



A new methodology for multidimensional poverty measurement based on the capability approach



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ABSTRACT

We propose a methodology based on the use of clustering techniques derived from data analysis and multi-attribute decision analysis methods aiming at purposeful multidimensional poverty measurement. Our contribution to methodological knowledge insists on the necessity to build “*meaningful measurements*” for policy making and policy implementation. Our standpoint underlines the necessity to consider the problem of poverty measurement as a decision problem and to tackle its measurement issue with that in mind. We also show that such an exercise can be useful to develop a better operational definition of poverty and to solve the aggregation issues.

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1. Introduction

The review of the literature on poverty measurement (see Ref. [12]) allows us to conclude that measuring poverty is not a representation of an objective situation, it is rather an instrument for pursuing a policy. People may feel poor and not be identified as such. People may be identified as poor and not feel as such. Indeed, poverty is an evolutive, multidimensional, fuzzy and non-objective situation which does not contain anything of numerical, but only the sensation of those who are suffering. We are more or less poor and in many different ways.

Many authors (see Refs. [1,4,8,12,17,18]) agree that Sen’s capability approach (see Ref. [26]) is appropriated as tool aiming at assessing how welfare is distributed among a given population. The reason is that allows to highlight the diversity of relationships between people and goods (commodities), the complex relationships of individuals between themselves (social relations) and of individuals with their environment (institutions, norms, cultures). The strong argument for the capability approach is based on the postulate that commodities (goods or services) are insufficient to evaluate and describe in a faithful way, the welfare of people. As an example, two people can aspire to different things in terms of

welfare, while owning the same resources equivalent to, let’s say, \$3500 U.S. This is why [26] introduces a broad distinction between a person’s interests and their fulfilment, respectively called “well-being” and “advantage”. Sen argued that “*well-being is concerned with a person’s achievement: how ‘well’ is his or her ‘being’? ‘Advantage’ refers to the real opportunities that the person has, especially compared with others*”. This postulate considers the commodities a mean for improving the quality of life of individuals and advocates to focus on how these individuals will use their resources. This led Sen to develop a broad discussion about the distinctions between commodities, characteristics, functionings and capabilities.

Sen’s capabilities approach allows to take into account the notion of freedom that has a person to achieve a certain level of well-being and the assumption of human diversity in the process of poverty measurement. Therefore, while trying to measure poverty we need to take into account several different dimensions of uncertainty. We must select and validate the space of functionings that individuals are able to “do” (doing) or aspire to “be” (being) through their commodities and their characteristics. The choice and validation of the space of functionings can be done in an efficient and realistic way only within a decision aiding setting. This paper shows how we can process the information that is required to implement the capability approach in a way useful for policy design, policy implementation and the assessment of poverty reduction initiatives. We present a new methodology which operationalises Sen’s capabilities approach through the development of meaningful multidimensional poverty measurements. The issue of meaningfulness is thus analysed both from a theoretical point of

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view (measurement theory) and from an operational one (policy effectiveness). The general methodology shown in Fig. 1 outlines the different stages allowing to derive the meaningful measurements. The stage concerning supervised learning (schematized as the part appearing in Fig. 1 with “double line”) will not be developed in this paper, but in a forthcoming one. The paper is organized as follows: Section 2 introduces basic notions concerning our motivations, the concept of meaningful measurement, the concept of capability and the setting. In Section 3 we show how to construct meaningful measurements, while in Section 4 we show how to translate meaningful measurements into concrete actions in terms of policies, programmes and projects for implementation. Concluding comments are given in Section 5 and Section 6 presents an application of our methodology on ASSL 2007 database of Burkina Faso.

2. Basics

2.1. Our motivations

Consider a given client or decision maker with an agenda of poverty alleviation including a certain number of policies that he

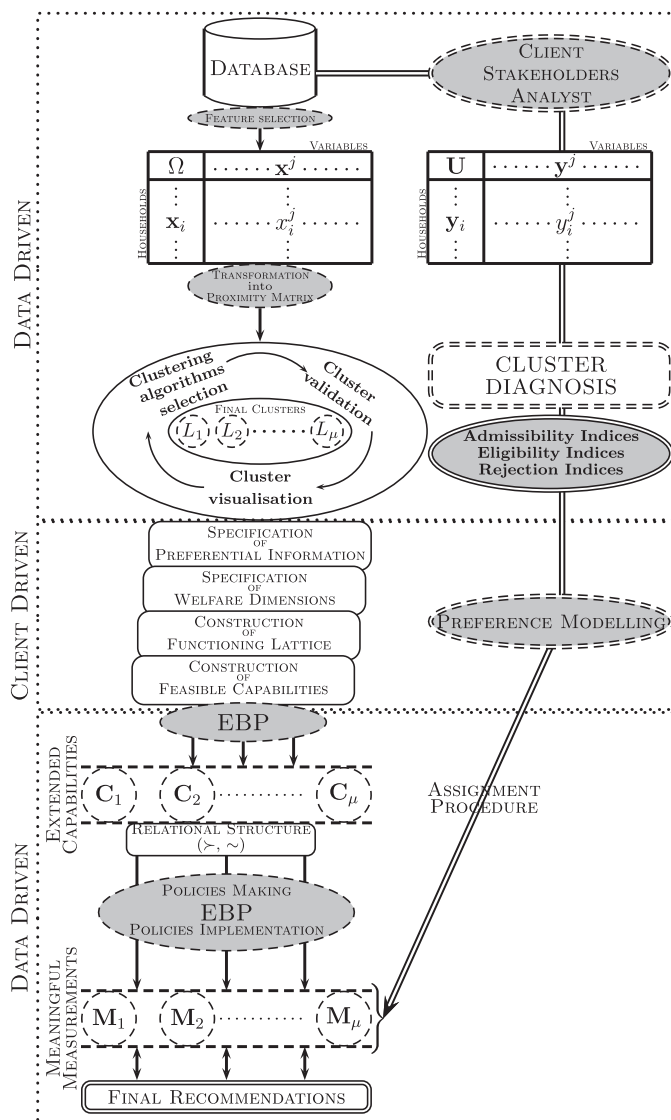


Fig. 1. General outline of the MDPM methodology.

should like to undertake in a given region of world. This client can be represented, for instance, by the World Bank, the European Union, the UNDP,¹ the WHO² or the NEPAD³ with a specific poverty reduction policy aiming to support specific categories of citizens through precise actions such as facilitated access to credit, land redistribution, water supply enhancement programmes, health research programmes, education aid programmes. Note that “precise actions” are a set of actions that our client would like to undertake in a given region of world in order to improve the standard of living of people. In another sense, “precise actions” refer to specific operations targeted on issues to be addressed. Our client is faced to several major problems:

- **KNOW WHAT THE SITUATION IS AND MEASURE IT:** There are different types of poverty which imply different perspectives between policy maker and subjects. Income is not always representative and the cutting off thresholds are arguable. Measuring poverty has to be an instrument of pursuing a policy. Hence, in order to design interventions best adapted to a given reality, we firstly need to understand the factors and causes determining the present situation. This calls at replying to questions of the type: which elements describe better the specific conditions of the observed population with respect to the precise policy to be pursued? Which elements better characterize the perception of the interested population as members of a specific category? How can we measure it? People being differently poor, how can we construct measurements reflecting different categories of poverty?
- **DEALING WITH DIFFERENT POVERTIES:** It is misleading to talk only about “poor” and “not poor”, at least as far as a multidimensional perspective of poverty is considered. What we observe in reality are different types of poverty. Various different, though related, questions can be asked: What is the underlying problem that has to be dealt with in priority? What specific objectives are to be pursued in confronting these different poverties? Who are eligible for some policy measure? Who is expected to benefit from such policies? How they should benefit? Is that specific policy efficient? Is this specific policy appropriate for the target group? What is the cost for implementing such a policy? Why? What does it mean fighting poverty?
- **DEALING WITH SEVERAL DIFFERENT DIMENSIONS OF UNCERTAINTY:** Mostly, poverty databases are very large and are formed by mixed variables. Then, the heterogeneous information has to be considered. The challenge consists to identify undiscovered groupings of individuals and establish hidden relationships between them. It is therefore an operation aimed at extracting relevant information from data. This calls at replying to questions of the type: which information is readily available and relevant? Is it useful in order to draw rational conclusions and recommendations? How easy is to assess the missing information?
- **PREDICTING THE CONSEQUENCES AND VALUING THE OUTCOMES:** Sometimes, policies can be unsuccessful and ineffective without any positive impact in the medium or long-term. This can be due to several reasons such as uncertainties or missing information. Since a policy is considered as a set of actions (or alternatives) that our client would like to undertake in a given region, it is crucial to explore all alternatives of each policy in order to analyse the consequences of the various possible policies which have to be pursued in order to improve the living conditions of households. This leads to assess the effectiveness of various possible policies

¹ UNDP: United Nations Development Programme.

² WHO: World Health Organization.

³ NEPAD: New Partnership for Africa’s Development.

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