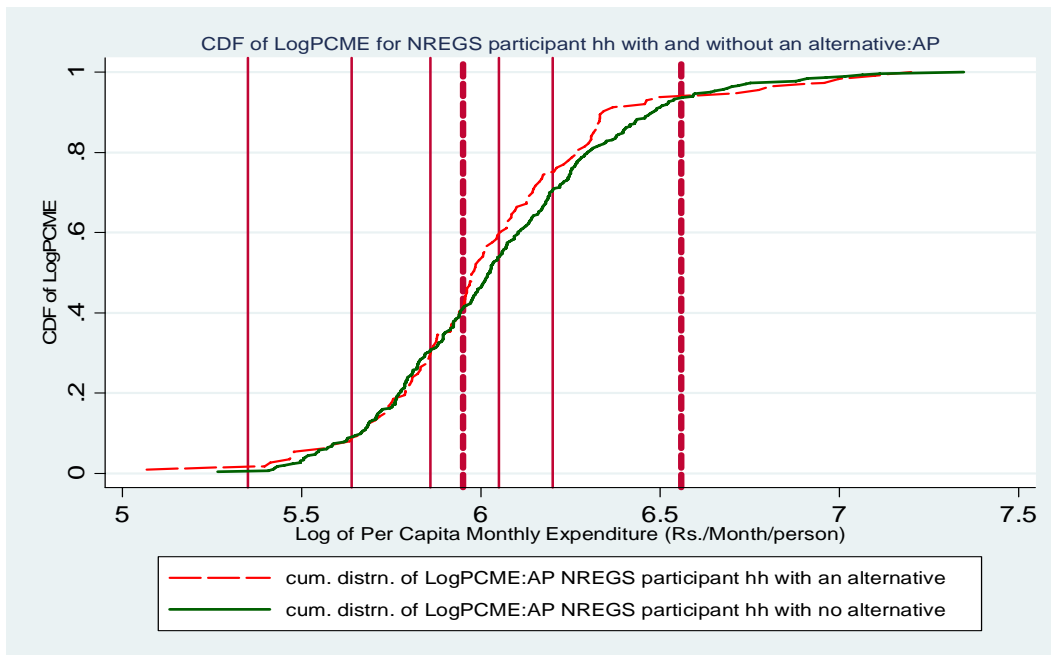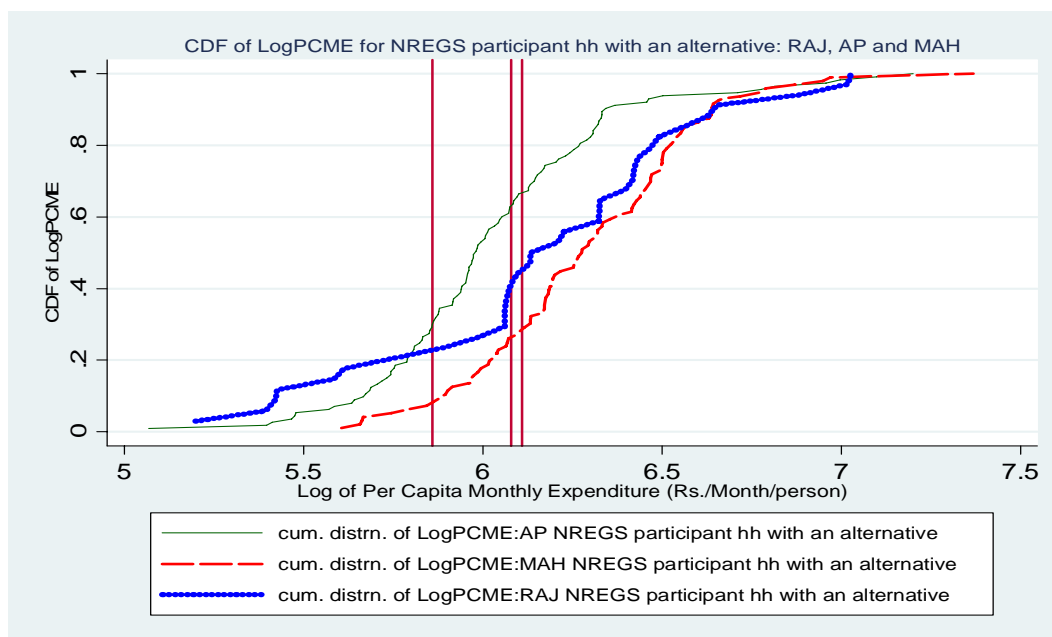

Note: vertical reference lines are drawn at log of poverty line (5.86), 40% below poverty line (at 5.35), 20% below poverty line (at 5.64), 20% above poverty line (at 6.05) and 40% above poverty line (at 6.20), respectively. Thick vertical lines with dashes are drawn at 5.95 and 6.56, respectively.

Figure 3: CDFs for NREGS Participants with and without AEO: Maharashtra
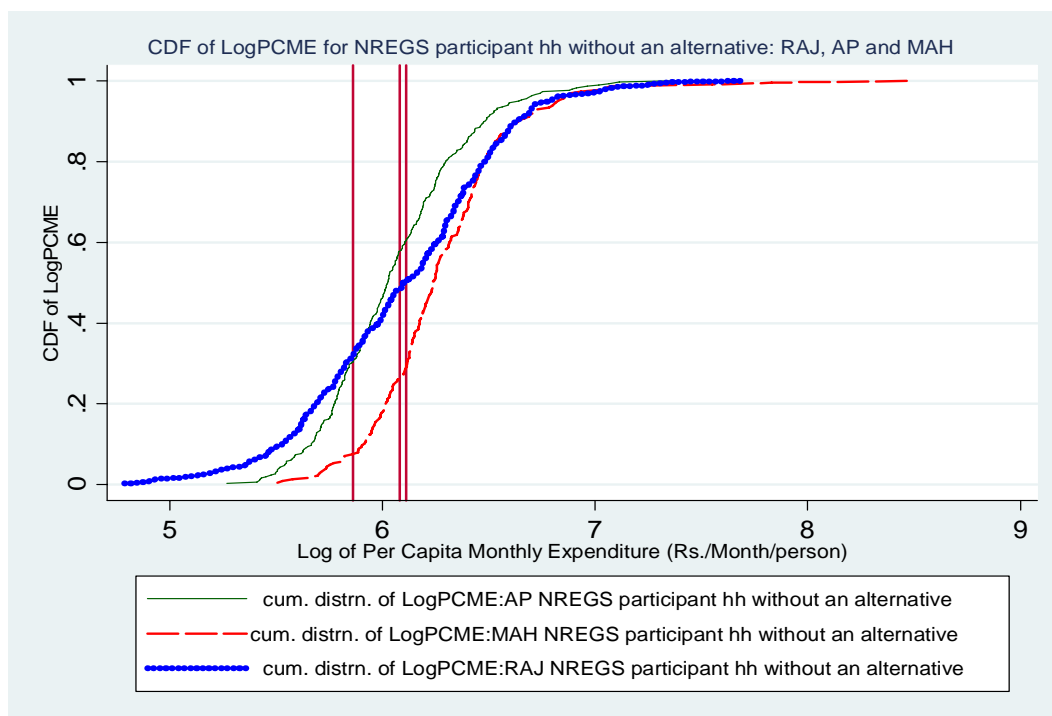

Note: vertical reference lines are drawn at log of poverty line (6.08), 40% below poverty line (at 5.57) 20% below poverty line (at 5.85), 20% above poverty line (at 6.26) and 40% above poverty line (at 6.41), respectively. Thick vertical lines with dashes are drawn at 6.20 and 6.57, respectively.

Figure 4: CDFs for NREGS Participants with AEO:
Rajasthan, Andhra Pradesh and Maharashtra

Note: vertical reference lines are drawn at log of poverty lines for Rajasthan (6.11), Andhra Pradesh (5.86) and Maharashtra (6.08), respectively.

Figure 5: CDFs for NREGS Participants without AEO: Rajasthan, Andhra Pradesh and Maharashtra

Note: vertical reference lines are drawn at log of poverty lines for Rajasthan (6.11), Andhra Pradesh (5.86) and Maharashtra (6.08), respectively.

Given that cumulative distribution function (CDF) of participants with AEO for Maharashtra lies below the CDFs of Rajasthan and Andhra Pradesh, Maharashtra dominates over both in terms of FGT class of poverty indices. Further, Andhra Pradesh dominates over Rajasthan and Andhra Pradesh. A similar result follows for NREGS participants without AEO.

Determinants of alternative employment options in the absence of NREGS among NREGS participants

We constructed an estimation equation with a binary response dependent variable which takes the value 1 if there are options for current NREGS participant in the absence of NREGS and 0 otherwise. This provides definitive insights into individual, household and village characteristics that determine alternative employment options in the absence of NREGS. Explanatory variables that were included in the model to test their effect included gender, age, age-square, education (primary, middle, secondary, higher secondary and above), social group (SC/ST vs OBC and other castes), land owned (in acres), share of adults in household size, household size, village level inequality in land distribution, market distance from village and ratio of peak to slack wage rate for male agricultural laborers in the village. The presumption is that the higher the ratio, the greater would be the employment opportunity. The equation specified above is estimated using probit procedure.

To understand the model, we define a binary response model as follows:

$$P[y = 1 \mid x] = \Phi(\beta_0 + \beta_1 x_1 + \beta_2 x_2 + \ldots\ldots\ldots + \beta_k x_k) = \Phi(\beta_0 + X\beta)\ldots\ldots(2)$$

where Φ is the standard normal cumulative distribution function (CDF) and defined as

$$\Phi(z) = \int_{-\infty}^{z} \phi(v) dv$$

where $\phi(.)$ is the standard normal density

$$\phi(z) \equiv \frac{d\Phi(z)}{dz} = (2\pi)^{-1/2} \exp(-z^2 / 2)$$

The function $\Phi(.)$ is increasing in z and takes on values strictly between 0 and 1. The model is estimated using maximum likelihood estimation and its marginal effect is computed.[10] If x_j is a roughly continuous variable, its marginal (partial) effect on $P(x)$ is given

by $P[y = 1 \mid x] = \dfrac{\partial P(x)}{\partial x_j} = \phi(\beta_0 + X\beta)\beta_j$

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[10] For details of the probit model, see Wooldridge (2006).

The results of this estimation are shown in Table 4.

Table 4: Correlates of alternative employment options in the absence of NREGS: Probit analysis

State	Rajasthan		Andhra Pradesh		Maharashtra	
Explanatory variables	Coefficients (t-value)	Marginal effects (z-value)	Coefficients (t-value)	Marginal effects (z-value)	Coefficients (t-value)	Marginal effects (z-value)
Gender	0.508* (1.69)	0.079w (1.58)	0.166 (1.16)	0.056 (1.17)	-0.043 (-0.27)	-0.015 (-0.27)
Age	-0.202*** (-3.57)	-0.029*** (-3.38)	-0.018 (-0.57)	-0.006 (-0.57)	-0.048 (-1.35)	-0.017 (-1.36)
Square of Age	0.002*** (3.02)	0.0003*** (2.91)	0.000 (0.63)	0.000 (0.63)	0.001** (1.99)	0.0003** (1.99)
Primary education	-1.143*** (-2.86)	-0.101*** (-3.68)	0.136 (0.82)	0.047 (0.81)	-0.202 (-1.04)	-0.069 (-1.06)
Middle school	-0.703 (-1.29)	-0.066** (-2.13)	-0.075 (-0.26)	-0.025 (-0.26)	-0.815*** (-3.26)	-0.229*** (-4.23)
Secondary education	-2.701*** (-2.71)	-0.095*** (-4.30)	-0.210 (-0.85)	-0.069 (-0.89)	-0.210 (-0.87)	-0.070 (-0.92)
Higher secondary and above	0.246 (0.56)	0.041 (0.50)	0.174 (0.45)	0.062 (0.44)	0.374 (1.10)	0.138 (1.04)
SCST	0.119 (0.44)	0.017 (0.44)	0.238* (1.80)	0.082* (1.80)	0.145 (0.88)	0.051 (0.87)
Land Gini index	2.808** (2.19)	0.406** (2.09)	-1.602** (-2.44)	-0.551** (-2.46)	1.253*** (2.65)	0.432*** (2.60)
% adult in the household	0.006 (0.92)	0.001 (0.92)	-0.006* (-1.72)	-0.002* (-1.72)	-0.001 (-0.35)	0.000 (-0.35)
Household size	0.080 (1.18)	0.012 (1.17)	0.094** (2.21)	0.032** (2.23)	0.037 (0.77)	0.013 (0.77)
Market distance from village	0.009 (0.38)	0.001 (0.38)	-0.033*** (-3.11)	-0.011*** (-3.20)	-0.063*** (-4.21)	-0.022*** (-4.40)
Landowned	-0.130 (-1.24)	-0.019 (-1.30)	0.141*** (2.79)	0.048*** (2.83)	-0.072** (-2.20)	-0.025** (-2.19)
Ratio of peak to slack wage rate for male agricultural laborers in village	0.792** (2.27)	0.115** (2.23)	0.743** (2.21)	0.256** (2.26)	1.935*** (3.23)	0.668*** (3.20)
Constant	-0.424 (-0.29)		-0.191 (-0.19)		-2.482* (-1.89)	
Number of observations	428		568		468	
Pseudo R-square	0.2854		0.1141		0.2084	
Wald chi-square	54.02***		59.68***		90.18***	
Predicted probability		0.077		0.293		0.295

Note: ***,**,* and w refers to significance at 1 %, 5 %, 10 % and weakly at 10%, respectively.
　　　 Definitions of the variables used in the analysis are given in Annex 1

Correlates of alternative employment options in the absence of NREGS: Probit analysis

All specifications are corroborated by the Wald Chi-square test. Both coefficients and marginal effects are reported here, but we confine our comments to the latter. In the case of Rajasthan, male NREGS participants have higher probability of having alternate employment options. This probability falls off with increase in participant's age but only up to a point,

after which this effect gets weaker. Surprisingly, as compared to illiterate NREGS participants, educated but up to primary, middle or secondary levels have lower chances of AEO. However, there is no significant difference between illiterate participants and those with education levels of higher secondary and above. Village level inequality in the distribution of land holdings and ratio of peak to slack wage rate for male agriculture laborers at the village level increase the probability of AEO. There is no significant difference between socially backward and other castes, households with varying proportion of adults in the household, household size and landholdings in terms of getting employment in the absence of NREGS. Further, the effect of distance to the nearest market from the village on the employment options is not statistically significant. In the case of Andhra Pradesh, none of the participants' individual characteristics (such as gender, age and education) is significant in the estimated equation. However, all household and village level characteristics have significant effects on the probability of AEO. For instance, participants of SC and ST households have higher probability of finding employment in the absence of NREGS as compared with OBC and other castes. This probability declines with increase in proportion of adults in the household. However, participants from larger households in terms of its size and landholdings have higher probability of having an employment option in case NREGS is withdrawn. Moreover, the probability of AEO gets reduced if households live in villages with higher inequality in the distribution of landholdings, and which are distant from the nearest market. Importantly, as in Rajasthan, this probability increases with increase in the village level ratio of peak to slack wage rate for male agricultural laborers.

In the case of Maharashtra, no significant difference between male and female participants is found in terms of the probability of finding AEO. Age of the participants has a negative effect on the probability of finding AEO, but this effect gets weaker with age. In general education has no significant differential effect on having AEO as compared to being illiterate except that those who possess education up to middle school are worse off than illiterates. While the probability of AEO is similar for all social groups; household size and proportion of adults in the household also do not exhibit a significant effect on the probability of AEO. The higher the household land holding the lower is the probability of this household having alternative employment options. Village level inequalities in the distribution of land holdings and ratio of peak to slack wage rate for male agricultural laborers have positive effects on the probability of AEO. Also, distance of nearest market from the village has negative effect on the probability of alternative employment opportunities.

Village level average predicted probability of alternative employment options

Now, we examine how NREGS participant's probability of AEO varies at the village level. For this individual level predicted probability is aggregated at the village level. The results are depicted in Table 5.

Table 5: Average probability of alternative employment options at the village level

Average predicted probability of employment in the absence of NREGS	Rajasthan		Andhra Pradesh		Maharashtra	
	Mean	% of villages	Mean	% of villages	Mean	% of villages
0-<=0.05	0.04	18.01	-	0.00	0.04	2.67
>0.05-<0.10	0.07	33.93	-	0.00	0.07	8.55
>0.10-<0.25	0.18	18.23	0.18	38.76	0.18	43.02
>0.25-<0.50	0.32	29.83	0.35	50.42	0.37	22.62
>0.50-<0.75	-	0.00	0.58	10.81	0.60	23.14
>0.75-<1.00	-	0.00	-	0.00	-	0.00

Note: these probabilities are predicted from the probit equation reported in Table 4.

In Rajasthan, about 52 per cent of villages have probability of AEO less than or equal to 0.10. In Maharashtra about 11 per cent of villages have this probability. However, in Andhra Pradesh, none of the villages is found in this probability range. In the case of Rajasthan, about 18 per cent of villages have their mean probability, 0.18, in the next higher probability range (i.e. 0.10-0.25). 39 per cent of villages in Andhra Pradesh and 43 per cent villages in Maharashtra, with the same mean probability of 0.18, are in this probability range. More than half of the villages in Andhra Pradesh, about 30 per cent of the villages in Rajasthan and about 23 per cent in Maharashtra have probability of AEO in the range of >0.25-<0.50. None of the villages in Rajasthan has probability of AEO more than 0.50. However, about 11 per cent of villages in Andhra Pradesh and 23 per cent in case of Maharashtra have probability in the range >0.50-<0.75 with mean probability of 0.58 and 0.60, respectively. The highest probability range of AEO is >0.50-<0.75.

Transfer benefit from NREGS participation

Now, we compute Transfer benefit from NREGS participation as follows: first, we compute weighted daily wage rate ($WDWR_{iv}$) for village v of state

$i(i = Rajasthan, Andhra \Pr adeh, and Maharashtra)$ using the formula-

$$WDWR_{iv} = \frac{1}{L_{iv}}[AGRL_{iv} * AGRW_{iv} + NONAGRL_{iv} * NONAGRW_{iv}]$$ where

$AGRL_{iv}$, $NONAGRL_{iv}$ and L_{iv} are, respectively, number of agricultural laborers, non-agricultural laborers and total laborers; $AGRW_{iv}$ and $NONAGRW_{iv}$ are the agricultural and non-agricultural wage rates in the village v of state i. Now, we calculate opportunity cost of time for NREGS participant j of village v in the state i, $OPPCOST_{ivj} = WDWR_{iv} * P_{ivj}$ where P_{ivj} is the predicted probability of alternative employment options in the absence of NREGS for participant j of village v in the state i derived from the probit estimation in Table 4. Number of days worked ($NREGSWD_{ivj}$) and annual NREGS earnings ($NREGSE_{ivj}$) are reported for each of the individual participants in NREGS. Using these we compute daily NREGS wage rate $NREGSWR_{ivj} = \frac{NREGSE_{ivj}}{NREGSWD_{ivj}}$. Thus, Transfer benefit from NREGS (or NREGS earnings net of opportunity cost of time) for NREGS participant j of village v in the state i is $TBNREGS_{ivj} = NREGSWR_{ivj} - OPPCOST_{ivj}$.

Distribution of S3 by household characteristics

To assess the benefits of NREGS at the household level, it is necessary to take into account the transfer benefit net of the opportunity cost of time.[11] As an approximation, we consider shares of NREG earnings net of the opportunity cost of time in household income net of NREG earnings net of the opportunity cost of time (S3 hereafter). The results are depicted in Table 6. Some interesting findings obtained are as follows. In Rajasthan among female-headed households, this share accounts for nearly 15 per cent of household income and is slightly higher than twice that in male-headed households, implying substantially greater importance of this source of income to female headed households. In contrast, the shares are high for both male and female-headed households in Andhra Pradesh (19 per cent and 16 per cent, respectively). In Maharashtra, the corresponding shares are relatively low, with that of male-headed households exceeding that of female-headed households.

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[11] See, for example, Ravallion and Datt (1995)

Table 6: Distribution of S3 by household characteristics

Household characteristics	Rajasthan			Andhra Pradesh			Maharashtra		
	S1	S2	S3	S1	S2	S3	S1	S2	S3
Gender									
Female headed	4.85	5.66 (76.76)	14.91	7.14	8.29 (91.17)	18.97	9.82	10.92 (72.17)	3.34
Male headed	95.15	94.34 (65.25)	7.26	92.86	91.71 (77.56)	15.75	90.18	89.08 (64.27)	6.63
Social Group									
SC	25.36	27.03 (70.15)	7.18	29.23	34.86 (93.69)	14.76	13.11	16.75 (83.11)	4.51
ST	29.55	33.57 (74.76)	9.38	9.59	11.45 (93.69)	16.03	15.01	16.75 (72.58)	8.41
OBC	34.19	32.96 (63.46)	6.26	48.95	49.92 (80.09)	16.57	50.96	47.99 (61.26)	4.68
Others	10.91	6.44 (38.85)	7.05	12.23	3.77 (24.22)	18.28	20.91	18.50 (57.54)	11.03
Poverty Status									
Acutely poor	29.61	34.29 (76.21)	11.10	11.22	12.32 (86.24)	16.34	8.28	10.71 (84.14)	5.57
Moderately poor	11.37	15.64 (90.49)	7.74	14.09	15.75 (87.78)	16.99	16.17	16.77 (67.47)	8.87
Moderate non-poor	19.01	20.08 (69.52)	7.58	28.10	29.48 (82.41)	17.34	33.42	35.82 (69.72)	8.12
Affluent	40.01	29.99 (49.34)	5.37	46.59	42.45 (71.55)	14.68	42.13	36.69 (56.65)	4.23
Non-poor	59.02	50.08 (55.84)	6.14	74.66	71.89 (75.62)	15.69	75.55	72.51 (62.43)	5.90
Poor	40.98	49.92 (80.17)	9.90	25.34	28.11 (87.11)	16.72	24.45	27.49 (73.12)	7.43
Land owned group (in acres)									
Landless	33.61	26.08 (51.07)	6.85	43.44	47.27 (85.46)	19.68	35.41	42.96 (78.90)	7.35
>0-<=1	26.77	30.47 (74.90)	10.84	24.86	28.67 (90.56)	15.23	5.96	7.10 (77.51)	4.96
>1-<=2	24.51	30.31 (81.38)	7.73	16.40	14.88 (71.24)	14.49	14.67	16.22 (71.96)	7.58
>2-<=5	11.16	10.40 (61.35)	4.59	11.78	47.27 (85.46)	9.99	28.29	25.09 (57.69)	7.13
>5	3.95	2.75 (45.74)	3.15	3.51	28.67 (90.56)	2.41	15.67	8.63 (35.81)	2.40
Household size group									
4 and less	38.47	39.37 (67.36)	10.16	59.21	57.90 (76.81)	17.09	53.39	55.14 (67.18)	6.90
>4-<=8	55.55	53.67 (63.60)	6.64	39.92	40.99 (80.63)	14.84	44.44	43.92 (64.28)	5.67
>8-<=12	5.89	6.87 (76.85)	5.52	0.87	1.11 (100.00)	9.82	1.98	0.94 (30.87)	8.60
>12	0.10	0.08 (54.02)	0.57	-	-	-	0.19	-	-
All	100.00	100.00	7.52	100.00	100.00	15.97	100.00	100.00	6.30

Note: S1: Share in population (%). S2: Share in NREGS participation (%). S3: Share of NREG earnings net of opportunity cost of time in household income net of NREG earnings net of opportunity cost of time (%). Figures in bracket represents share within group (row %). Definition of different poverty status is given in Annex 2.

S3 of various social groups varies over a small range. While STs have the highest share in Rajasthan (about 9 per cent); other castes have the highest share in case of Andhra Pradesh (about 18 per cent) and Maharashtra (about 11 per cent).

In the three states, the poor depended more than the non-poor on NREGS as a supplementary source of income. The share of NREGS in the income of the poor was the highest in Andhra Pradesh (about 17 per cent), followed by Rajasthan (10 per cent) and Maharashtra (about 7 per cent). In Rajasthan, the share declines from acutely poor households to affluent. In contrast, it increases from acutely poor to moderately poor and then falls off in Andhra Pradesh. In the case of Maharashtra, this share increases from acutely poor to moderately poor and then declines after that.

Among landless households, the share of NREGS earnings adjusted for opportunity cost of time is highest in Andhra Pradesh (about 20 per cent), followed by Maharashtra and Rajasthan with nearly equal shares (about 7 per cent). This share falls among landholders in Rajasthan and Andhra Pradesh with increase in amount of land holding; in the case of Maharashtra it first increases from holdings of 0-1 acre to 2-5 acres and then declines sharply for the highest land owning group (> 5 acres). This suggests that those who are landless, or have only moderate amounts of land, tend to rely more on this source of income in these states-especially in Andhra Pradesh.

Between the two household size groups, 4 and fewer members and 5-8 persons, S3 varies across the states with relatively higher share in the smaller households. While in Rajasthan this share was slightly over 10 per cent in the smallest household size group, in Andhra Pradesh it was about 17 per cent and, in Maharashtra, about 7 per cent. In all the states, the share declines as we move from smaller to larger households.

Overall, the share is highest in Andhra Pradesh (about 16 per cent), followed by Rajasthan (about 8 per cent) and Maharashtra (a little over 6 per cent).

Distribution of S3 by household's poverty status and alternative employment options in the absence of NREGS

Now, we assess the relationship between poverty status and household's alternative employment opportunities. The results are depicted in Table 7.

Table 7: Distribution of S3 by household's poverty status and alternative employment options in the absence of NREGS

Poverty Status	Rajasthan		Andhra Pradesh		Maharashtra	
	With AEO	Without AEO	With AEO	Without AEO	With AEO	Without AEO
Acutely poor	5.03	11.46	14.26	17.19	6.02	5.43
Moderately poor	4.41	8.95	9.51	19.79	4.66	10.52
Moderate non-poor	12.62	7.35	16.19	17.87	5.31	9.15
Affluent	1.96	6.47	11.62	15.62	3.24	4.64
Non-poor	2.87	6.83	13.68	16.42	4.08	6.61
Poor	4.58	10.70	11.52	18.75	5.21	8.24
All	3.39	8.30	13.07	17.03	4.37	7.05

Note: S3: Share of NREG earnings net of opportunity cost of time in household income net of NREG earnings net of opportunity cost of time (%). Definition of different poverty status is given in Annex 2.

We find that **i**n Rajasthan, for acutely poor, moderately poor households and affluent households, S3 is higher for households without AEO. However, moderately non-poor households without AEO have higher S3 as compared to moderately non-poor households with AEO. Overall, households (both poor and non-poor) without alternative employment options in the absence of NREGS have higher S3. This suggests that those households which do no have alternative employment opportunities tend to rely more on this source of income in Rajasthan. In case of Andhra Pradesh, irrespective of poverty status, S3 is higher for households which do not have alternative employment options in the absence of NREGS. A similar result obtains in the case of Maharashtra. S3 is higher for households without AEO for households in all poverty categories except for acutely poor households where S3 is slightly higher for households with alternative employment options in the absence of NREGS.

Village wise Distribution of Net Transfer benefit from NREGS[12]

In Table 8 we assess village level distribution of net transfer benefits from NREGS.

In all three states, the proportion of villages is higher for an increase in the amount of transfer benefit from NREGS till the range Rs. 1000-2000 and then falls off. In the net transfer benefit range Rs. 0-500, the share of villages is highest in the case of Maharashtra (about 12 per cent) with mean transfer benefit of Rs. 295.54. Rajasthan comes next with about 3 per cent of its

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[12] After adjusting for opportunity cost of time.

villages in that range with mean transfer of Rs. 411.19. Finally, about 2 per cent villages of Andhra Pradesh have net transfer benefit from NREGS in the range Rs. 0-500 with mean of Rs. 358. Net transfer benefit range Rs. >1000-$\leq$2000 is the modal range and constitutes the highest share of villages in all three states (about 45 per cent in Rajasthan, about 40 per cent in Andhra Pradesh and about 55 per cent in Maharashtra). The highest range (of more than Rs. 3000) accounts for less than 9 per cent of Maharashtra villages with mean benefit of Rs. 3637, followed by about 17 per cent of Rajasthan villages with a mean benefit of Rs. 3513 and about 24 per cent of villages in Andhra Pradesh with a mean transfer benefit of Rs. 3737.

Table 8: Village wise Distribution of Net Transfer benefit from NREGS[*]

Transfer benefit from NREGS (Rs.)	Rajasthan		Andhra Pradesh		Maharashtra	
	Mean (Rs.)	% of villages	Mean	% of villages	Mean	% of villages
0-$\leq$500	411.19	2.82	357.94	2.35	295.54	12.33
>500-$\leq$1000	986.32	10.03	809.52	4.51	696.66	18.53
>1000-$\leq$2000	1418.10	44.54	1452.90	39.66	1287.61	54.45
>2000-$\leq$3000	2515.52	25.64	2346.13	29.38	2346.23	6.04
>3000	3512.89	16.97	3730.16	24.10	3636.69	8.64

*after adjusting for opportunity cost of time

V. Conclusions

This paper has explored the important but relatively neglected issues of real income transfers, net of the opportunity cost of time, under India's National Rural Employment Guarantee Scheme. We used representative household level primary data for three states, Rajasthan, Andhra Pradesh and Maharashtra to depict various individual and social characteristics of the population in these states as well as those of the participants in the NREGS. We also modeled the stochastic dominance comparisons of the log of per capita monthly expenditures of participants with and without alternative employment opportunities in the absence of NREG as well as the determinants of such opportunities. As an approximate measure of the net transfer benefits under NREGS, we consider shares of NREG earnings net of the opportunity cost of time in household income net of NREG earnings net of the opportunity cost of time. The distribution of such net transfers across household characteristics as well as the distribution of benefits across villages in the three states were also discussed. In general net transfers under the NREGS are quite modest.

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Annex 1: Definitions of the variables used in the analysis

Variables	Definition
Dependent Variable	
Alternate employment option to NREGS participants	=1 if there is an option to currently NREGS participants in the absence of NREGS; 0 otherwise
Explanatory Variables	
Gender	=1 if male, 0 if female
Age	Age of worker
Square of Age	Square of age of worker
Illiterate (Reference)	=1 if illiterate, 0 otherwise
Primary education	=1 if literate but up to primary education, 0 otherwise
Middle school	=1 if passed only up to middle school, 0 otherwise
Secondary education	=1 if literate but up to secondary education, 0 otherwise
Higher secondary and above	=1 if education up to higher secondary and above, 0 otherwise
SCST	=1 if social group is SC or ST, 0 otherwise
OBC_Others (Reference)	=1 if social group is OBC or others, 0 otherwise
Landowned	Amount of land owned (in acre)
% adult in the household	% adult in the household
Household size	Size of the household
Ratio of peak to slack wage rate for male agricultural laborers in village	Ratio of peak to slack wage rates for male agricultural laborers at the village level
Land Gini index	Land Gini index to measure inequality of landholdings at the village level
Market distance from village	Average distance of market from the village

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>=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