Employment Generation By NREGS In India: An Efficiency Analysis

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ABSTRACT

This paper focuses on the efficiency in employment generation by MGNREGS in the states of India by gauging different indicators such as the Average Person Days Creation (APDC), Percentage of Fund Utilization (PFU), number of Job Card Issuing (JCI) per 1000 population and performance in creation of village infrastructure. The Stochastic Frontier model was used to estimate the technical efficiency in employment generation by MGNREGS between the states during the period from 2010-11. The efficiency rank analysis showed that the north - eastern states performed well as compared to the other states of India.

Keywords: NREGS (Welfare Programme); Employment; Average Person Days Creation (APDC); Percentage of Fund Utilization (PFU) ; Job Card Issuing (JCI)
JEL codes: I38, J21

INTRODUCTION

In independent India, various programmes of wage employment are being implemented by the Government of India to eradicate poverty and to achieve development. Wage employment programmes started with the Rural Works Programme (RWP) in 1961 to generate employment for the poor. Following this programme, many wage employment programmes were introduced to improve upon the earlier programmes. The major programmes that were started by the Government are as follows (Hirway, 2006):

- ❖ Crash Scheme for Rural Employment (CSRE) ;
- ❖ Food For Work Programme (FFWP) introduced in the 1970s ;
- ❖ The National Rural Employment Programme (NREP);
- ❖ The Rural Labor Employment Guarantee Programme (RLEGP) introduced during the 1980s ;
- ❖ The Jawahar Rojgar Yojana (JRY) ;
- ❖ The Employment Assurance Scheme (EAS) ;
- ❖ The Sampurna Grammen Rojgar Yojana (SGRY) introduced during the 1990s .

Vision 2020 pointed out that the total labour force of India was 375 million approximately in 2002, and the estimated total unemployment was about 35 million persons during that year (India Vision 2020, 2007). The sector-wise share of employment experience shows that the dependence of the labour force has shifted from agriculture and allied sectors to the non-agricultural sector. For example, the employment share of agriculture and allied sector declined from 73.92 per cent in 1972-3 to 56.30 per cent in 2004-5 and there has been an increase in the share of the non-agriculture sector during this period (UPSS basis) (Dev & et al., 2013). Hence, the employment generation strategy of the Eleventh Five Year Plan is to shift surplus labour from the agriculture sector to higher wages and more gainful employment in the non-agriculture sector. The National Rural Employment Guarantee Scheme (NREGS) was launched on February 2, 2006 (Economic Survey 2008-09, 2009; Economic Survey 2011-12, 2012). The main objective of the scheme is to augment wage employment. It is a demand-driven employment generation and legal guarantee programme. For this, the National Rural Employment Guarantee Act (NREGA) was notified on September 7, 2005. It was renamed as the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) on October 2, 2009. The scheme provides a legal guarantee of at least one hundred days of employment

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in a financial year to adult members (above 18 years of age) of any rural household willing to do public work-related to unskilled manual work at the statutory minimum wage rate (Ministry of Law and Justice, documents No. 42 of 2005 & No. 46 of 2009). An enormous literature is growing on employment generation by MGNREGS at the gram panchayat level (Roy and Samanta), district level (Guman and Dua, 2008), state level (A Study on the Performance of NREGS in Kerala, 2010) and inter-state level (Rengasamy and Kumar, 2011) etc.
The present paper discusses the efficiency aspect in employment generation by MGNREGS in the states of India.

OBJECTIVES

The objective of this paper is to study the efficiency aspect in employment generation by MGNREGS in the states of India.

METHODOLOGY

Secondary data was used in this paper from http://censusindia.gov.in/2011-prov-results/ prov_rep_tables.html and www.nrega.nic.in. The Stochastic Frontier model was used to estimate the technical efficiency in employment generation by MGNREGS in different states of India in the period 2010-11. Four indicators were used for studying efficiency in NREGS implementation. The indicators are Average Person Days Creation (APDC), Percentage of Fund Utilization (PFU), a number of job cards issued per 1000 population and performance in creation of village infrastructure. Twenty six (26) states of India were considered for the analysis. The period from 2010-11 was considered for the analysis.

FINDINGS

The following observations were made:
On an All-India basis, Nagaland ranked first in Average Person Days Creation (APDC) and on an average, a household got 67.45 person days in the year 2010 -11. Tripura came second. Manipur ranked the lowest and a household got 15.60 person days on an average (Table 1). In the case of utilization of funds, Karnataka ranked first in 2010-11. Nagaland ranked eighth and Tripura ranked fourth. Manipur utilized around 3 percent of the funds released, and the state obtained a rank 26 (Table 1).

Table 1: Work Generation and Fund Utilization: Ranking of The States of India (2010-11)

Name of State	APDC Rank	PFU Rank	Name of State	APDC Rank	PFU Rank
1. Andhra Pradesh	6 (47.26)	3	14. Manipur	26 (15.60)	26
2. Assam	25 (25.15)	16	15. Meghalaya	18 (36.19)	22
3. Bihar	19 (35.63)	20	16. Mizoram	5 (47.44)	24
4. Chhattisgarh	12 (41.50)	13	17. Nagaland	1 (67.45)	8
5. Gujarat	13 (40.59)	18	18. Orissa	3 (48.56)	5
6. Haryana	19 (35.63)	2	19. Punjab	23 (26.58)	10
7. Himachal Pradesh	9 (43.57)	14	20. Rajasthan	8 (44.92)	23
8. Jammu & Kashmir	22 (30.67)	25	21. Sikkim	4 (48.40)	19
9. Jharkhand	11 (43.03)	12	22. Tamil Nadu	10 (43.39)	9
10. Karnataka	7 (46.47)	1	23. Tripura	2 (67.10)	4
11. Kerala	16 (39.17)	7	24. Uttar Pradesh	17 (36.84)	11
12. Madhya Pradesh	14 (40.25)	17	25. Uttarakhand	21 (34.23)	15
13. Maharashtra	15 (39.66)	21	26. West Bengal	24 (25.27)	6

Note: (1) Percentage of Fund Utilisation (PFU) = (Fund Utilised / Fund Released)*100, data on fund utilization is taken as cumulative number. (2) Average Person Days Generation (APDC) = Person Days Generated / Total Number of Households Provided With Work. (3) Average numbers of person days creation are in the parentheses.
Source: Computed from www.nrega.nic.in

Table 2: Work Generation and Fund Utilization: Grouping of States (2010-11)		
Level (Range)	**States in APDC**	**States in PFU**
High (75 & above)	-	Karnataka, Haryana, Andhra Pradesh, Tripura, Orissa, West Bengal, Kerala, Nagaland, Tamil Nadu
Medium (50-75)	Nagaland, Tripura	Punjab, Uttar Pradesh, Jharkhand, Chhattisgarh, Himachal Pradesh, Uttarakhand, Assam, Madhya Pradesh, Gujarat, Sikkim, Bihar
Low (0-50)	Orissa, Sikkim, Mizoram, Andhra Pradesh, Karnataka, Rajasthan, Himachal Pradesh, Tamil Nadu, Jharkhand, Chhattisgarh, Gujarat, Madhya Pradesh, Maharashtra, Kerala, Uttar Pradesh, Meghalaya, Haryana, Bihar, Uttarakhand, Jammu & Kashmir, Punjab, West Bengal, Assam, Manipur	Maharashtra, Meghalaya, Rajasthan, Mizoram, Jammu & Kashmir, Manipur
Source: Computed from www.nrega.nic.in		

Table 3: Work Generation and Fund Utilization: Matching of States (2010-11)			
APDC \ PFU	**High (75 & above)**	**Medium (50-75)**	**Low (0-50)**
High (75 & above)	-	Tripura, Nagaland	Karnataka, Haryana, Andhra Pradesh, Orissa, West Bengal, Kerala, Tamil Nadu
Medium (50-75)	-	-	Punjab, Uttar Pradesh, Jharkhand, Chhattisgarh, Himachal Pradesh, Uttarakhand, Assam, Madhya Pradesh, Gujarat, Sikkim, Bihar
Low (0-50)	-	-	Maharashtra, Meghalaya, Rajasthan, Mizoram, Jammu & Kashmir, Manipur
Source: Table 2.			

Table 4: Job Card Issuing: Ranking of States (2010-11)			
Name of State	**JCI Rank**	**Name of State**	**JCI Rank**
1. Andhra Pradesh	9	14. Manipur	12
2. Assam	13	15. Meghalaya	10
3. Bihar	17	16. Mizoram	2
4. Chhattisgarh	3	17. Nagaland	1
5. Gujarat	21	18. Orissa	8
6. Haryana	26	19. Punjab	25
7. Himachal Pradesh	6	20. Rajasthan	7
8. Jammu & Kashmir	24	21. Sikkim	11
9. Jharkhand	14	22. Tamil Nadu	16
10. Karnataka	20	23. Tripura	4
11. Kerala	19	24. Uttar Pradesh	22
12. Madhya Pradesh	5	25.Uttarakhand	18
13. Maharashtra	23	26. West Bengal	15
Note: JCI - Job Card Issue (measured as per 1000 population); 2011 Census population (provisional) was considered for computation.			
Sources: Computed from www. nrega.nic.in; http://censusindia.gov.in/2011-prov-results/prov_rep_tables.html			

When the states were grouped in terms of APDC and PFU, Nagaland and Tripura belonged to the medium level, and all other states belonged to the low level in terms of Average Person Days Creation (APDC), which was below 50 per household. In case of PFU, nine states including Nagaland and Tripura belonged to the high level and utilized 75 percent and above of the released fund. Six states, namely, Maharashtra, Meghalaya, Rajasthan, Mizoram, Jammu & Kashmir and Manipur belonged to the low level in PFU, and utilized below 50 percent of the released fund (Table 2). The matching of the states in terms of PFU and APDC in high, medium and low range showed that two north - eastern states, namely, Tripura and Nagaland belonged to the *high PFU- medium APDC level*. There was no state in the *high-high level*. Seven states, namely, Karnataka, Haryana, Andhra Pradesh, Orissa, West Bengal, Kerala, and Tamil Nadu belonged to the *high PFU-low APDC level*. Eleven states, namely, Punjab, Uttar Pradesh, Jharkhand, Chhattisgarh, Himachal Pradesh, Uttarakhand, Assam, Madhya Pradesh, Gujarat, Sikkim, Bihar were in the *medium PFU-low APDC level*. Nine states, namely, Maharashtra, Meghalaya, Rajasthan, Puducherry, Mizoram, Lakshadweep,

Table 5: Priority in Asset Creation under the NREGS in States (2010-11)

Name of Assets	Grouping of States
Flood Control	Kerala
Rural Connectivity	Assam, Bihar, Haryana, Himachal Pradesh, Meghalaya, Mizoram, Nagaland, Orissa, Punjab, Tripura, Uttar Pradesh, West Bengal
Water Conservation	Gujarat, Jharkhand, Maharashtra, Uttarakhand
Renovation of Traditional Water Bodies	Tamil Nadu
Drought Proofing	-
Irrigation Canals	Andhra Pradesh, Jammu and Kashmir
Irrigation Facilities to SC/ST/IAY/LR	Chhattisgarh
Land development	Karnataka, Madhya Pradesh, Rajasthan
Other works	-
Sewa Kendra Sikkim	-
Note: Data are not available for Manipur and negligible data was available for Sikkim.	
Sources: Computed from www. nrega.nic.in	

Table 6: Efficiency in Fund Utilization: States of India (2010 - 11)

Name of State	Efficiency		Name of State	Efficiency	
	Value	Rank		Value	Rank
1. Andhra Pradesh	0.953228	15	14. Manipur	0.952600	23
2. Assam	0.952551	24	15. Meghalaya	0.953204	16
3. Bihar	0.953118	17	16. Mizoram	0.953916	3
4. Chhattisgarh	0.953270	13	17. Nagaland	0.954447	1
5. Gujarat	0.953352	9	18. Orissa	0.953472	6
6. Haryana	0.952645	22	19. Punjab	0.952493	25
7. Himachal Pradesh	0.953392	7	20. Rajasthan	0.953734	5
8. Jammu & Kashmir	0.953252	14	21. Sikkim	0.953745	4
9. Jharkhand	0.953318	10	22. Tamil Nadu	0.953282	12
10. Karnataka	0.953117	18	23. Tripura	0.954263	2
11. Kerala	0.953038	19	24. Uttar Pradesh	0.953011	20
12. Madhya Pradesh	0.953318	11	25.Uttarakhand	0.952994	21
13. Maharashtra	0.953369	8	26. West Bengal	0.952330	26
Source: Computed from www. nrega.nic.in					

Andaman and Nicobar, Jammu & Kashmir and Manipur belonged to the *low PFU- low APDC level* (Table 3).
In case of job card issuing, Nagaland ranked first on an All-India basis in the year 2010-11 (Table 4) and issued 174.82 job cards per 1000 population. Haryana ranked the lowest and issued 22.73 job cards per 1000 population. Mizoram (Rank 2) was placed at the second position, and Tripura obtained the fourth position (Rank 4).
The major purpose of NREGS is the creation of village infrastructure through generating rural employment of unskilled workers, which is inclusive in terms of backward communities and gender to create an equitable process of development. Assets which can be created through unskilled workers with the minimum use of equipments and machines are broadly classified into nine categories, as shown in the Table 5 (retrieved from www. nrega.nic.in) . On an All-India level, 12 states (50%) including the north- eastern states (Assam, Meghalaya, Mizoram, Nagaland and Tripura) among the states under consideration had been given the highest priority in rural connectivity in 2010-11 (Table 5).
Technical efficiency in Average Person Days Creation between the states is estimated. The analysis was done to estimate how the states differ in employment generation by MGNREGS on the basis of efficiency. States are ranked in terms of efficiency value. The Stochastic Frontier model (see End Notes) was used to rank the states in terms of technical efficiency. In estimating technical efficiency, the dependent variable is Average Person Days Creation and the explanatory variable is Percentage of Fund Utilization (PFU). The efficiency rank analysis in Average Person Days Creation shows that north - eastern states like Nagaland, Tripura, Mizoram and Sikkim performed well. West Bengal ranked the lowest (26) in efficiency, its APDC rank is 24 and PFU rank is 6. Nagaland ranked first in efficiency, whose APDC and PFU ranks are 1 and 8 respectively. In terms of efficiency, the rank of Tripura is 2, whose rank in APDC is 2 and the rank in PFU is 4 (Table 6 and Table 1).

SUMMARY AND CONCLUSION

On the All-India level, two north - eastern states, Nagaland and Tripura performed well in all areas. Nagaland ranked first in APDC (Average Person Days Creation), eighth in PFU (Percentage of Fund Utilization), first in JCI (Job Card Issuing) and also ranked first in employment generation efficiency. Tripura came second in APDC, fourth in both PFU & JCI and second in employment generation efficiency.
In the case of asset creation, many states (12 states) including the north - eastern states (Assam, Meghalaya, Mizoram, Nagaland and Tripura) have been given the highest priority in rural connectivity. The efficiency rank analysis in employment generation by MGNREGS shows that four north - eastern states, namely, Nagaland (Rank 1), Tripura (Rank 2), Mizoram (Rank 3) and Sikkim (Rank 4) performed well as compared to the other states of India.
Based on the above analysis, it can be concluded that the states of India can learn from the experiences of each other. Similarly, other states with poor performance in all these areas demand further investigation. These findings need systematic documentation for providing policy guidelines. The limitation of the study is that it considers the data only for the year 2010-11. For future research, one can do an intertemporal comparison for the study.

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END NOTES

The Stochastic Frontier model (Greene, 2009) is as follows:

$$\log y = \beta_1 + \sum_k \beta_k \log x_k - u + v, \quad u \geq 0, \quad v \sim N[0, \sigma_v^2]$$

$$= \beta_1 + \sum_k \beta_k \log x_k + \varepsilon$$

where x is percentage of fund utilization and y is the average person days creation. The following formula is used to estimate efficiency for the half-normal model.

Standard efficiency measure for the half-normal model:

$$E(u \mid \epsilon) = [\sigma\lambda / (1 + \lambda^2)] [\{\emptyset(z) / 1 - \emptyset(z)\} - z], \qquad z = \epsilon\lambda / \sigma$$

Values used to estimate technical efficiency are:

	Coefficient	z
x	0.1882	2.48
constant	28.2645	0.96
σ	10.0306	
λ	0.00702	