Measuring performance of social and non-profit Microfinance Institutions (MFIs): An application of multicriterion methodology

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A R T I C L E   I N F O

A B S T R A C T

Microfinance Institutions (MFIs) are special financial institutions of both social and non-profit nature whose performance has been traditionally measured by means of financial ratios. However, performance rankings are usually based on a single criterion, so the performance measure varies according to the criterion used. This paper proposes a multicriterion methodology based on goal programming that simultaneously considers different categories involved in the performance of Microfinance Institutions. The paper is illustrated by a sample of Latin American MFIs.

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1. Introduction

Most studies dealing with business performance are focused on the traditional trading bank sector: Private Capital banks [1–5, among others] and Savings banks [6]. These are institutions which in the last years have been blamed for being responsible for the credit restriction to the less-privileged classes who are not in a condition to offer loan guarantees. In order to meet this need, new financial intermediaries have arisen, so-called Microfinance Institutions (MFIs), which provide small loans (microcredits) to poor people who have promising and feasible investment ideas that can lead to profitable ventures. These new financial institutions are in touch with the local community, can obtain information about the loan taker at a low cost, and are not only interested in profit but also in economic development, the creation of jobs, women's employment, and green and ecological issues. Their best known innovation is the "peer group loan methodology", by which members accept joint liability for the individual loans made. However, these special financial institutions are also interested in financial matters like profitability, returns, and efficiency. Morduch [7] criticizes the fact that discussions on microcredit performance usually ignore important financial matters, while Yaron [8] started to analyze and study the dual concept of outreach and sustainability.

The evolution and expansion of the Microfinance Industry have led to considering all these aspects; so a set of performance indicators has been introduced, and many of them have become standardized. Thus, in 2003, a consensus group composed of microfinance rating agencies, multilateral banks, donors, and private voluntary organizations agreed to some guidelines on definitions of financial terms, ratios, and adjustment for microfinances [9]. Since then, there has been a lot of literature dealing with aspects like sustainability/profitability, asset/liability management, and/or portfolio quality [10–14], whereas there is little literature on the efficiency/productivity of these institutions [15–17].

However, the high spread of these special financial institutions all over the world (Latin America and the Caribbean, Africa, East Asia and the Pacific, Eastern Europe and Central Asia, Middle East and North Africa, etc.) has increased the available public information about them to the point that it becomes complicated to the stakeholders (international organizations and institutions, governments, rating agencies, donors, institutional investors, shareholders, traditional trading banks, etc.) to distinguish between the relevant and irrelevant information, and to eliminate the latter.

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Thus, the essential financial information about these special institutions and their global business performance is of great interest in order to rank them or to know the relative position of one MFI within a reference group (geographic area, country, or region). This performance ranking can be carried out on the basis of a single variable or economic indicator (total assets, earnings, personnel, etc.) which gives no information on the overall situation of a company within the reference group. The main aim of multicriterion business global performance ranking is to combine the institution's performance criteria into a coherent whole in order to synthesize the information contained in a series of single-criterion business performance. The definition of the weights of the variables used in the multicriterion performance ranking represents the most difficult task, trying to minimize as far as possible the subjectivity of the person who decides the weights.

To this end, one of the methods proposed in the literature is CRITIC *(Criteria Importance Through Intercriteria Correlation)* [18]. In this case, the importance of the criteria is considered to be proportional to the uniqueness of the information they provide, so the weighting of a criterion will be greater the less it overlaps the other criteria. Alternatively, the problem can be address by means of a modified version of TOPSIS (*Technique for Order Preference by Similarity to Ideal Solution)* [19] using weighted Euclidean distances together with a measure of entropy to determine the weights.

The present study proposes the multicriterion goal programming technique (*Goal Programming)* [20], and it differs from its predecessors in the method by which it obtains the multicriterion performance. Applying this methodology, weights are calculated in such a way that the similarity is maximum between the values of the different criteria and the multicriterion performance, which is the value which will later be used to rank the MFIs.

The paper is organized as follows. Section 2 describes in depth the new methodology and the data sources used to create multicriterion global business performance. Section 3 examines the application of this method on a sample of Latin American MFIs from the same geographic area (Mexico). Finally, Section 4 presents our main conclusions.

2. Methodology and data sources

2.1. Methodology

As has been mentioned before, some performance rankings refer only to the situation with reference to a single criterion and give no information on the overall performance and situation of an individual institution within a group. The aim of a multicriterion performance ranking is to synthesize the information contained in a series of single-criterion performance rankings when various explanatory variables or single-criterion performance rankings are available.

The first step will consist of how to organize the available information, in order to minimize the impact of the least important factors and emphasize the most important or most representative ones. Statistical techniques such as factor analysis can reduce the size of the original problem, but they will also need a large number of items for this purpose. Thus, other approaches must be considered. In our case of study, and considering the special features of the MFIs, the Corielli and Marcellino [21] algorithm was used in order to get the most important or most representative factors.

The second step will consist of how to weight the variables used in the multicriterion performance ranking, with the aim of minimizing the subjectivity of the decision maker who decides the weightings as far as possible. This problem can be approached from multicriterion decision-making theory, considering the different explanatory variables as criteria and the MFIs that are to be ranked as alternatives.

This study proposes the use of a multicriterion technique, goal programming, with the aim of obtaining the global business performance of the MFIs. Therefore, weights are calculated in such a way that the similarity is maximum between single-criterion variables and the multicriterion performance, which will be the variable used in order to rank the institutions. By applying different versions of the goal programming model, a collective approach is considered (giving greater weight to criteria that show similar performance over the more conflictive criteria), as well as an individual approach (greater weight to the more conflictive criteria). As a compromise solution between both approaches, a parametric version is considered in order to widen the range of decision possibilities, in such a way that the two previous approaches become particular cases of the last approach.

Goal programming is a well-known multicriterion technique introduced by Charnes et al. [20] which consists of linear or nonlinear functions and continuous or discrete variables in which all the functions have been transformed into objectives or goals [22]. Unlike the inflexibility of the optimization concept imposed on mathematical models with a single objective function, goal programming can be interpreted under a satisfying philosophy. From this point of view, the decision maker is interested in minimizing the non-achievement of their objectives since the simultaneous achievement of all goals is not feasible in practical problems [23].

Starting out from the idea of [24], who used goal programming to combine individual preferences in different social groups in a study on the planning of electricity consumption, the present study proposes to combine the different performance ranking criteria by using different goal programming models. Taking into account what norm is used, the solution obtained can be interpreted as a solution in which consensus is maximum among the measurements (penalizing those measures which are most conflictive as compared to those which follow the general trend) or as a solution in which the most conflictive measures are given preference (penalizing those measures which share most information with the rest). In the first case, the absolute difference between the multicriterion value and the standardized single-criterion value (norm L_1) is minimum. In the second, the greatest difference recorded between the multicriterion value and the standardized single-criterion value (norm L_∞) is minimum.