

Estimating the Efficiency of SHGs: Under Bank Linkage Programme in Andhra Pradesh

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ABSTRACT

Poverty alleviation is a thing to do by every developing nation. Bank linkage programme is a way to provide microfinance services to the rural poor people to eradicate poverty. Many self-help groups, especially in India, under Bank Linkage programme, benefitted by getting services from banks which have been difficult to reach directly through banks or other institutions. It is a part of the government policy to extend the micro finance services which was operationalised by the state government with support from the NABARD. This study examined the efficiency of SHGs (Self Help Groups) under bank linkage programme in Andhra Pradesh. State wide data of SHGs under Bank linkage programme was collected for the study to analyze the efficiency scores with respect to the decision making units. DEAP software was employed calculate the efficiency by using the following input variables namely Number of of SHGs for credit disbursement, Number of SHGs for credit outstanding, Number of loans eligible for VLR (Vaddi Leni Runalu). Output variables are Credit disbursement, Amount outstanding, Amount sanctioned for VLR. Results indicated that, from North coastal zone, there was no optimality in the districts namely Srikakulam, Vizianagaram and Visakhapatnam. From South coastal zone West Godavari, Krishna and Nellore districts reached the optimality. From Rayalaseema region Chittoor, Kadapa districts reached the fully efficient range.

Key words: Bank linkage, Efficiency, Micro finance, Poverty.

Bank linkage programme emerged as an instrument for financial inclusion in 1992 which was initiated by NABARD. South Asia Poverty Alleviation Programme (SAPAP) was formed during the period of 1996-2001. It builds a three-tier community institutional structure viz., SHGs, Village Organizations (VOs) and Mandal Samakyas (MSs), and provided immense learning for the SHG-centered programmes which were implemented by GoAP (Government of Andhra Pradesh). Based on the learning from SAPAP, the GoAP established a organization for rural people in 2000 known as the Society for Elimination of Rural Poverty (SERP). In Andhra Pradesh, Bank linkage programme is organiging under SERP. SHGs were arose for the rural people to acquire services from the financial institutions in the terms of savings, credit disbursement *etc.*

SHG-Bank Linkage Programme has neither reached out majority of the poor, nor in proportionate in all the states of India. Only 22 per cent of the 75 million poor households in India are facilitated with microfinance (Ghate, 2008). In India Growth rate of savings per SHG was less, compared to growth rate of loan amount disbursed and outstanding per SHG. The difference between outstanding per SHG and loan disbursed per SHG was gradually increasing. (Manohar, 2015). Andhra Pradesh has emerged as leader in SHG bank linkage, both in terms of number of SHGs bank

linked as well as the amount of bank credit (Seetharamaiah, 2018). More over some gap has been arose in between loan disbursement and outstanding. In this context this study has focused on evaluate the functioning of SHGs by Bank linkage programme in Andhra Pradesh.

MATERIAL AND METHODS

This study was taken up with the input and output variables of bank linkage programme of SHGs and analysed efficiency values using DEAP Software. Data Envelopment Analysis (DEA), a non-parametric approach, was first introduced by Charnes *et al.* (1978). DEA has several advantages: it can handle multiple outputs and inputs, it does not require a prior specific functional form for the production frontier and it is also possible to identify the best practice for every decision making unit. Under this technique for each of the n decision making units (DMU) which consume m different inputs to produce n different outputs, technical efficiency is given by the measure-

Technical efficiency- $S_j u_j y_{jo} / S_i v_i x_{io}$,

where,

y_{jo} = j^{th} output of a particular DMU,

x_{io} = i^{th} input of that particular DMU,

u_j is the weight associated with each kind of output &

Table 1. Scale efficiency and returns to scale of Andhra Pradesh.

Districts	CRSTE	VRSTE	Scale	Returns to scale
Anantapur	0.921	0.931	0.989	IRS
Chittoor	1.000	1.000	1.000	-
East Godavari	0.901	0.925	0.974	DRS
Guntur	0.938	0.945	0.993	IRS
Kadapa	1.000	1.000	1.000	-
Krishna	1.000	1.000	1.000	-
Kurnool	0.838	0.869	0.965	IRS
Nellore	1.000	1.000	1.000	-
Prakasam	0.972	0.978	0.994	IRS
Srikakulam	0.947	1.000	0.947	IRS
Visakhapatnam	0.851	0.947	0.899	IRS
Vizianagaram	0.840	1.000	0.840	IRS
West Godavari	1.000	1.000	1.000	-
Mean	0.939	0.969	0.969	

CRSTE : Technical Efficiency from Constant Returns to Scale,

VRSTE : Technical efficiency from Variable Returns to Scale,

DRS : Decreasing Returns to Scale; IRS : Increasing Returns to Scale

Table 2. Efficiency ranges and Descriptive statistics of Decision making units

Efficiency	CRSTE	VRSTE	SE
$0.8 \leq E \leq 0.85$	2	0	1
$0.85 \leq E \leq 0.9$	1	1	1
$0.9 \leq E \leq 0.95$	4	4	1
$0.95 \leq E \leq 1$	1	1	5
1	5	7	5
Descriptive statistics			
No. of districts	13	13	13
Mean	0.939	0.969	0.969
Median	0.947	1.000	0.993
Mode	1.000	1.000	1.000
Standard deviation	0.064	0.042	0.049
Minimum	0.838	0.869	0.840
Maximum	1.000	1.000	1.000

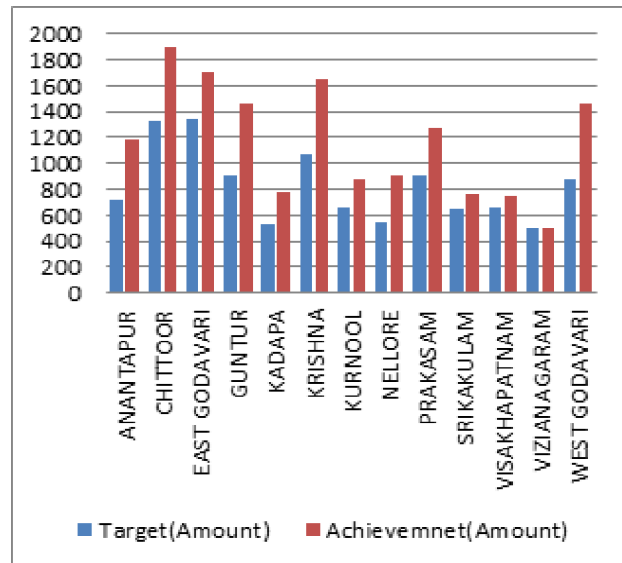
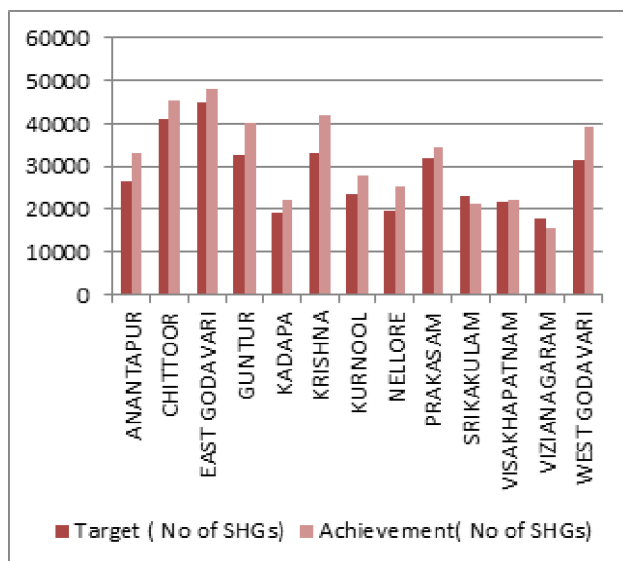
**Fig. 1 Target and Achievement of Credit disbursement for SHGs (Rs. in crores)**



Fig. 2 Target and Achievement of Credit outstanding of SHGs (Rs. in Crores)

v_i is the weight associated with each kind of input.

$$SE_i = CRS(TE)/VRS(TE),$$

where,

SE = 1 indicates scale efficiency or constant returns to scale and

SE < 1 indicates scale inefficiency.

CRSTE = Technical Efficiency from Constant Returns to Scale,

VRSTE = Technical efficiency from Variable Returns to Scale

Data has collected from official website of Bank linkage programme. District wise data of Andhra Pradesh was collected for the period of 2018-19. Input variables are Number of of SHGs for credit disbursement, Number of SHGs for credit outstanding, number of loans eligible for VLR (Vaddi Leni Runalu). Output variables are Credit disbursement (Rs. in crores), Amount outstanding (Rs. in crores), Amount sanctioned for VLR (Rs. in lakhs). This analysis has been carried out by using DEAP software version 2.1. The model was run on input orientation and variable returns to scale. Descriptive statistics also utilized for calculating mean, median and standard deviation values.

RESULTS AND DISCUSSION

Fig 1 shows the target and achievement of credit disbursement with respective SHGs and amount. Except Vizianagaram and Srikakulam districts, remaining districts achieved higher than the targets in

number of credit disbursement. Amount also disbursed more than the target except in Vizianagaram district. But credit outstanding (Fig 2) was achieved greater than the target in districts like Chittoor, East Godavari, Guntur, Krishna and Prakasam.

Results on efficiency scores were presented in Table 1. All most all SHGs were functioning effectively with lower inefficiency values. Mean scale efficiency was 96.9 per cent. It indicates that SHGs could increase the efficiency by 3.1 percent with available inputs. Out of 13 districts, 5 districts namely West Godavari, Krishna, Nellore, Chittoor and Kadapa were reached optimality. There was no optimality from districts of North coastal zone. Srikakulam having scale efficiency 0.947 with Increasing Returns to Scale (IRS) indicated that it has to increase the bank linkage programme by the input quantities. At the same time Vizianagaram and Visakhapatnam had huge potential to increase the efficiency with 16 per cent and 10.1 per cent respectively. In south coastal zone Prakasam and Guntur also showing IRS. East Godavari showing Decreasing Returns to Scale (DRS) with scale efficiency 97.4. It has to decrease the bank linkage by 2.6 per cent with input quantities.

In Rayalaseeme Ananthpur and Kurnool are having efficiency scores of 98.9, and 96.5 respectively. Ananthpur and Kurnool both are showing IRS efficiency and there was a chance to improve the efficiency by providing the credit facilities through Bank linkage programme.

Table 2. showing descriptive statistics for efficiency scores for technical efficiency at constant and variable returns to scale. Allmost all these efficiency scores were existed in between 0.9 to 1

range. It indicated that majority of the SHGs are functioning nearer to optimality. Mean values obtained above the range of 0.90.

CONCLUSION

The scale efficiency scores calculated by using DEA, has shown the efficiency level of different districts in implementation of Bank linkage programme for SHGs in Andhra Pradesh. There was no fully efficient functioning district from North coastal zone under Bank linkage programme. From South coastal zone West Godavari, Krishna, Nellore districts reached the optimality. From Rayalaseema region, both Chittoor and Kadapa districts reached the fully efficient range. The districts which are below the fully efficient levels having a scope to obtain good outputs to reach the fully efficient by improving the scales.

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