Social goal of microfinance institutions in South East Asia countries: evidence for poverty reduction

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Abstract

Banking institutions have witnessed the failure of poverty reduction as a result of their provision of high-risk services to the poor. Microfinance institutions (MFIs) were created to offer low-income households with financial services. In the effort to provide continuous financial services to the poor, MFI performance is one of the most important factors to evaluate. The MFIs originated with the objective of reducing poverty as a social goal. However, the commercialization of MFIs has resulted in their financial independence, as they were formerly supported by a government. Currently, MFIs must continue to play a social role in eradicating poverty, while also striving for long-term viability. This study aims to estimate the social efficiency of MFIs in the five ASEAN countries. Data from 168 MFIs in South East Asia covering five countries from 2011 to 2017 makes up the sample. The level of social efficiency is determined using a nonparametric Data Envelopment Analysis (DEA) method. According to the study, the MFIs in the ASEAN-5 countries are less socially efficient. This suggests that the MFIs in the ASEAN-5 countries have sacrificed their initial objective of reducing poverty for a focus on establishing financial sustainability for long-term viability.

Keywords: microfinance institutions ; social efficiency ; Data Envelopment Analysis

1. Introduction

Microfinance Institutions (MFIs) are set up to provide banking services to low-income families. Since they are not included in the formal financial system due to a lack of basic needs and daily income below the poverty line, the poor are unable to engage in economic activity (Banerjee & Jackson, 2017). They require access to fundamental banking services in order to increase their income and meet social requirements including childcare, health care, water, and sanitation.

Therefore, Muhammed Yunus, a professor of economics from Bangladesh, created MFIs in 1976 as a means of providing financial services, mostly to low-income households. The failure of conventional banks to provide financial services to the underprivileged has been addressed by the establishment of MFIs. In addition, Professor Muhummed Yunus received the Nobel Peace Prize from the United Nations Year of Microcredit in 2005 for his outstanding contribution to fostering economic and social development at a lower level. Despite the success stories of microfinance in alleviating poverty, there is still a substantial number of

poor people (Awaworyi Churchill, 2017). This indicates that there are some requirements that the MFIs might not meet.

Due to this underlying purpose of the microfinance industry, assessments evaluating the performance of a firm typically incorporate the social impact or social efficiency measurement. Researchers evaluate the

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success of MFIs based on two primary objectives: outreach and financial sustainability. Outreach is the capacity to provide access to financial services for low-income families (Rizkiah, 2019). It is frequently referred to as the microfinance industry's social mission.

Over the last two decades, MFIs have rapidly evolved and expanded from a relatively narrow field credit delivery system to the massive challenge of developing broad-range financial services. Historically supported by government grants, MFIs experienced a paradigm change from the subsidy system to commercialization in the late 1990s.

According to Navin and Sinha (2021), MFIs were no longer reliant on donors and subsidies and they began to generate their own funds by offering a variety of banking products. MFIs today are unique in that they pursue both social and financial objectives. Nonetheless, MFIs continue to play a social role in eradicating poverty while also attempting to maintain long-term operations. The United Nations Development (2015) highlighted that despite the tremendous rise of MFIs and the extensive range of banking products they currently offer to customers, nearly half of the world's population still lives in poverty, defined as earning less than USD1.90 per day. Additionally, UNICEF (2015) estimates over 22,000 children die every day as a result of poverty. This circumstance highlights a crucial argument against the commercialization of MFIs as they shift away from their social objective and concentrate more on financial sustainability.

Efendic and Hadziahmetovic (2017) proposed using efficiency as a measure of microfinance performance to account for social goals. As a result, the method is applicable to commercially viable institutions as well as non-profit organisations with a prior focus on poverty reduction. In this study, we focus on efficiency as the ratio of outputs to inputs, while preserving the social goal in consideration.

Furthermore, studies that investigate the reliability of MFIs to reduce poverty in ASEAN 5 countries, particularly in terms of social efficiency, are scarce. This is significant because, while MFIs must strive for financial sustainability, they must also maintain their social objective, which is to eradicate poverty (Fadikpe, Danquah, Aidoo, Chomen, Yankey & Dongmei, 2022). In essence, when MFIs focus on financial sustainability, they may lose sight of their social mission.

This study aims to determine the level of social efficiency among MFIs in the ASEAN 5 countries. The rest of this paper is structured as follows. The second section provides an overview of the theoretical and empirical literature on the social efficiency of MFIs. Section 3 discusses the estimation method used to achieve the study's objectives. Section 4 contains results and discussion. Then in Section 5, it is ended with the conclusions and recommendations.

2. Literature Review

In the late 1990s, the commercialization of MFIs sparked a paradigm shift in the MFI industry. At this moment, MFIs were no longer supported or dependent on donors; rather, they began to earn their own revenue by distributing more banking products (Navin & Sinha, 2021).

MFIs today demonstrate a dual mission in that they must achieve financial stability while also providing social outreach in order to eradicate poverty. Cobb Douglass's theory of production serves as the primary

theory of support throughout this study. Cobb and Douglas (1928) anticipate that a firm should believe that it is acting efficiently. For the manufacturing industries, he develops the theory of production as a function of capital, labour, production, value, and wages. Førsund and Hjalmarsson (1974) observed that the production function should be viewed in light of technological advancements. The 'frontier production function' or 'best practises' is a common indicator of efficiency in the industry. The maximum output yields for a given set of inputs are shown by the frontier production function (Aigner & Chu, 1968). Productivity is another area that is regularly discussed in relation to efficiency measurement.

Efficiency is defined by Innes and Mitchell (1990) as the ratio of total output to total input. Consequently, productivity can be determined by observing how the available resources are utilised to get the intended outputs. According to Kopelman (1986), productivity is the correlation between one or more physical outputs and the associated physical inputs used in production.

The MFIs started out with social outreach as their main objective, with the purpose of reducing poverty. The social objective of MFIs is to make sure that the available financial services are utilised by the needy. The social objective of MFIs is identified in previous literature as a social value of the output created by MFIs. It has six components: depth, breadth, length, scope, worth of users, and cost of users (Saad, Taib & Bhuiyan, 2017). The depth of outreach demonstrates the MFIs' ability to reach the poorest borrowers, whereas breadth is defined as the number of poor borrowers served by the MFIs. Furthermore, the length of outreach explains the time frame in which the service is provided to poor people, and the scope of outreach refers to the variety of financial services provided to poor people. Furthermore, the worth of users is defined as how MFIs' financial services meet the needs of poor clients, and the cost to users is measured by the amount of interest and fees charged by MFIs for the services provided.

The present study focused on the breadth and depth of outreach to quantify social efficiency. Assefa, Hermes and Meesters (2013) examine the effect of competition on the social and financial performance of microfinance institutions. Access to a number of borrowers was used to determine social performance. This is congruent with the results of Widiarto and Emrouznejad (2015), who compared the social and financial performance of conventional and Islamic MFIs. The outcome shown that conventional MFIs dominate Islamic MFIs in terms of financial and social efficiency. Also, the conventional MFIs are mature and stable enough to accomplish both efficiencies, whereas Islamic MFIs are still in their infancy and need to improve in the future.

From the literature, the current study derives the following hypothesis.
H1: Microfinance Institutions in ASEAN 5 countries have significantly lower levels of social efficiency.

3. Methodology

Data on MFIs were gathered from the World Bank database, a web-based platform containing extensive social information on global MFIs. According to Hadi and Cull (2020), World Bank database market is the largest online database of MFIs and is now widely used in the microfinance literature.
The database currently has 3237 MFIs from eight different global regions. The market implemented a diamond rating system to assure the accuracy of the data, which indicates the quality and transparency of the data obtained from the MFIs. Higher numbers of diamonds indicate higher levels of transparency and data quality on a scale from 1 to (Reichert & Reichert, 2016).

Data is drawn from the South East Asian region, or ASEAN 5, which includes Malaysia, Indonesia, Thailand, Cambodia, and the Philippines. The fundamental reason to include the ASEAN 5 countries in data estimation because the majority of them are developing countries with high levels of poverty and access to MFIs (Omar & Inaba, 2020). The study sample includes of 168 MFIs from the five ASEAN countries from 2011 to 2017. There are 1176 data observations that must be accounted for in the estimation. This study

utilises Data Envelopment Analysis (DEA) to estimate the social efficiency of MFIs in the ASEAN-5 countries.

3.1. Data Envelopment Analysis

The DEA was first proposed by Charnes, Cooper and Rhodes (1978) , and is widely regarded as a CCR model after their names. It is a generalisation of efficiency that introduced by Farrell (1957). The CCR model is based on the constant returns to scale (CRS) assumption. This assumption is inappropriate in markets in imperfectly competitive markets. Banker, Charnes and Cooper (1984) proposed the BCC model, which modifies the CCR model by allowing variable returns to scale (VRS).

This study uses estimations of efficiency based on the VRS assumption to accomplish its goals. The overall efficiency (TE) score, which is broken down into pure technical efficiency (PTE) and scale efficiency (SE), is provided by the VRS assumptions. The PTE evaluates decision making units (DMUs) in terms of managerial efficiency without taking scale into account. While the SE identifies the ideal DMU operating size. As a result, VRS data rather than CRS may offer more accurate information on the DMU's efficiency (Shafie, Mohammed, See, Ibrahim, Wong & Chhabra, 2022).

According to the study, the TE, which represents the efficiency score overall, is used to gauge the social efficiency of the MFIs.

In order to measure the performance of financial institutions, the DEA established many methods, including the intermediate and production methods (Berger & Humphrey, 1997). To fully utilise capital and labour as inputs to produce outputs of deposits, loans, and other financial products, Tsaurkubule, (2017) advocated the production method with the financial institutions as a production unit.

In the intermediate method, however, financial institutions act as financial intermediaries by leveraging deposits from surplus clients as inputs to provide outputs such as loans and numerous financial services to satisfy the demands of deficit consumers. In the production approach, the deposit serves as an output, whereas in the intermediate approach, it serves as an input. Since the majority of MFIs are not collecting the deposit, production technique is the most suitable one to include in a DEA analysis (Widiarto & Emrouznejad, 2015).

The study uses three input variables to assess the social efficiency of MFIs: total assets, operating costs, and personnel costs. Average loan balance, which indicates the width of the outreach, and number of borrowers, which indicates the depth of the outreach, are the output variables. Details on the input and output variables used to gauge the MFIs' social efficiency are provided in Table 1.1 below:

Table 1.1: Input Variables and Output Variables for Social Efficiency
(Khan & Gulati, 2019; Widiarto & Emrouznejad, 2015; Wijesiri et al., 2015)

Variable	Variable Name	Unit	Description
Input	Total Assets	USD	Total asset accessible to the MFI via capital and borrowings
	Operating Costs	USD	Operating expenses in MFIs which include administrative, personnel, depreciation, and amortisation.
	Personnel Costs	USD	Compensation paid to staff employed by MFI
Output	Average loan balance	Numeric	Average loan balance over gross national income per person

| | Number of borrowers | Numeric | Total number of active borrowers that MFIs serve |

Notes: All sources from World Bank database (www.databank.worldbank.org)

4. Results and Discussion

The study provides summary statistics for the DEA model's output and input variables. Also, the score of social efficiency derived from inputs and outputs via the production approach are presented in the following discussion. The descriptive statistics of the outputs and inputs variables used in the DEA model to construct the efficiency frontier in terms of social efficiency of the MFIs are summarised in Table 1.2 below. During the period 2011-2017, the average number of poor borrowers for MFIs in ASEAN 5 countries was 46,343, and the average loan balance was 0.631.

Table 1.2 also revealed an average financial revenue of USD 7.959 million. Table 1.2 also includes total assets, operating costs, and personnel costs as input variables. The average asset value is USD 52.200 million, the average operating cost is USD 4.035 million, and the average personnel cost is USD 2.220 million.

Before continuing with the discussion of social efficiency scores, this study tests the rule of thumb provided by Cooper, Seiford and Tone (2000) regarding the number of input and output variables. Due to the fact that the total number of DMUs in this study, 168 MFIs, is greater than the number of inputs and outputs variables in the social efficiency model 15(3 x 2), the selection of variables is valid and conforms to the rule of thumb. This verifies all variables in Table 1.2 for measuring the efficiency of DMUs.

Table 1.2: Summary Statistics of Output Variables and Input Variables for Social Efficiency of Microfinance Institutions in DEA Model

Variables	Mean	Minimum	Maximum	Standard deviation	No. of observation
Output of MFIs					
Social Efficiency					
No of poor borrower	46343.000	109.500	1532695.000	125730.400	1176
Average loan balance	0.631	0.012	17.261	1.281	1176
Inputs of MFIs					
Total assets (in million USD)	52.200	0.005	4720.000	258.000	1176
Operating costs (in million USD)	4.035	0.003	174.000	11.800	1176
Personnel costs (in million USD)	2.220	0.001	105.000	7.097	1176

The results of the DEA social efficiency scores for MFIs in ASEAN 5 countries are reported in Table 1.3 below. It also displays the TE, PTE, and SE scores as components of social efficiency. Furthermore, the TE denotes the overall efficiency score in the context of social efficiency. In 2014, MFIs had the highest TE of 32.20%.

According to the results, MFIs in ASEAN 5 countries could produce the same amount of outputs while using only 32.20% of the inputs. It demonstrates that during 2014, MFIs were operating at a relatively optimal scale of efficiency, but not at managerial efficiency to fully exploit their resources (where PTIE=61.20% > SIE=17.70%).

In 2015, the MFI had the lowest TE score of 11.80%. This situation shows that MFIs in the ASEAN 5 countries use only 11.80% of the inputs to produce the same number of outputs. This is due to MFIs not being managerially efficient enough to fully exploit their resources, despite operating at the appropriate efficiency scale (where PTIE=79.6% > SIE=24.70%).

During the years 2011 to 2017, the mean TE for all MFIs in ASEAN 5 countries (Panel H of Table

1.3) was 26.30%, with an input waste of 73.70%. According to the results, MFIs in ASEAN 5 countries could produce the same number of outputs while using only 26.30% of the inputs.

In other words, MFIs could reduce input waste by up to 73.70% in order to produce the same number of outputs. This condition is primarily the consequence of MFI managerial inefficiency in fully utilising their resources, despite operating at the appropriate scale of efficiency (where PTIE=66.10% > SIE=20.30%).

In conclusion, the average TE of 26,30% indicates that the social efficiency of MFIs in the ASEAN-5 countries from 2011 to 2017 is generally quite low. Therefore, there is a great deal of opportunity for development in terms of managerial efficiency in order to maximise the utilisation of their resources. In addition, as shown in Table 1.3, the MFIs in the ASEAN-5 countries have a large standard deviation or dispersion of efficiency.

Supported *H1*:

The social efficiency of MFIs in the ASEAN-5 countries is significantly lower.

Table 1.3: Summary Statistics of Social Efficiency Score of Microfinance Institutions in ASEAN 5

Efficiency Measures	No. of DMU	Mean	Minimum	Maximum	Standard deviation
Panel A: All Firms 2011					
Technical Efficiency	168	0.287	0.035	1.00	0.228
Pure Technical Efficiency	168	0.352	0.054	1.00	0.270
Scale Efficiency	168	0.833	0.406	1.00	0.159
Panel B: All Firms 2012					
Technical Efficiency	168	0.244	0.012	1.00	0.203
Pure Technical Efficiency	168	0.330	0.016	1.00	0.263
Scale Efficiency	168	0.764	0.287	1.00	0.175
Panel C: All Firms 2013					
Technical Efficiency	168	0.281	0.027	1.00	0.217
Pure Technical Efficiency	168	0.357	0.045	1.00	0.259
Scale Efficiency	168	0.800	0.228	1.00	0.174
Panel D: All Firms 2014					
Technical Efficiency	168	0.322	0.030	1.00	0.232
Pure Technical Efficiency	168	0.388	0.050	1.00	0.256
Scale Efficiency	168	0.823	0.381	1.00	0.179
Panel E: All Firms 2015					
Technical Efficiency	168	0.118	0.001	1.00	0.208
Pure Technical Efficiency	168	0.204	0.001	1.00	0.273
Scale Efficiency	168	0.753	0.002	1.00	0.363
Panel F: All Firms 2016					
Technical Efficiency	168	0.315	0.024	1.00	0.232
Pure Technical Efficiency	168	0.388	0.042	1.00	0.264
Scale Efficiency	168	0.810	0.268	1.00	0.191
Panel G: All Firms 2017					
Technical Efficiency	168	0.273	0.035	1.00	0.217
Pure Technical Efficiency	168	0.351	0.052	1.00	0.264
Scale Efficiency	168	0.794	0.088	1.00	0.182
Panel H: All Years					
Technical Efficiency	1176	0.263	0.001	1.00	0.228
Pure Technical Efficiency	1176	0.339	0.001	1.00	0.270
Scale Efficiency	1176	0.797	0.002	1.00	0.215

The results from Table 1.4 show the social efficiency score of MFIs by the ASEAN 5 countries especially from 2011 to 2017. The table also provides each country's overall social efficiency rating for all years (refer Panel H of Table 1.4).

According to Table 1.4, the Philippines had a social efficiency score of 28.20 percent in 2014 and 2016 and a score of 4.0 percent in 2015. Overall, the social efficiency score (23.80%) for all years shows that all MFIs in the Philippines from 2011 to 2017 focused on sustainability rather than expanding their clientele. The highest social efficiency score for Thailand was 82.50% in 2013, 2014, 2016 and 2017, and the lowest was 6.30% in 2015. Overall, the high social efficiency score (69.60%) shows that all MFIs in Thailand from 2011 to 2017 were successful in eradicating poverty and providing more borrowers with financial products to help their income-generating activities.

The greatest social efficiency score in Indonesia was 40.40% in 2014, and the lowest was 24.00% in 2012. Overall, the social efficiency score (31.70%) from 2011 to 2017, all MFIs in Indonesia seek financial performance in order to ensure the possibility of continuing their social missions.

Malaysia had the highest social efficiency score of 10.50% in 2017, and the lowest score of 1.00% in 2015. Overall, the social efficiency score (7.70%) for all years indicates that all MFIs in Malaysia were not fully efficient in eradicating poverty and supporting women.

Finally, in Cambodia, the maximum score for social efficiency was 24.20% in 2011 and the lowest score was 9.70% in 2015. Overall, the social efficiency score (18.10%) indicates that all MFIs in Cambodia from 2011 to 2017 should have been financially viable, as unviable institutions cannot meet their social obligations for long.

According to Panel H of Table 1.4, Thailand looks to be the most efficient country in terms of social efficiency, as the country with the greatest mean TE for social efficiency (69.60%). This is mostly due to the fact that each year, MFIs in Thailand report a high social efficiency. The result reveals that Thailand's banking system is still undergoing development, which has a negative impact on the financial performance of MFIs (Hermes & Hudon, 2018). The MFIs in Thailand appear to maintain their initial objective of eradicating poverty. Therefore, this requirement offers an opportunity for the poor to access the MFIs' financial products, thereby enhancing the MFIs' social performance.

Nonetheless, Malaysia appears to be the worst country in terms of MFI performance in terms of social efficiency. This is due to the lowest social efficiency score (7.70%) among other countries. This situation could be explained by the fact that demand for financial products from MFIs in Malaysia is low. Malaysia is classified as a higher-middle-income country, and its banking system is among the most advanced in ASEAN 5. Individual income in Malaysia is considered middle to high in comparison to other countries, resulting in lower demand for MFIs' products.

A wide range of financial products from commercial banks have also been made available to the majority of Malaysians, providing them with additional benefits and advantages. Therefore, MFIs by nature cannot compete with established commercial banks in a country with a more developed banking system, which lowers demand for microfinance products (Al-Azzam & Parmeter, 2021; Vanroose & D'Espallier, 2013). The notion of market failure, which defines the circumstance when a supply does not match a demand, also support this scenario. This would lead to an inefficient distribution of resources and a state of non-equilibrium.

Table 1.4: Social Efficiency Score of Microfinance Institutions for Specific Countries in ASEAN-5

Country Name	Philippines	Thailand	Indonesia	Malaysia	Cambodia
Type of Efficiency	Social Efficiency	Social Efficiency	Social Efficiency	Social Efficiency	Social Efficiency
No. of Observation	602	14	413	14	133
Panel A: Year 2011					
Technical Efficiency	0.277	0.764	0.307	0.098	0.242
Pure Technical Efficiency	0.342	0.766	0.356	0.191	0.361
Scale Efficiency	0.826	0.996	0.885	0.541	0.716
Panel B: Year 2012					
Technical Efficiency	0.250	0.749	0.240	0.078	0.193
Pure Technical Efficiency	0.329	0.829	0.337	0.148	0.281

Scale Efficiency	0.789	0.917	0.740	0.615	0.725
Panel C: Year 2013					
Technical Efficiency	0.267	0.825	0.314	0.085	0.205
Pure Technical Efficiency	0.338	0.829	0.378	0.171	0.346
Scale Efficiency	0.800	0.994	0.854	0.544	0.639
Panel D: Year 2014					
Technical Efficiency	0.282	0.825	0.404	0.087	0.218
Pure Technical Efficiency	0.356	0.829	0.445	0.155	0.335
Scale Efficiency	0.803	0.994	0.919	0.572	0.626
Panel E: Year 2015					
Technical Efficiency	0.040	0.063	0.243	0.001	0.097
Pure Technical Efficiency	0.129	0.090	0.303	0.121	0.254
Scale Efficiency	0.763	0.727	0.880	0.419	0.351
Panel F: Year 2016					
Technical Efficiency	0.282	0.825	0.402	0.084	0.169
Pure Technical Efficiency	0.362	0.829	0.453	0.151	0.280
Scale Efficiency	0.797	0.994	0.904	0.564	0.578
Panel G: Year 2017					
Technical Efficiency	0.266	0.825	0.313	0.105	0.141
Pure Technical Efficiency	0.345	0.829	0.383	0.194	0.244
Scale Efficiency	0.794	0.994	0.846	0.546	0.636
Panel H: All Years					
Technical Efficiency	0.238	0.696	0.317	0.077	0.181
Pure Technical Efficiency	0.315	0.714	0.379	0.161	0.300
Scale Efficiency	0.796	0.945	0.861	0.543	0.610

5. Conclusions and Recommendations

Microfinance institutions (MFIs) are distinguished by their dual social and financial objectives. MFIs no longer focus solely on the social goal, but also on the financial goal to ensure continuous operation while maintaining the social effort of poverty reduction.

Due to the dual objectives of MFIs, the purpose of this study was to determine the credibility of MFIs in maintaining the social goal of eradicating poverty by determining the level of social efficiency of MFIs. The results of the study indicate that, from 2011 to 2017, the social efficiency score of MFIs in the ASEAN-5 countries is low.

The results also indicate that MFIs waste more inputs when delivering social output. Management incompetency to fully exploit available resources was identified as the primary cause of inefficiency in social efficiency. However, the results demonstrate that all MFIs in the ASEAN-5 countries operate at maximum efficiency. The emphasis must be placed on the MFIs' initial purpose to reduce poverty; nevertheless, they only manage to achieve a social efficiency of 26.30%. This circumstance demonstrates that the MFIs in the ASEAN-5 countries failed to alleviate poverty to the greatest extent possible, resulting in no significant impact on the poor.

In other words, it clearly shows that MFIs in the ASEAN 5 countries ignored their original mission of poverty reduction in favour of focusing on the production of financial products in order to increase revenue. This occurred following the MFIs' commercialization, when they needed to generate their own funds by offering banking products in an industry that was no longer subsidised.

Unfortunately, MFIs in the ASEAN 5 countries have been found to be inconsistent in their ability to balance social and financial performance, as they tend to focus on achieving financial sustainability for long-term

viability while ignoring social efforts to eradicate poverty.

Overall, the study concludes that MFIs today play a role similar to commercial banks in that they rely on financial leverage and efficient asset use to generate profits in order to make more loans and thus improve social efficiency in the MFIs.

However, because MFIs are still new to the banking industry, the study discovered managerial incompetence in handling banking products and less experience at top management, particularly in dealing with global challenges in financial markets, lowering the MFIs' social efficiency score.

Some suggestions are made for researchers in the future. First, a holistic financial analysis would be preferable to analyse the performance of MFIs as a whole, since MFIs increasingly play a role similar to commercial banks. Second, as the number of MFIs serving the Muslim community grows, it is possible to evaluate the performance of Islamic and traditional MFIs.

Acknowledgements

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