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MGNREGS, Rural Employment and Distress Migration: A study in Odisha

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Abstract

This paper attempts to study the role of MGNREGS in improving the household living standards and its impact on seasonal distress out-migration, conducting a primary survey of 400 households from Mayurbhanj and Jajpur districts of Odisha during 2011-12. The major findings suggest that MGNREGS has contributed enormously in creating job opportunities for the needy poor and socially backward households. The accessibility of NREGS prevented a huge number of distress seasonal out migration and brought financial autonomy for the landless poor (Below Poverty Line) and socially backward (Scheduled Castes and Scheduled Tribes) households through regular wage income. This helped them to come out of hunger and debt traps, and hence an improved living standard. Therefore, the government should take proper measures to continue this programme in rural areas and allocate the resources based on demands calculation to avoid wastage of funds. Furthermore, an attempt should be made to create inter-industry linkages within rural regions through this programme that could generate a set of economic multipliers; and hence will provide a sustainable source of rural employments and income generation to the socially and economically marginalized groups in India.

1. Introduction

The National Rural Employment Guarantee Scheme (NREGS) which has now been renamed as 'Mahatma Gandhi Rural Employment Guarantee Scheme (MGNREGS), notified on 7th September 2005 by the Government of India, is a land mark legislation in Indian history of social security legislation after independence. This was enacted in 2005 to provide minimum 100 days guaranteed wage employment in every financial year to the rural households who want to do unskilled manual work that includes creation of productive assets in the village such as wells, tanks, ponds, and roads etc. (Jacob and Varghese, 2006; Krishnamurty, 2006; Bhatia and Drèze, 2006; Chakraborty, 2007; and Datar, 2007) This programme ensures that at least one- third of the stipulated work have to be allotted to women. According to Ministry of Rural Development (MoRD, 2012) this programme would regenerate the natural resource base and provide sustained stimulation to the agrarian economy boosting rural wages, restricting distress migration. NREGS is not a programme and it differs from other schemes because it gives the rural poor the right to demand a job or unemployment allowance and has a greater potential to raise the standard of living of the rural poor (Chakraborty, 2007; Nayak et al, 2009; Ghosh, 2011 and MoRD, 2012)

Since NREGS was designed to provide a floor to income through creating village assets and restricting distress migration of the poor households, it has a greater role to play in a state like Odisha that registered the highest poverty incidence. Recognizing the importance of NREGA in Odisha, the Central Government, in the first phase of NREGA, introduced the programme in nineteen districts of the state. Five more districts were brought under the purview in the second phase, while the remaining six districts were covered in the third phase in April 2008 (See Annexure-I). The study of Nayak et al, (2009) in Odisha found that a lot of durable community assets (village roads, ponds, irrigation tanks, etc.) have been created through this programme. In this process a substantial volume of seasonal migration had been reduced.

The macro level information collected form the MoRD (2011-12) shows that a substantial volume of employment has been generated in both *Mayurbhanj* and *Jajpur*

districts of Odisha. About 1.08 lakhs households in *Mayurbhanj* and 0.72 lakh households in *Jajpur* obtained NREGS employment during 2011-12 (See Table 1). The person days of NREGS employment created in *Mayurbhanj* and *Jajpur* districts during this period were 51.5 lakh and 30.1 lakh respectively. A considerable share of these employment goes to both Scheduled Caste (SC) and Scheduled Tribes (ST). About 65 per cent of NREGS jobs in *Mayurbhanj* and 40 per cent in *Jajpur* was availed by the SC and ST. Since both SC and ST in these districts constitute the poor and marginalized groups, increasing work participation would result an improved living standard of these groups. Given this information, this paper attempts to investigate further to explore: (i) Whether NREGS is really providing jobs to the needy and helping them coming out of poverty and debt traps? (ii) Does NREGS participation bring any changes in the consumption pattern of the households? And (iii) how far it is successful in arresting rural distress outmigration and initiating the process of sustainable development in rural India? This study is designed to address the above questions.

Table 1: MGNREGA Achievements in *Jajpur* and *Mayurbhanj* districts, 2011-12

Districts	<i>Jajpur</i>	<i>Mayurbhanj</i>
Employment Provided to Households	0.72 Lakh	1.08 Lakh
Person days (in Lakh)		
Total	30.11	51.53
SC	9.62 (31.96)	7.27 (14.11)
ST	2.52 (8.35)	26.33 (51.1)
Others	17.97 (59.69)	17.92 (34.79)
Women	4.56 (15.16)	23.73 (46.05)
Total works taken up	7578	20086
Financial Statistics (in Crore)		
Total fund (in Rs.)	48.18	84.69
Expenditure (in Rs.)	50.35	76.64

Note: Percentage figures in parentheses

Source: Ministry of Rural Development, Government of India (<http://nrega.nic.in>)

This paper is organized in the following fashion. Section two explains the data collection method and econometrics techniques used in this paper. Section three provides the socio-economic profile of the sample districts. Section four provides the findings based on primary survey conducted in the two districts of Odisha. Section five concludes the paper and provides the policy suggestions.

2. Data and methodology

This study is based on primary data collected through a structured questionnaire during 1st March to 15th April, 2011-12. To design the methodology for primary survey, secondary data from the Ministry of Rural Development website and Census of India are used. The macro level information on the number of job cards issued, jobs demanded and supplied during 2010-11 is used from the Ministry of Rural Development (See Annexure-1). The information on various socio-economic and demographic features of the sample districts were taken from Census of India. The primary survey includes a four stage sampling method. In the first stage, two districts out of 30 in Odisha were selected. This selection is based on the phase-wise implementation of NREGA. One each from district Phase-I (*Mayurbhanj*) and Phase-II (*Jajpur*) were selected. *Mayurbhanj* is one of the higher (financial) performing districts among the Phase-I districts, whereas *Jajpur* is one among the least performing (financial) districts of Phase-II. In the second stage, two blocks from each district were selected based on their past performance (including fund utilization, nature of activities undertaken etc). From *Jajpur* district, *Korai* (better performance) and *Rasulpur* (lower performance) blocks, and *Samakhunta* (better performance) and *Baripada* (lower performance) blocks from *Mayaurbhanj* were selected. In the third stage, the same exercises were repeated at the block level for selecting sample Gram Panchayats (See Annexure-2 for the list of GPs). And finally 400 sample households (from 50 each of the 8 GPs) were chosen on the basis of both Below Poverty Line (BPL) card holdings and NREGS job card holding. The sample consists of 200 job card holders and 200 job card non-holder households. Then each of the above households includes 50 per cent BPL households and 50 per cent Above Poverty Line (APL) households (100 households in each group).

To find out the relation between NREGS workforce participation and seasonal out-migration decision, a bivariate probit regression equation is estimated including those variables that simultaneously affects both the decisions. The bivariate probit model involves two equations viz., work force participation equation (Equation 1) and migration equation (Equation 2). The formal derivation of the bivariate probit regression is given below:

$$y_{i1} = X_{i1}\beta_1 + \varepsilon_{i1} \quad y_{i1} = 1 \text{ if } y^*_{i1} > 0; = 0 \text{ otherwise(1)}$$

$$y_{i2} = X_{i2}\beta_{21} + \varepsilon_{i2} \quad y_{i2} = 1 \text{ if } y^*_{i2} > 0; = 0 \text{ otherwise(2)}$$

$$E(\varepsilon_{i1}) = E(\varepsilon_{i2}) = 0; \quad Var(\varepsilon_{i1}) = Var(\varepsilon_{i2}) = 1 \quad Cov(\varepsilon_{i1}, \varepsilon_{i2}) = \rho; \quad i = 1, 2, 3, \dots, n$$

Using equation 1 a standard probit model can be set as:

$$\Pr[y_{i1} = 1] = \Pr.[y^*_{i1} > 0] = \Pr[X_{i1}\beta_1 + \varepsilon_{i1} > 0] = \Pr[\varepsilon_{i1} > -X_{i1}\beta_1] = \Pr[\varepsilon_{i1} < X_{i1}\beta_1] = \Phi(X_{i1}\beta_1)$$

where $\Phi(\cdot)$ is the cumulative distribution function for the standard normal, and we have used the symmetry of the normal distribution to get the penultimate equality above. To set up the bivariate probit model, based on both equations (1) and (2), we need to consider the following four possible cases:

$$P_{11} = \Pr[y_{i1} = 1, \quad y_{i2} = 1] = \int_{-\infty}^{X_{i1}\beta_1} \int_{-\infty}^{X_{i2}\beta_{21}} \phi_2(z_1, z_2, \rho) dz_1 dz_2$$

$$P_{10} = \Pr[y_{i1} = 1, \quad y_{i2} = 0] = \int_{-\infty}^{X_{i1}\beta_1} \int_{X_{i2}\beta_{21}}^{\infty} \phi_2(z_1, z_2, \rho) dz_1 dz_2$$

$$P_{01} = \Pr[y_{i1} = 0, \quad y_{i2} = 1] = \int_{X_{i1}\beta_1}^{\infty} \int_{-\infty}^{X_{i2}\beta_{21}} \phi_2(z_1, z_2, \rho) dz_1 dz_2$$

$$P_{00} = \Pr[0] = \int_{X_{i1}\beta_1}^{\infty} \int_{X_{i2}\beta_{21}}^{\infty} \phi_2(z_1, z_2, \rho) dz_1 dz_2$$

where the bivariate normal density function is:

$$\phi(z_1, z_2, \rho) = \text{Exp}\left(\frac{-0.5(Z_1^2 + Z_2^2 - 2\rho Z_1 Z_2)}{(1 - \rho^2)/2\pi(1 - \rho^2)^{1/2}}\right)$$

The estimated ρ would imply whether there exists any correlation between NREGS workforce participation and seasonal out migration decision. The empirical result is given in section four (See Table 5).

3. Socio-Economic Profiles of the Sample Districts

Before analyzing the survey data, it is important to provide the basic information about the sample districts and the households selected for the primary survey. The sample households include both NREGS job holders and non-holders (50 per cent from each

category). These two mutually exclusive groups are again split into two groups to include both BPL and APL households (50 per cent from each category). The socio economic group-wise distribution of the sample households (See Table 2) reveals that the primary survey covers all the social groups including the occupation categories.

District profile Mayurbhanj

Mayurbhanj district has the distinction of having a vast forest area bristling with varied flora and fauna- stretches of lush green forest served with a network of perennial streams. It is the largest district in Odisha covering 10418 square km. With the size of land it forms around 6.68% of total geographical area of the state. The district is landlocked and hilly. It is the district with largest area under forest (1641.89 Sq.km under forests) in the state. Thus, forest produce remains one of the major sources of livelihood for the tribal people inhabited in the district. As per the provisional estimates of Census (2011) out of 2.51 million total population about 2.32 million live in rural areas (92.33 per cent). Females constitute 50.25 per cent of the total population. The district has larger concentration of tribal population as 57.67 per cent of the population belongs to ST. Though the population of *Mayurbhanj* is only about 6 per cent of the State's total population, the tribal population shares a 15.42 per cent of the state's total ST population. A small segment of the households engaged as mining and small industrial jobs but a large section are dependent on settled cultivation, hunting, and collecting minor forest produce.

The primary survey in *Mayurbhanj* district, covers two blocks viz., *Baripada* and *Samakhunta*. In *Baripada* block, the sample households include 72 per cent ST, 2.5 per cent SC, 23 per cent OBC and 2.5 per cent others. About 66 percent of the sample households in this block are landless, 27 per cent of the households having less than 1 acre of land. Distribution of the household by the household head's level of education implies that about 48 percent are illiterate, 37 percent possess below primary level of education, 10 per cent having primary and only 5.5 per cent having secondary and above level of education. And household head's occupation-wise distribution of the households reveals that that about 66 percent are self-employed in agriculture, 30 percent are

agricultural labour, and only 3.5 per cent are self-employed in non-agriculture. In *Samakhunta* block, the sample households include 75 per cent ST, 4 per cent SC, 19 per cent OBC and 2.5 per cent others. About 68 percent of the sample households in this block are landless, 26 per cent of the households having less than 1 acre of land. Distribution of the household by the household head's level of education implies that about 53 percent are illiterate, 36 percent possess below primary level of education, 7.5 per cent having primary and only 3.5 per cent having secondary and above level of education. And household head's occupation-wise distribution of the households reveals that that about 64 percent are self-employed in agriculture, 28 percent are agricultural labour, and only 7.5 per cent are self-employed in non-agriculture.

District profile Jajpur

Jajpur district is one of the inland districts closer to the east-coast (though not a costal district) spreading over a geographical area of 2899 square km. There are 2971 villages out of which 2602 are inhabited. As per the provisional estimates of Census 2011, *Jajpur* had a population of 1.82 million of which females constituted 48.6 per cent. *Jajpur* has an average literacy rate of 80.44 per cent, higher than the state average of 73.45 per cent. About 30 per cent of its population is from SC and ST. Agriculture and allied activities are the major sources of livelihood of the people in this district. Given the socio-economic background, it could be expected that NREGS would play an important role in initiating the process of inclusive growth in these districts.

In *Jajpur* two blocks viz., *Rasulpur* and *Karai* are covered. In *Korai* block, the sample households include 38 per cent ST, 54 per cent SC, 5.5 per cent OBC and 2.5 per cent others. About 56 percent of the sample households in this block are landless, 32.5 per cent of the households having less than 1 acre of land. Distribution of the household by the household head's level of education implies that about 12.5 percent are illiterate, 32 percent possess below primary level of education, 37.5 per cent having primary and only 18 per cent having secondary and above level of education. And household head's occupation-wise distribution of the households reveals that that about 58 percent are self-employed in agriculture, 32 percent are agricultural labour, and only 7.5 per cent are self-

employed in non-agriculture. In *Rasulpur* block, the sample households include 21.5 per cent ST, 44.5 per cent SC, 20.5 per cent OBC and 13.5 per cent others. About 50 percent of the sample households in this block are landless, 29 per cent of the households having less than 1 acre of land. Distribution of the household by the household head's level of education implies that about 19 percent are illiterate, 22.5 percent possess below primary level of education, 18 per cent having primary and only 40.5 per cent having secondary and above level of education. And household head's occupation-wise distribution of the households reveals that that about 27 percent are self-employed in agriculture, 9 percent are agricultural labour and 52.5 per cent are self-employed in non-agriculture and 11.5 others (that include regular salaried workers in both government and privates sectors).

Table 2: Socio-Economic Profile of the Sample Households

Household characteristics	<i>Jajpur</i> District		<i>Mayurbhanj</i> District	
	<i>Rasulpur</i>	<i>Korai</i>	<i>Baripada</i>	<i>Samakhunta</i>
Social Groups (in %)				
ST	21.5	38.0	71.7	74.5
SC	44.5	54.0	2.5	4.0
OBC	20.5	5.5	23.2	19.0
Others	13.5	2.5	2.5	2.5
Land Holdings (in %)				
Landless	49.8	56.3	66.3	67.8
Less than 1 Acre	28.8	32.5	28.5	25.5
1 to 2 Acres	14.0	9.5	3.8	5.0
More than 2 Acres	7.5	1.8	1.5	1.8
Level of Education of the Household Head (in %)				
Illiterate	19.0	12.5	47.5	53.0
Below Primary	22.5	32.0	37.0	36.0
Primary	18.0	37.5	10.0	7.5
Secondary & above	40.5	18.0	5.5	3.5
Occupation of the Household Head (in %)				
Self-employed in Agriculture	27.0	57.5	65.5	63.5
Agricultural Labour	9.0	31.5	30.0	27.5
Self-employed in Non-agriculture	52.5	7.5	3.5	7.5
Others	11.5	3.5	1.0	1.5

Source: Primary Survey

With this background the next section provides the empirical findings of the paper analyzing the household level primary data in detail.

4. Findings

NREGS and Rural Employment

Unlike Bhatia and Drèze, (2006) in Jharkhand, and Datar (2007) in Maharashtra, this study found that workforce participation rate in NREGS is very high in Odisha (of those who possess NREGS job cards). It is the highest among the households belong to poor and socially disadvantaged communities. The workforce participation rates of the ST and SC households are 99.3 percent and 98.1 percent respectively. The workforce participation rates of the OBC and other caste category households are 71.4 percent and 51.2 percent respectively, which is quite lower than the ST and SC households. The similar pattern is observed comparing the districts and sample blocks (See Table 3). In *Rasulpur* block of *Jajpur* district NREGA workforce participation rates of the ST and SC households are 98.5 percent and 98.2 percent as compared to only 30.2 percent and 12.5 percent for OBC and other¹ caste category respectively. In *Korai* block of *Jajpur* district NREGA workforce participation rates of the ST and SC households are 99.2 percent and 98.3 percent as compared to only 75.2 percent and 56.8 percent of OBC and other category. In *Mayurbhanj* the NREGA workforce participation rates of the ST and SC households are 99.5 percent and 97.4 percent in *Baripada* block and 99.8 percent and 98.5 percent in *Samakhunta* block respectively. The NREGA workforce participation rates of OBC and other caste category are 87.8 percent and 59.7 percent in *Baripada* block and 92.3 percent and 75.6 percent in *Samakhunta* block respectively.

¹ During the survey, it is noticed that in *Rasulpur* block (particularly in *Narasinghpur panchayat*) most of the households belong to other caste category possess a job card, but do not participate in NREGS work. They hold a card with an expectation of getting unemployment allowance in the future. Majority of the households in this panchayat are local trader and businessman, who earn greater than NREGS wage on average. It is unfortunate to note that in this *panchayat* most of the job card holders just sign the muster roll for the sake of maintaining the record. But physically they do not participate in the work.

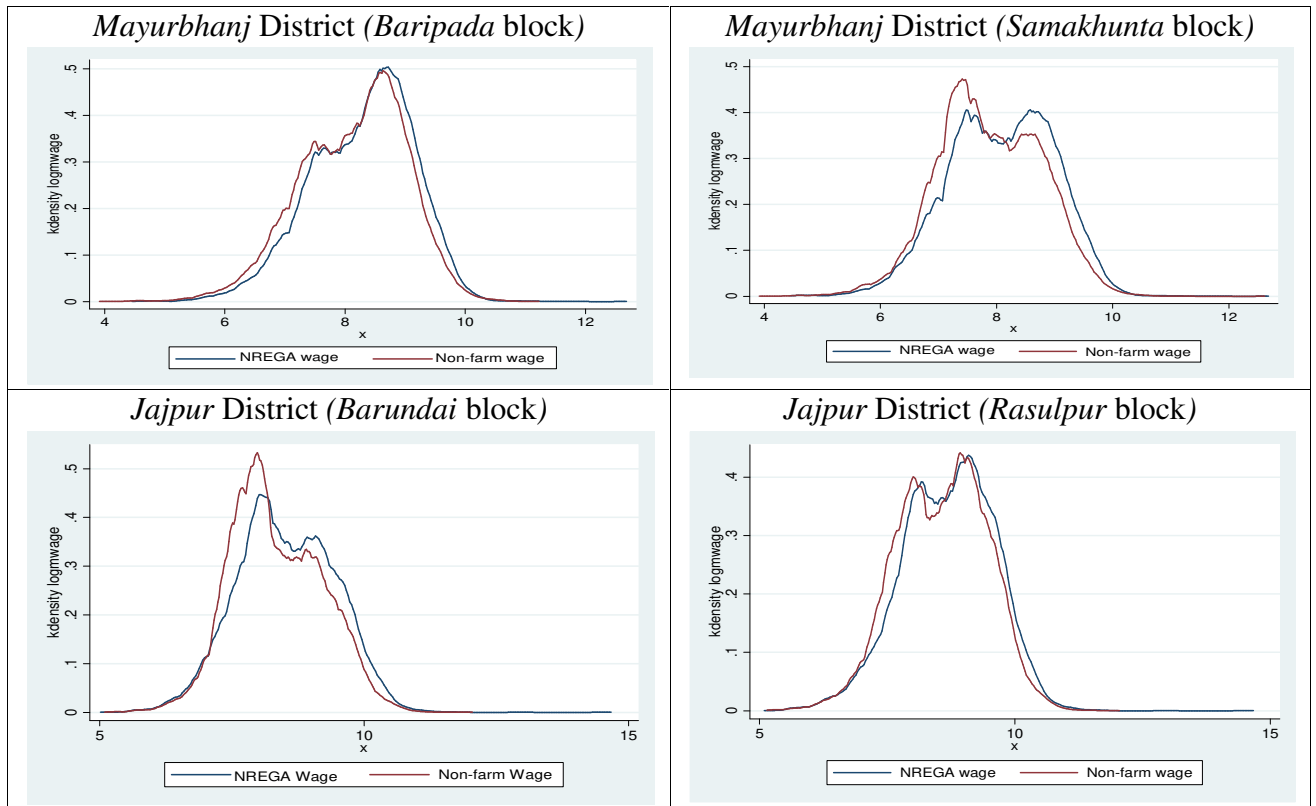
Table 3: Distribution of the NREGS Job card Holder Households by NREGS Workforce Participation in Odisha

Household characteristics	NREGS Workforce Participation (in %)				Total
	Jajpur		Mayurbhanj		
	Rasulpur	Korai	Baripada	Samakhunta	
By Social Groups					
ST	98.5	99.2	99.5	99.8	99.3
SC	98.2	98.3	97.4	98.5	98.1
OBC	30.2	75.2	87.8	92.3	71.4
Others	12.5	56.8	59.7	75.6	51.2
By Land Holdings groups					
Landless	99.1	99.7	99.7	100	99.6
Less than 1 Acre	95.2	94.3	97.8	97.5	96.2
1 to 2 Acres	30.2	30.5	32.5	35.5	32.2
More than 2 Acres	12.5	14.7	21.7	31.6	20.1
By Economic Groups					
BPL	99.5	99.8	99.9	100	99.8
APL	29.1	48.7	59.7	79.2	54.2
By Occupation of the Household Head					
Self-employed in Agriculture	94.6	93.7	97.2	96.9	95.6
Agricultural Labourer	99.8	100	100	100	100
Self-employed in Non-agriculture	8.2	14.5	24.3	27.4	18.6

Source: Primary Survey

It is also important to note that about 99.6 percentage of BPL household reported that they are participating in the NREGS works as compared to only 54.2 percent households in the APL counterparts. Furthermore, it is found that the NREGS participation rate of landless and agricultural labourer is very high (almost 100 percent). This indicates the fact that the household belonging to the lower economic strata are hugely benefiting from NREGS. The NREGS workforce participation rate of the BPL households is 99.5 percent in *Rasulpur*, 99.8 percent in *Korai*, 99.9 *Baripada* and 100 percent in *Samakhunta* in blocks respectively. The NREGS workforce participation rate of the landless households is 99.1 percent in *Rasulpur*, 100 percent in *Samakhunta*, 99.7 percent in *Korai* and *Baripada* blocks respectively. But the NREGS workforce participation rate among the agricultural labourer is 100 percent in all the blocks but *Rasulpur* (99.8 percent). Since NREGS provides employment to the needy, poorer and marginalized section of the society, it helps in the process of inclusive growth in India.

Figure 1: Comparison of NREGA and Non-Farm wages rates in Odisha



Source: Primary survey

Given the massive employment generation through huge participation in NREGS in rural areas as compared to the other public work programmes in the past (Mehrotra, 2008), it is important to investigate whether these workers are getting appropriate and timely wage or not? The primary survey explored that the NREGS work participants across the sample blocks are satisfied with the existing wage rates. The wage payment on the basis of piece rate is observed in both the districts. All the respondents across the districts told that they are paid on a weekly or fortnight basis. Most of the workers including females prefer a piece wage structure to the time wage. Due to the piece wage structure often they tend to earn a higher wage. The average wage of NREGS wage is higher than the average rate of other non-agriculture wage rates. Plotting the log of average wages of NREGS work and alternate rural non-farm² wage rates (see Figure 1), it is found that NREGS wage density is placed rightward. This suggests the fact that

² Including construction, petty trade, rickshaw pulling and other non-farm unskilled manual jobs

NREGS workers tend to earn higher than their non-migrant counterparts. Comparing wage distribution across the sample blocks, this difference is highest in *Samakhunta* block (*Mayurbhanj* district) and least in the *Rasulpur* block (*Jajapur* district). In *Mayurbhanj* district it is found that average agricultural wage is very low (Rs. 35 in *Baripada* and Rs. 40 in *Samakhunta*) as compared to the NREGS wage (about Rs.100 per day). But in *Rasulpur* block it is found that average wage of alternate occupation (petty and small business, trading etc.) is higher than NREGS wage. It is noticed that NREGS work is being performed by the contractors (which should not be the case either) in the *Narsinghpur* panchayat of the *Rasulpur* block.

According to Mehrotra et al., (2014) rural wages were stagnant before NREGS was launched but it started rising after that (during post 2006). As the primary data shows that NREGS offers a relatively better wage along with an alternative to working on the landlord's farm for landless labourers, it important to investigate the impact of this increasing real wages on households' purchasing power and living standards.

NREGS and Households' living standards

The household level information suggests that NREGS earnings were spent on everything starting from food items to the payment of old debts. It is important to note that households participating in NREGS are now capable of spending on children education (particularly on private tuition) and health care, and more importantly they are able to repay their past debts. A few others reported that because of the NREGS income they could repairs their houses. Most of the households experienced banking for the first time (particularly female members of the household). The female members in particular, expressed that having some savings in the bank was a matter of great confidence to them, which enhanced their dignity in the family.

Table 4: Share of Household Monthly Expenditures on different Heads by NREGS participation

Social Groups	Share of Households' Monthly Expenditure on Different Heads						
	<i>Food items</i>	<i>Educating</i>	<i>Health care</i>	<i>Durables goods</i>	<i>Debt repayment</i>	<i>others</i>	<i>Total</i>
Households participating in NREGS works							
ST	73.6	8.5	4.7	1.5	9.4	2.4	100
SC	71.5	6.7	6.1	2.8	10.8	2.1	100
OBC	66.3	8.8	11.2	9.7	2.4	1.6	100
Others	62.8	9.5	12.7	9.5	4.2	1.3	100
Households not participating in NREGS works							
ST	73.4	6.9	5.4	10.8	2.3	1.4	100
SC	71.7	5.1	6.4	12.1	3.7	1.1	100
OBC	67.6	7.2	8.3	14.0	2.3	0.6	100
Others	64.7	7.9	9.7	13.8	3.6	0.3	100

Source: Primary Survey

Comparing households' expenditure patterns of NREGS participant and Non-participant (including job card not holding households) households across the social groups; it revealed that a major share of households' expenditure was devoted to food items. The next major share of expenditure of the NREGS not participating households' is on household durable goods whereas for the NREGS participating households' is on children's education. It is interesting to note that the percentage share of education expenditure of NREGS participating households' is higher than their not participating counterparts across the social groups. And more importantly the share of expenditure on debt repayment indicates that ST and SC households those participating in NREGS are devoting a substantial share of their monthly expenditure to repay their past debts. This is an indication that the poor and socially marginalized groups have benefited immensely from this right based public work programme. Due to NREGS, women have also started shouldering household expenses and responsibilities. In relative backward blocks like *Korai* and *Samakhunta*, majority of the households told that their female members helped them to repay past debt out of their earnings. Female members also revealed that the experience with banking has changed their perceptions and attitudes. However, in the case of the female-headed families the delay in wage payment sometimes creates problems in meeting their daily needs and the educational expenditure of their children.

This is something need to be fixed by taking the proper initiatives by both the local (*panchayat* level) as well as the higher level authority of the NREGS.

MGNREGA participation and Rural Out-migration

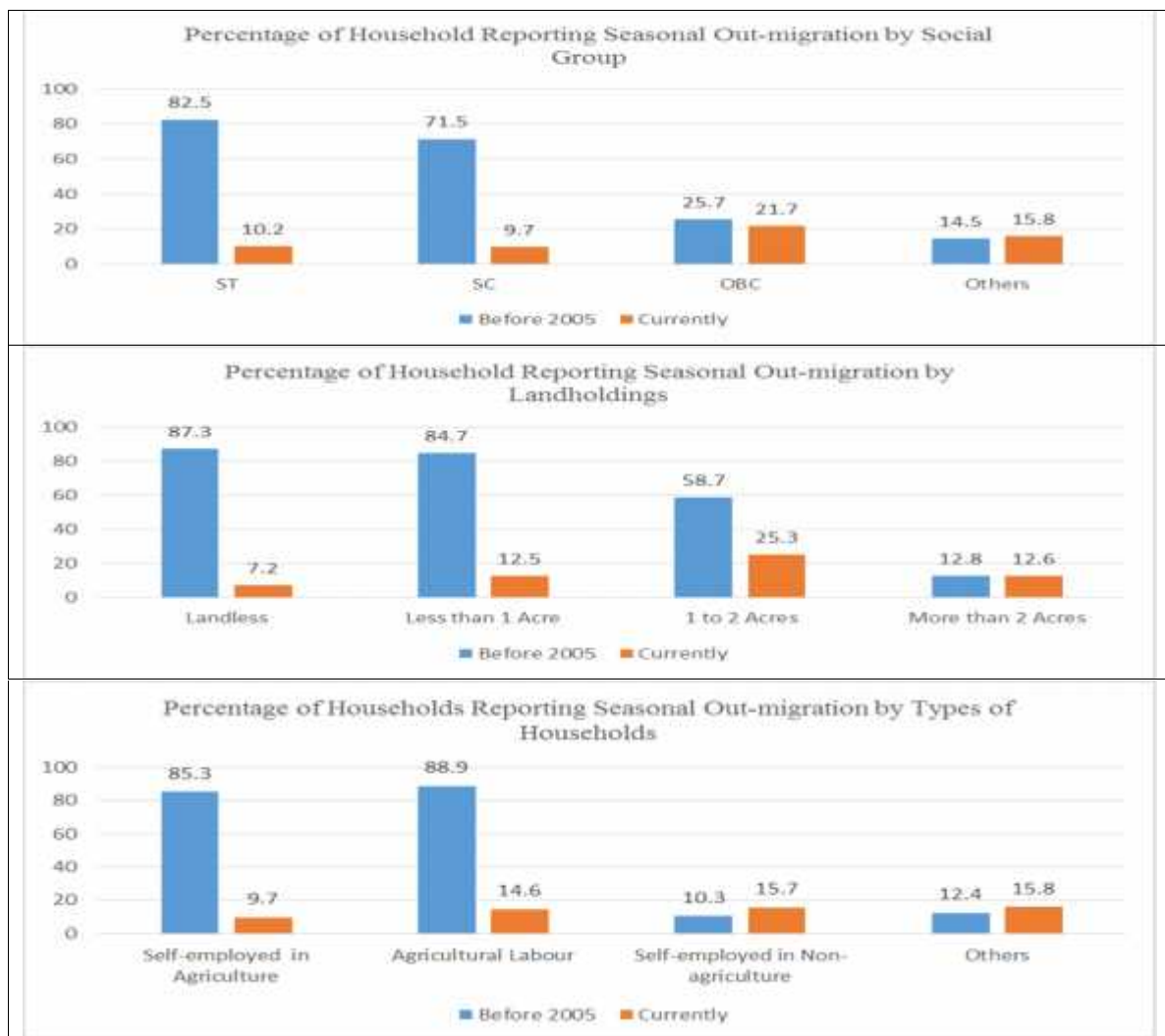
One of the important outcomes of NREGS is its impact on seasonal out migration. It provides additional employment opportunities in rural sector and hence reducing distress out-migration. About 83 percent of ST, 72 percent of SC and 26 percent of OBC and 15 percent of the other caste households (See Figure 2) reported that at least one of their family members used to migrate to other regions for employment in the agricultural off seasons when NREGS job was not available (before 2005). And due to availability of NREGS most of them are not going out in search of job. About 10 percent of ST and 9.7 percent of SC households are reporting outmigration of their household member during 2011-12. But the percentage of OBC and Other castes households reporting out-migration has increased in the recent period. The increased percentage of migrants is manly either to take up and permanent job in government or private sectors or for attending education (See Figure3).

A similar observation is made from the landholding and occupation wise distribution of the households in both the districts. About 87 percent of landless households, 85 percent of household having less than one acre of land and 59 percent of the household with one to two acres of landholdings reported that at least one of their family members used to migrate to other regions for employment in the agricultural off seasons when NREGS job was not available (See Figure 2). And in this class only about 7 percent, 12.5 percent and 25 percent households reported out-migration during 2011-12. The occupation-wise classification implies that household member belonging to both agricultural labour and self-employed in agricultural households were more likely to out-migrate in the past, which had come substantially during 2011-12. These statistics provides a clear indication that distress out-migration in the past has come down because of the availability of NREGS jobs in Odisha.

The reason for past and current out-migration (See Figure 3) also supports this. About 25 percent of the households reported that their family members used to out-

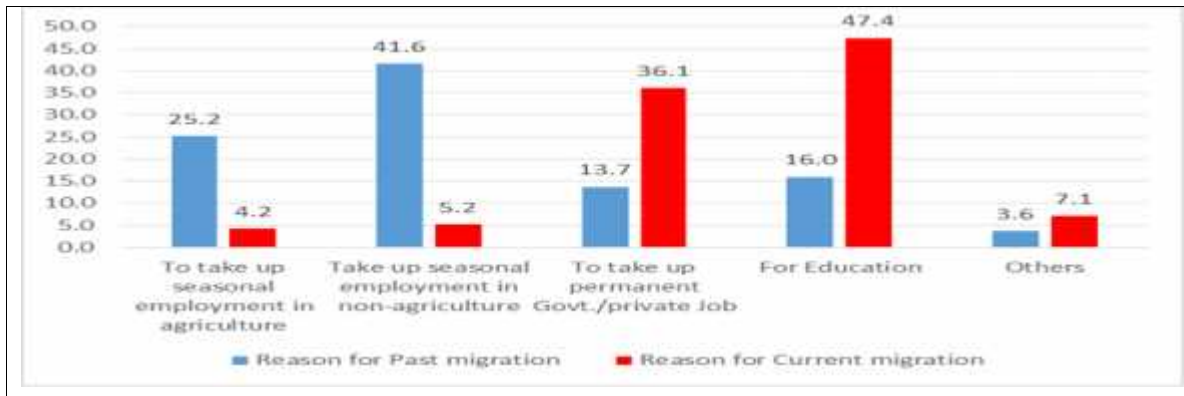
migrate to take up a seasonal employment in agriculture related work in the past. This has come down to only 4 percent during 2011-12. The percentage of households reporting out-migration to take up non-agriculture employment (including construction, public work programmes, Mining and Quarrying and Manufacturing sector jobs) has also declined from 42 percent to only 5 percent. On the other hand, the percentage of households reporting out-migration due to take up a permanent job in government or private sectors, and attending higher education have increased form 13.4 percent to 36 percent and 16 percent to 47 percent respectively.

Figure 2: Households Reporting Out-migration Before and After Implementation of NREGS in Odisha



Source: Primary Survey

Figure 3: Reasons for past (before 2005) and current (in 2011-12) out-migration in Odisha



Source: Primary Survey

The maximum likelihood estimates of migration and NREGS workforce participation decisions are presented in Table 5. The correlation coefficient ρ is negative and statistically different from zero (-0.89); this suggests that migration and NREGS workforce participation decisions are influenced by the same random forces; the negative sign indicates that unobservable factors that determine NREGS workforce participation decisions are likely to discourage individuals' out-migration.

Age, landholdings, standard of living and castes influence both decisions. Positive signs for age dummy coefficients (age 15 to 30 years being the reference category) reflects that probability of NREGS participation and out-migration increase with increasing age. A relatively stronger coefficient of lower age category in the out-migration function reflects that younger age groups are more likely to out-migrate in the off seasons. However, relatively stronger coefficients of higher age groups in the workforce participation equation imply that NREGS participation is higher among the relatively elder people and particularly in the age group of 60 years and above category. The coefficients of education dummies on the other hand reflect that out-migration rate is higher among relative educated household members as compared to the illiterate counterparts. As expected the NREGS workforce participation is high among the illiterates and household members having primary level of education. The landholding and caste coefficients strengthens the argument that both out-migration and workforce

participation is high among the landless and social backward households. The households belong to these groups were benefited immensely from the NREGS in Odisha.

Table 5: Bivariate Probit Estimates for NREGS workforce participation and Seasonal Out-migration decision in Odisha

Variables	Seasonal Out-migration		NREGS workforce participation	
	Coefficient	Z-value	Coefficient	Z-value
Intercept	-1.821	-88.5	-4.421	-125
Age group (30 to 40 years)	0.78	4.9	0.23	1.92
Age group (40 to 50 years)	0.19	5.3	0.73	1.8
Age group (50 to 60 years)	0.25	3.7	0.26	3.2
Age group (above 60 years)	0.49	4.9	0.83	13.8
Primary	0.57	13.8	0.75	20
Secondary	0.180	9.3	-8.32	-28
Higher secondary	0.234	17.3	-0.508	-3.3
Female	-0.453	-72.9	-1.4	-8.3
Landholding < 1 Acre	-0.122	-18.3	-0.52	-8.5
Landholding 1 to 2 Acre	-0.188	-8.97	-0.88	-9.7
Landholding 2 Acres & above	-0.097	-3.8	-0.97	-3.5
BPL households	0.710	9.1	0.98	9.8
ST	0.88	17.91	0.061	3.5
SC	0.52	21.79	0.065	4.1
OBC	0.34	24.27	-0.118	-7.7
Muslims	0.172	15.37	0.034	2.7
athrho (z-value)	0.575(30.91)			
rho	-0.89			
Wald chi2	6380.71			
Wald test (rho=0)	chi2(1) = 955.4			
No. of obs.	400			

Source: Author's estimation using primary survey data

Since NREGS participation restricting household members to migrate out seasonally by paying a relatively better wage earning, which in turn resulted an improved living standard within their locality this programme would sustain economic growth in rural areas and help the process of rural transformation.

5. Concluding Remarks

The workforce participation rate in NREGS is very high among the households who possess NREGS job cards. More importantly, the household belong to poor, landless and socially disadvantage communities are benefiting immensely from this right based employment programmes. It is found that NREGS wage rate is often well above the existing agricultural and other non-agricultural wages in sample districts. A relatively better wage in NREGS has a positive impact on the households' purchasing power. NREGS earnings were spent on everything starting from food items to the payment of old debts. Households participating in NREGS are capable of spending on children education (particularly on private tuition) and health care, and more importantly they are able to repay their past debts. It is interesting to note that the percentage share of education expenditure of NREGS participating households' is higher than their not participating counterparts across the social groups. And more importantly the share of expenditure on debt repayment indicates that ST and SC households those participating in NREGS are devoting a substantial share of their monthly expenditure to repay their past debts. Due to NREGS, women have also started shouldering household expenses and responsibilities.

The accessibility of NREGS prevented huge number of distress seasonal out migration and brought financial autonomy for the landless poor (Below Poverty Line) and socially backward (Scheduled Castes and Scheduled Tribes) households through regular wage income. This helped them to come out of hunger and debt traps, and hence an improved living standard. However, the lack of demand for NREGS jobs in some regions creates distortion and misallocation of the resources. It is therefore, suggested that the government should take proper measures to assess the demand for NREGS jobs and allocate the resources accordingly to avoid wastage of funds. Furthermore, an attempt should be made to create inter-industry linkages within rural regions through this programme that could generate a set of economic multipliers; and hence would provide a sustainable source of rural employments and income generation to the socially and economically marginalized groups in India.

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**Annexure 1: Physical and Financial Performance of MGNREGS in Odisha during
2010-11**

Name Districts	Cumulative No. of HH issued Job cards	Employment Demanded (No. of HH)	Employment Provided (No. of HH)	No. of HH completed 100 days	Cumulative Expenditure (Rs. In Lakhs)
PHASE-I					
BOLANGIR	253147	61780	61419	5925	1003.31592
BOUDH	82281	26605	26008	1848	1131.55596
DEOGARH	57749	16985	16840	984	301.46814
DHENKANAL	171634	62860	61554	4886	888.04024
GAJAPATI	122799	68977	67950	6847	1156.23234
GANJAM	445371	130612	125069	14114	1950.22193
JHARSUGUDA	72765	24821	24821	4619	797.39413
KALAHANDI	285141	84847	84234	7118	1580.11984
KANDHAMAL	152284	90524	88562	13612	2131.20679
KENDUJHAR	303096	124825	124404	19765	3159.76644
KORAPUT	275028	98175	97510	8577	1815.45118
MALKANGIRI	122000	59173	58841	9763	1184.1263
MAYURBHANJ	428827	148641	148146	20275	3104.17125
NABARANGAPUR	216554	102087	101398	14141	2880.91593
NUAPADA	109108	24693	24469	2160	917.78411
RAYAGADA	184527	76890	75826	12812	2167.10227
SAMBALPUR	153568	60918	60560	11630	1614.68189
SONEPUR	103722	46230	45701	3691	801.7319
SUNDARGARH	309817	96254	95516	10285	1472.87595
PHASE-II					
ANGUL	176859	54492	54169	2621	761.86058
BALESHWAR	299529	50304	49322	1987	1470.74667
BARGARH	253347	47959	46594	2726	1000.16942
BHADRAK	190385	38022	37841	1117	917.94225
JAJPUR	268163	97104	94086	4034	797.48432
PHASE-III					
CUTTACK	217669	76323	75730	2876	1492.33211
JAGATSINGHAPUR	130406	49736	49553	4731	1022.35039
KENDRAPARA	183082	77220	76885	1976	1096.76175
KHORDHA	100803	15606	15431	637	474.53741
NAYAGARH	146932	57407	57272	7127	3210.45098
PURI	208637	59959	59104	1345	873.90683
Total	6025230	2030029	2004815	204229	43176.70525

Source: Ministry of Rural Development, Government of India (<http://nrega.nic.in>).

Annexure 2: Details of the Survey Areas

Districts	Blocks	Panchayats	Villages
<i>Jajpur</i>	<i>Korai</i>	<i>Amrutia, Barundai</i>	<i>Amrutia, Banahara, Barundai, Tarapada</i>
	<i>Rasulpur</i>	<i>Narasinghpur, Mugapal</i>	<i>Gobindapur, Umadei Patana, Mugapal, Narasinghpur</i>
<i>Mayurbhanj</i>	<i>Baripada</i>	<i>Rajabasa, Hatikote</i>	<i>Rajabasa, Khardisola, Hatikote</i>
	<i>Samakhunta</i>	<i>Mahulia, Samakunta</i>	<i>Mahulia, Banahara, Itamundia, Samakunta</i>

Source: Primary Survey