

An Economic Analysis of MGNREG Programme in Mysore District of Karnataka

S.M. Vanitha and P. S. Srikantha Murthy*

Department of Agricultural Economics, University of Agricultural Sciences,
GKVK, Bengaluru-560 065, Karnataka

Abstract

An economic analysis of MGNREG programme has been made in the Mysore district of Karnataka during the year 2009-10. The women participation among total registered workers in MGNREGS has been found significant at 47.8 per cent. Among the total number of works executed under MGNREGS in the sample villages, 96.8 per cent have been natural resource management works and 74.2 per cent community works. More number of natural resource management works are needed to be taken up on individual farmers' fields to make MGNREGS complementary to agriculture. Among the total participants and non-participants of MGNREGS, 70 per cent in each case were agricultural labourers. In the total income earned by participants and non participants, a major proportion was from agricultural labour work (60.55% and 52.59%, respectively), followed by crop cultivation (24.95% and 47.41%, respectively) and MGNREGS (14.50% in case of participants). Average annual person-days of employment generated from MGNREGS works was 57. About 68 per cent of landless participants derived 28 per cent of their household income from MGNREGS compared to only 6 per cent in case of participants with land. The study has found that, there has been reduction in the supply of labour to agriculture to the extent of 40.67 person-days per year on an average after the implementation of MGNREGS. Hence, MGNREGS works need to be executed only during off-season.

Key words: MGNREGA, Economic analysis, Women in MGNREGS, Economics of MGNREGS

JEL Classification: I38, H53

Introduction

Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) was notified on 7 September, 2005 and came into force from 2 February, 2006. It is the world's biggest employment guarantee programme and aims at enhancing livelihood security of households in rural areas of the country by providing 100 days of guaranteed wage employment in a financial year to every household whose adult members volunteer to do unskilled manual work. Its primary objective is to augment wage employment and strengthen natural resource management. Jobcards are issued to all the workers seeking employment under MGNREG scheme

and unemployment allowance is paid, if work is not assigned within 15 days. Under the MGNREGS, use of machineries which replaces human labour is minimized, wage rates for both men and women are the same and one-third of the beneficiaries should be women. It also provides equal opportunities to SCs, STs and other weaker sections of the society. Considering all these aspects, it was decided to carry out an economic analysis of this programme to assess its success in achieving the objectives in the Mysore district of Karnataka.

Methodology

For the study undertaken in 2009-10, the primary data for the financial year 2008-09 were collected from 100 respondents (60 participants of MGNREGS and

* Author for correspondence,
Email: vanitha.gkvk@gmail.com

40 non-participants, who were of the same socio-economic status). The secondary data were compiled from www.nrega.nic.in. Four villages of K.R. Nagar taluk in Mysore district, Karnataka were selected where MGNREGA was implemented during its 3rd phase (2007-08). The study was carried out with the following objectives;

- to assess the socio-economic characteristics of participant households in MGNREGS,
- to analyze the different types of works undertaken under MGNREGS programme,
- to estimate the complementary benefits of MGNREGS on income, and
- to assess the economic empowerment of women through MGNREGS.

Based on the amount of expenditure made under MGNREGS and the number of person days of employment generated, which were found higher in the four villages, namely Kuppe, Hebbalu, Chandagalu and Byadarahalli from Krishnarajanagar taluk of Mysore district were selected through multi-stage sampling. A summary of MGNREGS progress in the study area is given in Table 1.

Table 1. Summary of MGNREGS progress in the study area (2008-09)

Particulars	Karnataka state	Mysore district	K. R. Nagar taluk
Employment provided to households (lakhs)	20.88	0.679	0.01921
Employment provided to workers (in lakh person days)			
Total	1049.67	32.14	0.81
SCs	191.83 (18.28)	6.55 (20.39)	0.21 (25.93)
STs	98.67 (9.40)	3.62 (11.25)	0.049 (6.05)
Others	759.17 (72.32)	21.97 (68.36)	0.55 (67.9)
Women	474.68 (45.22)	13.15 (40.93)	0.36 (44.44)
Total funds released (in crore rupees)	1638.87 (100)	45.78 (2.79)	1.29 (46.24)
Expenditure (in crore rupees)	1459.12 (100)	44.29 (3.04)	0.91 (2.05)
Total works taken up (No.)	310064	6437	385
Works completed (No.)	15595	184	40
Work in progress (No.)	294469	6253	245

Note: Figures within the parentheses indicate percentage to total
Source: www.nrega.nic.in

Analytical Framework

Measures of Central Tendency and Ratios

The data were analyzed using statistical measures like averages and percentages to compare the socio-economic parameters like the labour composition in terms of gender, caste and BPL households in the sample.

Testing the Equality of Means

The hypothesis of equality of two population means was tested by applying student 't'-test. However, the crucial assumption of the test, namely equalities of the two population variances, was first verified by 'F'-test. The null hypothesis (H₀) and the alternate hypothesis (H₁) constructed for testing the equality of two means were:

$$H_0: M_1 = M_2$$

$$H_1: M_1 > M_2$$

where, M₁ and M₂ are the averages of the statistics for wage income from MGNREGS among women, men, SC/ST and non-SC/ST participant households. Further, equality of means was tested using the 't'-test.

Regression Analysis

For regression analysis the empirical model used was:

$$Y = a + b_1 X_1 + b_2 X_2 + b_3 D_1$$

where,

Y_1 = Total annual income in rupees,

X_1 = Irrigated area in acres,

X_2 = Per capita person days of employment, and

D_1 = Dummy variable (participants=1, non-participants=0)

Empowerment Index

To study the empowerment of women facilitated by MGNREGS, an empowerment index was prepared. For this, the variables such as education of the women, their control over the expenditure of the family, savings made by the women, their participation in social organisations, decision to participate or not participate in MGNREGS, household management decisions and financial management decisions were considered. The percentage of women in each category possessing each of these components representing empowerment was worked out.

The Index was worked out separately for women of MGNREGS participant and non-participant households. Mathematically it is given as:

$$\text{Empowerment index} = \frac{\sum_{i=1}^7 (n/f_i) * X_i}{\max \sum_{i=1}^7 (n/f_i) * X_i} * 100$$

where,

n = Sample size,

f_i = Frequency of positive responses for the variable i , and

X_i = Value of the i^{th} variable for each individual.

The women were categorized as having high, medium and low level of empowerment for each category based on the magnitude of the index. Those who had an index greater than mean plus half standard deviation were categorized as having high level of empowerment, those who had an index lesser than mean minus half standard deviation as low level of

empowerment and those who had an index in between these two ranges were categorized as having medium level of empowerment.

Discriminant Function Analysis

The discriminant function analysis was carried out to identify those variables which separate the two groups, namely MGNREGS participants and non-participants. The discriminant function used was;

$$L = b_1 x_1 + b_2 x_2 + b_3 x_3 + b_4 x_4 + b_5 x_5 + b_6 x_6 + b_7 x_7 + b_8 x_8 + b_9 x_9 + b_{10} x_{10} + b_{11} x_{11}$$

where, L is the dummy variable (participants=1, non-participants=0); b_s are discriminating coefficients; and x_s are discriminating independent variables. The variables considered for discriminant function analysis were:

x_1 = Family size in number

x_2 = Age of the household- head in years

x_3 = Total annual income in rupees

x_4 = Landholding size in acres

x_5 = Returns from crop cultivation in rupees per acre

x_6 = Value of assets owned in rupees per acre

x_7 = Total number of days of employment in person-days

x_8 = Number of days of work as agricultural labourer in person-days

x_9 = Total consumption expenditure in rupees

x_{10} = Value of the assets purchased during past one year in rupees, and

x_{11} = Loan amount borrowed in rupees

Results and Discussion

Social Categories of Registered Workers under MGNREGS

In the registered workers under MGNREGS in the sample villages, 47.81 per cent were women. This is in agreement with the findings of 49 per cent by Ghosh (2009). The percentage of SC households in the total registered MGNREGS households in the sample villages was 10.38 per cent and that of ST households was 4.76 per cent. The overall figures showed that there was no gender discrimination under MGNREGS and households belonging to all categories were given the opportunity to participate in the scheme.

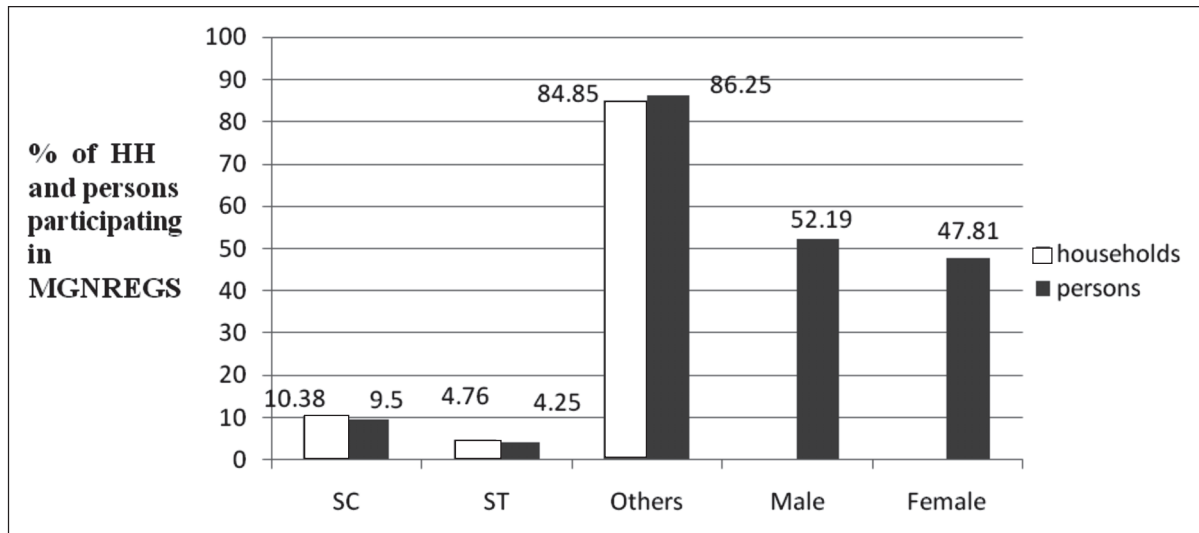


Figure 1. Percentage of different social categories of registered workers under MGNREGS

Table 2. Socio-economic characteristics of the respondents in the sample villages

Particulars	MGNREGS participants (N=60)	MGNREGS non-participants (N=40)
Number of family members per household (No.)	3.30	3.08
Average age of household-head (years)	45	50
Occupation		
Farming (No.)	14 (23.33)	11 (27.50)
Agriculture labourers (No.)	42 (70.00)	28 (70.00)
Others (No.)	4 (6.67)	1 (2.50)
Education		
Illiterates (No.)	46 (76.67)	27 (67.50)
Primary (No.)	4 (6.67)	4 (10.00)
High school (No.)	7 (11.67)	4 (10.00)
PUC and above (No.)	3 (5.00)	5 (12.50)
Average cultivated area owned*		
Dry (acre)	1.2	1.3
Irrigated (acre)	1.1	1.5

Note: Figures within the parentheses indicate percentage to the total

*Average for those respondents who own land

Socio-economic Characteristics of the Respondents

The percentage of respondents having farming as main occupation was higher in MGNREGS non-participants (27.5%) than participants (23.3%), was equal in the case of agricultural labourers (70.0%) and was lowest in the case of others. Since K.R Nagar taluk is an irrigated area and the farmers as well as agricultural labourers get employment for 6-8 months in a year and the market wage rates are higher as compared to MGNREGS wage rate, the non-participants preferred to keep away from MGNREGS. The reason for participation of agricultural labourers in high numbers, especially by women and aged under MGNREGS was lower market wage rates for them and non-denial of employment under the Scheme.

The number of illiterate respondents who preferred to work in MGNREGS was more (76.67%) than non-participants, as the former had less opportunity elsewhere and work was available on demand under MGNREGS. Since educated persons do not prefer manual work, they were more (12.5%) in the non-participant group.

There was not much difference in the total average cultivated area owned by the participant households (1.2 acres) and non-participant households (1.4 acres). It was because of small size of landholding and most of them used it for cultivating food crops for household consumption. Similar findings have been reported by Narayanan (2008).

Table 3. Average annual wage income earned by different classes of respondents

Average annual wage income of respondents	Participants (N=60)			Non-participants (N=40)
	MGNREGS work	Agricultural labour work	Total wage income	
Men	6050 (29.43)	14506 (70.57)	20556	24694
Women	5167 (40.44)	7609 (59.56)	12776	8100
SC/ST	6242 (29.80)	14706 (70.20)	20948	19771
Others	4941 (26.52)	13692 (73.48)	18633	26286
BPL households	5695 (29.60)	13542 (70.40)	19237	19082
APL households	5400 (30.82)	12120 (69.18)	17520	36686

Wage Income Earned by the Respondents

The average annual wage income earned by the non-participants was higher (₹ 23,193) than that of MGNREGS participants (₹ 12,695) because, the wage rate in MGNREGS (₹ 82 per day for both men and women) was lower than the market wage rate (₹ 131 per day for men). Though the market wage rate for women (₹ 74 per day) was lower than that of MGNREGS wage rate, their proportion in non-participant work force was only 10 per cent.

Types of Works Undertaken under MGNREGS

Except for rural connectivity, all the works executed under MGNREGS in the four sample villages were related to natural resource management. The total

number of community works like water conservation and water harvesting, renovation of traditional water bodies, rural connectivity and drought proofing, executed under MGNREGS was 23 (73.2 %) as compared to 8 (26.8 %) individual works including land development and micro irrigation works taken up in the individual farmers' fields. This shows that, community works, that serve larger interest of the villages, were given preference under MGNREGS (Figure 2).

Wage Rate Differential

The wage rate under MGNREGS was ₹ 82 per day and it was equal for both men and women. The market wage rate was much higher for men compared to MGNREGS wage rate and it ranged from ₹ 122.80

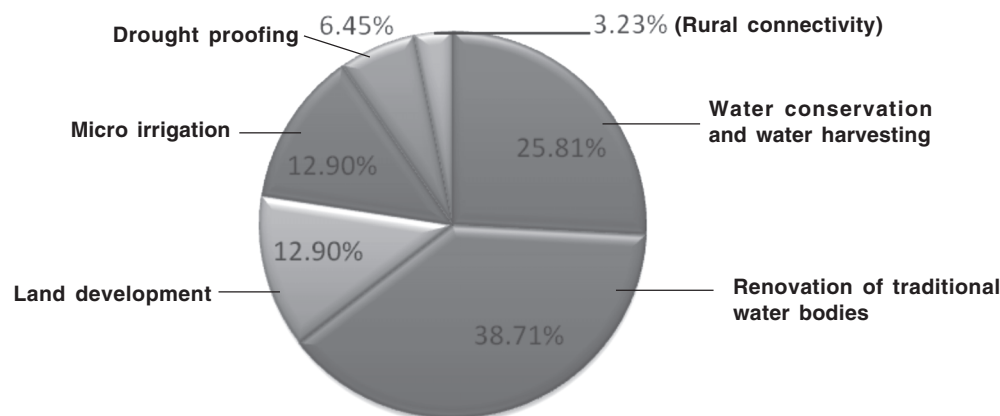


Fig 2. Percentage of total number of works undertaken under MGNREGS in all the sample villages

Table 4. Difference in market wage rate and MGNREGS wage rate in sample villages

Village	Average market wage rate		MGNREGA wage rate	Difference	
	Men	Women		Men	Women
Kuppe	138.46	73.46	82	-56.46	8.54
Hebbalu	127.00	74.76	82	-45.00	7.24
Chandagalu	122.80	68.40	82	-40.80	13.60
Byadarahalli	128.80	76.60	82	-46.80	5.40
Overall	130.84	74.01	82	-48.84	7.99

(₹/day)

Table 5. Wage employment details of sample respondents

Particulars	Participants (N=60)	
	Before	After
Average person-days of employment per year	165.4	222.5 (34.52)#
Average number of labour force per family	2.0	2.3 (15.00)##
Average annual wage income earned (Rs)	16726	18301 (27.35)###

Note: Figures within the parentheses indicate percentage increase in # person-days of employment, ## number of persons working and ### annual wage income earned by the participants, after the implementation of MGNREGS.

to ₹ 138.46, however lower market wage rate for women ranged from ₹ 68.40 to ₹ 76.60 in the sample villages. Similar findings were reported by Arun and Richard (2006). This was the major reason for women workers preferring MGNREGS employment and men workers shying away from the Scheme (Table 4.)

Wage Employment Received by Respondents

The average person-days of employment per year received by respondents increased by 34.52 per cent after the implementation of MGNREGS (Table 5). The results are in conformation with the findings of Khera (2008) that MGNREGS addresses the livelihood security problem of rural India commendably.

The average number of labour force per family also increased by 15 per cent in case of MGNREGS participants. The reason may be the participation of more women and aged family members who were not able to seek employment elsewhere, in the scheme. There was also increase in the average annual wage income earned by the MGNREGS participants to the extent of 27.35 per cent, as both number of employment days per annum per family and number of workers per family increased substantially.

Labour Participation in Agricultural Work

There has been a decline in the labour supply for agricultural work due to the implementation of MGNREGS to the extent of 17.55 per cent in *khariif* season and 52.60 per cent in *rabi* and *summer* seasons, the overall being 33.11 per cent per annum. The decline in labour supply for agriculture is higher in *rabi* and *summer* seasons than in *khariif*, as most of the MGNREGS works are executed during the period from September to May (Table 6).

Annual Income of Respondents

The average number of days of wage employment per year of MGNREGS participants was around 57 days in MGNREGS work and 165 days in agricultural labour work. It was 186 days in the case of non-participants.

In the total annual income of MGNREGS participants, the proportion earned was the highest from agricultural labour work (60.55%), followed by returns from crop cultivation (24.95%) and from MGNREGS work (14.50%). In case of non-participants, 52.59 per cent of the total annual income was derived from

Table 6. Labour supply to agricultural work

(Number of person-days)

Season	Before MGNREGS	After MGNREGS	Decreased participation
<i>Khariif</i>	80.39	66.27	14.12 (17.55)
<i>Rabi and Summer</i>	64.12	30.39	33.73 (52.60)
Total	122.83	82.17	40.67 (33.11)

Note: Figures within parentheses indicate the percentage decline

agricultural labour work and 47.41 per cent from crop cultivation. However, the respondents who cultivated crops owned very less land holding and hence used the entire produce for household consumption. Thus, their main livelihood depended on the income derived from hiring-out labour (Table 7).

Table 7. Average annual income of the sample respondents

Particulars	Participants (N=60)		Non-participants (N=40)
	Agricultural labour work	MGNREGS work	
Average number of days of wage employment per year	165.4	57.1	186
Average annual wage income	21176 (60.55)	5072 (14.50)	23193 (52.59)
Average annual returns from crop cultivation		8722 (24.95)	20905 (47.41)
Total average annual income		34970	44098

Note: Figures within the parentheses indicate percentage to the total.

Table 8. Estimates of the impact of MGNREGS on income pattern of the respondents (linear multiple regression results)

Dependent variable	Total income (₹)
Independent variable	Regression coefficient
Intercept	17964.21***
Irrigated area (acres)	6115.92**
Per capita persondays of employment	125.49***
Dummy variable (Participant=1, Non participant=0)	-10741.4**
N	93
R ²	0.19
F statistic	6.86

Note: * Significant at 10%, ** Significant at 5%, *** Significant at 1% level

Impact of MGNREGS on income pattern of the respondents

The regression results (Table 8) show that irrigated area and per capita person days of employment were the two influencing variables of total annual income. For participants, the total income was ₹ 7222, while for the non-participant households it would be ₹ 17964. It means that if a worker participates in MGNREGS instead of seeking employment in non-scheme works, he earns ₹ 10741 less income per annum. The reason for this is the wage differential (₹ 82 per day under MGNREGS and market wage rates of ₹ 130 for men and ₹ 74 for women per day). However, MGNREGS is only a supplementary employment programme that provides wage income during the off-season.

Women Empowerment by MGNREGS

The MGNREGS women participants had better control over family expenditure, savings and social

Table 9. Classification of women among the categories based on the empowerment index

Level of empowerment	Participants (N=60)		Non-participants (N=40)		Total women respondents
	Number	Percentage	Number	Percentage	
High	19	31.67	2	5.00	21
Medium	31	51.67	29	72.50	60
Low	10	16.67	9	22.50	19

participation and participated more in household management decisions and financial management decisions compared to the non-participant women. The reason is, the participation in MGNREGS gave them more confidence as they earned their own livelihood and also had opportunity to mingle and work with other people in the society. MGNREGS has been successful in providing all the components that pave the way for empowering women. It was found that 31.67 per cent of participant women were highly empowered compared to only 5 per cent in case of non-participant women. This indicates that MGNREGS is enhancing the empowerment of women (Table 9).

Summary and policy implications

The study has revealed that after the implementation of MGNREGS, average person-days of employment received by participant households increased by 34.52 per cent. Average number of labour force per household and average annual wage income earned have also increased by 15 per cent and 27.35 per cent, respectively. Average person-days of employment generated by MGNREGS was 57 per household. Farmer participants derived only about 6 per cent of their household income from MGNREGS work, whereas the proportion was 28.12 per cent for the landless labourers. Hence, the landless labourers were benefitted more compared to farmer participants. The majority of the works executed under MGNREGS were related to natural resource management. Around 31.67 per cent of participant women were highly empowered compared to only 5 per cent of non-participant women. However, there was reduction in the supply of labour to agriculture to the extent of 40.67

person days per year on an average after the implementation of MGNREGS in the study area.

MGNREGS should be further strengthened to ensure livelihood security of rural poor, women empowerment and better natural resource management. However, the programme needs to be reoriented, so that it becomes complementary to progress in the agricultural sector, by executing MGNREGS works only during the off-season.

References

- Ghosh, Jayati (2009) Equity and inclusion through public expenditure: The potential of the NREGS. *Paper presented in International Conference on NREGA, 21-22 January, 2009*. Ministry of Rural Development, Government of India and ICAR, New Delhi.
- Narayanan, S. (2008) Employment guarantee, women's work and child care. *Economic and Political Weekly*, **43**(09): 10-13.
- Jacob, Arun and Varghese, Richard (2006) NREGA implementation- I reasonable beginning in Palakkad, Kerala. *Economic and Political Weekly*, **41**(48): 4943-4945.
- Khera, R. (2008) Empowerment guarantee act. *Economic and Political Weekly*, **43**(35): 8-10.
- Singh, S. (2009) Survival of agricultural labour in Punjab: A burning question. *Economic and Political Weekly*, **44**(29): 24-25.
- Vanitha, S.M. (2010) An Economic Analysis of MGNREG Programme in Mysore District of Karnataka, *M.Sc. Thesis* (unpublished), University of Agricultural Sciences, Bangalore.

www.nrega.nic.in