

# Livelihood Changes Through MGNREGA: A Study in Rural Tamil Nadu (India)

Jagadees Pandi\*

## Abstract

The MGNREGA has brought about a paradigm shift both in design and the approach of intervention mechanisms of wage employment programs. The study aim to assess the livelihood changes through MGNREGA on rural households in terms of income, asset creation, migration and its effect on agriculture. The study is largely empirical, based on a primary survey was conducted in the selected districts of Tamil Nadu India viz., Karur, Trichy, and Dindigul. Multi stage random sampling technique was adopted for choosing the samples. A total of 450 workers (both male & female) have been chosen for this study. The rural poor were found to be relatively more inclined to get employed under NREGA. The average number of employment days for scheduled caste households was relatively more than that of backward caste and general caste rural households. NREGA seems to have a positive impact on the labor force participation of rural females. The introduction of NREGA has immensely changed the relationship between workers and farmers reported by 98 percent of farmers in the study area. Demand of more wages is the major principle change of attitude of the workers cited by two third of respondents. The scheme is believed to have a significant impact on migration of the workers to nearby towns/cities. What is required that a long term sustainable implementation of the program and the constructive new initiatives by the Government will determine the future success of the scheme.

**Keywords:** MGNREGA Income, Expenditure, Migration, Employment, Saving, Determinants, Regression Cost of Cultivation

## Introduction

One of the major planks of rapid poverty reduction in the Eleventh Five Year Plan is the Successful implementation of National Rural Employment Guarantee Act (NREGA) in majority of the states of India. This act has brought

about a paradigm shift both in design and the approach of intervention mechanisms of wage employment programs. The performance of the scheme has shown a consistent improvement almost in every aspect. The number of households who have been provided employment under MGNREGA has increased rapidly which shows a wide coverage of the scheme. The number of households associated with MGNREGA works has been increasing consistently, the number of days for which employment has been provided have also increased. Another important aspect of MGNREGA is the growing participation of women in it. All these indicate that substantial income is being provided to the households working under the Scheme. Wage-earners are the main focus of this Scheme and it has enormous potential to uplift the socio-economic status of the rural people who are mainly landless agricultural laborers and marginal and small farmers. Substantial increase in income will obviously lead to a better standard of living.

It is the first national programmer of consequence which has woven transparency and accountability into the mundane fabric of daily interaction of people with the government. It also gives an opportunity to break the feudally enforced silence of its victims (Mathew and Bipasha Kalika, 2011). The goal of the scheme is strong social safety net for the vulnerable groups by providing a fall-back employment source, growth engine for sustainable development of an agricultural economy, empowerment of rural poor through the processes of a rights-based law and new ways of doing business, as a model of governance reform anchored on the principles of transparency and grass root democracy (GoI 2008). The NREGA's coverage has been expanded from 330 districts to all 604 districts of India beginning April, 2008. As the

\* Assistant Professor, Department of Economics, Government Arts College, Karur, Tamilnadu, India.  
Email: drsjpandi@gmail.com

scheme is implemented throughout the country and as works begin everywhere, the magnitude of lives that will be touched by it will inevitably be massive. (Centre for Science and Environment, 2008).

## Objectives and Methodology

The objective of the study is to find out the livelihood changes through MGNREGA on rural households. The study has also attempted to highlight the constraints being faced by the farmers due to the implementation of the scheme (if any) in the study area. The study is largely empirical, based on a primary survey was conducted in the selected districts of Tamil Nadu India viz., Karur, Trichy, and Dindigul. Multi stage random sampling technique

was adopted for choosing the samples. Primarily two factors are taken into consideration in selecting the sample village panchayats. First, there should be 60 percent or more spending done against the total available fund and secondly, a minimum of 3 years of regular and continued MGNREGA work should be carried out in the study area. In the first stage, 2 taluks from each district were chosen. In the second stage, each 6 taluks cover 3 village panchayats and a total of 18 panchayats were chosen. In the third stage each 18 panchayats cover 25 MGNREGA workers and 25 farmers, a total of 450 workers (both male & female) and 450 farmers, totally 900 respondents have been chosen for this study. The primary data were collected in the year 2014-15.

**Table 1: Crop Cultivation Details in the Study Area**

(in Ha)

Districts	Study Blocks	Total Food grain	Total oil seeds	Other crops	Total crop cultivation
Dindigul	Guziliamparai	5486	3319	1672	10829
	Vedasandur	8586	4263	526	13375
	Block Total	122383	44308	72720	246671
Karur	Thanthoni	5370	750	139	6273
	Thogamalai	6220	1167	252	7639
	Block Total	44156	6231	2728	53166
Trichy	Musiri	3537	2641	4593	11052
	Thottiam	5988	1665	4335	12032
	Block Total	58983	21058	33358	125834

Source: Block Statistical Hand Book.2012-13.

Since agriculture sector continues to be the main stay of Tamil Nadu economy, these three districts have no exception. As far as the comparison of crop cultivation in the study districts in terms of cultivable areas of food grains, oil seeds, and other crops is concerned, Dindigul district accounts very high (please see table 1) in all the above crops as the districts is proportionally higher in

geographical area, net sown and net irrigated area. The total food grain is produced in 1.22 lakh hectare, whereas the same is cultivated in Karur 0.44 lakh and .58 lakh hectare in Trichy districts. The total crop cultivated has shown that 2.46 lakh hectare in Dindigul followed by 1.25 lakh hectare in Trichy and 0.53 hectare in Karur district.

**Table 2: Performance of NREGA on the Basis of Job Card Issue and Ratio of HHs Provided Employment**

(Year 2013-14)

Districts	Study Blocks	Block population	Job card issued	No. of HH provided employment	Ration of HH provided employment
Dindigul	Guziliamparai	85257	15124 (5.21)	11701 (5.22)	13.72
	Vedasandur	98491	20322 (7.01)	18262 (8.15)	18.54
	Total Blocks	1353808	290194	224070	16.55
Karur	Thanthoni	78689	19255 (11.93)	11276 (8.95)	14.32
	Thogamalai	82939	18846 (11.68)	15050 (11.95)	18.14
	Total Blocks	642415	161285	125865	19.59

Districts	Study Blocks	Block population	Job card issued	No. of HH provided employment	Ration of HH provided employment
Trichy	Musiri	93345	21997 (2.43)	17770 (7.40)	19.03
	Thottiam	135118	22894 (7.52)	15050 (6.27)	11.13
	Total Blocks	1377009	304315	240020	17.43

Source: MGNREGA Website & Census India 2011

For all the three districts the ratio for household provided employment is above 15 percent which is higher than the ratio of overall India. While analyzing inter-district comparison the ratio (19.59%) of Karur district, which is also found higher than (please refer table 2) the ratio of Tamil Nadu (19.17%), is much better than the other two districts such as Dindigul (16.55%) and Tiruchy (17.33%).

With regard to the Block wise analysis Vedasandur Block (18.54) is performing well than Guziliamparai (13.72%). The Thogamalai Block (18.14%) is better than Thanthoni (14.32%) in Karur district in providing household employment during the year taken for the study. As far as Trichy is concerned Musiri (19.03%) is higher than Thottiam Block (11.13) of MGNREGA Employment.

**Table 3: Works Undertaken Under MGNREGA in the Study Area**

(Year 2013-14)

Districts	Block	Total Works	Category of work completed.							
			RC	FC	WCH	RTW	DP	IC	LD	RS
Dindigul	Guziliamparai	229	92	18	11	108	0	0	0	0
	Vedasandur	333	126	0	96	111	0	0	0	0
	Total Districts	2538	710	53	453	1213	0	0	0	0
Karur	Thanthoni	162	105	0	6	18	0	29	4	0
	Thogamalai	200	76	0	0	52	0	70	2	0
	Total Districts	1783	956	1	11	382	0	401	30	0
Trichy	Musiri	531	75	0	0	91	0	0	0	289
	Thottiam	271	67	0	6	103	0	0	0	11
	Total Districts	5824	909	0	79	2018	0	0	0	1841

Source: NREGA official website

RC-Rural connectivity , FC- Flood control ,WCH- Water conservation and harvesting, RTW -Renovation of traditional water body, DP-Drought proofing, IC- Irrigation canals, LD- Land development,RS- Rural sanitation,

The water security related works and the works on Rural Connectivity are the major works carried out in the study area. The table 3 explains that Karur district is alone doing some works related to Land development and Irrigation Canals for the year 2013-14. Of the two major works implemented in this district, the works on Renovation of Traditional Water bodies are found higher in Trichy and Dindigul districts, where as the proportion of the same works in Karur district is low (please see table 3) where the rural connectivity work is done on major scale.

## Results and Discussion

In any economic activity, the socio economic status of respondents is said to have a greater bearing on the performance in the activity selected. The indicators are age, sex, marital status, education level, and origin of birth, caste, religion, marital status, educational qualification and occupation of family.

**Table 4: Distribution of the Respondents on the Basis of Experience in MGNREGA Work**

S. No.	Experience Particulars	Frequency	Percentage
1	Age		
	Below 30	62	13.8
	31 -50	235	52.2
	Above 51	153	34
2	Gender		
	Male	55	12.2
	Female	395	87.8
3	Reason for taken up NREGA Work		
	Comparatively lucrative wage rate	50	11.1
	Lack of alternative employment	242	53.8
	Job received within 5KMs of radiance	146	32.4
	Additional benefits of unemployment allowance	12	2.7
Reason for low employment in NREGA(below 75 days only)			
3	Engaging other income generating activities	22	32.4
	Willing to work only those days	7	10.3
	Family, Child and other Commitment	39	57.3
Occupational Activity Before Joining NREGA			
4	Agricultural Labour	231	51.3
	Self employment	34	7.6
	Non farm casual works	91	20.2
	Own farm work	66	14.7
	Non farm regular works	24	5.3
	Other	4	.9
Major Benefits of NREGA Employment		450	100
5	Higher wages than agriculture	9	2.0
	Additional income to the family	294	65.3
	No harsh work	35	7.8
	Additional benefits	41	9.1
	Minimum working time	71	15.8
Total		450	100

Age of the respondents is one of the most important characteristics in understanding their views about the particular problems; by and large age indicates level of maturity of individuals in that sense age becomes more important to examine the response. Panel 1 of table 4 explains that more than fifty percent (52.2%) belong to the age group of 31 to 50 years followed by 34 percent of respondent are in the age of above 51. *Gender* is an essential variable in the Indian social context which is variably affected by any social or economic phenomenon of investigation. Hence the variable gender was investigated for this study. Nearly nine out of ten workers

(87.8%) of MGNREGA in the study are females. Only 4 percent are male.

In the study areas, the NREGA has provided income-earning opportunities to the unskilled workers particularly women where hardly any existed before. The reasons for the unavailability of wage labour for women are complex and vary across regions. Outside of unpaid housework, women have some opportunities for paid agricultural work. The combination of a labour surplus economy and sharp gender divisions of labour, imply that these opportunities tend to be seasonal in nature. There are even

fewer opportunities for non-agricultural wage work in these rural areas where the rural economy is predominantly agricultural. The women who reported wage work other than NREGA were performing agricultural labour in their own village or nearby villages, working in the construction industry in towns and cities

These employment opportunities, however, are not without problems. The earnings from them were limited or seasonal or insecure. Since much of this work is irregular (e.g., agricultural work,) and consequently women find them in a vulnerable position. Many female respondents said the work provided under the NREGA opened up a new opportunity for them. The wider acceptability of NREGA work derives from several factors. The main reasons are as follows; Lack of alternative employment, cited by more than half of the respondents is the main reason to engage NREGA works owing to their family commitment, children's care the rural workers particularly women do not want to go for long distances for their employment. NREGA is the opted work that satisfies these people as the work is done within 5km of radius. The result of the study also shows that 32 percent of the workers chose the work because of the availability of work in their nearby places. An important point to be noted hereby is that wage by NREGA is not emerging a significant one. By the informal discussion from the workers as the wage rate is more (or) less equal to agricultural works, wages offered by MGNREGA do not much attract them. Similar reason

can also be found that the additional benefits such as unemployment allowance are not a major factor influence the rural workers to MGNREGA works.

A majority of the (women) workers under MGNREGA program said that such employment has brought a significant change in their own lives; the MGNREGA wages even are equal to the market wages and it has improved their spending capacity. Panel 2 explains the major benefits arising out of MGNREGA. A vast majority of respondents reported that working in MGNREGA is an additional income to the family. Moreover, 16 percent of the workers said that the working time of MGNREGA is less than the working hours of agriculture; hence they could balance their household chores (please refer fig. 1).

Past work experiences and events in the workers life are linked to their present job. It plays a significant role in the occupational success as it greatly influence the new direction of work. The respondents have been enquired about their economic activity before they join in NREGA. As it is expected more than half of the respondents are agricultural laborers, only 15 percent of the workers are performing their own agricultural land (refer panel 5 in table 4) the remaining respondents were rural non-farm workers in which 7.6 percent were self-employed, 20 percent are non-farm casual work and 5.3 percent are the non-farm regular wage paid workers.

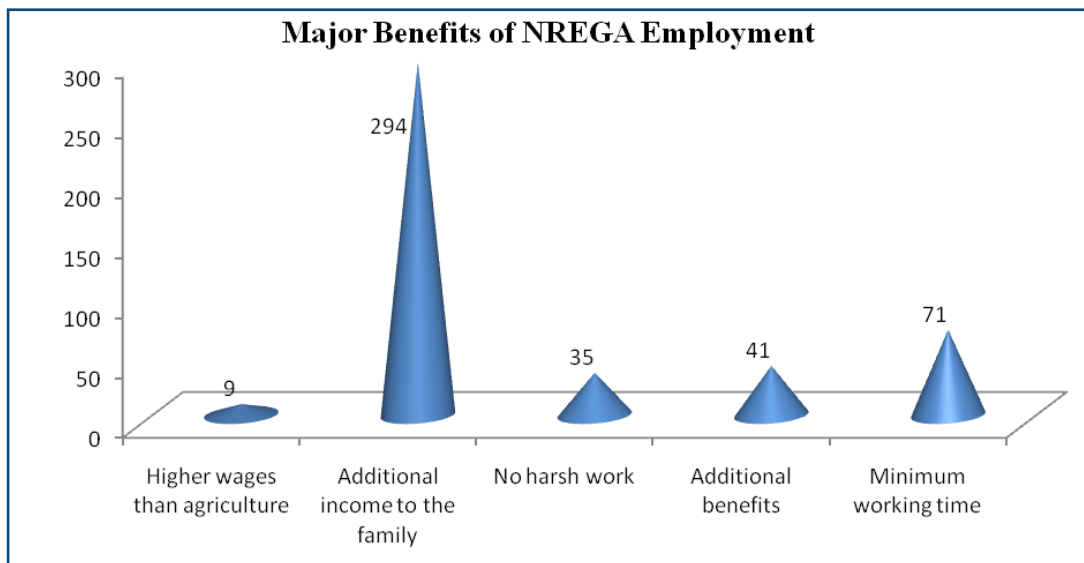


Fig. 1: Major Benefits of NREGA Employment to the Workers

## Impact of MGNREGA on Migration of the Respondents

One of the significant objectives of the MGNREGA is to arrest out-migration of unskilled, landless labour force from the rural areas to urban areas by ensuring up to 100 days of wage employment within their native jurisdiction so that these guaranteed wage employment can be judiciously and rationally utilized by the landless peasants during lean and distress seasons. MGNREGA will have significant positive impact on seasonal rural-urban migrations by providing rural workers with employment during the lean season. This will reduce the problems of excessive population pressures in Indian cities as surplus rural labour

will find employment in their own villages. MGNREGA will also have an impact on permanent migrations trends. While it is difficult to ascertain what the exact impact will be, one can assume that the created infrastructure and the increased activity in the rural economy due to increased purchasing power will lead to higher rates of permanent job creation and thus mitigating the urgency to migrate. Before MGNREGA, these village people had no option but to move from place to place during off-agricultural season. But with employment guarantee scheme in place, they have a source of livelihood during drought and off-fishing seasons. Table 5 attempts to explain the impact of MGNREGA on migration.

**Table 5: Distribution of Respondents according to the Impact of MGNREGA on Migration**

S. No.	Particulars of Migration	Frequency	Percentage
1	Migration of family members for Job before joining NREGA		
	Yes	146	32.4
	No	304	67.6
	Total	450	100
2	No. of members in the family for migration		
	Only Myself	44	30.14
	With my spouse	74	50.68
	With More than 2 members	28	19.18
	Total	146	100
3	Duration of migration		
	Up to 3 years	16	10.96
	Four to six years	20	13.70
	Above six years	110	75.34
	Total	146	100
4	Distance of travel for work		
	Up to 15Kms	68	46.58
	16 to 30 km	24	16.44
	31 to 45 km	27	18.49
	Above 45 km	27	18.49
	Total	146	100
5	Reason for migration		
	Seeking employment in lean season of agriculture.	24	16.44
	Better wage earning	122	83.56
	Total	146	100
6	Major impact of migration after the introduction of the scheme		
	Only myself had stopped migration	118	81.8
	All my family members have stopped	4	2.7
	Migrating only during the off season of NREGA work	24	16.4
	Total	146	100

Of the total 450 respondents taken for the study only 32 percent of them migrated in search of livelihood before they got employment in NREGA, which means that majority of the respondent (68%) were in search of livelihood on their own places (please refer panel 1 of table 5). The reason can be traced that majority of respondents being women, they were not in a position due to household responsibilities, to move to other places for employment.

The details with regard to migration have been assessed and presented in panel 2 to 6 of table 5. Of the total respondents who had migrated, nearly half of them migrated along with their spouse. Subsequently 30 percent of them migrated alone. Nearly one fifth only had migrated, before the NREGA employment, with more than 2 members in the family. At the time of migration, a majority (one third) of respondents went to other places in search of employment and income for nearly six years. The remaining 25 percent had migrated for less than six years.

To the question with regard to the distance they travelled (panel 4) a simple majority (46.55%) traveled up to 15 kilometers. It is further understood that 15 percent travelled to about 11 to 30 kilometers, which means that majority of them used to go to the nearby towns. From the informal discussion of the workers the nearby towns such as Karur, and Trichy being the major industrial towns, wherein employment in knit wear, mosquito net industries are plentiful hence, the workers preferred to go these places. The remaining proportion of the respondents had a distance of travel for above 30 kilometers (please see panel 4 of table 5). However, it can be attributed that some of the survey places are located above 30 kilometers from the district headquarters, these respondents would have migrated to the above listed towns as well.

The respondents are further enquired above the major reason for migration. It is understood (panel 5) that a vast majority (84%) of them had to migrate in search of livelihood, i.e., better earning. Only 16 percent migrated to these towns only during the lean season of agriculture.

The main purpose of this exercise with the impact of NREGA on migration is that to analyze the level of

intensity of migration after the introduction of NREGA. We could understand that the NREGA has made some positive impact on migration of this rural people. The table 5 on panel 6 explains that four fifth of the respondents, who had migrated before the implementation of the scheme, stopped the migration themselves, and became an employee of NREGA. However, these respondents reported that their spouse continues to move. Only 2 percent said that their spouse also stopped the migration. Moreover, 16 percent of the respondents wanted to go the towns in search of employment only during the off season of NREGA works.

The study has found some similarities from the other research studies that a reduction of migration by the impact of NREGA. Jandu (2008) study found that although migration is still an important source of income for households in our research sites, if not the main source of income for many, the availability of MGNREGA employment in the local area has enabled some families to reduce the number of days they migrate and the number of household members taking part in migration. Whereas before whole households migrated, often only the men migrate now, for seasonal work within the state, such as to Betul, Malwa and Hoshangabad, or to neighboring states, such as Maharashtra and Gujarat, to take part in farming and brick making. In a study in six villages in Madhya Pradesh, Deshingkar (2010) found indications that those undertaking distress migration have taken up MGNREGA employment, and that MGNREGA has provided an important safety net, especially for widows who may not have the confidence and the ability to migrate in search of better work. Overall, the authors find that MGNREGA has had little impact in reducing migration.

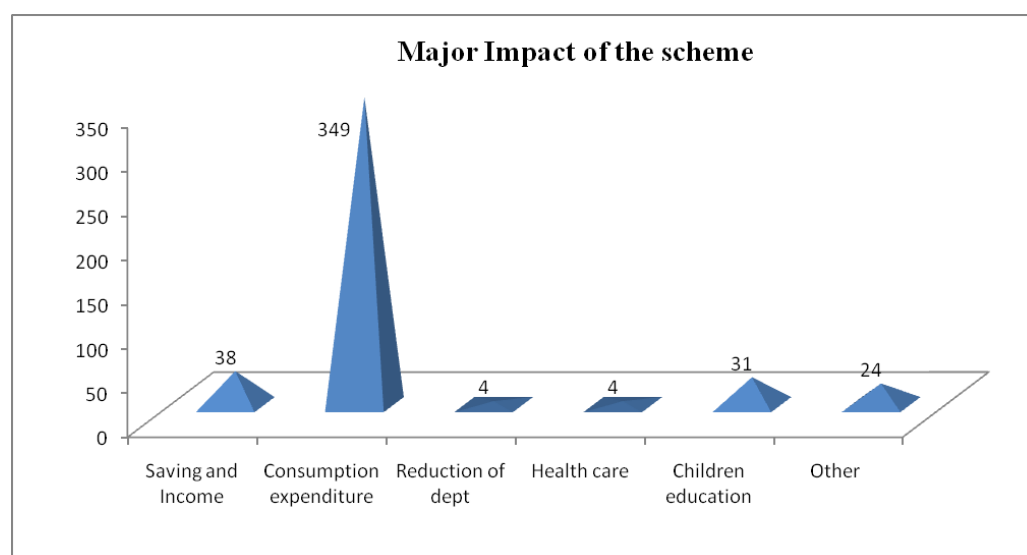
The wages earned from NREGA enable the workers to accomplish a number of things such as ranging from paying their debts or retrieving pawned gold to spend on children's health and education or saving in chit funds, apart from meeting day-to-day household expenses. Moreover it can help to renovate the fallow land and start/ renovate the business venture. The following table 6 analyses the impact of MGNREGA on household expenditure of the respondents.

**Table 6: Distribution of Respondents According to Major Impact of MGNREGA on Household**

S. No.	Particulars of Impact	Frequency	Percentage
1	Major impact of the scheme		
	Saving and Income	38	8.4
	Consumption expenditure	349	77.6
	Reduction of debt	4	0.9
	Health care	4	0.9
	Children's education	31	6.9
	Other	24	5.3

The earnings from NREGA have helped the contribution to household income of the beneficiaries. A vast majority (77.6 per cent) of the respondents said that they spent major portion of wages earned by NREGA works on food and primary consumer articles (please see table 6).

The increased income locally available through NREGA work, they felt, is helping them to get their regular meals a day. However, thus the income from NREGA could not afford them for save and invest. For the most part, the amounts earned through NREGA are insufficient to repay debts. Nevertheless, nearly just one per cent of the respondents said that they had spent their wages on repaying their small debts. Further, it hardly helps them to keep themselves away from the clutches of local moneylenders. The other large expenditure regularly met through NREGA wages is children's education, with around 7 percent of the respondents having spent earnings on this line. It can be concluded that the implementation of NREGA has little ensured food security of the workers in the study area. However, it did not make them financially sound as they are not able to save and invest from their little earnings.

**Fig. 2: Major Impact of Scheme on Respondents (Workers)**

### Determinants of Participation in NREGA

Examining the determinants of participation in NREGA activities by the rural households and the workers is important for better understanding of the phenomenon in order to draw some meaningful policy inferences. These determinants are, therefore, estimated by using binary logistic regression model (logit model) for the Workers Participating in NREGA.

$$Z_i = b_0 + \sum b_i X_{ji}$$

$Z_i$  is an unobserved index value such that if  $Z_i$  exceeds some threshold value  $Z^*$ , the household or the worker participates in NREGA, otherwise not. Using binary logistic regression equation,  $X$  is the set of explanatory variables supposed to influence incidence of NREGA participation among the respondent. The explanatory variables included in the logit model for the Workers Participating in NREGA are (i) Age, Gender (1-Male, 0-Female), Total number of live stock, Experience in NREGA (1-1 to 2 years, 2-2 to 3 years, 3- more than three years), No. of family members in NREGA, Ownership of house (1-Owned, 0-Rented) and Household rating.

**Table 7: Determinants of Worker's Participation in NREGA Activities**

		Variables in the Equation					
		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1 <sup>a</sup>	Age	-.168	.047	12.633	1	.000	.845
	Gender (1) <sup>NS</sup>	.589	.761	.598	1	.439	1.802
	Experience in NREGA	1.072	.485	4.880	1	.027	2.922
	No. of family members in NREGA	-2.093	.702	8.895	1	.003	.123
	Total Live Stock	-.181	.047	14.665	1	.000	.834
	Ownership of house(1)	-2.789	.981	8.079	1	.004	.062
	Household rating <sup>NS</sup>	.160	.429	.139	1	.709	1.173
	Constant	13.094	3.469	14.248	1	.000	486064.757
Chi-square				11.699 <sup>NS</sup>			
-2 Log likelihood				84.486			
Cox & Snell R Square				.113			
Nagelkerke R Square				.425			

a. Variable(s) entered on step 1: Age, Gender, Experience in NREGA, and No. of family members in NREGA, Total Live Stock, and Ownership of house, Household rating. NS - non-significant.

From Nagelkerke R Square, the model is explained as 42.5% of the variance and accurately classified as 97.3% of respondents. The lack of significance of chi square ( $\chi^2(8) = 11.699$ ) reveals that the model fits well.

The results of the logistic regression reveal that Age (-.168), No. of family members (-2.093), total Live Stock (-.181) own house (-2.789), and experience in participating NREGA work (1.072) are significant determinants of household level participation in NREGA, while Gender (.589) and Household Rating (.160) are found to be the non determinants for NREGA participation (please refer table 7). It is obvious that relatively richer households do not prefer minimum wage employment. Since the scheme is mainly targeting the participation rural women, the study is no exception and found that majority of the study respondents are female. Hence gender does not

emerge as significant variable in determining the level of participation in NREGA.

### Major Impact of MGNREGA on Farming

There have been a number of reports and studies across in India explain that implementation of NREGA created a labour shortage in agriculture. The labour shortage was not only in agriculture but also in non-agricultural activities that depend on rural casual labour. A report explained that many states like Andhra Pradesh, Punjab, Haryana, U.P. and Tamil Nadu that after the introduction of NREGA there has been shortage of labour during harvesting of crops like wheat and rice and during peak paddy sowing season in Punjab and Andhra Pradesh.<sup>1</sup> Labour shortage is found for apple harvesting season in Himachal Pradesh after the implementation of NREGA.<sup>2</sup>

**Table 8: Distribution of the Respondents on the Basis of Major Impact of MGNREGA on Farming**

Panel	Impact Details	Frequency	Percentage
1	<b>Easy Accessibility of laborers before implementation of NREGA</b>		
	Yes	251	55.8
	No	101	22.4
	Cant Specify	98	21.8
2	<b>Whether existence of labour scarcity after implementation of NREGA</b>		
	Yes	413	91.8
	No	37	8.2

Panel	Impact Details	Frequency	Percentage
3	<b>Whether NREGA is a constraint in labour supply to farms</b>		
	Yes	353	78.4
	No	37	8.2
	Cant Specify	60	13.3
4	<b>Management of Labour shortage (for 'yes' only in panel 3)</b>		
	Seeking Machineries for agricultural work	133	37.7
	Adjusting with the existing labour	142	40.2
	Increasing his/her own timing of agri. work	78	17.3
	Total	353	100
5	<b>Whether Relationship between farmer &amp; worker changed due to MGNREGA</b>		
	Yes	442	98.2
	No	8	1.8
6	<b>Nature of Change in relationship between farmer &amp; worker (if yes only)</b>		
	Demand for more wages	339	75.3
	Demand for better working environment	16	3.6
	Provision of additional wages far-off fields	64	14.2
	Requirement of advances	23	5.1
	Not Applicable	8	1.8
7	<b>Change in cost of agriculture due to NREGA</b>		
	Increases		57.8
	No changes		1.8
	Can't Specify		40.4
	Number of observation in each panel (Total)		100

The present study has made an attempt to examine the labour shortage in these study regions. The result shows that more than half of the respondents (55.8%) reported that the accessibility of labour before the introduction of NREGA was easy for farming work (please refer panel 1 of table 8). Conversely slightly higher than one fifth reported that the accessibility was difficult even before the NREGA implementation. Equal proportion of farmers (21%) could not arrive a decision in this regard (Table 4 panel 8).

It is really stunning to note that nine out of ten respondents reported that (panel 2) NREGA created labour scarcity in the region and the present scarcity of labour keeps on continuing. Moreover, nearly four fifth of respondents felt that introduction of NREGA is a big constraint to supply the labour to their farms and the study regions as well (panel 3).

The labour shortage is sought to be met by mechanization. Farmers in the study region, who have reported that

NREGA is a constraint to supply laborers, resort the help of machineries for agricultural work. Panel 4 of the above table explains that around 38 percent of the study respondents applied mechanical power in lieu of the shortage of human power. However, many farmers reported that as their size of land holding and income is low, they could not afford to apply mechanization. Hence they were adjusting with the existing laborers (40 %) along with their own labour (17.3%) and working more time on agriculture. Several studies and reports also revealed the same analysis.

The farmers in the Gangetic belt of U.P. are reported to have resorted to mechanized harvesting of the wheat crop in many villages<sup>3</sup>. The use of combined harvesters for paddy harvesting in Puducherry is also attributed to labour shortage resulting from the implementation of the NREGS<sup>4</sup>. Mechanization of sugarcane harvesting in Maharashtra, and provision of heavy subsidies helped in harvesting machines as a consequence of

NREGS<sup>5</sup>. In Andhra Pradesh, Tamil Nadu and Karnataka mechanization of paddy transplanted is promoted by providing subsidies on the machines<sup>6</sup>. In West Bengal there was a resort on mechanization to beat rising labour costs (Babu, Dhanyashree, Abraham, & Rao, 2011). Similar findings was reported by Bhurelal (2012) that farmers in Punjab and Haryana now find it increasingly difficult to get labour and are left with no other choice but to increase the wage rate to attract the laborers.

The introduction of NREGA has immensely changed the relationship between workers and farmers reported by 98 percent of farmers in the study area. The above respondents are further enquired about the nature of changing relationship. Of which, demand of more wages is the major principle change of attitude of the workers cited by two third of respondents. The workers anticipation of provision of additional wages for the long distance farming field is another reason reported by 14.2 percent of respondents. A small proportion (3.6%)

demanded better working environments. Some farmers (5.1%) reported that they had to pay advance to ensure labour supply during the peak season of agriculture.

The impact of NREGA on agriculture is many. Of which changing cost structure of agricultural operation is the major area of analysis. The respondents opinion are assessed (please refer panel 7 table 8) about whether their cost of cultivation increases (or) not by the implementation of NREGA. Nearly (57.8%) three fifth of them reported that their cost of cultivation was found increasing. However, two fifth of the respondents can't estimate the accurate amount and they were highly skeptical that the increasing cost structure is attributed to NREGA.

It can be concluded that agricultural land related work requires both male and female unskilled workers. The implementation of NREGA has created certain adverse effect to get the workers in farm works and the problem is paramount while the farmers are in a peak season of agricultural work.

**Table 9: Distribution of Respondents on Difficult in Availing the workers in Different Agricultural Work on Gender Basis**

Activity/season of agri. work	Male workers only	Female workers only	Both workers	No such difficulty	Total
Ploughing season	331 (73.55)	22(4.9)	77(17.1)	20( 4.44 )	450(100)
Manures and pesticide	103(22.8)	147(32.5)	--	200(44.4)	450(100)
Harvesting crops	8(1.8)	334(74.2)	99(22)	9(2)	450(100)
Irrigation	111( 24.7)	--	--	339(75.3)	450(100)
Other work	195(43.3)	93(21.0)	60(13.3)	102(22.6)	450(100)

The table 9 divides the activities of agricultural work as four important seasons. The ploughing work is mainly done by male workers; however a few number of female workers are also required to work for some sideline activities of ploughing. There is no difficult to get the workers for ploughing after the implementation of NREGA reported by only 4 percent. The remaining farmers seemed to face the difficulties, in which nearly 75 percent of sample farmers expressed their displeasure on male workers, next to it 17 percent reported both male and female workers.

The manure and pesticide work are engaged by both male and female. Unlike ploughing, this type of work had no serious shortage of labour. The result of the study shows that 23 percent faced difficulty by female, whilst 32 percent of respondents cited that the problem is only

on male workers (please see table 9). However, almost 45 percent reported that there was no such difficulty.

Engaging female workers are the highest difficulty for harvesting the crops, after the implementation of the scheme, reported by two third of respondents. However 22 percent reported that both genders are difficult for this work. Of the four major categories of works, the farmers face drastic challenge to get workers for harvesting the crops, in which 98 percent of farmers reported that they had difficulty.

The work with regard to irrigation is not the major challenge for obtaining workers since large number of farmer's size of holding is small and sizable portion of land in the study area are rain fed land. Hence they do not require more on hired laborers for this work. The table (please refer table 9) shows that two third of respondents

had no difficulty for irrigation, whereas the remaining 25 percent face such difficulties.

Other than the four major category of work, the farmers are also engaging in some minor works that required few numbers of workers, in which male workers are the difficulty cited by 43 percent next to it 21 percent faced difficulties by female workers.

It could be interpreted from the table that after the implementation, the NREGA created some hardship for the farmers particularly in obtaining laborers for their land. Even though the problem is associated with both genders, obtaining female workers is more difficult than

male workers, since NREGA employs a vast majority of female workers as the principle of NREGA laid down.

The introduction of NREGA increased the demand for labour in rural areas and thus resulted in increase in agricultural wages as well. During the collection of the data from the villages, it is confirmed by the village chiefs as well as other stakeholders in the villages that the wages fixed in the scheme has had the effect of raising the market wages for the men and women workers. Further they also said that due to the increase in the market wages for men and women, the input cost of cultivation has increased. The table 10 analyses the impact of NREGA on wage rate of workers in the study area.

**Table 10: Distribution of the Respondents on Impact of NREGA on Wage Rate for workers**

Sl. No	Wage rate male and female per day		
	Wage rate for Male (Rs)	Before NREGA	After NREGA
1	Up to 100	66(14.67)	7(1.6)
	101 – 150	256(56.90)	18(4)
	151 – 200	96(21.3)	388(86.22)
	Above 200	32(7.1)	37(8.2)
2	Wage rate for Female (Rs)		
	Up to 50	94(20.9)	-
	51– 75	317(70.4)	164(36.44)
	76 – 100	24 (5.3)	180(40)
	100-150	15(3.3)	82(18.22)
	Above – 150	-	24(5.33)
	Total	450(100)	450(100)

The table 10 explains that before the implementation of NREGA majority of farmers (57%) paid wages for agricultural work for male was in the range of Rs 101 to 150. Only 7 percent of farmers paid wages above 200 before the implementation. After the implementation of the scheme a vast majority (86.22) of farmers complain that they are paying the wages in the range of Rs 151 – 200 per day per worker (please see table 10 and figure 3 and 4).

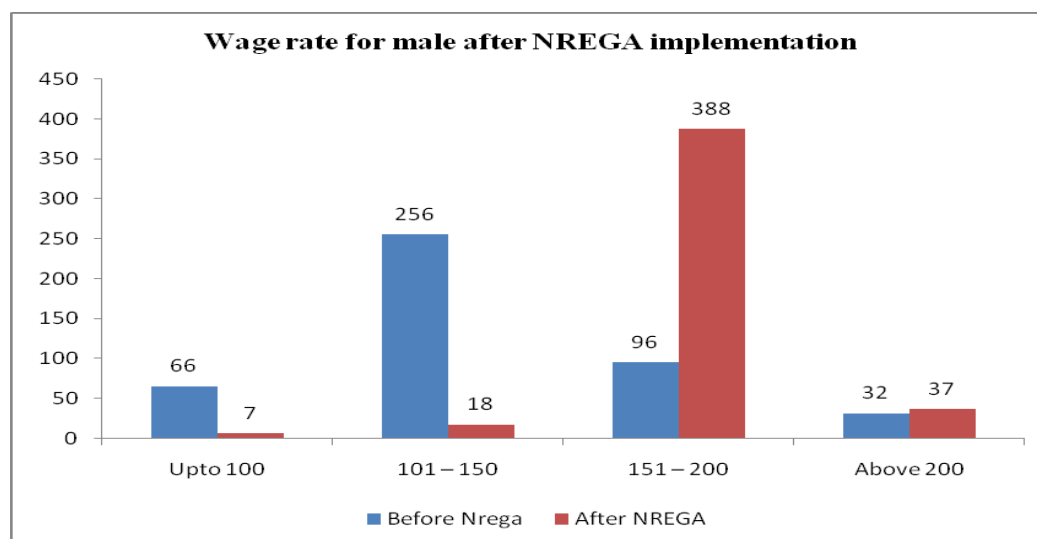
Similar changes are noticed in case for female workers too (see figure 4), whose wage was in the range of Rs. 51 – 75 before the implementation of NREGA, reported by 70 percent of respondents. However, after the implementation of NREGA the wage rate is increased by Rs 76 to 100 reported by 40 percent, Rs 100 to 150 by 18 percent and above Rs 150 by 5 percent of respondents.

The present study has in line with the finding of other research studies. Narayanamoorthy (2014) study disclosed that the introduction of MGNREGA in rural areas has increased the farm wage rate substantially that resulted in sharp reduction in farm profitability. The rise in female agricultural wages, which are at much lower level, is much steeper than the rate of increase in male wages. Banerjee and Saha (2010) study explained minimum and equal wages for male and female workers, did bring about not only an increase in the overall agricultural wages but also reduction in the male-female wage differentials. The wage increases are reported in a number of states right from Punjab and Haryana to Gujarat to West Bengal.

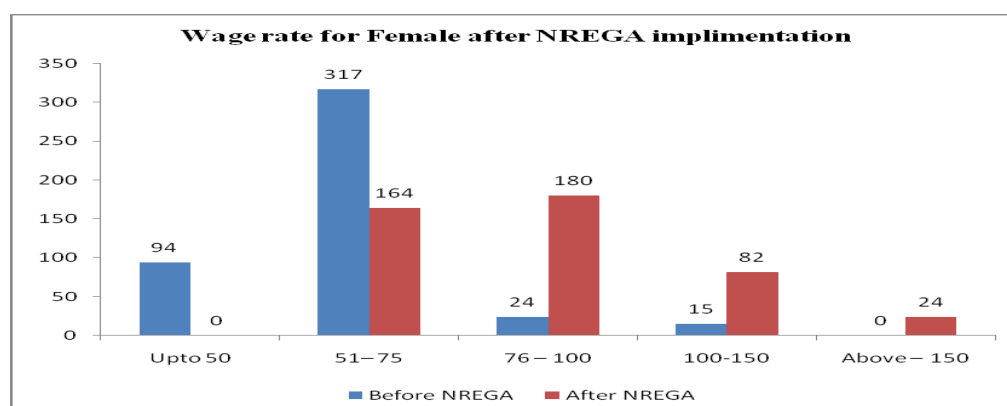
However, from the primary data collected for this study, it is not possible to conclusively substantiate the claim that rising agricultural wages are a consequence of a

decrease in the labour supply due to the introduction of MGNREGA. Thus, the latent responsibility of increasing agricultural wages solely on shortage of hired agricultural

labour caused by MGNREGA may be an overstatement since agricultural productivity conditions are not in a better position over a period of time.



**Fig. 3: Changes in Wage Rate for Male after the Implementation of NREGA**



**Fig. 4: Changes in Wage Rate for Female after the Implementation of NREGA**

**Table 11: Impact of NREGA on Mean Cost of Expenses of Agricultural Activities**

(Rs.in Thousands)

Acre	< 2 acre			2 to 4 acre			> 4 acre		
	Before	After	% Change	Before	After	% change	Before	After	% change
1	1213	1328	9.48	2633	3203	21.66	4680	5858	25.17
2	1324	1558	17.67	2833	3283	15.88	3818	4156	8.85
3	216	314	45.37	344	458	33.13	856	1018	18.92
4	102	124	21.56	238	286	20.16	588	673	14.45
5	1186	1318	11.12	2860	3037	6.18	4622	5740	24.18
Total	4041	4642	14.87	8908	10267	15.25	14564	17445	19.78

Note: Before – Before the implementation, After – After the implementation of NREGA.

Panel of agricultural work: 1. Cost of Ploughing 2. Cost of fertilizer and seed 3. Cost of marketing 4. Cost of irrigation and 5. Cost of application of machinery.

The cost of cultivation survey data also seems to indicate that the labor scarcity accentuated due to NREGA may have increased the cost of human labor at a faster rate.

The cost of ploughing for small (< 2 acres) and medium scale (2 to 4 acres) farming changed to nearly 10 and 20 percent respectively after the implementation of MGNREGA, whilst the cost of the same for the farmers who are holding more than 4 acres (large scale farmers) is nearly 25 percent. Similar finding was found for the cost of application of seed and fertilizer which shows that the introduction of MGNREGA forced farmers to make some additional expenses. The cost of the above expenditure was calculated at around 15 to 17 percent of change for small and marginal farmers whereas it was 9 percent in case of large scale farmers after the implementation of the NREGA.

The percentage change of the cost of agricultural activities like marketing is estimated at around 20 percent for small and medium scale farmers (please see table 11), whilst the same was calculated at around 15 percent in case of large scale land owners. The cost of irrigation was found lower as many number of study respondents are small and marginal farmers who do not require hired laborers for these activities and a sizeable number of farmers are rain fed cultivators, where irrigation expenses is not necessary. The percentage change calculated after the implementation of NREGA in the study area was calculated by 45 percent (> 2 acres), 33 percent (2 to 4 acres), and 19 percent (> 4 acres). The table further shows that the cost of applying machinery had also a change after the implementation of the scheme since the farmers resorted mechanical application in shortage of labour. The result shows that the cost for application of machinery of large scale land owners was as high as medium scale and small scale farmers.

## Conclusion

The rural poor were found to be relatively more inclined to get employed under NREGA. The average number of employment days for scheduled caste households was relatively more than that of backward caste and general caste rural households. NREGA seems to have a positive impact on the labor force participation of rural females. Rural connectivity and renovation of traditional

water bodies were found to be two major employment generation activities followed by other works such as sewage works and tree plantation as approved by the Ministry of Rural Development in some districts.

Under the NREGA, water conservation works are being taken up as stand-alone activities. Village ecology is a fragile combination of soil, water and forests. A water harvesting structure, for instance, is rendered useless if its catchments areas are left unprotected. Works under the scheme need to be planned in totality to succeed; water conservation needs to take into account plantation works and drought proofing. Even the Second Administrative Reforms Commission has recommended that all works under the Act must be undertaken keeping in mind the overall improvement in total ecology. This needs to be implemented thoroughly.

Due to rising food prices in the recent periods and decline in employment opportunities, the wage earning households were struggling to sustain their consumption levels. It was a general opinion amongst these households that their consumption levels had declined during the last five years due to rising prices. The non-food expenditure declined much sharply to make up for increase in food expenditure due to rising prices. The major difficulties the rural households faced were to sustain their consumption levels.

According to the farmers panchayats should take up agricultural works in collaboration with private farmers, on a 50:50 share of the labour cost. It would help the individual farmers in bringing down the high cost of farming owing to the higher market wage and also will eliminate the labour shortage experienced in the agricultural sector. The 50:50 shares will also reduce the expenditure of government on MGNREGS wage by half. Thus, it could turn out to be a win-win situation. The government could also acquire the agricultural products produced under this PPP mechanism and market them through its PDS machinery which could bring down the inflationary tendencies in the market.

The farmers could be advised to use weedicides instead of manual labour and engage harvester-cum thresher to minimize the cost of cultivation of the government should provide them with more subsidies of these machineries as available of manual labour became hard for agriculture .

NREGA ensured equal wages for male and female workers without any variability. The scheme is believed to have a significant impact on migration of the workers to nearby towns/cities. There is need for a significant improvement in the worksite facilities such as childcare facilities on the worksite, provision of shade and first-aid facilities, which will not only improve the work conditions under NREGA but will also, increase the work force participation, especially among the females. The major benefits arising out the scheme is found to be less. However it may perhaps take longer time before any significant impact is visible. What is required that a long term sustainable implementation of the program and the constructive new initiatives by the Government will determine the future success of the scheme. Mahatma Gandhi always had a dream of 'Gram Swaraj' in his esteem. His concept of rural development is comprehensive and the successful implementation of the scheme will definitely provide a solution to the basic social and economic issues of rural India.

## Notes

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