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Impacts and Implications of MGNREGA on Labour Supply and Income Generation for Agriculture in Central Dry Zone of Karnataka

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Abstract

This study has evaluated the impact of MGNREGA on income generation and labour supply in agriculture in one of the districts in central dry zone of Karnataka. Results have shown that the number of days worked in a year with the implementation of MGNREGA programme has significantly increased to 201 days, reflecting 16 per cent increase. Regression analysis has revealed that gender, education and family size of the workers are the significant factors influencing the worker's employment under the Program. The increase in income is to the tune of 9.04 per cent due to additional employment generated from MGNERGA. In the total income, the contribution of agriculture is the highest (63%), followed by non-agricultural income (29%) and MGNREGA income (8%). Implementation of MGNERGA works has led to labour scarcity to the tune of 53 per cent and 30 per cent for agriculture operations like weeding and sowing, respectively. There has been a decline in area for labour-intensive crops like tomato and ragi to the extent of 30 per cent due to MGNERGA implementation.

Key words: MGNREGA, Labour supply, Labour scarcity, Income generation and Employment

JEL Classification: J21, J22, J31

Introduction

The first Millenium Development Goal (MDG) of eradicating extreme poverty and hunger aims at reducing the proportion of people whose income is less than one dollar a day between 1990 and 2015, by half. India's 11th Five-Year Plan also reiterates the MDG's commitment towards socio-economic targets for inclusive growth and development. These include reducing the headcount ratio of consumption poverty by 10 percentage points, raising the real wage rate of unskilled workers by 20 per cent and creating 70 million new work opportunities (http://nrega.nic.in/call paper.pdf). Evolving the design of wage employment programmes more effectively to fight poverty, the Government of India formulated the National Rural Employment Guarantee Act (NREGA) in 2005, a paradigm shift from earlier programmes. With its legal framework and rights-based approach, NREGA aims at enhancing livelihood security by providing at least 100 days of guaranteed wage employment in a financial year to every household whose adult members volunteer to do unskilled manual work. It was later renamed as Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) but is still popularly known by the name of NAREGA. The other striking feature of the MGNREGA Scheme is to provide basic facilities like drinking water, shade, first-aid box and crèche at the worksite. It not only provides employment but also focuses on inclusive growth, rejuvenation of natural resources, generating productive assets, protecting the environment, empowering the rural women and reducing rural-urban migration with the multiple objectives of sustaining income and

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consumption through wage works, creating durable assets. Thus, this study was undertaken with the following specific objectives:

- Evaluation of the impact of MGNREGA on employment, income and savings of the MGNREGA workers, and
- Analysis of the impact of MGNREGA wages on labour availability for agriculture and on workers' gender and age.

Methodology and Database

The present study was undertaken in the Chikmagalur district of Karnataka state during the year 2009-10. Agriculture is the predominant activity of the Chikmagalur district with coffee cultivation being the major part of it. Thus, in the sample taluks people often go in search of employment during off-season and in this regard, MGNREGA which ensures the demand-driven employment has been timely in providing employment.

Sampling Framework

Multi-stage sampling was adopted to identify the study area. At the first stage, Chikmagalur district was selected. MGNREGA officials at the district level were consulted to identify the taluks where the Program was being implemented effectively with higher demand for employment. Accordingly, Kadur and Chikmagalur taluks which are dry taluks in the district, were selected for the study. Then six Gram Panchayats, three each from Chikmagalur and Kadur taluk, were randomly selected.

Both primary and secondary data for analysis were collected for the year 2009-10. Primary data were elicited from the MGNREGA workers regarding their socio-economic status before and after the implementation of MGNREGA. Information about the labour availability for agriculture was collected through the structured and pre-tested schedules from the farmers. Secondary data on the release and utilization of the funds were collected from the Zila Panchayat, Taluk Panchayat, and Gram Panchayat (GP) offices and also from MGNREGA website.

A total of 90 (45 from each taluk) MGNREGA workers constituted the sample, while 30 farmers were selected from non-MGNREGA work. Further, 3 Gram Panchayats were selected randomly from each of the selected taluks and 15 workers were interviewed from each GP. Similarly, 5 farmers from each of the 6 Gram Panchayats were selected randomly for the study which, added up to 120 respondents.

Analytical Framework

To study the impact of socio-economic parameters like employment, income, expenditure, and savings of the respondents before and after the implementation of MGNREGA, paired t-test was used. Employment of sample workers before the Programme was accounted by adding the number of person days of work employed on their own farm and also outside the farm (agriculture labourers, *centring* (house construction), coconut business, tailoring) and this was compared with their level of employment after the Program (employment on own farm + employment on outside the farm + number of days employed under MGNREGA) by adopting paired t-test. The income of the sample workers before and after the Program was calculated accordingly and the impact of MGNREGA on savings and expenditure of beneficiaries was compared using the paired t-test given by Equation (1):

$$t = \frac{\Sigma d}{\sqrt{\frac{n\left(\Sigma d^2\right)-\left(\Sigma d\right)^2}{n-1}}} \qquad \ldots(1)$$

where,

d = Difference between the observations, and

n = Number of paired observations.

If the calculated t-value is more than the Table t-value or more than 2, null hypothesis is rejected. If the calculated t-value is less than the Table t-value or less than 2, then null hypothesis is accepted.

Regression Analysis

A multiple linear regression model was employed to identify the factors influencing the number of days, the beneficiaries worked under MGNREGA and also factors' influencing the income earned from the Program. The empirical model used for estimation was of the form of Equations (2) and (3):

$$Y = a + b_1 X_1 + b_2 D_1 + b_3 D_2 + b_4 X_2 + b_5 X_3 \quad \ldots(2)$$

where,

Y = Number of days the beneficiaries worked under MGNREGA,
a = Intercept, a scale parameter,
X_1 = Age (in years),
X_2 = Family size (in numbers),
D_1 = Intercept dummy (1 for male, 0 for female),
D_2 = Intercept dummy (1 for literate, 0 for illiterate),
X_3 = Size of landholding, and
b_is = Regression coefficients of respective independent variables.

$$Y = a + b_1 X_1 + b_2 D_1 + b_3 D_2 + b_4 X_2 + b_5 X_3 + b_6 X_4 \quad \ldots(3)$$

where,

Y = Workers income earned from MGNREGA(₹),
a = Intercept, a scale parameter,
X_1 = Age (in years),
X_2 = Family size (in numbers),
D_1 = Intercept dummy (1 for male , 0 for female),
D_2 = Intercept dummy (1 for literate , 0 for illiterate),
X_3 = Size of landholding,
X_4 = Number of days worked under MGNREGA, and
b_is = Regression coefficients of respective independent variables.

The intercept dummy variable was introduced for the pooled data in order to test the hypothesis that the variable shifts the intercept.

Results and Discussion

The summary progress and utilization of funds under MGNREGA for the year 2009-10 have been presented in Table 1. MGNREGA generated 20.92 lakh person days of employment in the district of which, 21 per cent of the total employment was to SC and 3.71 per cent to ST and the share of women in total employment was 46.22 per cent. Of the 10740 works taken up, the majority of the works were still under progress and only 98 works were completed. Out of ₹ 1970 crores released to Karnataka state during 2009-10, Chikmagalur district received only ₹ 29 crores.

Impact of MGNREGA on Employment of the Beneficiaries

The average number of days the sample workers were employed on their own-farm and outside their own-farm (as agricultural labourers, carpenters, house construction, small businesses, etc.) before and after the implementation of the Program, have been given in Table 2.

After working under MGNREGA programme, the number of labour days worked on their own-farm remained the same at 61.68, but the number of days worked outside the farm has marginally decreased from 112.04 to 108.87, reflecting a decrease of 2.8 per cent. However, the difference is not significant with paired-t value of 1.15. The number of days worked under MGNREGA programme was 32.41, thus the total number of days employed after working under MGNREGA programme was 201.82 days. In other words, out of the total number of days worked in a year, they were engaged for about 30 per cent of the days on their own-farm, 54 per cent of days on outside own-farm and 16 per cent under MGNREGA programme. The ratio of number of days worked on their own-farm to that on the outside was 0.55, indicating for every two days of work outside, worker did work on his own-farm for only one day. Similarly, the ratio between the own-farm working days and the number of days worked under MGNREGA programme was 1.9, indicating for every two days of work on his own-farm, he did work under MGNREGA programme for only one day.

Before the implementation of MGNREGA programme, the sample respondents were employed on their own-farm to the extent of 35 per cent of their total number of working days in a year. The labour absorption in agriculture was lower because of its seasonal nature, small size of landholdings and operation under dryland agriculture. The remaining 65 per cent of their employment was on outside own-farm, particularly during the off-season. In the study area, people were often engaged in the coconut business, house construction, carpentry, etc. as a subsidiary occupation. But, the subsidiary occupation of the workers was not adequate to keep them employed throughout the year. Thus, implementation of MGNREGA programmes have been of much help to the needy households by providing employment which increased modestly by 16.17 per cent. But, even after

Table 1. A summary of MGNREGA progress in the study area: 2009-10

Particulars		Kadur taluk	Chikmagalur taluk	Chikmagalur district	Karnataka state
Employment provided to households (lakhs)		0.08	0.13	0.42	31.45
Person days(lakhs)	Total	4.43	8.24	20.92	1722.27
	SCs	0.66	2.03	4.38	294.64
		(14.89)	(24.63)	(20.92)	(17.11)
	STs	0.07	0.15	0.78	151.97
		(1.58)	(1.82)	(3.71)	(8.82)
	Women	2.01	3.86	9.67	775.58
		(45.37)	(46.84)	(46.22)	(45.04)
	Others	3.69	6.06	15.77	1275.65
		(83.29)	(73.54)	(75.37)	(74.07)
Total funds released (₹crores)		5.75	8.59	29.35	1970.32
Expenditure (₹ crores)		5.50	8.45	28.89	1960.32
Total works taken up (No.)		1703	2209	10740	538594
Works completed (No.)		0	29	98	32363
Work in progress (No.)		1703	2238	10642	506231

Source: www.MGNREGA.nic.in

Note: Figures within the parentheses indicate percentage to total

Table 2. Impact of MGNREGA on employment of the beneficiaries

Particulars	No. of person days worked in a year					
	On own-farm	Outside own-farm	Under MGNREGA programme	Total	Ratio of own to outside farms	Ratio of own-farm to MGNREGA programme
Before MGNREGA	61.68	112.04	-	173.72	0.55	-
After MGNREGA	61.68	108.87	32.41	202.96	0.56	1.9
	(30.39)	(53.64)	(15.97)	(100)		
Net change	-	-3.17	32.41	29.24	-	-
Per cent change	-	2.8	-	16.83	-	-
t-value (paired-t)	1.4068 ns	1.1570 ns	-	6.1191***	-	-

Note: Figures within the parentheses indicate percentage to total person-days worked

being employed under the employment programme, the number of days, employment on their own-farm was not reduced, as agriculture provided them livelihood security and MGNREGA complimented their income from agriculture. Similarly, the number of days worked outside the farm has not come down substantially due to the fact that a MGNREGA programme provides employment only for one hundred days. In some cases MGNREGA has failed to provide hundred days of employment per household because of inefficiency in implementation and procedures followed by the Gram Panchayats. Similar observations have been made by Raghuraman (2009) in his macro level study, indicating that the average number of days for which each household could get employment was only 45 against the promised 100.

Regarding nature of work, it is evident from the Table 3 that the maximum number of days the workers were employed was on road construction, accounting 27.47 per cent of the total number of days employed (32.01). On the contrary, employment was for the least number of days for digging works, accounting for 6.50

Table 3. Number of days the workers were employed under different works under MGNREGA

Nature of work	No. of days employed
Drainage	4.11 (12.90)
Desilting	4.33 (13.59)
Road construction	8.75 (27.47)
Check dam	5.5 (17.27)
Digging	2.07 (6.50)
Planting	2.48 (7.79)
Farm pond	2.17 (6.81)
Land development	2.44 (7.66)
Total number of days the workers employed under MGNREGA programme	31.85
Total number of days household employed under MGNREGA programme	56.48
No. of households worked for 100 days in a year	9 (10)

Note: Figures within the parentheses indicate percentage to total

per cent of the total number of days employed. The strong preference by the Gram Sabha for road construction works was due to lack of road connectivity across neighbouring villages. Since the tanks were silted up not being used to their full potential and falling groundwater table, construction of water harvesting structures was the second choiced work (18%). Further, hard works requiring digging was not preferred due to shortage of male labour and secondly, use of machines for work was not allowed.

Factors Influencing Period of Employment under MGNREGA Programmes

The number of days, the beneficiaries worked under MGNREGA programmes was regressed on the factors like age, gender, education, family size and landholding size of the workers to analyse the relationship between the number of days worked under the programme and the contributing factors (Table 4).

The coefficients of variables like age and family size were non-significant, indicating that they are not significantly contributing to the change in the dependent variable, viz. the number of days the beneficiaries worked under MGNREGA programme. But, the coefficients of other variables like gender, education and landholding size were significant. The coefficient for the variable gender was -0.805, indicating that if the worker was a male, the number of working days decreased by 0.80 days. Similarly for education, coefficient was –11.82, indicating, if a worker was literate, the number of working days under MGNREGA programme decreased by 11.82 days. The coefficient with respect to landholding size was –0.783, implying that if landholding size increased by 1 acre, the number of days worked decreased by 0.78 days. The adjusted R^2 value for the model was 0.65, indicating a good fit, explaining 65 per cent of the total variations in the dependent variable.

Impact of MGNREGA on Income of Beneficiaries

The annual income of the sample workers from different sources is given in the Table 5. Before working under MGNREGA progamme, the annual income of

Table 4. Determinants of number of days beneficiaries worked under MGNREGA programmes

Dependent variable: Number of days worked under the MGNREGA programmes

Variable	Coefficient	t-stat
Constant	41.814***	4.43
Age	0.0105 NS	0.04
Gender	-0.80495**	4.52
Education	-11.824 *	2.43
Family size	-3.5912 NS	1.34
Size of landholding	-0.7831**	6.31
Adjusted R^2	0.65	
N= 90 workers		

Note: *, ** and *** indicate significance at 1per cent, 5 per cent and 10 per cent levels, respectively

Table 5. Impact of MGNREGA on income of beneficiaries

Particulars	Annual income (₹)			
	Agriculture	Non-agriculture	From MGNREGA programme	Total
Before MGNREGA	21,422	10,185		31,607
After MGNREGA	21,400 (62.95)	10,084 (29.25)	2,775 (8.05)	34,467
Net change	-22	-101	2775	2,860
Per cent change	0.10	0.99	-	9.04
t-value (paired- t)	1.4109^{NS}	0.9684^{NS}	-	11.8506***

Note: NS= Non-significant

the workers from agriculture and non-agriculture (income earned as agricultural labourers, carpentery and coconut business) was of ₹ 21,422 and ₹ 10,185, respectively, which added to ₹ 31,607. After working under MGNREGA programme, the income earned from agriculture was ₹ 21,400, which was almost the same as before. The income earned from non-agriculture after being employed under MGNREGA programme was also statistically non-significant.

The percentage increase in the income earned after working under MGNREGA programme was 9.04 and this increase was statistically significant. In total income, the share of agricultural income was highest (63%), followed by income from non-agriculture (29%) and income from MGNREGA (8%).

Factors Influencing the Workers Income from MGNREGA Programme

The annual income from MGNREGA programme was regressed on the contributing factors like age, gender, education, family size and landholding size of the workers to analyse the relationship between income and contributing factors (Table 6).

The coefficient of variable gender was negative, indicating an inverse relationship between the dependent variable (number of days worked) and the independent variable (gender). This inverse relationship is justifiable due to the fact that more female workers are attracted to MGNREGA programme than male workers because the wage rate is same for both male and female workers. Moreover, market wage rate for male was higher (ploughing = ₹ 150, house construction = ₹ 200, tomato box packing and loading = ₹ 175) than that under MGNREGA (₹ 82). But, still the male participation was obvious for the simple reason that they were not employed throughout the year and the works under the MGNREGA programme were comparatively less laborious. Likewise, the coefficient for the variable education was -11.824, indicating that the literates worked for 11.824 days lesser than that of illiterates, showing inverse relationship which is true because literates have better employment opportunities outside over that of illiterates. Size of landholding was an another variable with a significant negative coefficient (-0.7831), implying that for every one acre increase in landholding size, the number of days worked decreases by 0.78 days. Workers with more acreage diverted more time to agriculture and thus were not able to engage in other works. The adjusted R^2 value for the model was 0.79, explaining 79 per cent of the variations in the dependent variable.

Table 6. Determinants of workers income from MGNREGA Programme

Dependent variable = Income earned from MGNREGA		
Variable	coefficient	t-stat
Constant	231.54*	0.42
No. of days worked	81.57*	16.78
Age	2.32NS	8.89
Gender	-155 **	0.14
Education	-148***	8.04
Family size	-20.09 NS	0.032
Size of landholding	-30.81**	6.01
Adjusted R^2 value	0.79	
N = 90		

Note: *, ** and *** indicate significance at 1 per cent, 5 per cent and 10 per cent, respectively

Impact of MGNREGA on Expenditure and Savings of Beneficiaries

Normally when the income of a worker increases, it has a profound impact on family expenditure as well as savings. It is evident from Table 7 that the annual expenditure of the household beneficiaries before implementation of MGNREGA programme was ₹ 25,700 and after implementation, it increased to ₹ 26,500. Thus, change in the expenditure after MGNREGA implementation was only of 3.11 per cent, which was statistically significant at 1 per cent level. Before employment under MGNREGA programme, their main source of income was agriculture and they derived only a modest amount from non-agricultural activities. But, this total income of the workers was not enough to meet their basic needs and hence there was no scope for saving, and sometime they had to borrow to maintain their routine, reflecting a negative saving. After working under the MGNREGA programme, their total income increased by 9.04 per cent and share of income earned from MGNREGA programme in their total income was 8.05 per cent, which was very small compared to the share of income from agriculture (62.95%) and non-agriculture (29.25%). This was because the household's average number of working days under the programme was only 56. The income earned from agriculture and non-agricultural activities was not altered significantly after working under MGNREGA programme. It was due to the fact that preference to work under the programme was only after agriculture, since agriculture ensured their food security. Other non-agricultural works were also preferred over MGNREGA work since the market wage rate for those works was higher than that under MGNREGA programme. Hence, it can be inferred that workers prefer to be employed for full 100 days, as guaranteed by the Act, only if they do not find any other employment opportunities outside. So, the success of the world's largest employment programme was restricted to only few places.

Table 7. Impact of MGNREGA programme on expenditure and savings of beneficiaries

Particulars	Annual expenditure (₹)	Annual savings (₹)
Before implementation of MGNREGA	25700	4805
After implementation of MGNREGA	26500	5616
Absolute change	800	811
Per cent change	3.11	16.87
t-value (paired-t)	2.7594***	8.7043***

Because of increased income (9.04%) after working under MGNREGA programme, annual expenditure of the beneficiaries increased marginally, by 3.11 per cent, which was mainly spent on consumption goods. Similarly, the annual savings of an individual worker before working under MGNREGA programme was ₹ 4,805, which increased to ₹ 5,616 after being employed under the programme, depicting an increase of 16 per cent. It showed that increase in the expenditure and savings was not proportionate to that of income. These results are in conformity with the findings of Ramesh and Krishnakumar (2009) that MNREGA programme had increased the income and expenditure of the workers and reduced their debt burden to some extent.

Impact of MGNREGA on Labour Availability for Agriculture

The MGNREGA provides guarantee of 100-day wage employment in a year to every rural household who is ready to do unskilled manual work. This unique feature of the programme has absorbed not only the labour having no employment but also the labourers working earlier in the agricultural fields, making it difficult for the farmers to carry out agricultural operations. Major crops grown in the study area were sunflower, finger millet (ragi) and cotton in *kharif*; sorghum, chick pea and chilly in *rabi*; tomato and brinjal during *summer*. Major operations were defined for each of these crops and accordingly information on prevailing wage rate, labour required per operation per acre, labour availability before and after MGNREGA implementation was collected from the sample farmers to compute labour scarcity before and after MGNREGA implementation and also scarcity absolutely due to MGNREGA.

It is evident from the Table 8 that for sowing of sunflower, 2.8 person-days of labour was required per acre, while the labour availability before MGNREGA implementation was 1.9 of person-days, with a labour scarcity of 32.14 per cent. With the implementation of the Program, the labour availability was of 0.3 person-

Table 8. Impact of MGNREGA on labour availability for agriculture

Season	Major crops	Major activity	Prevailing wage rate (₹/day)	Labour required (labour days/acre)	Labour availability before MGNREGA (labour days / acre)	Labour availability after MGNREGA (labour days / acre)	Labour scarcity before MGNREGA to MGNREGA (%)	Labour scarcity after MGNREGA (%)	Absolute scarcity due (%)
Kharif	Sunflower	Sowing	80	2.8	1.9	0.3	32.1	89.3	57.1
		Intercultivation	120	1.6	1.2	1.2	25.0	25.0	0.0
		Harvesting	100	3.5	2.3	2.0	34.3	42.9	8.6
	Ragi	Sowing	80	3.0	1.8	0.6	40.0	80.0	40.0
		Weeding	60	3.2	2.3	0.2	28.1	93.8	65.6
		Harvesting	100	4.1	2.9	2.7	29.3	34.2	4.9
	Cotton	Sowing	100	1.9	1.0	1.0	47.4	47.4	0.0
		Intercultivation	120	1.6	1.0	1.0	37.5	37.5	0.0
		Picking	200	3.3	2.1	2.1	36.4	36.4	0.0
Rabi	Jowar	Sowing	100	2.7	2.0	1.9	25.9	28.9	3.0
		Intercultivation	120	1.8	1.0	1.0	44.4	44.4	0.0
		Harvesting	100	3.5	2.2	2.1	37.1	40.0	2.9
	Chick pea	Sowing	80	3.1	1.0	0.2	67.7	93.6	25.8
		Spraying	150	1.0	0.7	0.7	29.0	29.0	0.0
		Harvesting	120	3.0	1.7	1.5	44.0	51.7	7.7
	Chilli	Transplanting	150	5.0	3.8	3.8	24.0	24.0	0.0
		Weeding	60	3.0	1.9	0.7	36.0	76.7	40.7
		Harvesting	80	4.0	2.6	0.9	35.0	77.5	42.5
Summer	Tomato	Transplanting	100	5.0	3.0	3.0	40.0	40.0	0.0
		Propping	100	3.3	2.2	1.9	33.3	42.4	9.1
		Harvesting	100	4.5	2.3	2.0	48.9	55.6	6.7
	Brinjal	Transplanting	120	4.2	2.5	2.5	40.5	40.5	0.0
		Spraying	150	1.0	0.8	0.8	20.0	20.0	0.0
		Harvesting	100	3.9	2.5	2.1	35.9	46.2	10.3

Table 9. Crop-wise labour scarcity due to implementation of MGNREGA in Karnataka

Crop	Labour required (labour days/acre)	Labour availability before MGNREGA implementation (labour days/acre)	Labour availability after MGNREGA implementation (labour days/acre)	Labour scarcity before MGNREGA implementation (%)	Labour scarcity after MGNREGA implementation (%)	Labour scarcity due to MGNREGA implementation (%)
Sunflower	7.9	5.4	3.5	31.64	55.69	24.05
Ragi	10.3	6	3.5	41.74	66.01	24.27
Cotton	6.8	4.1	4.1	39.76	39.76	0.00
Jowar	7.9	5.2	5	34.17	36.70	2.53
Chick pea	7.1	4.3	2.3	39.43	67.60	27.83
Chilli	12	8.3	5.4	30.83	53.33	22.50
Tomato	12.8	7.8	4.2	39.06	67.15	28.90
Brinjal	9.1	5.8	5.4	36.25	40.65	4.40

days only, which led to acute labour scarcity of 89.29 per cent. Thus, the absolute scarcity due to MGNREGA was of 57.14 per cent. Absolute scarcity due to MGNREGA was worked out in a similar manner across seasons for different crops.

The crop-wise labour scarcity, is presented in Table 9, reveals that labour scarcity was to the tune of 25 per cent for all crops, except for brinjal, sorghum and cotton due to implementation of MGNREGA in Karnataka.

The data disaggregated by operations wage rate for labour scarcity show for agricultural operations like weeding, sowing, harvesting and propping whose average wage rates were ₹ 60, ₹ 80, ₹ 96 and ₹ 100 respectively, the labour scarcities attributed to MGNREGA was to the tune of 52.56 per cent, 30.53 per cent, 12.0 per cent and 9.09 per cent, respectively (Table 10). Similarly, for some the operations like inter cultivation, spraying and cotton picking, whose average wage rates were ₹ 120, ₹ 150 and ₹ 200, respectively; there was no labour scarcity due to the Program. This could be due to the fact that the market wage rate for the agricultural operations for which labour scarcity persisted, was lower than the MGNREGA wage rate. For instance, wage rates for weeding and sowing in the study area were ₹ 60 and ₹ 80, respectively and the wage rate under MGNREGA was ₹ 82. Hence, due to the difference between lower market wage rate for these operations and wage rate under MGNREGA, labour from agriculture was attracted towards MGNREGA activities, leading to labour scarcity. Similar findings were reported by Gladson (2008).

Table 10. Labour scarcity in agriculture due to implementation of MGNREGA in Karnataka

Agricultural operations	Wage rate (₹/person/day)	Labour scarcity due to MGNREGA (%)
Weeding	60	52.6
Sowing	80	30.5
Harvesting	96	12.0
Propping	100	9.1
Inter cultivation	120	0.0
Spraying	150	0.0
Cotton picking	200	0.0

Further, scarcity of labour for activities with higher wage rates than that under the Program was due MGNREGA works were easier compared to some of the agricultural works related to harvesting and propping. Hence, workers preferred to be employed under MGNREGA programme neglecting the marginal differences in the wage rates. However, it was seen that there was a visible decline in acreage due to the implementation of the program under crops like finger millet and tomato, which require high labour for harvesting operations.

Conclusions

The total number of days worked in a year after implementation of MGNREGA programme significantly increased to 201 days, reflecting 16 per cent increase. Regression analysis has revealed that gender, education

and family size of the workers significantly influence the worker's employment under the Program. The annual income of the workers has increased by 9.1 per cent with the implementation of the Program. In the total income, the contribution of agricultural income was highest (63%), followed by non-agricultural income (29%) and MGNREGA income (8%). Thus, MGNREGA has contributed to increase in the consumption expenditure reducing the debt burden of the beneficiaries. The study has shown that MGNREGA programme often poses the problem of labour scarcity for some of the agricultural operations linked to market wage rates. As a consequence, farmers have brought down their acreage under different crops, leaving the land fallow. Hence, the issue has to be debated to see that 100-day employment guarantee under MGNREGA be confined strictly to months when there is no harvesting or sowing activity.

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