The Social Efficiency of Microfinance Institutions in Sri Lanka

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Abstract. Microfinance institutions (MFIs) play a crucial role in the financial world and they have a double financial and social role and need to be efficient at both. There are very limited studies in the efficiency of microfinance institutions (MFIs), especially in the poor and developing countries such as Sri Lanka. Some studies which considered only financial efficiency not give attention to social efficiency. In this paper examines the social efficiency of 36 microfinance institutions (MFIs) in Sri Lanka using non-parametric data envelopment analysis using three inputs (Total Assets (TA), Operating Cost (OC) and Number of Employees (NE)) and two outputs Number of active women borrowers (WB) and Indicator of benefit to the poorest (BP). It was found that the majority of MFIs have become a considerable efficiency scores (greater than 0.5) in study year of 2013 and 2016. It can be concluded that MFIs are at the lead of the fight against poverty and provide opportunities for women in Sri Lanka.

Introduction

Sri Lanka is an island country which is in Indian Ocean next to the southern part of India. The population is approximately 21 Million in 2016 and 70\% of its population living in the rural areas whose main income is agriculture. With a human development index of 73 out of 188 countries and a literacy rate of 93.2\%. Sri Lanka recorded the highest growth rate after independence (in 1948), in 2011viz 8.3 percent. Further, the per capita income of the country had remarkably increased from $871 in 2000 to $3835 by 2015\[1\]

Microfinance is comparatively a new discipline for academic research, receiving a good reputation as a unique and effective developmental approach [2]. There is consensus that Micro Finance Institutions (MFIs) extend financial services to the poor normally ignored by traditional financial intermediaries. Access to finance is important for the poor to raise productivity, create wealth, generate income, encourage entrepreneurship, empower women, improve health and access to education, and reduce poverty [2].

Efficiency indicates how well organizations utilize their resources to produce goods and services, and the rate at which the input resources are used to produce or deliver the outputs. Kipesha [3] defines efficiency as better use of resources in order to maximize the production of the goods and services of the firms. There are very limited studies in the efficiency of microfinance institutions (MFIs), especially in the poor and developing countries such as Sri Lanka. Some studies which considered only financial efficiency not give attention to social efficiency. This social efficiency study is much important for policy makers and management, the reason that, after the year 2005 many new financial institutions entered the rural finance market in Sri Lanka and many commercial banks diversified their activities to include microfinance services [4]. Sri Lankan Microfinance industry is evolved as key player to serve the poor [5]. Hence it is important to assess that the efficiency of microfinance activities in Sri Lanka.
Literature Review

Empirical studies on efficiency of Microfinance institutions around the world has shown different results. Among the recent findings on Microfinance institutions efficiency across the world, included the study by [6] which examined the cost efficiency of Microfinance institutions across Africa, Asia and Latin America under two assumptions, microfinance institutions as producer of loans to clients (productivity efficiency) and Microfinance institutions as intermediary institutions (Intermediation efficiency).

Kablan [7] aims to examine the 104 MFIs’ efficiency in the West African Economic and Monetary Union (WAEMU) after the reforms that were undertaken in the industry. DEA is used to measure both the social efficiency and financial efficiency of the MFIs. The study further analyse the determinants of efficiency with variables of financial management and risk, variables specific to MFIs and environmental variables. The results show that sustainability prevails. An increase in financial efficiency resulted in decrease of social efficiency.

Kipesha [8], the aim of the study was to evaluate the efficiency of microfinance institutions operating in five East African countries (Tanzania, Kenya, Uganda, Rwanda, Burundi) using non parametric approach (DEA). Efficiency for MFIs have mixed results with some has higher efficiency using VRS compared to CRS, some have the same efficiency under both approach. On average the efficiency trend is increasing from 2009 to 2011. Inefficiency is mainly caused by technical inefficiency. It was observed also that most banks have better efficiency than non-banks financial institutions such as NGOs and Cooperatives. NGOs and Cooperatives are recommended to consider the market structure changes, technology and increased competition to survive.

A more recent study by Kipesha [3] used input oriented approach while Singh, Goyal, & Sharma [9] used input and output orientation. Both studies used production and intermediation approaches. The studies were done on Tanzanian and Indian MFIs respectively. Kipesha [3] concluded that the MFIs in Tanzania are efficient as producer and inefficient as intermediary, indicating better allocation of input resources in the production of outputs. The study contradicted earlier studies which reported inefficiency under both production and intermediation approach and non-banks to have lesser efficiency than commercial banks and pure MFIs. Recommended solutions for inefficient MFIs include improvement in terms of scale and resource allocations.

According to Jayamaha [10], the formal rural financial sector in Sri Lanka comprises a large number of small financial institutions (SFIs). Among SFIs, cooperative rural banks (CRBs) are dominant in providing microfinance services in Sri Lanka. However, CRBs poor performance has been evident. So study conducted by Jayamaha [10] is to evaluate the overall efficiency of SFIs in Sri Lanka from 2005 to 2010 by taking all 1,933 CRBs operate in 2010. Data envelopment analysis (DEA) is used to measure efficiency.

The study of Wijesiri et al. [11] examines technical efficiency and its determinants of 36 microfinance institutions (MFIs) in Sri Lanka using a two stage double bootstrap approach. Two different DEA models are designed to obtain DEA scores along financial and social perspectives. According to the results from the first stage, many MFIs in Sri Lanka do not escape criticism of financial and social inefficiency. Second stage regression reveals that age and capital to assets are significant determinants on financial efficiency whereas age, type of the institution and return on assets are the crucial determinants of social efficiency.

Review of literatures showed limited studies regarding the efficiency in microfinance using DEA. There are remaining huge gaps for the efficiency study in microfinance in Sri Lanka which need to be filled. This study will be used DEA to analyses social efficiency of microfinance institutions as a one of the non-parametric analysis methods. According to that research problem is, Do Microfinance institutions in Sri Lanka achieve Social efficiency?

The main objective of this study is examining Social efficiency of 36 microfinance institutions in Sri Lanka using a DEA.
Research Methodology

Source of the Data

Secondary data is used for this research. Secondary data source use to collect the data for efficiency of microfinance institutions. This study is based on the data collect from Microfinance Information eXchange (MIX) (a global web-based microfinance information platform) and the report on “Microfinance Review” published by Lanka Microfinance Practitioners’ Association (LMFPA) which are recognized as most validated information source for world and Sri Lankan context respectively. Sample of this study is 36 Microfinance institutions.

Analysis Method

DEA efficiency scores are going to be estimated using ‘DEA-Solver software’. To construct a DEA model for measuring efficiency in Microfinance institutions, let’s assume there “s” decision making units (DMU’s) which represents MFI’s which use “n” inputs resources to produce “m” outputs.

Let DMU be one of “s” decision units, 1 ≤ k ≤ s. There are “n” inputs which are marked with and “m” outputs marked with . The efficiency equals to total outputs divided by total inputs. The efficiency of DMU can be defined as follows.

\[
\text{The Efficiency of DMU}_k = \frac{\sum_{j=1}^{m} y_{j}^k}{\sum_{i=1}^{n} x_{i}^k}
\]  

Output and Input Selection

Output and input selection is a key issue in the calculation of DEA efficiency.

After a thorough review of the literature on DEA and efficiency of microfinance institutions, have selected for three inputs and two outputs.

The three inputs are standard in the literature: Total Assets (TA), Operating Cost (OC) and Number of Employees (NE). The value of total assets has been included in financial efficiency models by these research [12, 13, 14]. Operating cost has been suggested by [15, 12]. The number of employees has been proposed as an input by [15, 12, 16, 13, 17] among others.

Two of the outputs are: Number of active women borrowers (WB) and Indicator of benefit to the poorest (BP)

Microcredit empowers women by strengthening their economic roles and increasing their contribution to their families’ support [18]; so that they can play an active role in the development process [19]. The number of women borrowers is measured by the number of active borrowers who are female, as given in the Mixmarket database. An important aim of microcredit is to fight against poverty. Karim and Osada [20] think that the top-down policy of financing development is unlikely to impact on the poor, Matin et al. [21] discussed how to design and provide the best financial services for the poor. They argue that microcredit contributes to the fight against vulnerability and results on poverty reduction. The Indicator of benefit to the poorest has been included in financial efficiency models by [22] in the case of Zambia, and by [23] in Bolivia and Nieto et al. in developing countries (2007). Table 1 summarizes the inputs and outputs used,
Table 1. Input, Output Variables.

<table>
<thead>
<tr>
<th>Variable Category</th>
<th>Variable name</th>
<th>Variable Symbol</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input 1</td>
<td>Total assets TA</td>
<td>TA</td>
<td>SLR</td>
</tr>
<tr>
<td>Input 2</td>
<td>Operating cost OC</td>
<td>OC</td>
<td>SLR</td>
</tr>
<tr>
<td>Input 3</td>
<td>Number of employees NE</td>
<td>NE</td>
<td>Number</td>
</tr>
<tr>
<td>Output 1</td>
<td>Number of active women borrowers WB</td>
<td>WB</td>
<td>Number</td>
</tr>
<tr>
<td>Output 2</td>
<td>Indicator of benefit to the poorest BP</td>
<td>BP</td>
<td>Number</td>
</tr>
</tbody>
</table>

As stated by Nieto et al 2009 and Mix Market variables required to perform DEA analysis could be defined as follows,

- **Total Assets**—total of the all net assets accounts.
- **Operating cost**—expenses related to operations, such as all personal expenses, rent and utilities, transportation, officie supplies and depreciation.
- **Number employees**—the number of individuals who are actively employed by the MFI, including contract employees or advisors who dedicate the majority of their time to the MFI, even if they are not on the MFIs roster of employees.
- **No of Women borrowers**—number of active female borrowers
- **Indicator of benefit to the poor**—this was not directly observed from MIX market database and it was calculated based on [14]. According to the MIX market database it proposed to use Average loan balance per borrower as an indicator of benefit to the poor.

In this way, TA OC NE –WB BP be able to attempt to measure social efficiency.

**Conceptual Framework**

Based on the previous studies of the efficiency of microfinance institutions the following framework is the illustrated (refer with Fig 1).

![Figure 1. Conceptual Framework of the Study.](image)

**Results**

The following analyses based on sample of 36 MFIs in Sri Lanka for the period of 2013 to 2016. The descriptive statistics for the input and output are provided in Table 2.
Table 2. Descriptive Statistics of MFI’s Inputs and Outputs by Institutes.

<table>
<thead>
<tr>
<th>INPUTS and OUTPUTS</th>
<th>Total assets (Rs)</th>
<th>Operating cost (Rs)</th>
<th>Number of employees</th>
<th>Number of active women borrowers</th>
<th>Indicator of benefit to the poorest</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum</td>
<td>8175645</td>
<td>19943</td>
<td>3</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Maximum</td>
<td>40572546714</td>
<td>275998619</td>
<td>682</td>
<td>182996</td>
<td>28</td>
</tr>
<tr>
<td>Mean</td>
<td>2365188382</td>
<td>29884458</td>
<td>111</td>
<td>19351</td>
<td>8</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>8267914057</td>
<td>61347662</td>
<td>179</td>
<td>41765</td>
<td>6</td>
</tr>
</tbody>
</table>

This table presents the descriptive statistics for inputs and outputs in 2016 and used Total assets, Operating cost and Number of employees as inputs and Number of active women borrowers and Indicator of benefit to the poorest as outputs. Appendix 1 shows summary of the inputs and outputs of the MFIs.

The following analyses based on sample of 36 MFIs in Sri Lanka for the Year of 2013 and 2016. The data envelopment analysis (DEA) methodology is used to evaluate the efficiency of MFIs in Sri Lanka. DEA efficiency scores are estimated using ‘DEA-Solver software’. MFIs as indicated by efficiency scores which equal to 1.00 could be classified as a very strong efficiency DEA score. Appendix 2 shows all the efficiency scores of the all MFIs in 2013 and 2016.

Table 3. Efficiency Summary of MFIs.

<table>
<thead>
<tr>
<th>MFIs</th>
<th>Social Efficiency Score</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2013</td>
</tr>
<tr>
<td>BANKS</td>
<td>0.8790</td>
</tr>
<tr>
<td>GUARANTEE COMPANIES</td>
<td>0.8002</td>
</tr>
<tr>
<td>NBFIs</td>
<td>0.6509</td>
</tr>
<tr>
<td>NGOs</td>
<td>0.5146</td>
</tr>
<tr>
<td>PRIVATE AND PUBLIC COMPANIES</td>
<td>0.6801</td>
</tr>
</tbody>
</table>

This table reports the result of the DEA efficiency scores of summary of MFIs in 2013 and 2016. It indicates that a comparison of the efficiency score among samples. The estimated efficiency scores in year of 2013, guarantee companies higher than that of the others. In 2016 all MFIs efficiency scores have grown down decrease except NGOs when comparing with efficiency score of 2013. Efficiency scores of all microfinance institutes were greater than 0.5, can be considered as stayed at considerable level for year of 2013 and 2016.

Conclusion

MFIs have been treated as purely financial institutions. As well as MFIs have a social role to perform that have to be assessed on how well they meet their social responsibilities. In this paper researcher has addressed the issue of MFI social performance with calculating a series of social efficiency indexes using DEA by taking the all 36 microfinance institutions in 2013 and 2016. Efficiency scores of the banks has been reduced from 0.8790 to 0.5383 in the year of 2013 to 2016 respectively with comparing of other institutes and did not use their inputs efficiently. But it was found that the majority of MFIs have become a considerable efficiency scores in study year of 2013 and 2016. The process of defining social outputs has required the creation of an indicator of the extent to which an MFI supports the poor. MFIs are at the lead of the fight against poverty and provide opportunities for women.

After the year 2007 many new financial institutions entered the rural finance market in Sri Lanka and many commercial banks diversified their activities to include microfinance services. So this efficiency study is much important for policy makers and management. Finally the findings of this
study many convince institutions decisions makers to establish more comprehensive policy settings for promoting microfinance institutions social activities relate with poverty alleviation and women empowerment in Sri Lanka.

References


