Original Research Article

Elicitation of "Mgnregs" Externalities on Small Holders' Agriculture Practices in Former Medak District of Telangana, India

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A B S T R A C T

A field study was conducted in former Medak district of Telangana state to know the impact of MGNREGS on agriculture in highest and lowest amount of budget spent mandals by grouping the farmers into MGNREGS beneficiaries and non beneficiaries. The farmers who were holding less than 5 acres of land (small farmers) were selected purposively. From the study, it was found that beneficiary farmers average land holding was 1.66 ha in Highest Expenditure Mandals (HEMs) and 1.48 ha in Lowest Expenditure Mandals (LEMs) while the non beneficiary farmers holding was 1.60 ha in HEMs and 1.42 ha in LEMs. Rice was found to be the predominant crop followed by sugarcane in the study area. Cost of cultivations were almost same for beneficiary and non beneficiary farmers and BC Ratios were slightly higher for beneficiary farmers when compared to non beneficiary farmers and the HEMs and LEMs have no significant difference in this aspect. Imputed value of owned human labour for beneficiary farmers was Rs.4242/ha and for non beneficiary farmers it was Rs. 4765/ha. Significant changes were observed in agricultural production activities, fertilizers and pesticides usage pattern, marketing pattern etc. between the beneficiary and non beneficiary farmers in the entire study area. The major discriminating factor between beneficiary and non beneficiary farmers of highest expenditure mandals were total annual income (96.48%) followed by income from agriculture (18.43%) whereas in lowest expenditure mandals, it was income from agriculture (230.69%) followed by total annual income (197.04%). It was concluded that MGNREGS has shown a positive impact on farming practices of beneficiary farmers when compared to non beneficiary farmers in the study area.

Introduction

Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) was implemented from the year 2006 in India with a specific goal of providing minimum guarantee wage rate, employment days, local employment etc. The scheme's impact on people is varied from place to place and time to time. Since the day of inception, there were arguments for and against the scheme particularly about its effect on agriculture. Though its primary objective is to create employment in rural India, it has affected

labour availability in a negative way in peak seasons at one side and change in the agricultural productivity due to creation of durable productive assets like tanks and canals etc at other side. Some evidences have shown that the implementation of MGNREGS made small and marginal farmers to gain additional incomes to invest back in agriculture. It means, in addition to consumption expenditure, a portion of the income earned through MGNREGS was invested in agriculture for further earning.

By keeping all this in view, a study was conducted in former Medak district of Telangana state. It was aimed at the estimation of total annual incomes of MGNREGS beneficiary and non beneficiary small famers, total number of employment days available to these groups, their income transition patterns and significant factors differentiating between these two groups in the study area.

Objectives

1. To identify the major changes that took place in agricultural production activities in MGNREGS implemented area.
2. To identify the major discriminating factors between beneficiary and non beneficiary farmers in the study area.

Materials and Methods

The present study was conducted in former Medak district of Telangana state during 2013-14 year. For the study, top two mandals and bottom two mandals of the district were selected based on amount of money spent by the government on MGNREG Scheme. From each selected mandal, two villages were selected randomly and from each village four (04) MGNREGS beneficiary small farmers who own less than 5 acres (2 ha) of land and four (04) non beneficiary farmers of the scheme who own less than 5 acres (2 ha) were

selected and thus it made a sample size of 64 farmers.

Data pertaining to cropping pattern, cost of cultivations, labour utilization pattern, input usage pattern etc were collected from sample farmers as per the objectives of the study by interview method. The data were obtained by a pretested questionnaire specially designed for the purpose. The collected data were analyzed using different tabular and statistical techniques, interpreted the results and drawn conclusions.

Pre testing of the schedule was carried out during preliminary visits to the sample villages and the secondary data and information on the agro-economic features were collected from regular updates of the MGNREGS website and the staff associated with the scheme.

Tools of analysis

a. Tabular analysis

The tabular analysis technique was used to compare cropping patterns, cost of cultivations etc. of the sample farmers and simple percentages and averages were computed and compared to interpret the results.

b. Functional analysis

The linear discriminant function analysis is the tool employed to identify the variables that were important in discriminating between two groups. In multivariate analysis linear discriminant function is better than any other linear function which discriminates between any two chosen classes. In this, the information from multiple independent variables was summarized in a single index.

This tool was used to know the relative importance of different variables because of their power to discriminate between two

groups of sample people viz., beneficiary farmers and non beneficiary farmers of the MGNREGS.

The linear discriminant function employed is in following form:

$$Z_1 = \sum_{i=1}^{p} L_i X_i \text{ (For the beneficiaries group)}$$

$$Z_2 = \sum_{i=1}^{p} L_i X_i \text{ (For the non beneficiaries group)}$$

Where,

Z = Total discriminant score for both groups.

X_i = Variables selected to discriminate the two groups.

L_i = Linear discriminant coefficients of the variables estimated from the data.

The function was constructed by choosing values of L_I s such that ratio:

$$= \frac{\text{Variation of 'Z' between the two groups}}{\text{Variation of 'Z' within the two groups}} \quad \boxed{\text{was maximized}}$$

i.e. $f(L_1, L_2, L_3, \ldots \ldots L_p)$

$$= \frac{n_1 n_2 (L_1 d_1 + L_2 d_2 + \ldots \ldots + L_p d_p)^2}{n_1 + n_2 \sum_{i=1}^{p} \sum_{i=1}^{n} S_{1j} L_i L_j}$$

Where,

$d = d_1, d_2, \ldots \ldots dp$ was the vector of mean differences on the 'p' original measures.

S = Within groups co-variance matrix

S L = d

Where, L = Column vector of the coefficient of discriminant function.

S = Pooled dispersion matrix Sij (pooled covariance matrix of the same groups).

d = Column vector of difference between the mean values of different variables for the two groups.

Mahalanobis D^2 statistics was used to measure the discriminating distance between the two groups:

$$D^2{}_{ab} = (n\text{-}g) \sum_{i=1}^{P} \sum_{i=1}^{n} w_{ij} (X_{ia}\text{-}X_{ib}) (X_{ja}\text{-}X_{jb}) = \sum_{i=1}^{n} L_i d_i$$

Where,
n = Total no.of cases
g = No.of groups
p = No.of variables
X_{ia} = Mean of ith variable in group 'a'
W_{ij} = Element from the inverse of within groups covariance matrix.
L_i = Inverted matrix of the coefficients of the discriminant function.
a = beneficiaries   b = non beneficiaries

Results and Discussion

A. Impact of MGNREGS on selected aspects of agriculture

i. Cropping pattern

Cropping pattern of farmers is an index of investment capabilities of the farming community in general and small farmers in particular. The investment capabilities do differ from beneficiaries of MGNREGS to that of non beneficiaries.

The mandal wise cropping pattern of sample famers in the study area during the Rabi season of agricultural year (Table 2) indicated

that the beneficiaries cropping pattern was more towards rice crop when compared to the non beneficiaries (Banerjee and Saha, 2010). It was mainly due to preference given by beneficiary sample units towards staple food crop like rice.

The other crops grown by beneficiaries in both LEMs and HEMs indicated that family consumption requirements and market demand were responsible for the cropping pattern adopted in MGNREGS which reflected in occupation of crop areas which were more relative to that of non beneficiary groups.

It was observed that the MGNREGS beneficiary farmers, irrespective of size of expenditure made on the scheme have preferred attractive cropping pattern. The inference may be drawn that a livelihood programme like MGNREGS would create a desired interest in the farming community which has reflected in cultivation of more food crops.

ii. Cost of cultivation of major crops of beneficiaries and non beneficiaries

In highest expenditure as well as in lowest expenditure mandals, it was found that the cost of cultivations of beneficiaries were almost similar to that of non beneficiaries. For certain crops, the cost of cultivations of MGNREGS beneficiary farmers were higher and for some other crops, non beneficiary farmers' costs of cultivations were higher (Table 3). There was no significant difference between the cost of cultivations of beneficiaries and non beneficiaries in the study area.

Wherever high cost of cultivations were incurred by beneficiary farmers, it was attributed to the additional savings made by them due to their participation in the MGNREGS works according to their opinion.

iii. Benefit Cost Ratios (BCRs) of principal crops

Benefit cost analysis of principal crops explain the rupee realization returns and competence of the crop cultivation between the selected groups or between selected crops. The data were analyzed for principal crops pertaining to the study area (Table 4) to analyze the magnitude of difference between beneficiary and non beneficiary groups. The principal crops selected were rice and sugarcane. The rupee realization for the beneficiaries of HEMs' for sugar cane crop (1.502) was slightly higher than the non beneficiaries (1.498).

The data clearly indicated that beneficiary farmers made competitive efforts in rice and sugarcane cultivation when compared to non beneficiaries. Beneficiary group realized rupee return on par with that of non beneficiaries with little deviation.

It was concluded that the beneficiary farmers return per rupee of investment were high due to the presence of MGNREGS than non beneficiaries as it has contributed to their efficiency in crop management.

B. Major changes in agricultural production activities due to implementation of MGNREGS

Whenever a large rural development programme like MGNREGS is implemented in any area, it is acceptable fact that the agricultural production practices do change with the implementation of the programme where the beneficiaries become aware of new practices in agricultural production.

The changes noticed in agricultural production in the study area were in case of cropping pattern, utilization of labour (owned and hired), change in cost of cultivation and

marketing pattern of the farm products etc. They were as follows

i. Diversity in crop preferences by sample farmers

Beneficiaries farmers predominantly cultivated Rice, Maize, Groundnut, Onion and Ginger in Highest expenditure mandals and the beneficiaries of Lowest expenditure mandals predominantly cultivated Rice, Redgram, Maize, Groundnut and Bhendi crops. Non beneficiaries in Highest expenditure mandals cultivated Cotton, Bengalgram, Chillies, Tomato, Sugarcane and Bhendi predominantly and in Lowest expenditure mandals it was Bengalgram, Sugarcane, Sunflower, Onion and Ginger (Table 2).

It was found that the crops preferred by beneficiaries over the non beneficiaries were highly useful for domestic consumption and highly profitable. It establishes that the beneficiaries have pumped reasonable amount of investment on both food and commercial crops that reflected in cropping pattern which was not found with the non beneficiaries. The inference was drawn that the beneficiaries cropping pattern was influenced by MGNREGS programme that might have provided additional income for profitable arrangement of investment on profitable crops.

ii. Change in human labour (owned and hired) utilization pattern

It is another parameter that may speak about the beneficiaries' utilization of both owned and hired human labour in agriculture production activities.

(BF – Beneficiary Farmers, NBF – Non Beneficiary Farmers)

From the Table 5, it was clear that non beneficiaries owned human labour utilization and hired human labour utilization in all the mandals was higher than beneficiaries. It may be due to the fact that HEMs must have received more additional incomes on overall basis. However, the non beneficiaries' expenditure on owned and hired labour was more in HEMs and LEMs when compared to the beneficiaries.

iii. Change in cost of cultivations between beneficiaries and non beneficiaries

Due to implementation of NREGS in the area, there was a clear difference observed between the cost of cultivations by the farmers attached to the scheme and the farmers who were not attached with the scheme. A clear difference in case of expenditure made on cost of cultivation between beneficiaries and non beneficiaries and between highest and lowest expenditure mandals was observed.

It can be inferred that the cultivation of expenses on an average per farm basis of beneficiaries was either lower than the non beneficiaries or on par (Table 6). This clearly support that the beneficiary farmer either very conscious of controlling cost of cultivation expenses or may be under inevitable situation to spend the money to the level of non beneficiaries due to the fact that the beneficiary's income sources and cropping patterns were made them to spend more on cultivation of crops. Hence, they competed with non beneficiaries in all aspects.

iv. Exposure on other rural developmental schemes

The magnitude of the exposure was more with beneficiary group compared to non beneficiary group in per cent terms. It can be concluded that a popular programme like MGNREGS do create awareness in people's mind on other existing rural developmental programmes that were beneficial to the farmers and feedback from ground reality was

helpful to the policy makers and government to plan and promote peoples oriented rural developmental programmes like MGNREGS.

v. Difference in manures and fertilizers use pattern

The analysis indicated (Table 8) that the beneficiary farmers in Medak have spent money on par with non beneficiaries in study area. It was found that MGNREGS must have influenced the cropping pattern and there by resulted in increase in expenditure on crop nutrient requirement. The inference can be drawn that the MGNREGS might have realized a desired and positive impact on agricultural development.

vi. Change in cost of plant protection between beneficiaries to non beneficiaries

Utilization of plant protection chemicals by the farmers may be considered as an indication that farm families due care in protecting the crops from pests and diseases.

The extent of chemicals for plant protection suggests that farmers have due interests to safe guard the agricultural crops from pests and diseases damage. The inference here can be drawn that farmers might have been influenced by the scheme MGNREGS that enabled them to choose remunerative cropping pattern and hence the expenditure on plant protection chemicals found to be high.

vii. The amount of money spent on farm produce marketing

Marketed surplus do have a direct bearing on marketing cost incurred by farm families. The volume increase in the crop production may be attributed to the fact that for farm families for one or the other reason must have increased their activity in farm business. The data related to marketing cost incurred by sample units both beneficiaries and non beneficiaries of MGNREGS pertaining to the study area was shown in Table 10. The farmers of Highest Expenditure Mandals incurred high marketing cost (Rs. 4407) when compared to non beneficiaries (Rs. 4240).

The data purports to conclude that beneficiary farmers were made good agricultural business with increase in agricultural production that reflected in more marketing cost expenditure on per farm basis.

Table.1 Sample villages selection pattern

Dist	MEDAK							
Criteria	Highest Expenditure Mandals (HEMs)				Lowest Expenditure Mandals (LEMs)			
Name of the mandal	Narayankhed		Raikode		Shankarampet (A)		Shankarampet (R)	
Name of the village	Nrayankhed	Abbenda	Raikode	Itkepally	Kollapalle	Gottimukkala	Mirzapur	Maddur

Table.2 Mandal wise cropping pattern of sample farmers (Average area in hectares)

	Crop	Highest expenditure mandals				Lowest expenditure mandals			
		Narayankhed		Raikode		Shankarampet-A		Shankarampet-R	
		BF	NBF	BF	NBF	BF	NBF	BF	NBF
1.	RICE	0.192	0.113	0.278	0.184	0.166	0.088	0.442	0.311
2.	COTTON	0	0	0.101	0.126	0	0	0	
3.	BENGAL GRAM	0	0.025	0	0	0.033	0.126	0	0
4.	RED GRAM	0.025	0.025	0	0	0.126	0	0	0
5.	CHILLIES	0	0.012	0	0	0	0	0	0
6.	MAIZE	0.126	0.012	0	0	0.202	0.093	0.113	0.025
7.	TOMATO	0	0	0.007	0.113	0	0	0	0
8.	GROUNDNUT	0.101	0.037	0.050	0.088	0.050	0.037	0.050	0.050
9.	SUGARCANE	0.290	0.295	0.214	0.346	0.139	0.189	0.101	0.278
10.	SUN FLOWER	0	0	0	0	0	0	0.025	0.093
11.	ONION	0.025	0.050	0.177	0.068	0	0	0	0.093
12.	BHENDI	0	0.025	0.007	0.070	0	0	0.030	0
13.	GINGER	0.058	0.005	0	0	0	0	0.025	0.037

(BF = Beneficiary Farmers. NBF = Non Beneficiary Farmers)

Table.3 Cost of cultivations of various crops (Rs/ha)

Crop	Highest expenditure mandals				Lowest expenditure mandals			
	Narayankhed		Raikode		Shankarampet-A		Shankarampet-R	
	BF	NBF	BF	NBF	BF	NBF	BF	NBF
Rice	50979.24	50548.90	64109.53	60201.35	62985.21	57483.19	59251.18	56810.42
Cotton	-	-	72052.11	64364.67	-	-	-	-
Bengalgram	-	41422.20	-	-	44580.21	42959.20	-	-
Redgram	52094.67	53928.20	-	-	54382.86	-	-	-
Chillies	-	108655.00	-	-	-	-	-	-
Maize	48931.73	54926.50	-	-	56097.77	57721.25	58387.60	53251.12
Tomato	-	-	104683.56	107902.10	-	-	-	-
Groundnut	77325.33	83388.10	83338.63	90466.37	74390.96	82736.93	93702.21	73456.90
Sugarcane	177876.06	174199.00	171132.56	172328.55	186196.90	200575.12	193409.08	202623.01
Sunflower	-	-	-	-	-	-	35422.50	33287.51
Onion	74447.79	72125.00	75121.15	92219.58	-	-	-	76929.96
Bhendi	-	-	67941.51	100492.66	-	-	106783.95	-
Ginger	152385.95	167265.00	-	-	-	-	152812.20	116893.02

(BF = Beneficiary Farmers. NBF = Non Beneficiary Farmers)

Table.4 Benefit cost ratios of principal crops

S.No	Crop	Highest expenditure mandals		Lowest expenditure mandals	
		Beneficiaries	**Non beneficiaries**	**Beneficiaries**	**Non beneficiaries**
1	Paddy	1.113	1.221	1.156	1.202
2	Sugarcane	1.502	1.498	1.269	1.275

Table.5 Human labour utilization on per farm basis (Rs/ha)

		HEMs	LEMs
Owned	**BF**	4242.04	3277.61
	NBF	4800.82	4155.67
Hired	**BF**	4765.54	3440.58
	NBF	5070.27	4278.16

(BF = Beneficiary Farmers. NBF = Non Beneficiary Farmers)

Table.6 Total cost of cultivations on per farm basis (In Rs.)

Sample units	Medak district	
	Highest Expenditure Mandals	**Lowest Expenditure Mandals**
Beneficiary Farmers	101638.5	84733.29
Non Beneficiary Farmers	109678.3	95221.64

Table.7 Awareness of sample farmers on different rural developmental programmes (in percentages)

	Beneficiary Farmers	Non Beneficiary Farmers
Highest Expenditure Mandals	75.00	56.25
Lowest Expenditure Mandals	81.25	75.00

Table.8 Manures and fertilizers use pattern (Rs/ ha)

	Beneficiaries	Non beneficiaries
Highest Expenditure Mandals	5079.00	5388.90
Lowest Expenditure Mandals	4246.07	4690.37

Table.9 Average cost incurred on plant protection (Rs/ha)

	Beneficiaries	Non beneficiaries
Highest Expenditure Mandals	1312.17	1475.69
Lowest Expenditure Mandals	847.41	864.93

Table.10 Average marketing costs of the sample farmers in Medak district (Rs/ha)

	Beneficiaries	Non beneficiaries
Highest Expenditure Mandals	4407.92	4240.53
Lowest Expenditure Mandals	3361.15	4145.20

Table.11 Livestock returns on per family basis (Rs/year)

	Beneficiary	Non Beneficiary
	Farmers	**Farmers**
Highest Expenditure Mandals	4981.25	3437.50
Lowest Expenditure Mandals	3093.75	4498.75

Table.12 Discriminant function analysis for farmers of Highest Expenditure Mandals

S. No	Variable	Mean difference (di)	Discriminant coefficient (Li)	Li*di	Percentage contribution to the total distance
1	Age	0.0625	0.00794	0.00049625	-0.006363697
2	Education	0	0	0	0
3	Family size	0.375	0.7696	0.2886	-3.70088233
4	Hired human labour	-281.0419	-0.00043	0.120848017	-1.549703017
5	Owned human labour	-417.3037	0.00051	-0.212824887	2.729174857
6	Income from agriculture	-1652.5769	0.00087	-1.437741903	18.43698407
7	Income from livestock	1543.75	0.00086	1.327625	-17.02489225
8	Total no.of employment days	-12.4375	0.02902	-0.36093625	4.628491302
9	Total annual income	8550.2348	-0.00088	-7.524206624	96.48719106
				-7.798140397	100

D^2 = - 7.798140397   * Significance at 5% level of probability and ** at 1%.

Z_1 = - 9.801539784, Z_2 = - 2.0034 and Z = - 5.90247

$Z = 0.00794X_1 + 0.7696X_3 - 0.00043X_4 + 0.00051X_5 + 0.00087X_6 + 0.00086X_7 + 0.02902X_8 - 0.00088X_9$

Table.13 Discriminant function analysis for farmers of lowest expenditure mandals

S.No	Variable	Mean difference (di)	Discriminant coefficient (Li)	Li*di	Percentage contribution to the total distance
1	Age	7.875	-0.1183	-0.9316125	16.33282681
2	Education	0.25	0.23547	0.0588675	-1.03205215
3	Family size	0.375	-0.8258	-0.309675	5.429154443
4	Hired human labour	-572.2919	-0.00092	0.526508548	-9.23063283
5	Owned human labour	-775.6775	0.00166	-1.28762465	22.57435405
6	Income from agriculture	-20244.495	0.00065	-13.1589218	230.6993412
7	Income from livestock	-1405	0.0009	-1.2645	22.16893773
8	Total no.of employment days	-15.3125	0.03763	-0.57620938	10.10197687
9	Total annual income	-18127.807	-0.00062	11.23924034	-197.043906
				-5.70392689	100

D^2 = - 5.70392689   *Significance at 5% level of probability and ** at 1%.

Z_1 = - 9.125, Z_2 = - 3.42182 and Z = - 6.27378

$Z = -0.1183X_1* + 0.23547X_2 - 0.8258X_3 - 0.00092 X_4 + 0.00166X_5 + 0.00065X_6 + 0.0009X_7 + 0.03763X_8 - 0.00062X_9$

As there was a clear distinction between the marketing costs of the beneficiary farmers and non beneficiary farmers, the inference can be drawn here that the programme like MGNREGS may also help in increasing the agriculture production especially to beneficiaries of the programme that reflected in change in the marketing cost structure.

viii. Returns from livestock

In LEMs, returns received by non beneficiary farmers from livestock rearing were more than beneficiaries whereas in HEMs, beneficiary farmers' returns were higher than the non beneficiaries. It clearly shows the positive impact of MGNREGS on livestock incomes of the farmers.

C. Linear discriminant function analysis

i. Farmers of highest expenditure mandals

From the linear discriminant analysis of beneficiary and non beneficiary farmers in HEMs of Medak, it was observed that the mean difference, out of the identified nine variables, four variables were positive and four variables were negative and one variable being zero no sign can be attributed. The discriminant coefficient of eight variables viz., age, family size, hired human labour, owned human labour, income from agriculture, income from livestock, total number of employment days in the year and total annual income were 0.00794, 0.7696, -0.00043, 0.00051, 0.00087, 0.00086, 0.02902 and -0.00088 respectively.

The relative importance of the discriminators was calculated through their percent contribution to total distance. It was revealed from the Table 12 that the total annual income was the major discriminator (96.48 percent) followed by the income from agriculture (18.43 percent). The other variables like the total number of employment days, owned human labour, age, hired human labour, family size and income from livestock contributed 4.62, 2.72, 0.0063, 1.54, 3.70 and 17.02 per cent respectively to the total distance. No selected variable was found significant.

ii. Farmers of lowest expenditure mandals

From the linear discriminant analysis of beneficiary and non beneficiary farmers in LEMs of Medak, it was observed that the mean difference, out of the identified nine variables, five variables were positive and four variables were negative. The discriminant coefficient of nine variables viz., age, education, family size, hired human labour, owned human labour, income from agriculture, income from livestock, total number of employment days in the year and total annual income were -0.1183, 0.23547, -0.8258, -0.00092, 0.00166, 0.00065, 0.0009, 0.03763 and -0.00062 respectively.

D^2 value (-5.70392689) was found significant at five percent level of probability.

The relative importance of the discriminators was calculated through their percent contribution to total distance. It was revealed from the Table 13 that the income from agriculture was the major discriminator (230.69 percent) followed by total annual income (197.04 percent). The other variables like income from livestock, age, total number of employment days, family size, education, hired human labour and owned human labour contributed 22.16, 16.33, 10.10, 5.42, 1.03, 9.23 and 22.57 percent respectively to the total distance. Age was found to be significant at 5% level of probability.

The summary and conclusions are as follows:

Rice was the predominant crop among MGNREGS beneficiaries in the study area. The per farm cultivation expenses were almost same for beneficiary group farmers and non beneficiary farmers. B:C ratio of major crops cultivation was more for beneficiary farmers compared to non beneficiaries and they have also made good investment on agricultural development on relative terms compared to non beneficiaries.

Beneficiaries have shifted their focus to high value crops like sugarcane and rice as par with non beneficiaries in the study area and competed and realized Rs. 1.50 for every one rupee investment in relative terms.

The imputed value of owned labour for beneficiary farmers was Rs. 4242 whereas for the non beneficiary farmers, it was Rs.4765. Cultivation expenses were almost same for beneficiary and non beneficiary farmers viz. Rs. 101638 and Rs. 109678 respectively.

The expenditure on manures and fertilizers by beneficiary group farmers was in the range of Rs. 4246 to Rs. 5079, plant protection expenditure was in the range of Rs. 850 to 1390 on per farm basis, marketing cost of the beneficiary farmers was in the range of Rs. 1737 to Rs. 4407. The awareness levels of beneficiary group farmers were high on other ongoing rural developmental schemes in their locality. Finally, the expenditure pattern on resource use like on manures and fertilizers, plant protection chemicals and marketing costs were relatively high among MGNREGS beneficiaries.

Major discriminator factors between beneficiary and non beneficiary small farmers of highest expenditure mandals of Medak were total annual income (96.48%) followed by the income from agriculture (18.43%), employment days (4.62%), owned human labour (2.72%), age of the farmer (-0.0063%), hired human labour (-1.54%), farmer family size (-3.70%) and income from livestock (-17.02%) whereas in lowest expenditure mandals, it was income from agriculture (230.69%) followed by total annual income (197.04%), income from livestock (22.16%), age of the farmer (16.33%), total number of employment days (10.10%), family size (5.42%), education (1.03%), hired human labour (-9.23%) and owned human labour (-22.57%) respectively.

The present study has revealed that MGNREGS has shown a clear positive impact on beneficiary farmers when compared to non beneficiary famers of the scheme in the study area.

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