



Efficiency of microfinance institutions in Sri Lanka: a two-stage double bootstrap DEA approach



Mahinda Wijesiri ^{a,*}, Laura Viganò ^{b,1}, Michele Meoli ^{c,2}

^a Department of Management, Information and Production Engineering, University of Bergamo, Bergamo, Italy

^b Department of Management, Economics and Quantitative Methods, Research Center on International Co-operation, University of Bergamo, Bergamo, Italy

^c Department of Management, Information and Production Engineering, CISALpino Institute for Comparative Studies in Europe, University of Bergamo, Bergamo, Italy

ARTICLE INFO

Article history:

Accepted 11 February 2015

Available online 27 February 2015

Keywords:

Microfinance

Data Envelopment Analysis

Efficiency

Bootstrap

Truncated regression

ABSTRACT

This study examines technical efficiency and its determinants of 36 microfinance institutions (MFIs) in Sri Lanka using a two-stage double bootstrap approach. In the first-stage, bias-corrected Data Envelopment Analysis (DEA) efficiency estimates for the individual MFI are obtained by means of the smoothed homogeneous bootstrapped procedure (Simar and Wilson, 2000) and then they are regressed on a set of explanatory variables employing the double bootstrap truncated regression approach (Simar and Wilson, 2007). 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.

© 2015 Elsevier B.V. All rights reserved.

1. Introduction

The financial capital is an essential requisite to unlocking the entrepreneurial potentials of the poor inside the poverty trap. However, access to finance was not always possible as the traditional banking system often looked at poor entrepreneurs as a financially unviable proposition, involving a risk-return pattern that was attractive, given the limited size of their expected transactions and the related expected return. This means that the poor had no alternative but to rely on informal financial markets which are normally based on small size, short-term transactions and, particularly, on moneylenders who, quite often, exploited them with very stiff and exorbitant interest rates over the years. In this backdrop, the concept of microfinance that adheres to the principles of both financial as well as social capital emerged to help ease this constraint, at least to some extent. However, at the early stages, programs focused on credit distribution based on administrative criteria by state-owned agricultural development banks, with little concern for program efficiency and effectiveness. The poor performance of these programs eventuate in political interventions, forcing most programs to become insolvent and unviable, causing further donor support to be denied (for more details see Von Pischke, 1991; Yaron, 1992a,

1994). In an attempt to attenuate the negative externalities associated with the old-paradigm, many states started to adopt prudent fiscal and monetary policies, supportive regulatory frameworks and financial innovations to expand the financial frontier outward in order to build a cost efficient financial intermediation system (Adams et al., 1984; Yaron et al., 1997). The effectiveness of the new-paradigm of microfinance programs is evidenced by several successful episodes in recent past, including: The Bank for Agriculture and Agricultural Cooperatives in Thailand, Bank Rakyat Indonesia's Unit Desa System and BancoSol in Bolivia (Glosser, 1994; Yaron, 1992a). These achievements challenge the traditional belief that emphasizes the prerequisite of subsidies to work well with the threefold objective of microfinance programs – i.e. social outreach, impact and financial sustainability. These three targets are often mutually excluding and a contemporaneous achievement requires innovation, as well depicted in the microfinance triangle (Zeller and Meyer, 2002). However, not all the experiences are equally successful and there is increasing concern that many microfinance programs across the world are heavily dependent on subsidies (Quayes, 2012; Robinson, 2001). The story is no different in the microfinance sector in Sri Lanka where many microfinance institutions (MFIs) are highly subsidized (Charitonenko et al., 2004; Pathan et al., 2008). The natural question which is then raised includes whether all subsidy-dependent MFIs are underperformers. This question is very important especially for donors and states as they need a criterion to determine the continuation of funding support to MFIs. Balkenhol (2007) argues that such a criterion must encompass both financial and social performance of MFIs. He suggests that irrespective of overall orientation of MFIs, efficiency helps determine, with much better accuracy, between

* Corresponding author. Tel.: +39 32 8 8614 309, +39 035 2052 093; fax: +39 035 2052 077.

E-mail addresses: mahinda.wijesiri@unibg.it, wijesiri.mahinda@ugent.be (M. Wijesiri), laura.vigano@unibg.it (L. Viganò), michele.meoli@unibg.it (M. Meoli).

¹ Tel.: +39 035 2052 553; fax: +39 035 2052 549.

² Tel.: +39 035 2052 093; fax: +39 035 2052 077.

support-worth and underperforming MFIs. Efficiency then becomes more fact based for funding decisions for the states and donors.

Ratio indicators and parametric and non-parametric methods are the commonly used methods to measure the efficiency. Among these methods, financial ratios can be recognized as a traditional approach to monitor the performance of MFIs. Measuring the efficiency of MFIs based on the notion of these ratios is, however, quite distorted unless they have been properly adjusted. These adjustments may include: subsidy adjustments that account for reduced costs (subsidy on personnel, for example) or donation contribution to income of the institution (Yaron and Manos, 2007), inflation adjustments to recognize the loss in the real value of equity, adjustments for non-performing loans in order to compare MFIs on a consistent basis and adjustments to foreign exchange gains/losses (CGAP, 2003). Despite the undeniable better accuracy of adjusted data, estimates on the adjustments are not always easy to make and data are seldom available. Moreover, ratios in isolation provide little help when considering the effects of economies of scale, the identification of benchmarking policies and the estimation of overall performance measures of firms (Athanasopoulos and Ballantine, 1995). On the contrary, frontier methods become a more sophisticated and powerful way of benchmarking the firms (Berger and Humphrey, 1997). Stochastic Frontier Analysis (SFA) and Data Envelopment Analysis (DEA) are the commonly used frontier techniques to measure the efficiency of microfinance programs. Readers interested in detail discussion about the strengths and weaknesses of both methods are encouraged to consult Berger and Mester (1997); Bauer et al. (1998).

In the present paper, we use DEA to examine the technical efficiency and its determinants of 36 MFIs in Sri Lanka. Among emerging financial markets in South Asian countries, the study of MFIs in Sri Lanka is particularly interesting as microfinance plays a significant role in the growth of the country's economy. Especially after the tsunami devastation in 2004, there was an influx of donor funds into the microfinance sector in Sri Lanka and, consequently, a number of NGO (non-governmental organization)-MFIs emerged (Microfinance Industry Report, 2010). In addition, the end of a three-decade long conflict in 2009 creates a better environment for microfinance investors. Nevertheless, prevailing legal constraint due to delay in enacting the proposed microfinance bill inhibits the growth and expansion of microfinance industry. While regulation is sometimes considered more a burden than a booster of microfinance (Adams and Fitchett, 1992), it is often considered a preliminary step. This legal vacuum applies especially on NGO-MFIs as they are not authorized to accept public deposits and obtain off-shore debt and equity funding (Microfinance industry report, 2010). Thus, the findings of this study may provide some insights to the policy makers to develop appropriate policies in order to streamline the microfinance operations in Sri Lanka. Moreover, since both dimensions of efficiency determines the yardstick for recognizing which is efficient and which is not and which in turn puts pressure on the inefficient MFIs to come up to speed and put more effort into exploiting available resources to serve the poor in a financially sustainable way, the findings of this study help MFIs to improve their viability, identify the market competition and build appropriate business strategies to compete with better performers in the market. Donors and states, on the other hand, could use the benchmarking results for their funding decisions.

In contrast to the previous empirical studies using deterministic DEA approaches that carry with them several well known drawbacks, notably, our study contributes to the existing microfinance literature by proposing the use of a two-stage double bootstrap method. In the first-stage of the analysis, the DEA efficiency estimator is corrected for bias using the homogeneous bootstrap procedure (Simar and Wilson, 2000) and then in the second-stage bias corrected-efficiency scores are regressed on a set of explanatory variables by employing the truncated regression with bootstrap (Simar and Wilson, 2007). The bootstrap method employed in the current study allows us to obtain more meaningful conclusions as this approach accounts for the bias and serial

correlations of efficiency estimates and, consequently, provides valid inference (Simar and Wilson, 2007). This method is a remedy to the limitations of conventional DEA and also issues raised by small sample size (see Barros et al., 2010). We also design two different DEA models to obtain efficiency scores along financial and social perspectives. Thus, second-stage results shed light on the drivers of both financial and social efficiency estimates. Additionally, focusing on a single country in the current study helps to obtain a geographically homogeneous sample. To the best of our knowledge, this is the first empirical study to investigate the efficiency of MFIs in Sri Lanka.

First-stage results reveal that a great majority of MFIs in Sri Lanka are relatively inefficient along both dimensions of efficiency. Moreover, empirical results of the second-stage regression show that older MFIs are financially efficient. This is consistent with the fact that, while many MFIs find it difficult to reach the break-even in their early stages, time allows to increase the size and to better manage the processes in order to achieve profitability. Nevertheless, they are relatively inefficient in poverty outreach indicating a classical mission drift effect. Furthermore, we find that NGO-type MFIs are socially more efficient. In line with the agency cost hypothesis (see Berger and di Patti, 2006; Harris and Raviv, 1991), we find that MFIs with lower equity to assets ratios tend to have higher financial efficiency. We also find that more profitable MFIs tend to exhibit lower social efficiency.

The remainder of the paper is structured as follows: the study begins with an outline of microfinance industry in Sri Lanka. Then, Section 3 provides a brief literature review on the previous application of parametric and non-parametric techniques to measure the efficiency of MFIs. Section 4 is dedicated to the methodology. Section 5 discusses the empirical results. Section 6 concludes.

2. An overview of the microfinance sector in Sri Lanka

2.1. Institutional types

The microfinance sector of Sri Lanka comprises several entities of which no single blueprint model can be found. Apart from government affiliated institutions that claim a large share of the microfinance market in the country, a number of organizations serve the poor in different market niches. In general, Sri Lankan MFIs can be grouped into four categories based on their regulatory and supervisory mechanisms. These are: Licensed Specialized Banks (LSBs), Non-bank Finance Institutions (NBFIs), Cooperatives and NGO-MFIs. LSBs and NBFIs are regulated and registered under the purview of the Central Bank of Sri Lanka (CBSL) while Cooperatives are regulated and supervised by the Department of Cooperative Development (DCD). However, the standard and methods of supervision of these institutions are not uniform due to the absence of single regulatory and supervisory mechanism (Microfinance Industry Report, 2010). On the other hand, companies and NGOs, collectively called NGO-MFIs are neither supervised nor regulated by any external authority, yet they are encouraged to be self-regulated. Even though self-regulation essentially includes the standard accounting and reporting practices which are very important elements for enhancing the overall performance, many NGO-MFIs are ill-equipped to deal with self-regulatory mechanisms. On the whole, the prevailing legal vacuum results in many unregulated MFIs in Sri Lanka to suffer from high transaction costs, weak governance mechanism, low repayment rates and recurring losses (Asian Development Bank Completion Report, 2012).

Table 1 illustrates a brief summary of MFIs in Sri Lanka for the year 2010. All the monetary values given in the present paper are measured in Sri Lanka Rupees (LKR) unless otherwise stated. As can be seen from the table, the largest number of borrowers and the highest number of offices of LSBs among all groups shed light on their wide outreach spectrum. This view is further supported by the value of loan portfolio. On the other hand, when considering the average loan balance, a proxy for the depth of outreach (Schreiner, 2002), companies and NGOs report

متن کامل مقاله

دریافت فوری ←

ISIArticles

مرجع مقالات تخصصی ایران

- ✓ امکان دانلود نسخه تمام متن مقالات انگلیسی
- ✓ امکان دانلود نسخه ترجمه شده مقالات
- ✓ پذیرش سفارش ترجمه تخصصی
- ✓ امکان جستجو در آرشیو جامعی از صدها موضوع و هزاران مقاله
- ✓ امکان دانلود رایگان ۲ صفحه اول هر مقاله
- ✓ امکان پرداخت اینترنتی با کلیه کارت های عضو شتاب
- ✓ دانلود فوری مقاله پس از پرداخت آنلاین
- ✓ پشتیبانی کامل خرید با بهره مندی از سیستم هوشمند رهگیری سفارشات