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Research Article

CLUSTERING OF SELF HELP GROUPS PERFORMANCE PARAMETERS: A MEASURE FOR ACHIEVING ECONOMIES OF SCALE

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ABSTRACT

This study investigates and address the growing area of microfinance; it explores the clustering of Self Help Groups a microfinance delivery model in context of their performance measurement criteria. Self Help group facing problem of diseconomies of scale as they function in a small group they will not able to compete for marketing their produce as compare to big brand. This paper uses primary data collected from 171 SHGs on Likert scale operating in Jhajjar block of Haryana. The variables of study are; clarity of mission & vision, Frequency of meeting, regularity of saving & repayment, strictness of following group norms etc. This paper proposing a view for devising base for clustering self-help groups. It would be of interest to regulatory bodies, business practitioners and academic researchers. This paper contributes to the literature for the purpose of marketing and meeting economies of scale at large level by introducing a framework for identifying and analyzing performance parameter by using cluster analysis.

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INTRODUCTION

Development of nation relies on the efficiency of all its resources, among them human resources constitute the significant part (Vernon M. Briggs Jr., 1987). Poverty and seclusion pave the way towards socio-economic chaos (Simai, 2006). These are not static issues rather they are dynamic with change in gap of income and population. Formally first time in India to tackle this problematic area a concept of self-help group was introduced. Self-help groups (SHGs) first emerged in MYRADA¹ in 1985.

From the time that the first SHGs emerged in 1985 to the inclusion of the SHG strategy in the annual plan for 2000/01 (Government of India, 2000), several important steps were

taken by the National Bank for Agriculture and Rural Development (NABARD), the Reserve Bank of India (RBI) and leading NGOs, as well as by multilateral agencies, particularly IFAD². The SHG strategy is an important component of the Government's overall thrust to mitigate poverty and has been included in every annual plan since 2000.

NABARD comes out to be a leading promoter of SHGs with direction of RBI in 1990. RBI accepted the SHG strategy as an alternative credit model. NABARD (1992) issued guidelines to provide the frame work for a strategy that would allow banks to lend directly to SHGs. Based on these initial experiences, the SHG-Bank Linkage Programme was launched in 1992. Since then – and on the basis of its extensive network of officers – NABARD has promoted and monitored the SHG programme, provided funds for capacity building and innovation, and helped change policy to create an enabling environment.

But even after continuous lending of credit to these SHGs, some of them are not functioning well. The main reason is that they are not able to compete with their produce due to highly competitive market. Many times they gather and perform but as they lack brand and proper marketing channel for their product, they have to stop producing. Marketing is one of the major problem for them because neither they have enough employee nor they have skills to strategically market their product.

¹ MYRADA was originally the acronym of the Mysore Resettlement and Development Agency, but the official name is now MYRADA. It is a large NGO with 487 staff working directly with 1.5 million poor people. "Building poor people's institutions" is its short mission statement. It manages 15 major projects in three Indian states and has major involvement in three others, where it has seconded staff to government or conducts regular training and visits. Its major activities are: promotion of self-help affinity groups; watershed, water and wasteland management; forestry; community management of sanitation and drinking water, housing and habitat; improvement of primary school education; technical skills for school dropouts; microenterprise generation; preventative health care and a major HIV/AIDS prevention programme. MYRADA has founded a microfinance institution (MFI) called Sanghamithra, which lends exclusively and directly to SHGs. It is also involved with bilateral and multilateral organizations in Myanmar, Cambodia, Indonesia, East Timor, Viet Nam and Bangladesh, largely in promoting the self-help group strategy and participatory approaches to natural resources management (www.myrada.org)

²As of 1 June 2007, IFAD has supported 21 projects in India, seven of which are ongoing

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Mainstream marketing theories for example, (Brassington, F., & Pettitt, 2007), (Kotler, P., Wong, V., Saunders, J. and Armstrong, 2008) focus on aspects such as planning, marketing research, advertising and the implementation of the marketing mix (4Ps and 7Ps). These theories are more typically designed for large organizations where financial resources and marketing expertise are readily available. Large organizational models applied to the small firms setting have been criticized in the existing literature (Audrey Gilmore, David Carson, & Ken Grant, 2001) and the broad marketing textbook definitions, such as marketing as 'a social and managerial process by which individuals and groups obtain what they need and want through creating and exchanging products and values with others' may not necessarily apply to the small groups context. SHGs have their own unique characteristics, with their marketing activities often restricted by limited resources and marketing expertise. The importance of these self-help groups for the vitality of the local and world economy over the last 10 years (Deakins and Freel, 2009; Hill, 2001a; Hill and McGowan, 1999; Lin, 1998; Walsh and Lipinski, 2009) suggests that marketing for SHGs is an important business activity, which could contribute to their growth but there is a need for further research to identify how it is practiced within the small business sector (Blackson and Stokes, 2002). Hence this study aims to explore how SHGs promoters perceive and practice marketing of their different business contexts and to consider the extent to which traditional marketing theory and practice can apply in small businesses.

LITERATURE REVIEW

Marketing Theory

A textbook definition of marketing "a social and managerial process by individuals and groups obtain what they need and want through creating and exchanging products and values with others" (Kotler, 1972) necessarily not to be applied at rural self-help group level due to its specific characteristics. (Moriarty, Jones, Rowley, & Kupiec-Teahan, 2010) Existing literature has emphasized a need to develop and refine existing marketing models, which can be used to profile the marketing practices in small firms. (Simpson, Padmore, Taylor, & Frecknall-Hughes, 2006) marketing theories and concepts have been dominated by large organizations and it could be argued that these conventional marketing definitions, theories and models in textbooks, which are developed based on studies of large organizations may not apply to the context of small firms. Small firms have their unique characteristics and their lack of resources need unique marketing strategy (Chaston, Badger, & Sadler-Smith, 1999).

The Cluster Concept

The cluster concept is imperative to understanding the characteristics of the SHGs cluster and the way that geographers analyze them using different techniques and models (Dana & Winstone, 2008). This concept has an important and long tradition in geography discipline, and is originally linked to location theory and regional sciences in the late 19th century (Martin & Sunley, 2003), (Vorley, 2008). Later, as the study of human geography evolved, the cluster concept became central to the sub-discipline of economic

geography. The concept of cluster, in its most basic terms, refers to agglomerations of economic activity in a specific geographic area and "reflects the relationships between actors and agency in space." (Vorley, 2008; 790). The cluster concept relates to the notions of place and space, and as such received a lot of interest from other disciplines, becoming popular "as a tool for promoting competitiveness, innovation and growth at local, regional and national scales." (Asheim, 2000). Thus, the nature of the cluster concept is interdisciplinary. It has been widely studied, used, and applied by several other social science disciplines like regional planning, economics, and others. Before taking a closer look at how the concept of clusters has been used in the context of various disciplinary paradigms, it is important to understand that "cluster" terminology is relatively new to geography discipline. This "cluster" terminology was first introduced and used by economist Michael Porter in the 1990's and significantly influenced the field of cluster studies (Ditter, 2005) (Martin & Sunley, 2003). Consequently, the notion of clusters became widely used among geographers as well as scholars and practitioners who were interested in various forms of spatial agglomerations (Martin & Sunley, 2003). However, before the popularization of cluster terminology, geographers developed and used a "whole series of neologisms to capture and represent the spatial form and nature of local business concentrations, including: 'industrial districts', 'new industrial spaces', 'territorial production complexes' "and others (Martin & Sunley, 2003; 8). All of these geographical concepts have their origins, to some extent, in the Alfred Marshall's work on regional agglomeration (Hofe & Chen, 2006).

Objectives of the Study

The study aims to

1. To identify the performance variables of Self Help Groups.
2. To draw clusters on the basis of performance variables.

DATA AND RESEARCH METHODOLOGY

The study was carried out in Jhajjar Block of Jhajjar district of Haryana. Jhajjar district is a landlocked district with a total geographical area of 1834 sq. km and is situated on the southern boundary of the state. It has 100 villages covering 5 blocks. As per the 2011 Census, the district has a population of 958405 among which the scheduled caste accounts for 170448. The district has a literacy rate of 73%. The study was carried out through multi-stage sampling method. In the first stage, 5 blocks were identified. In the second stage, from all five blocks Jhajjar was selected, 27 villages were selected through simple random sampling method, and in the last stage, 171 WSHG members were selected randomly from all villages.

Analytical Procedure

The k-mean cluster analysis was fitted to identify the cluster that were formed on the basis of their performance criteria. The definition of the variables has been given in Table 1 and explained in Table 1.

Table 1 Description Variables

Variables	Description
PRF_Clearity_Mission_Vsision	All of them are clear about mission and vision of SHGs group
PRF_FREQ_MEETING	All members attend scheduled meetings on a regular basis
PRF_AWARENESS_TRANSACTION	All members are aware of all transactions
PRF_Regularity_savings_repayments	Regular savings and repayments of loan without any default
PRF_Group_norms_followed_strictly	Group norms exist and are followed strictly in the group
PRF_LOAN_FROM_BANK	SHG should have accessed atleast one loan cycle from bank or federation

Algorithmic Steps for K- Means Clustering

Let $X = \{x_1, x_2, x_3, \dots, x_n\}$ be the set of data points and $V = \{v_1, v_2, \dots, v_c\}$ be the set of centers.

- 1) Randomly select ‘c’ cluster centers.
- 2) Calculate the distance between each data point and cluster centers.
- 3) Assign the data point to the cluster center whose distance from the cluster center is minimum of all the cluster centers.
- 4) Recalculate the new cluster center using:

$$v_i = \left(\frac{1}{c_i} \sum_{j=1}^{c_i} x_j \right)$$

where, ‘c_i’ represents the number of data points in ith cluster.

- 5) Recalculate the distance between each data point and new obtained cluster centers.
- 6) If no data point was reassigned then stop, otherwise repeat from step 3).

Table 2

Initial Cluster Centers	Cluster			
	1	2	3	4
All of them are clear about mission and vision of SHGs group	4	1	1	4
All members attend scheduled meetings on a regular basis	4	2	5	4
All members are aware of all transactions	4	1	4	4
Regular savings and repayments of loan without any default	5	4	2	5
Group norms exist and are followed strictly in the group	2	1	3	5
SHG should have accessed atleast one loan cycle from bank or federation	1	1	2	2

The initial cluster centers are given in Table 1 (Initial Cluster Centers). They are vectors with their values based on the six variables. In Table 3 we can see the number of the iterations and the changes in the cluster centers. In the first iteration cluster centre shift from cluster first to cluster third but remains unchanged in fourth cluster. Second iteration depict minimal shifting of cluster and at the level of third iteration it settles down.

Table 3 Iteration History

Iteration	Change in Cluster Centers			
	1	2	3	4
1	2.518	2.245	2.854	.000
2	.607	.463	.394	.000
3	.000	.000	.000	.000

a. Convergence achieved due to no or small change in cluster centers. The maximum absolute coordinate change for any center is .000. The current iteration is 3. The minimum distance between initial centers is 4.583.

Among all six variables “regular saving and repayment of loan without any default” contributing most in the formation of cluster. As of this variables have highest F-value, i.e., 2103.419 in Table. 4.

Table 4 Describe the F-Value of respective variables

	ANOVA				F	Sig.
	Cluster		Error			
	Mean Square	df	Mean Square	df		
All of them are clear about mission and vision of SHGs group	92.702	3	.281	167	330.177	.000
All members attend scheduled meetings on a regular basis	51.539	3	.260	167	198.022	.000
All members are aware of all transactions	34.646	3	.508	167	68.251	.000
Regular savings and repayments of loan without any default	845.784	3	.402	167	2103.419	.000
Group norms exist and are followed strictly in the group	11.163	3	1.336	167	8.354	.000
SHG should have accessed atleast one loan cycle from bank or federation	4.343	3	.178	167	24.463	.000

The F tests should be used only for descriptive purposes because the clusters have been chosen to maximize the differences among cases in different clusters. The observed significance levels are not corrected for this and thus cannot be interpreted as tests of the hypothesis that the cluster means are equal.

From table.5, distance between final cluster centers depicting the Euclidean distance. Greater the distance between clusters correspond to greater dissimilarities cluster fourth is completely different from cluster 1, 2 and 3. However cluster 1, 2 and three are approximately similar.

Distances between Final Cluster Centers				
Cluster	1	2	3	4
1		4.198	2.709	50.131
2	4.198		3.271	51.042
3	2.709	3.271		50.419
4	50.131	51.042	50.419	

CONCLUSION

F-value of the variable regular saving and repayment of loan without any default is highest thus we can say it contribute more is formation of cluster. From this we can say, if a promoting institutions forming cluster of SHGs who are performing good in saving and regular repayment of loan can be clubbed and meet out their objectives of sustenance.

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