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The role of products of Microfinance for reducing the Poverty of the Borrowers: Exploratory Factor Analysis

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Abstract- *This paper intend to analyses the structural characteristics of microfinance and statistically categorized them in to five products of microfinance as independent variable and poverty reduction as dependent variable. Data were gathered from 494 borrowers of Samurdhi microfinance program in five districts in Sri Lanka using Likert scale questionnaire. The collected data analyzed by Exploratory Factor analysis using SPSS 21 version. The factor Metrix of the EFA results presented good pattern distribution among 38 items which indicated that six constructs loaded properly which is greater than acceptable threshold >0.5. Therefore, the results explored that the 38 items can be grouped properly into the six constructs based on their items.*

Keywords : *Microfinance; micro credit; micro savings; social intermediation service; non-financial service micro insurance; poverty reduction*

1. INTRODUCTION

Sri Lanka is a developing country in which poverty has been identified as a serious socioeconomic issue that must be overcome if the people are to march towards development and sustainability. According to a recent calculation of the Census and Statistics Department, Sri Lanka, the overall poverty rate in country was 4.1 percent in 2017. In the same year, the highest rate of poverty was reported in the district of Kilinochchi (at 18.2 percent). Many districts of Sri Lanka have a poverty rating of over 7 % as per the Head Count Index Even though overall national HCR has decreased markedly, poverty disparities remain in the provinces and districts of the country and contribution to the total poverty from the rural areas was very high (82.2%) compared to the other two sectors The poverty data indicated that disparities in the poverty level still exist across the sectors and districts [1].

During the post-independence period, Sri Lankan governments introduced various programs to reduce poverty in the country, such as the establishment of Thrift and Credit Cooperative Societies, National Development Funds, and the Food Stamp Scheme. Nevertheless, almost all these initiatives have failed since the administrative difficulties governments face in enforcing loan repayment. To overcome these obstacles, some Non-Governmental Organizations started microfinance Services to serve the poorest people in the rural areas.

Microfinance can be identified as 'the provision of a broad range of financial services (elements) to the poor'[2]. Various services of microfinance are used by MFIs to serve the poor. Almost 31,652 MFIs across the world provide financial services to poor households, and this has had a positive impact on reducing poverty[3]. According to the Microfinance Barometers indicators, 'MFIs reached an estimated 139 million low income and underserved clients with loans totaling an estimated 114 Billion [4]Some of the previous studies conducted around the world have argued that microcredit facilities did help to reduce the prevalence of poverty[5][6][7][8][9] .

During the past few years microfinance has been playing a significant role in reducing poverty and empowering the poor economically and socially in Sri Lanka. Microfinance sector is closely connected with the local economy as it provides microloan service to the small enterprises, and creates new savings opportunities for poor households. It contributes toward developing other industries such as trade, small industries, and the construction sector.

Samurdhi Microfinance Program (Divineguma), which is the current national microfinance program in the country, began operating in 1994. It is the largest government social mobilization and poverty alleviation program. Empirical researches have suggested that this program can make a significant contribution toward reducing the poverty level, and that it could provide microfinance services to the poor throughout the country. The Samurdhi Microfinance service was implemented through the Samurdhi Banking unions, which commenced activities in accordance with the 2012 parliamentary budget proposal. The Samurdhi Authority has been transformed into the Department of Divineguma Development through the Divineguma Act No 1 of 2013. The credit division has been renamed as community based banking societies. The vision of this banking society was "The micro financial strength of sustainable development" and its mission stated as "Providing micro financial services to the nation efficiently and productively for social empowerment along with the promotion of positive and environment friendly attitudes country by end of 2016. The main objective of this banking society was to provide credit and set up the institutional framework to serve the poor by reducing the other credits from informal sources[10]

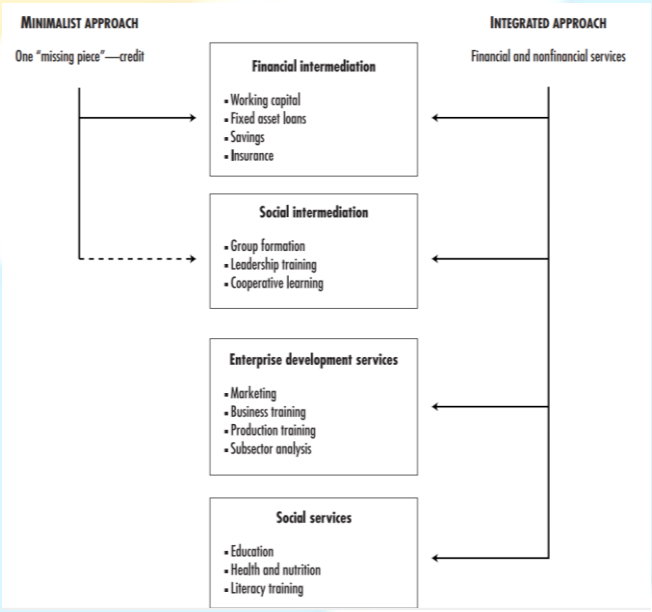
The aim of this paper is to indicate the internal characteristics, structure and relationship between the service of Samurdhi Microfinance and poverty reduction in the perspective of Sri Lanka.

2. LITERATURE REVIEW

The concept microfinance, as per the Asian Development Bank (ADB), is the provision of a broad range of financial services, such as deposits, loans, payment services, money transfers, insurance to the poor, and their businesses [2] Microfinance is not a new concept, as all developed and developing countries have a long history of usage of this concept. During the 18th and 19th centuries. The modern concept of microfinance rapidly spread all over the world after Mohammad Yunus won the Nobel Prize for the microcredit program of Grameen Bank in Bangladesh that was conceived by him[3][11].The revolution of microfinance has led to provide of different micro financial services to borrowers and this is helping to enhance their savings, consumption, asset building needs and social and financial needs. These financial products are being provided for short, medium and long terms in a convenient and affordable manner to assist the borrowers to deal with vulnerability and reduce their poverty.

The microfinance products gradually developed after understanding the poor people's financial needs, which were then addressed by enhancement of different financial products by Microfinance Institutes. The initial stage of microfinance was identified as the state-mediated and subsidized credit provision services for reducing poverty. Microcredit was the main product of government institutions, which provided this facility to eradicate poverty at this stage. The second stage of the microfinance evolution laid concern on accessing the basic wants of the poor and it was known as the 'microfinance movement'[12][13]. The scope of microfinance institutions has increased through providing various microfinance services to the poor after the 1990s. [14] identified the two approaches adopted by MFIs in providing various financial elements to clients as minimalist approach and integrated approach. The MFIs that follow the minimalist approach offer basic financial services to their clients and this is practiced during the initial stages of financial development. The elements of microfinance mainly included several key services at the initial stage, such as microcredit, micro savings, and insurance services. MFIs that follow the integrated approach offer additional microfinance services, such as social intermediation service, insurance service and non-financial services. Most holistic view of the clients has shown by the financial integrated approach. It offers a combination or wider range of financial, social intermediation, business and social services [14]. The following figure presents the elements of microfinance provided by MFIs under the two approaches.

Figure 1: Approaches of Microfinance



Source: Ledgerwood, (1999).p g65

Microfinance institutions that follow the minimalist approach generally provide only financial intermediation services. However, they may occasionally provide some social intermediation services as well. The MFIs that follow the integrated approach offer a wide range of financial, social intermediation, enterprise development, and social services. MFIs decide the suitable approach based on their objectives and circumstance. However, the integrated approach may have some potential problems such as differentiating between social services, controlling cost for service, financial sustainability of non-financial services, etc.

3. STUDY FRAMEWORK

This study attempts to indicate a most provided list of services of microfinance, microcredit, micro service, non-financial service social intermediation service and insurance service. Questionnaire was developed with reliable items, based on previous literature. The conceptual model is depicted to show the relationship between the service of micro-finance and poverty reduction. There are five independent constructs and one dependent constructs in the study,

Microcredit has been identified as a powerful product of microfinance practiced in many countries. Microcredit is a major service of microfinance that is based on giving a small loan to an individual to start a small business or become self-employed in some way. This concept was popularized by the Grameen Bank microcredit program that originated in Bangladesh. Microcredit is also referred to as 'microloan' and 'micro lending'. The concept of microcredit is popular in the developing countries as this service is much sought after by low-income borrower or groups who wish to embark on some livelihood pursuit but are unable to reach the formal banking services. The lenders charge a low interest on loans and have a specific repayment schedule. The clients usually become eligible for another loan if they successfully repay the earlier loan (Kagan, 2018; [2][14][15].

Micro Savings is one of the key product of microfinance, which can be divided into two parts as mandatory savings and voluntary savings. The client should maintain a savings account as this is a condition imposed by the MFI on anyone who wishes to obtain a loan. This is called mandatory savings. MFI also keeps note of the amount of savings known as voluntary savings[16][17]. The mandatory savings are referred to as the savings that the borrowers are required to have as a condition for applying next loans, while the voluntary savings are referred to as the amount of optional savings kept in the MFI by borrowers. Both mandatory and voluntary savings can be used to absorb financial shocks and to repay the loan[14][18]. The poor must have some savings to manage risk and plan the cash flow for future investments, as well as be able to cope with financial shocks, such as natural disasters, crop failures, job loss, illness and death [19][20].

Non-financial service is the new outlook of the MF sector. Lending institutions provide some non-financial services also to their borrowers, such as business development training, skills development training, social capital services, etc. These services directly benefit the borrowers by enabling them to use the loan more effectively [21]. According to [14]. Microfinance is not simply a lending service but also a development tool that helps to make the most of human capabilities and skills. Microfinance institutions provide various types of business skills development programs through their non-financial services, and these include business strategy training, planning training, marketing training, finance training, project management, time management, and other matters like leadership, motivation, delegation, communication, negotiation and so on [2][14][22]. *'Social mediation service'* was defined by Bennett as a "process in which investments are made in the development of both human resources and institutional capital, with the aim of increasing the self-reliance of marginalized groups, to prepare them to engage in formal financial activities." [23]Social intermediation service is one of the key elements of microfinance. It includes several services such as group formation, bookkeeping, social networking, as well as building the capabilities of borrowers by providing training and education on such topics as financial literacy and business management [14][24][25].

Micro insurance service provides financial coverage to poor families and to individuals who have no savings. It is tailored specifically to protect less valued assets and provide compensation for health problems, death or loss of property [14][27][28][29][53][54]Many MFIs offer insurance plans for health and property risks. Property insurance includes crops, livestock, and cattle insurance, insurance against theft, fire and natural disasters. Health insurance includes life insurance, disability insurance and death insurance, etc. There are several types of insurance strategies in different countries which followed by poor as informal insurance and formal insurance. Informal insurance was categorized as self-insurance and group based insurance while divided in to as social protection and insurance [30].

Poverty Reduction is as per Department for International Development, London (DFID) "the strategic use of tools such as education, economic development, and health and income redistribution to improve the livelihoods of the world's poorest by governments and internationally approved organizations"[31]. Defined as do interventions to enhance the well-being of poor, through enhance educational opportunities leads to good health outcomes [32]. Poverty alleviation is intended to permanently lift the poor out of poverty by enhancing their economic and humanitarian capacity. Poverty alleviation also helps to raise the standard of living of people who are already poor[33][34]. It has been identified as a key mechanism to reduce world poverty in the recent past while in 20th century indicated succeed progress attacking poverty and improving well-being[32].. Providing access to credit for the poor is a major strategy that is employed to uplift the living standard of the poor.

4. RESEARCH METHODOLOGY

A total number of 600 questionnaires were administered at five districts of Sri Lanka in the field survey. Study sample was selected on simple random sampling basis. 538 questionnaires were retuned and 494 questionnaires were entered as usable cases in the study. The questionnaire was consisted 65 items and used five-point Likert scales marked as strongly disagree (1) and strongly

agree (5).The collected data were subject to main three analyses descriptive analysis, Exploratory Factor Analysis(EFA). Descriptive Statistics were checked normality, central tendency (mean, mode, median) of the data set using SPSS 21.

EFA was carried out to examine the unidimensionality of the constructs [35][36] [Usman et al, 2017]. Constructs. EFA is generally used for data reduction to arrive at a smaller set of variables than those in the original set [37][38]. Factor analysis is a technique that is used to extract the factors from a dataset and minimize a large number of variables into a small number of factors [39][40][41][42]. Therefore, exploratory factor analysis is useful for reducing or summarizing a large number of components into a manageable number of items before proceeding with further analysis. In the study, maximum likelihood method is used as the factor rotation method [43][44][45]. Tabachnick and Fidell mention that the objective of using maximum likelihood method is to estimate the factor loading for a population as it maximizes the likelihood of sampling the observed correlation matrix [46]. The suitability of data for factor analysis was checked to ensure that the inter-item correlation matrix was between 0.3 and 0.9 [47] Kaiser-Meyer-Olkin value (KMO) was tested to confirm that the value was greater than 0.7, as otherwise EFA would be inappropriate for the pattern correlations between the items in the constructs [48][49].

5. RESULTS

The normality was checked examine descriptive analysis. The values skewness and kurtosis between -2 and +2 are considered acceptable to meet the assumption of normality [50][51]. The highest correlation for each item with at least one other item in the construct is between 0.3 and 0.9 for all items. Reliability of data was assessed by using Cronbach's alpha values. Cronbach's alpha values more than 0.7, which is a good enough value to be analyzed to determine the reliability and validity of the variable [52]. Table 1 summarizes the results of the reliability analysis of the study.

Variable	No. of items in the constructs	Cronbach's Alpha Value
Micro Credit (MC)	10	.855
Micro Savings (MS)	10	.873
Non-Financial Service (NF)	10	.801
Social Intermediation (SI)	10	.828
Insurance (IN)	10	.763
Poverty alleviation (PA)	15	.927

Source: Research Data, 2019

The Cronbach's alpha of 0.7 or higher for a construct indicates a good internalconsistency and stability of the items. The results in table 1 presents that a Cronbach's alpha values for all the constructs were greater than 0.8 in all the constructs except Insurance service (.763), which is still above the acceptable mark.

The Kaiser-Meyer-Olkin value (KMO) test was used to determine the sample adequacy of data that are to be used for factor analysis. KMO for all the constructs were higher than 0.8 which is greater than the acceptance value of 0.7 [46][55][56] while Bartlett's Test of Sphericity reaches 0.001. The KMO values for all the variables were more comprehensive values as indicated in table 2.

Table 2: The Kaiser-Meyer-Olkin value (KMO)

Variable	**KMO value**
Micro Credit	.887
Micro Savings	.893
Non-Financial Services	.904
Social Intermediation Services	.888
Insurance Services	.851
Poverty Alleviation	.931

Source: Research Data, 2019.

After examining the factorability of the dataset, Exploratory Factor Analysis (EFA) was conducted separately all six constructs. The highest correlation for each item with at least one other item in the construct is between 0.3 and 0.9 for MC1 to MC10. Therefore, these items in the constructs are adequately correlated. EFA for MC was carried subjected to Maximum Likelihood Estimation. 6 factors with greater than 1 eigenvalue were extracted and 4 factors were removed as their factor loadings were less than 0.5. In referring to the scatterplot and factor matrix, it was decided to retain six items which greater than 0.5-factor matrix. A single factor was extracted that explained 70% of the variation in the 6 remaining items in the constructs. Same procedure was carried out for the second construct and values of 10 items were conducted for EFA for Micro Savings (MS). All the items were adequately correlated with in the acceptable range (0.3 to o.9) 6 factors with greater than 1 eigenvalues were extracted and 4 factors were excluded as their loadings were less than 0.5. EFA for Nonfinancial Service

(NF), 6 factors that were greater than 1 eigenvalue were extracted while 4 factors were excluded as their factor loadings were less than 0.5. A single factor was extracted that explained 71% of the variation in the 6 remaining items in the constructs. In the constructs of Social Intermediation Service, 6 factors were extracted as they had eigenvalues greater than one while 4 factors were excluded as their loadings were less than 0.5. EFA for Insurance service(IN), the values of 10 items were subjected to Maximum Likelihood estimation it was decided to retain five items with factor Matrix greater than 0.5. Poverty Alleviation(PA) is the endogenous construct in the study, EFA was carried out for 15 in EFA, , it was decided to retain 9 factors with eigenvalues greater than 1 were extracted while 6 factors were excluded as their loadings were lower than 0.5. Table 3 presents summary of the pattern matrix.

Table 3: Summary of the Pattern Matrix

	Factor					
	1	2	3	4	5	6
PA5	.914					
PA1	.878					
PA3	.870					
PA4	.867					
PA6	.832					
PA2	.804					
PA8	.773					
PA12	.763					
PA7	.757					
SI4		.899				
SI5		.891				
SI3		.881				
SI2		.842				
SI6		.766				
SI1		.693				
MS4			.897			
MS3			.879			
MS2			.879			
MS5			.862			
MS1			.856			
MS9			.550			
NF4				.870		
NF1				.854		
NF3				.827		
NF2				.812		
NF5				.750		
NF6				.686		
MC4					.861	
MC3					.858	
MC5					.826	
MC1					.808	
MC2					.763	
MC9					.503	
IN1						.828
IN4						.826
IN3						.824
IN5						.809
IN2						.796

The factor analysis has removed the items from 65 to 38, in the study. All the factor loading for 38 items were greater than 0.5. A good pattern distribution of the factor loading can be seen in the EFA. First five items in all the independent variables (MC, MS, NF, IN) loaded properly while the other four items loaded poorly in the variable. Table 4 illustrates the summarized of the Exploratory Factor Analysis of the study.

Table 4: Summary of Exploratory Factor Analysis

Variable	KMO value	Factors	Variance	Number of Items Before EFA	After EFA
MC	.887	Single	70%	10	06
MS	.893	Single	73%	10	06
NF	.904	Single	71%	10	06
SI	.888	Single	74%	10	06
IN	.851	Single	75%	10	05
PA	.931	Single	74%	15	09

Exploratory Factor Analysis that was conducted reduced the set of items in the construct based on the factor loading. Factor analysis was conducted on Eigen values higher than 1 During the EFA, the 65 items were reduced to 38 items in the constructs. A Six items remained in the construct of MC with 70% variance, while Micro Savings had 6 items with 73% variance. Social Intermediation Service had six factors with 74% variance, and Insurance Service had the highest Variance (75%) with 5 factors. Endogenous variable had 9 items with 74% variance. Table 4 presents the summary of EFA.

6. CONCLUSION AND FUTURE RESEARCH DIRECTIONS

The main objective of the study achieved for exploring the factors of microfinance services through exploratory factor analysis. The factor Metrix of the EFA results presented good pattern distribution among the items which indicated that six (6) constructs loaded properly. Therefore, the results explored that the items can be grouped properly into the six constructs based on their items; Micro-credit, Micro Saving, nonfinancial service, Social intermediation service, insurance service and poverty reduction. Hence it can be developed a measurement model for validating the Smurdhi microfinance services on poverty reduction using above components in the next step. Future studies would incorporate with the structural relationship between these latent constructs and poverty reduction.

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