

Statistical Analysis of Involvement in Income Generating Activities Before and After Joining Self Help Groups (SHGs) and their sustainability – A study

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Abstract

The major intention of the present study is to probe SHGs role towards women sustainability in Bengaluru Urban district of Karnataka. Though women contribute both to household and national economy, their work is felt like an extension of household sphere and remain non-monetized. In India microfinance is strengthening the women through collective self help abilities leading to their empowerment which is an essential factor of sustainability. It is viewed that micro finance is essential to overcome poverty, exploitation and create confidence in urban poor who have their aspirations like rural poor. The people living in slums, outskirts need financial assistance in order to meet education, health and marriage of children. Unfortunately so far planners have concentrated only on rural poor and urban poor has been neglected. Women studies reveal that unless and until women are developed their empowerment programmes leading to sustainability has no meaning. Women empowerment has been noticed as a pre requisite condition to reduce poverty in developing nations (Aysha et al., 2018). Participants enjoy the benefit of higher education, decrease in the vulnerability to economic shock and greater empowerment (Tessi Swope, 2005). Against this background on attempt is made to study before and after effects of joining SHGs as far as IGAs are concerned, benefits of sustainability and factors driving women sustainability.

Keywords: Sustainability, urban poor, empowerment, value of assets, repayment, social capital, savings, loan repayment.

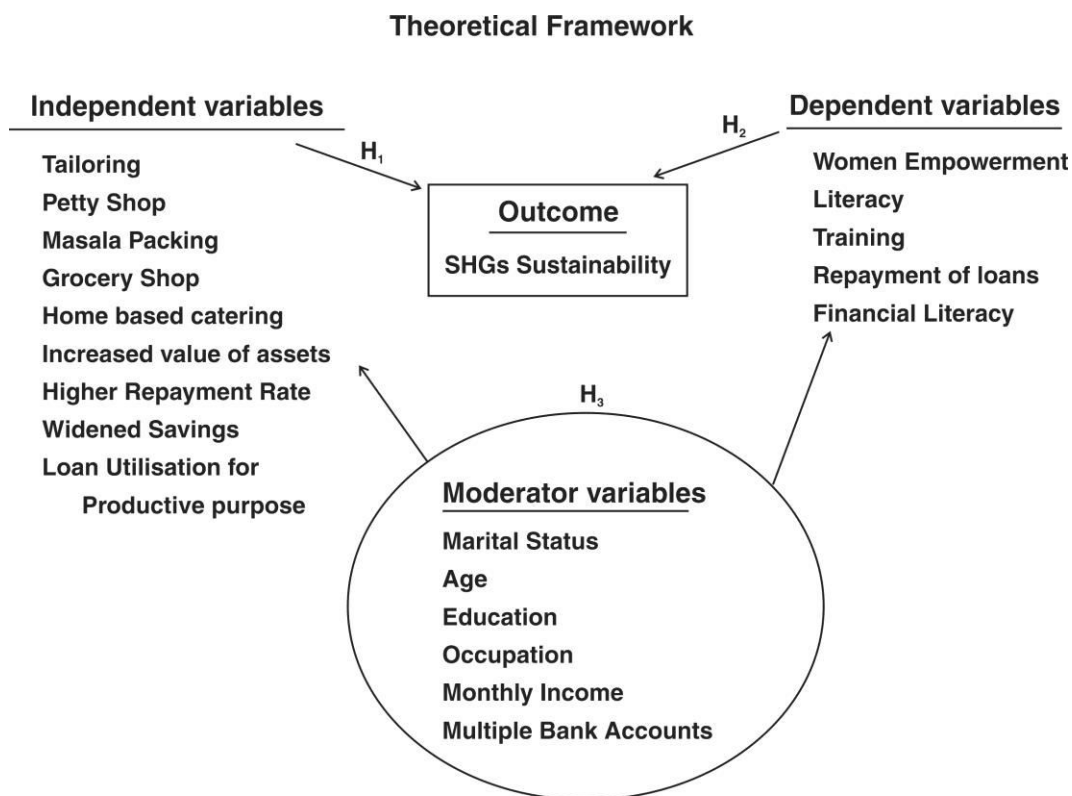
Introduction:

Sustainability in microfinance refers to the long term continuation of the programme without the support of external agencies. It can be also defined as the level of skill and confidence of the groups to approach the local institutions in order to mobilise resources (Rajashekhar, 2002). Innumerable studies have attempted to access the sustainability of SHGs in India. Sustainability of the SHGs was measured with the increase in the value of assets and saving rate, easy to access to institutional loan, higher repayment rate, elimination of informal sources and social empowerment of women. Myer (2002) states that SHGs were operationally sustainable if they can manage their operational costs with the operating income of the groups. SHGs require a flexible organisation and proper incentives to sustain their performance with changing economic and social environment (Schreiner, 1997). The ability to perceive sustainability is the ability to function without dependence on promoting agencies and higher level of structures like federation (Parida et al. 2010; Nair, 2005). Some other researchers relate sustainability as the ability to manage and their corresponding financial and institutional performance (Dave et al., 2002; Srinivasan, 2008). There is a growing demand to popularise the micro finance activities and to make strong attempt to rescue the vulnerable and untouched financially, through a common programme. Sharing of economic gains among all the vulnerable is assuming significance now-a-days. Empowerment of the masses the poor and deserved at the gross root level has been stressed by the policy framers (Dadhich, 2012; Ravi and Venkataramana 2005; Sultana 2005; Sarangi 2008). Studies by Kabeer (2005), Pitt and Khandker, 1996, Rahman (1988) reveals that microfinance is a good strategy to alleviate poverty, empower women and is a tool to augment economic development in urban areas.

Statement of the problem:

Sustainability of SHGs leads to empowerment of women. Innumerable factors drives sustainability of members. Women empowerment strengthens innate ability by way of acquiring knowledge, power and experience (Schuler et al., 1996). Women empowerment is a process and sustainable development covers socio-cultural economic and environmental aspects (Meenakshi Lohani 2017). In order to create sustainability among members of SHGs it is necessary to empower them. Sustainability is not an end in itself and it is just a means to

the end of improving the lot of the poor (Schriener, 1997). It also indicates the financial sustainability of MFIs. The aim of microfinance activities is to contribute towards sustainable development and economic growth, through financial spending and aims at poverty alleviation. Over the period of 30 years much attention is given towards microfinance and sustainable development but less attention is paid to the areas of sustainable development. The low level membership in an SHG affects the sustainability of members and hence low level client base has to be converted into high level base so that the group members may take suitable decision on sustainability. The empowerment of women results in enhanced self confident and inner transformation of women’s consciousness that enable them to overcome external barriers (Sen, G. et al., 2000).



Source: Author's Creation

Review of literature:

Waseem W Hameed et al. (2019) study used a quantitative investigation used a survey instrument to collect data from female clients of microfinance institutions. The study found microfinance institutions have a critical role to play in supporting women self sustainability.

Further, the researchers expressed that microfinance institutions services such as micro credit, micro savings, micro insurance, micro training and social capital have a major input in developing women self sustainability.

Sunitha Kumari et al. (2020) in their research work they were highlighted that financial education is the base for all most all financial services such as banking, insurance and shares and mutual funds. Further, the researchers expressed that socio-economic empowerment of women is possible only when the women are strong enough to take financial decision. Financial education as per authors given to women lead to creation of savings and as well as running of their family and gain well status in the society.

Hasan, M. et al (2021) are of the opinion that financial literacy is considered as one of the vital factors of financial inclusion. The study concentrated on rural people's financial better knowledge and financial services. Proper understanding of financial products is essential. The study reveals about the approaches to getting financial access i.e., banking, microfinance and FinTech (Mobile banking). Some variable shows significant insignificant result on account of participant poor responses, unfamiliarity. The study reveals that financial literacy had a positive effect on access to finance. Financial knowledge influenced strongly to enhance financial inclusion. Financial knowledge provides to promote financial communication for rural and low income people. Proper knowledge as per the researchers regarding different financial services influenced strongly in getting financial access and extending other financial services.

Manju Shree Raman et al. (2022) expressed that financial literacy would contribute in empowering the women through improving of social, economic, psychological conditions. They can get better access and claim the benefits of services of finance i.e., insurance, saving, loans, government subsidies so on. Further, the authors stated all these would create win-win situations to the different stake holders, such as government, banking and financial firms, NGOs, community groups etc. which enables to sustainable development in the real sense.

Objectives of the study:

1. To study socio economic characters of respondents.

2. To analyse involvement in IGAs before and after joining SHGs.
3. To analyse the benefits of sustainability.
4. To study factors driving women sustainability.

Hypotheses:

1. The demographic profile of the members is not contributing to study women sustainability.
2. There is no effect of involvement in IGAs before and after joining SHGs.
3. There are no benefits from sustainability.
4. Factors are not driving women sustainability.

Research questions:

1. What are the reasons behind the socio economic characteristics not impacting on the study of sustainability?
2. What is the effect of involvement in IGAs before and after joining SHGs?
3. What are the benefits of sustainability?
4. What are the factors driving women sustainability?

Research Methodology:

The present work is influenced by different experts in the area of microfinance. The method followed in the research work will explain simply research metrology. It refers to the arrangement of conditions for the collation of required data. Data collected by interviewing the respondents either before leaving their houses or in the evening after reaching the houses. The selected SHGs of different area were verified by the data supplied by “panchatantra kar.nic.in” the official website of Karnataka Government. The talukwise report on SHG groups entries by grama panchayats were also verified and each village SHGs data gathered.

Questionnaire design: Questionnaires are the most affordable way of gathering data. A well designed questionnaire requires thought and effect and needs to be planned and developed in a number of stages (Roopa et al. 2017). The researcher himself collected data by referring to

the official website of Karnataka “panchatantra kar.nic.in”. Questionnaire was administered as schedule due to avoid delay, incompleteness and illiteracy.

Universe of the study: The study is confined to all sub-districts of Bengaluru Urban district. Based on the strength of the SHGs of each sub-district the number of members were met and data was gathered. Accordingly in Anekal from different villages 3 SHGs were met and 40 members were interviewed, in Bengaluru East 2 SHGs were interviewed containing 10 members, 15 each members from Bengaluru North and South of 2 each groups were interviewed and finally at Yelahanka sub-district 20 members of 3 SHGs were interviewed.

Block-wise strength of SHG members and sample fixation:

	Block Name	No. of SHGs	Total Members	Sample Selected
1	Anekal	1467	22592	40
2	Bengaluru East	419	7065	10
3	Bengaluru North	613	10318	15
4	Bengaluru South	901	14518	15
5	Yelahanka	832	12985	20
	Total	4232	67478	100

National Information Centre; Ministry of Rural Development, Govt. of India.

Participants of the study: All members of Urban Bengaluru SHGs selected on the basis of strength of members, the members were met and convenient sampling technique was followed in selecting the respondents. Representative members of selected SHGs village-wise were interviewed and necessary data was collected.

Sample and Sampling technique: Convenient sampling was followed to collect the data. A sample of 100 was thought sufficient for this study. A total of 110 questionnaires were in the hand and out of 110 only 100 were useable are forming 90.90% success rate.

Sources of data: The study is explanatory in nature and is based on both primary and secondary data. Primary data gathered by administering a structured questionnaire. The secondary sources include journals, articles, working papers, data collected from the official website of Karnataka.

Method of analysis: The present study adopted χ^2 , contingency coefficient, extent of sustainability Index (ESI), Kendall's co-efficient of concordance and weighted arithmetic mean.

Variables of the study: Attainment sustainability becomes the dependent variable and tailoring, working in RMG within catering, pickles and packed selling forms independent variable. All socio economic characteristics forms the moderate variables.

ESI Index:

Where ESI_{SA} = Total number of members expressing strongly agree about extent of sustainability.

ESI_A = The total number of members expressing agree about extent of sustainability.

ESI_{SWA} = The total number of members expressing somewhat agree about sustainability.

Limitations:

1. The present study is confined only to Urban Bengaluru.
2. Only small amount of sample is considered.
3. Any generalisation requires further depth study.

Data presentation and analysis – A

The required demographics of members like marital status, age, education, income, family size, credit received, training and participation in trade fairs etc., were considered. These characteristics were studied to know how far they impact on the study.

Research question No. 1: What are reasons behind the socio economic characteristics not impacting on the study of sustainability?

Hypotheses No. 1: H_0 : There exist no significant variation in the demographic profile data on sustainability.

H₁ : There exist significant variation in the demographic profile data.

Table-1 reveals data about socio economic characteristic of respondents. There are 85 married respondents. The age data reveals that 38 belongs to 25-30 years, 18 to the 20-25, 12 to the 30-35 years, 58 respondents studied up to 10th standard, 22 completed PUC, 12 are general degree holders. 54 respondents fall to the income range of 10K-15K, 16 to the 15K-20K, 12 to the 5K-10K and 10 > 20K. 59 respondents family size is <2, 28 to 2-4 and 13 > 4 members. 85 have received credit, 79 not underwent training, 82 respondents faced problems and 76 regularly participated fairs, 18 not regular and 6 participated occasional. All the characteristics shows significant variation with the degree of relationship.

Data Analysis and presentation – B

Research question No.2: What is the effect of involvement in IGAs before and after joining SHGs?

Hypotheses No. 2 : H₀: There exist no significant variation in the data and hence there is no effect of involvement in IGAs before and after joining SHGs.

H₁: There exist significant variation in the data and there is difference in before and after joining SHGs.

Table – 2 & 3 highlights data about involvement in IGAs before and after joining SHGs. Before joining SHGs there were 75 respondents expressing strongly agree followed by 15 agree and 10 somewhat agree. After joining the SHGs there were 85 respondents expressing strongly agree, 10 agree and 5 somewhat agree. The value of “w” before was 0.503 and after 1.398. The difference between 1.398 and 0.503 = 0.895 and the $x^2 = 24.165$ and derived by performing the formula, $x^2 = K(n-1)w$. The chi-square value is 24.165 greater than 16.919 and hence H₀ is rejected and H₁ is accepted, and therefore it is concluded there exist high degree of relationship between the variables.

Research question No. 3 : What are the benefits of sustainability?

Hypotheses : No. 3 : H₀ : There exist no significant variation in the benefits of sustainability.

H₁ : There exist significant variation in the data and benefits are variable.

Tables – 4 reveals data about benefits of sustainability of SHG members. To measure the benefits of sustainability weighted arithmetic mean was performed. Likert scale of 5 point scale was utilised to present the respondents opinion. The Likert scale vary from strongly agree to strongly disagree. The opinion of members is defined as “f” and “fw” is the multiplication of f and weight (w). The sum of fw is defined as total which is divided by the sum of weights $5+4+3+2+1 = 15$ to get WA. Ranking is done on the basis of strength of WA. Accordingly the first rank was awarded to two equal variables, generates more income and builds social capital, the second rank is awarded to two equal variables easy to access institutional loans and elimination of informal resources, the third was awarded to enhanced savings and the third rank was given to utilisation of loan for productive purpose. The remaining variables was ranked based on the strength of WA.

Research question No. 4: Which factors drives women sustainability?

Hypotheses No. 4 : H₀: There is no significant variation in the factors driving sustainability data.

H₁ : There exist significant variation in the factors driving sustainability data.

Table – 5 reveals data about the factors driving women sustainability. To measure the factors driving women sustainability extent of Sustainability Index (ESI) was performed. The ranking is based on the strength of ESI. Accordingly the first rank was given to development of financial skill and quality of leadership and second rank was given to the variables. Cooperation between the members and the third rank was awarded to average loan balance per borrower. The remaining variables were ranked as per the strength of ESI. All the variables are significantly varying and shows high degree of relationship.

Summary of the study:

The study was conducted at Bengaluru Urban District. All the subdistricts were represented and number of respondents were conveniently selected and considered. For the first time data

on Yelahanka sub-district was also given after Yelahanka is considered as Taluk and listed in Bengaluru Urban District. The study performed convenient sampling technique and the data collected by administering a well drafted questionnaire which was tested properly for the validity and fairness. The study found the presence of significant variation with the high degree of relationship. The study further reveals about involvement in IGAs before and after joining SHG. Chi-square statistic reveals about after affects of involvement in income generating activities in SHGs. The benefits of sustainability of SHG members are ranked first for the variables, generates more income and builds social capital. The two equally second rank includes easy to access institutional loans and elimination of informal resources. The third rank was given to enhanced savings. Further, the study reveals development of financial skill and quality of leadership the second rank was given to cooperation between the members and the third was awarded to average loan balance per borrower. The findings by using appropriate quantitative techniques like χ^2 , contingency coefficient, Kendall's coefficient of concordance, weighted arithmetic mean and Extent of Sustainability Index (ESI).

Conclusion:

The success of microfinance programme depends not only in the quantity of group forms but also on the sustainability of the groups. SHGs in India reach almost 33 million households and provide loans, employment and social services in addition to limited, largely compulsory savings mechanisms. Self Help Group Bank Linkage (SHG – BLP) of India has focused mainly on women, who are the most sufferers among financially excluded (Disha Bhanot et al. 2020). The major intention of the present study is to generate a deeper understanding of what constitutes sustainability and its contributory factors. The study found significant variation in moderator variable and show high degree of relationship between moderator variables and sustainability. The involvement is more. The benefits of sustainability are ranked and reveals that first rank was awarded to two variables, generate more income and builds social capital and similarly the second rankers awarded to easy to access institutional loans and elimination of informal resources and third rank was awarded to enhanced savings. Further, the study also found factors driving women sustainability like development of financial skill and quality of leadership as the first rank, the second rank was given to

cooperation between the members and the third rank was awarded to average loan balance per borrower.

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Table – 1 : Socio economic characteristics of Respondents

Socio economic characteristics	χ^2	TV@0.05	df	result of χ^2	“c”	Result of ‘C’
Marital status	49.00	3.841	1	Significant	0.57	High Degree
Age in years	36.33	11.070	5	Significant	0.51	High Degree
Education	62.24	7.815	3	Significant	0.61	High Degree
Income (INR) per monthly	74.00	9.488	4	Significant	0.65	High Degree
Family size	33.03	5.991	2	Significant	0.50	High Degree
Credit received	49.00	3.841	1	Significant	0.57	High Degree
Training	33.64	3.841	1	Significant	0.50	High Degree
Problems faced	40.96	3.841	1	Significant	0.53	High Degree

Participation in trade fairs	80.09	5.991	2	Significant	0.67	High Degree
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Source : Field Survey

Note : χ^2 = chi-square

'c' = $\sqrt{(\chi^2 / \chi^2 + N)}$

Where 'c' = contingency coefficient

N = Number of observations

When the value 'c' is equal or near 1, it means there is high degree of association between attributes. Contingency co-efficient will always to be less than 1. High degree is considered here if 'c' is 0.50 and above.

Table – 2 : Involvement in IGAs before joining SHGs

Involvement IGAs activities before joining SHGs	SA	A	SWA	RT	RT ²
Tailoring	15	2	2	19	361
Working in pharmacies	5	1	-	6	36
Petty shop	6	1	-	7	49
Working in readymade garment units	7	2	1	10	100
Masala packing	10	3	2	15	225
Pickles, papads and other essentials delivery	15	4	3	22	484
Grocery shop with delivery service	3	-	-	3	9
Working in child care center	5	1	-	6	36
Clothing boutique	4	-	1	5	25
Home based catering	5	1	1	7	49
Total	75	15	10	100	1374

Source : Field Survey

Note : SA - Strongly Agree, A - Agree, SWA - Somewhat Agree, RT - Row Total

$$SSR = \sum RT^2 - (\sum RT)^2 / N$$

$$= 1374 - (100)^2 / 10 = 1374 - 1000$$

$$= 374$$

Use the sum of squares (SSR) in the following formula to obtain Kendall's W.

$$W = 12 \times SSR / K^2 N (N^2 - 1)$$

$$= 12 \times 374 / 9 \times 10 (100 - 1)$$

$$= 4488 / 8910 = 0.503$$

Table – 3 : Involvement in IGAs before joining SHGs

Involvement IGAs activities before joining SHGs	SA	A	SWA	RT	RT ²
Tailoring	4	-	1	5	25
Working in pharmacies	9	1	-	10	100
Petty shop	8	1	-	9	81
Working in readymade garment units	32	4	3	39	1521
Masala packing	8	2	1	11	121
Pickles, papads and other essentials delivery	10	1	-	11	121
Grocery shop with delivery service	5	1	-	6	36
Working in child care center	5	-	-	5	25
Clothing boutique	2	-	-	2	4
Home based catering	2	-	-	2	4
Total	85	10	5	100	2038

Source : Field Survey

Note : SA - Strongly Agree, A - Agree, SWA - Somewhat Agree, RT - Row Total

$$SSR = \sum RT^2 - (\sum RT)^2 / N$$

$$= 2038 - (100)^2 / 10 = 2038 - 1000$$

$$= 1038$$

Use the sum of squares (SSR) in the following formula to obtain Kendall's W.

$$W = 12 \times SSR / K^2 N (N^2 - 1)$$

$$= 12 \times 1038 / 9 \times 10 (100 - 1)$$

$$= 12456 / 8910 = 1.398$$

Test the significance of "W" by using the chi-square statistic.

$$x^2 = k (n-1) w$$

$$= 3 (10-1) 0.895$$

$$= 3 \times 9 \times 0.895 = 24.165$$

Decision : At 9 d.f. with 0.05 level of significance the TV = 16.919. The calculated value being 24.165 higher than the critical table value and. Therefore 'w' fails to accept H₀ and accepts H₁ and hence it is concluded that there exist significant relationship between before and after joining of SHGs.

Table – 4 : Benefits of sustainability of SHG members

Benefits of Sustainability	Weight	5	4	3	2	1	T	WA
	Likert scale	SA	A	N	DA	SDA		
Generates more income	f	85	9	3	1	2	100	I
	fw	425	36	9	2	2	474	31.60
Enlarges the ability to repay	f	70	15	10	2	3	100	XI

loan and advises not to invest in non IGAs	fw	350	60	30	4	3	447	29.80
Increased value of assets	f	65	18	15	-	2	100	XII
	fw	325	72	45	-	2	444	29.60
Easy to access institutional loans	f	80	12	5	2	1	100	II
	fw	400	48	15	4	1	468	31.20
Higher repayment rate	f	74	10	11	3	2	100	IX
	fw	370	40	33	6	2	451	30.07
Elimination of informal resources	f	84	9	2	1	4	100	II
	fw	420	36	6	2	4	468	31.20
Builds social capital	f	82	10	8	-	-	100	I
	fw	410	40	24	-	-	474	31.60
Improves book keeping knowledge	f	75	10	12	2	1	100	VII
	Fw	375	40	36	4	1	456	30.40
Management is easy	f	65	12	20	1	2	100	X
	fw	325	48	60	2	2	437	29.13
Enhanced savings	f	78	12	6	3	1	100	V
	fw	390	48	18	6	1	463	30.87
Improves repayment of loan	f	72	15	10	2	1	100	VIII
	fw	360	60	30	4	1	455	35.33
Utilisation of loan for productive purpose	f	79	10	6	3	2	100	VI
	fw	395	40	18	6	2	461	30.73

Source : Field Survey

Likert scale : SA - Strongly Agree, A - Agree, N - Neutral, DA - Disagree, SDA - Strongly Disagree

Weights : 5 + 4 + 3 + 2 + 1 = 15 Weighted average = Total / sum of weights

Table – 5 : Factors driving women sustainability

Factors impacting sustainability of members	Extent of sustainability			ESI	R	x ²	TV @ 5%	df	Result of x ²	“c”	Result of C
	SA	A	SW A								
Financial literacy and accounting knowledge	68	17	15	234	XIII	52.76	5.991	2	Significant	0.58	High Degree
	204	51	15								
Government procedures	70	15	15	255	VIII	57.00	5.991	2	Significant	0.60	High Degree
	210	30	15								

Training	62	28	10	252	X	44.56	5.991	2	Significant	0.56	High Degree
	186	56	10								
Returns from SHGs	72	13	15	257	VII	61.56	5.991	2	Significant	0.61	High Degree
	216	26	15								
Repayment of loans	74	15	11	263	V	65.44	5.991	2	Significant	0.62	High Degree
	222	30	11								
Cooperation between the members	80	15	5	278	II	82.10	5.991	2	Significant	0.67	High Degree
	240	30	5								
Average loan balance per borrower	75	16	9	266	III	69.24	5.991	2	Significant	0.63	High Degree
	225	32	9								
Yield on gross loan portfolio	68	22	10	258	VI	54.16	5.991	2	Significant	0.59	High Degree
	204	44	10								
Frequency and attendance of meeting	65	25	10	255	VIII	59.00	5.991	2	Significant	0.60	High Degree
	195	50	10								
Rotation of own savings	61	22	7	234	XIII	52.76	5.991	2	Significant	0.58	High Degree
	183	44	7								
Development of financial skills and quality of leadership	88	10	2	286	I	10696	5.991	2	Significant	0.71	High Degree
	264	20	2								

Graduation towards micro enterprise development	67	15	18	249	XI	50.76	5.991	2	Significant	0.58	High Degree
	201	30	18								
Providing organizational and financial support	63	22	15	248	XII	43.56	5.991	2	Significant	0.55	High Degree
	189	44	15								
Utilisation of loan for productive purpose	72	20	8	264	IV	62.96	5.991	2	Significant	0.62	High Degree
	216	40	8								

Source :

EMEI = Extent of Managerial Effectiveness Index

R = Rank

df = degree of freedom