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FCND DP No. 111

FCND DISCUSSION PAPER NO. 111

**AN OPERATIONAL TOOL FOR EVALUATING POVERTY
OUTREACH OF DEVELOPMENT POLICIES AND PROJECTS**

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June 2001

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ABSTRACT

Development institutions and projects frequently seek to target poorer segments of the population. Yet, existing methods for evaluating their outreach are generally unsuited to most operational settings, since they are either too costly and cumbersome (e.g., detailed income or household surveys), or they produce results that are not comparable between villages or regions within a country (e.g., participatory poverty appraisals).

This paper presents a new and operationally suitable method to measure the poverty of clients of development projects in relation to the general population of nonclients. The method was developed in response to demands by donors and development practitioners for a low-cost evaluation instrument that could be used as a regular operational tool for assessing the poverty outreach of a development project or institution. While the method was originally developed for the purpose of assessing the poverty outreach of microfinance institutions (MFIs), we believe the method can be used for *any* development policy or project that pursues an explicit objective of reaching poorer people.

The paper begins by discussing existing methods of poverty assessment. Next, the paper presents heuristic steps for identifying indicators of poverty to be tested in the case studies, including the questionnaire that was field tested in four countries with large differences in poverty-level, socioeconomic, and cultural contexts, and with MFIs that worked either in urban, rural, or mixed areas with different target clientele and financial

products. The authors then describe the method of principal component analysis used to construct a poverty score as the measure of relative poverty. The paper concludes with a summary of results from four country case studies (two in Sub-Saharan Africa, one in South Asia, and one in Central America).

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ACKNOWLEDGMENTS

We thank the Policy Advisory Committee of CGAP and participants of a virtual meeting, who provided useful and critical comments. We also thank the managers and staff of the four participating microfinance institutions. Brigit Helms of CGAP deserves special thanks for valuable comments and critical questions that greatly improved the tool and its presentation. A manual (Henry et al. 2000) describing each analysis step in implementing the tool can be downloaded at CGAP's website: <http://www.cgap.org/publications/other>. All remaining errors are ours.

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1. INTRODUCTION

The reduction of poverty is an explicit or implicit objective of most development policies and projects, so that targeting of policies and project services to the poor is important in developing practice. However, the lack of simple, low-cost tools for assessing whether a project reaches the poor results in either no project monitoring or monitoring activities that use simple but crude descriptions of project beneficiaries (such as the share of women, farm size, or occupation of program beneficiaries), or in rapid or participatory assessments that are not well-suited for within- or between-country comparisons.

This paper describes an operational tool developed over the past two years by the International Food Policy Research Institute (IFPRI) with technical and financial support of the Consultative Group to Assist the Poorest (CGAP). The tool was designed to assess the poverty level of project beneficiaries in relation to the general population in the intervention area. To be useful to policy analysts, donors, and development practitioners, the tool must meet reasonable time as well as cost constraints, i.e., the evaluation procedure must be completable in a few months, with the average cost per assessment not exceeding US\$10,000.

After a review of the different methods of poverty assessment that guided our choice of methodology, we describe the properties of the poverty assessment tool in detail. The tool was tested in collaboration with microfinance institutions (MFIs) in four case studies: one in Latin America, two in Sub-Saharan Africa, and one in Asia. We

believe the tool has a potential for broader application, however, not only in the field of microfinance. The methodology is applicable for other development interventions, with clearly defined target groups such as various types of income transfer and public work programs as well as other food and social security-related interventions. However, it is recommended that future research studies validate the tool by comparison with established national poverty benchmarks.¹

2. CHOICE OF METHODOLOGY

DESIGN CONSTRAINTS FOR THE DEVELOPMENT OF THE POVERTY ASSESSMENT TOOL

At the outset of the research project, a number of design parameters for the development of the poverty assessment tool were defined:

- The tool should be implementable by national research organizations and consultants in developing countries that have prior experience with socioeconomic surveys and statistical analysis;

¹ The tool was developed by IFPRI with technical and financial support of CGAP. Among the different development interventions, microfinance is increasingly viewed as a way to enable the poor to carry out profitable self-employment activities. The need to reach out to the poor through microcredit was reemphasized at the Micro-Credit Summit in 1997, but many practitioners, donors, and researchers perceive a trade-off between financial sustainability and depth of outreach, although the exact nature of the trade-off is not well understood (see, for example, Hulme and Mosley 1996). At present, no operational, low-cost tool exists for measuring the depth of poverty outreach of MFIs in a way that allows for within- or between-country comparisons. The lack of a practical poverty assessment tool was the motivation for this collaboration.

- The cost of implementing the tool should be relatively low (averaging US\$10,000);
- The time frame for assessment should be short, i.e., the final results available within a couple of months;
- The tool should measure the poverty level of microfinance clients in relation to the general population in the operational area of the MFI;
- The tool should be flexible and general enough to be suitable for use in both urban and rural areas in developing countries;
- Results should be readily interpretable and comparable across programs within countries and, if possible, also between countries.

SELECTION AMONG ALTERNATIVE METHODS FOR ASSESSING POVERTY

The characteristics of poverty are multidimensional, encompassing various aspects of a household's economic and social status. Capturing these dimensions requires both qualitative and quantitative indicators. In development practice, three major types of poverty assessment methods are generally used:

- Construction of a poverty line and computation of various poverty measures that take into account the way in which actual household expenditures fall short of the poverty line (Ravallion 1994; Foster, Greer, and Thorbecke 1984; Moser et al. 1994, Streeten 1994);

- Rapid appraisal and participatory appraisal methods in which households are ranked with respect to their wealth by community members themselves (Bilsborrow 1994);
- Construction of a poverty index using a range of qualitative and quantitative indicators (Hatch and Frederick 1998; Chung et al. 1997).

The discussion below of the advantages and disadvantages of the three methods lays the basis for our choice of a tool based on the third method.

Method 1: Computation of a Poverty Line Based on Household Expenditures

The standard practice in poverty analysis has been to use household total expenditure as the primary measure to evaluate the standard of living of households (Grootaert 1983, 1986). Nationally representative household surveys such as the Living Standard Measurement Survey conducted by the World Bank are typically used to estimate poverty line and measure incidence of poverty.

The criteria used in assessing whether a household is poor is based on an evaluation of whether household income is sufficient to meet the food and other basic needs of all household members. To make the assessment, a basket of goods and services corresponding with local consumption patterns and satisfying a pre-set level of basic needs for one person is constructed and valued at local consumer prices to compute its minimum cost. The value of this basket is called the “poverty line,” and is most commonly expressed in per-capita terms. If the per-capita income of household members

is below the poverty line, the household and its members are considered poor. If this does not hold, the household is categorized as nonpoor (Aho, Larivière, and Martin 1998; Lipton and Ravallion 1995).

The advantage of Method 1 is that it is a widely accepted measure of poverty—as far as its *economic* dimension is concerned. However, the data requirements of this method are very steep, and very comprehensive questionnaires are needed to collect it. The standard practice is to record food expenditures, using a recall period of one week and a combination of monthly or yearly recall periods to collect information on various nonfood expenditures. Even though poor households in developing countries consume a small number of goods, given the long recall periods, accuracy in reporting is a valid concern. Second, even if consumption items can be accurately recalled, ways have to be found to value home-produced foods when market prices are lacking; irregular weights and measures cause problems in computation of quantities; and information on a number of high-value items (e.g., rental value of housing) is likely to be seriously deficient. Of course, the scale of these problems can be substantially minimized through extensive training of interviewers, multiple household visits, and cataloging of informal weights and measures. However, the effect on the survey cost and the time required to address these problems are likely to be prohibitive. Moreover, the analysis of expenditure data necessitates advanced skills in statistical data analysis, which translates into high costs for data analysis as well.

The costs of the survey could potentially be reduced if the evaluator had access to data on a national benchmark poverty indicator established in a previous national

household survey on poverty. If these data are accessible, one could choose to undertake a similar household survey only for MFI clients and to compare these results with the national poverty benchmark for the general population. This kind of comparison has been recently done by Navajas et al. (2000) in Bolivia. One of the major strengths of this approach is that a nationally accepted poverty measure is used and the issue of how to measure poverty is avoided. In the case of Bolivia, the national poverty benchmark is the so-called Index of Fulfillment of Basic Needs (IFBN), similar to the Method 3 discussed below. This index comprises about 10 indicators capturing housing quality, access to public services, education, and access to informal and formal health services; the indicators are combined using weights that have been determined by a form of consultative process among national poverty experts and policy analysts. Navajas et al. (2000) obtained information on these indicators in their survey of MFI clients (with the exception of access to health services) and computed the index so as to be comparable to the already-available national benchmark. This is a useful approach especially in the case where a relatively simple poverty index has been established at the national level.

However, the approach of comparing information on the MFI clients with a national poverty benchmark for the general population in the country is not universally applicable for the following reasons. First, the method is only applicable in developing countries that have already undertaken a national poverty study on the basis of which a poverty benchmark index or a poverty line has been established. Second, even when countries have an established poverty measure, the measure is usually based on expenditure data rather than on a range of qualitative indicators (as indeed is the case in

Bolivia). When this is so, a very detailed and time-intensive expenditure survey of MFI clients is required, usually violating the design parameters. Moreover, whenever a substantial time lapse occurs between the national survey and the assessment exercise, factors such as inflation and changes in relative prices are likely to make comparisons difficult or even plainly inadvisable. Usually, tackling such issues requires advanced analytical skills and access to the source data from the national survey. Third, in many countries, there is likelihood that access to the national data may be restricted or the government is reluctant to release it. Other countries (e.g., China) sell the data at costs that exceed the field research budget envisaged for this tool. In still other countries, the data may be poorly documented so that considerable time is needed for a skilled poverty analyst to make the data comparable and resolve the issues of inflation and changes in relative prices. Fifth, to assure valid comparison, data collection methodology used in the program assessment exercise must closely replicate the method used in the national poverty assessment. This requires a level of collaboration that may either be unfeasible or too expensive. Finally, as MFIs are expected to operate in above-average regions or cities of a country, an assessment should be able to account for selection bias in program placement (Sharma and Zeller 1999).

In summary, while comparison with existing national benchmarks may provide valid assessment of poverty outreach of a MFI, it is, in practice, often unfeasible. We conclude that the tool, to be universally applicable, must collect poverty data for nonclients to assess the relative poverty of MFI clients.

Method 2: Rapid Assessment and Participatory Appraisal

Rapid Appraisal (RA) and Participatory Appraisal (PA) are grouped together as the second method. The two approaches are often thought to be the same, since they seek input from community members using similar techniques, e.g., wealth ranking and community mapping. There are differences, however (Bergeron, Morris, and Medina Banegas 1998). The ultimate goal of PA is empowerment of the target group. This necessitates extensive participation by the community and assumes an open research and development agenda. This can hardly be done within one or two days. RA methods, on the other hand, are meant to provide evaluators data on the community in a very short time. RA requires the participation of the community, but the timeframe is usually a one-day visit to the community and the agenda of the inquiry is predetermined.

RA and PA methods are widely used and accepted tools for identifying vulnerable groups in a community (Bilsborrow 1994; Boltvinik 1994; Hatch and Frederick 1998). They are extensively used by development programs and institutions, including MFIs, for targeting services to poorer clients. The RA method, in particular, has relatively low time requirements for data collection. While these methods can be well suited for targeting and for the participatory design of development projects and services, a number of disadvantages exist for assessing poverty for purposes of regional, national, or international comparisons (see, also, Chung et al. 1997). First, the results are difficult to verify, because they stem from the subjective ratings of community members. Thus, the results are difficult to compare across geographic locations or programs in a country (Chung et al. 1997). Second, the approach is likely to find poor people in any community,

and the percentages of poor people may not vary much across villages. In other words, the method may be consistent in finding the poorest third in one village, but it may not be consistent in finding in which communities the poorest third of an entire region reside. Third, as the results are hard to verify—a problem with household expenditure as well, strategic responses that make everybody or certain groups of the community poorer cannot be ruled out as the respondents may expect to receive benefits, such as access to financial services, after the completion of the poverty assessment. To avoid this kind of bias or strategic responses, verifiable indicators should be used as much as possible. Finally, the PA method requires skillful and experienced communicators who will command higher salaries than enumerators who are required only to apply a structured and formalized questionnaire. For national and international comparisons, there could be concern about the bias introduced by the way that PA is implemented. Thus, while we agree with Chung et al. (1997) that these methods are useful and operational for targeting services by specific development programs, including MFIs, they considerably violate the design constraints spelled out above.

Method 3: Constructing a Poverty Index Based on a Range of Indicators

A third method of assessment is to identify a range of indicators that describes different dimensions of poverty and for which credible information can be quickly and inexpensively obtained. Once information on the range of indicators has been collected, the indicators may be aggregated into a single index of poverty by using some weighting scheme. One well-known application of this method is the Human Development Index

(HDI) (UNDP 1999; Annand and Sen 1994), which is based on three components: educational attainment, life expectancy at birth, and per-capita income adjusted for purchasing-power parity. The national poverty index for Bolivia, mentioned above, also follows this method.

A particularly popular example of the indicator method is the housing index used by many MFIs (in particular, in South and Southeast Asia) for targeting financial services to poorer clients (Hatch and Frederick 1998). Among its major advantages is that the list of indicators contributing to the housing index, such as quality of roof or walls of the house, can be obtained very quickly through inspection. Also for this reason, strategic misrepresentation in responses can be minimized. Another strength of the housing index is that the housing indicators can be easily adjusted to local peculiarities. For example, different types of roofs used for the housing can be distinguished in consideration of locally available roofing materials in the area. Because of its operational ease and the low costs of obtaining and analyzing information, the housing index is widely used by MFI practitioners, particularly in Asia, where the concept originated. At present, its major use is to identify poor households for targeting by program services. Among the disadvantages is that the weights assigned to individual indicators in the aggregation process are somewhat arbitrarily set by the development institution that applies the index. In fact, because of differing housing conditions across (or even within) countries, proponents of this approach call for adjusting the weights from country to country as well as including alternative indicators of poverty (see Hatch and Frederick 1998; Gibbons and DeWit 1998). However, precisely because of the arbitrarily set weights, comparisons

within and across countries can be questionable. Another major disadvantage of the housing index is that the index only focuses on a single dimension of poverty (e.g., housing), neglecting other important dimensions such as food security, vulnerability, and human capital.

In principle, the time and cost requirements of the indicator method in terms of data collection and analysis can be relatively low. It can be valid if several dimensions of poverty are included. For these reasons, the indicator method was chosen as the basis for the poverty assessment tool. The tool seeks to build on the many strengths of the housing index, but allows for a rigorous and standardized procedure for determining the weights and including alternative, location-specific indicators. Moreover, the measurement scale has been standardized to allow comparisons of programs between countries.

The choice of the indicator method led to the following working steps in developing the tool:

1. Identifying a large number of indicators that reflect poverty levels powerfully and for which credible information can be quickly and inexpensively obtained;
2. Designing a survey methodology that facilitated the collection of information on these indicators from households living in the operational area of the MFI; and
3. Applying a suitable statistical methodology for summarizing information contained in the various indicators into a single summary index that could be used to make poverty comparisons between households.

The initial compilation of indicators for this approach was based on a detailed review of results of large, in-depth surveys on household economics as well as of indicators and methods used by MFIs, famine early warning systems, and national monitoring systems for food security, nutrition, and vulnerability (see, for example, Wratten 1995; Radimer et al. 1992).

3. MULTIPLE DIMENSIONS OF POVERTY AND CHOICE OF INDICATORS FOR CASE STUDIES

Because of the multifaceted nature of poverty, we do not recommend reliance on any one dimension such as housing, food security, or access to education. Rather, to capture different dimensions of poverty, we used two groups of indicators to develop a generic questionnaire that was then field-tested with four MFIs, one in Latin America, two in Sub-Saharan Africa, and one in Asia.

The first group of indicators expresses the means to achieve welfare. These reflect the income potential of households and their members and relate to the household's human capital (family size, education, occupation, etc.), physical capital (type and value of assets owned), and social capital (for indicators on social capital, see, for example, Grootaert 1998). The second group includes indicators related to achievements in consumption in order to fulfill present and future basic needs (namely access to health services, food, electricity, energy, water, shelter and clothing, human security, and environmental quality). Studies comparing different indicators based on income and

consumption conclude that recommending one measure over another is difficult (Skoufias, Davis, and Soto 2000). However, consumption over time (seasons or years) is more stable than income, and households provide information more easily on what they consume than on what they earn. For this reason, our method heavily relies on consumption indicators, although the first group of indicators expressing means available to the household to increase its standard of living is also included.

In coming up with reliable indicators, the key challenge is to identify key components of consumption that are either unambiguous measures of poverty (such as incidence of hunger) or those that correlate well with—or are good proxies for—total household expenditures. Hence, it is not necessary to compile *all* the food and nonfood expenditures of a household, since some types of expenses are closely related to the level of poverty of a household, and others not. For example, studies have shown that the proportion of clothing expenditures in the household budget remains stable, around 5–10 percent of total expenses (Aho, Larivière, and Martin 1998; Minten and Zeller 2000). A recent study by Morris et al. (1999) found clothing expenditure to be one of the expenditure components that increased proportionally with total household expenditures. Since clothing, unlike food commodities, usually requires the purchase of either the finished garment or materials to make a garment, it also avoids the valuation problem associated with imputing costs for home-produced goods.

The preselection of over 300 indicators belonging to the above two principal groups that were tested in the four case studies was based on the following steps:

1. Extensive literature review and expert consultation on the general availability and use of poverty indicators, including indicators developed for operational project monitoring and poverty targeting (see Hatch and Frederick 1998; Chung et al. 1997);
2. Use of eight-point criteria to evaluate indicator suitability, namely: suitability for rural and urban contexts, sensitivity of question, time and cost requirements to obtain answer, quality of the indicator in discriminating between different poverty levels, reliability (including the possibility to verify the answer in a recheck), simplicity, and universality in an international context;
3. Development of a generic questionnaire for testing selected indicators in four case studies;
4. Adaptation of the questionnaire in the field to account for local-level specificities;
5. Obtaining information for each indicator through a structured household survey.

It is, of course, not surprising that the preselected indicators contained many that are used by national poverty and vulnerability monitoring systems as well as development programs, including MFIs. For example, all of the indicators used to construct the housing index and indicators of the net worth test used by the Grameen Bank were included.

The questionnaire was field tested in four countries with large differences in poverty-level, socioeconomic, and cultural contexts, and with MFIs that worked either in urban, rural, or mixed areas with different target clientele and financial products. The

selection of the case study countries was guided by the desire to have as much heterogeneity as possible as well as to conduct field testing with the aim of reducing the number of indicators to be included in the final recommended questionnaire. This was done through the following steps:

1. identifying indicators independently for each case study that are tightly related to poverty levels;
2. identifying indicators that are suitable to all four countries (i.e., those that are robust to diverse socioeconomic and cultural contexts);
3. identifying indicators suitable for capturing local specificities and evaluating their importance in the overall assessment;
4. cataloging cost and other constraints and problems of the survey tool and related analysis encountered in the case studies;
5. sharing the results with the selected MFIs and other stakeholders so as to critically evaluate the method;
6. developing, testing, and standardizing a method that sums up the different indicators in one poverty index and allows comparisons of relative poverty outreach between MFIs and countries; and
7. documenting all procedures involved in a user-friendly manual to support future independent assessments.

4. INDICATORS IN THE FINAL RECOMMENDED QUESTIONNAIRE

Steps 1 to 6 above led to the selection of the final list of indicators (Table 1) for the recommended questionnaire (Annex 1). The selection of this list was based on a number of criteria, including the ease and accuracy with which information on the indicators could be elicited in the household survey and the significance of the correlation of the indicator with per-capita expenditure on clothing and footwear (the poverty benchmark indicator).² The indicators that were selected for the final recommended questionnaire are listed in Table 1 (Henry et al. 2000) (see Annex 2 for the full version of the recommended questionnaire).

Table 1: Indicators in the final recommended questionnaire

Human resources	Dwelling	Food security and vulnerability	Assets	Others
<ul style="list-style-type: none"> • Age and sex of adult household members • Level of education of adult household members • Occupation of adult household members • Number of children below 15 years of age in household • Annual clothing/footwear expenditure for all household members 	<ul style="list-style-type: none"> • Number of rooms • Type of roofing • Type of exterior walls • Type of flooring • Observed structural condition of dwelling • Type of electric connection • Type of cooking fuel used • Source of drinking water • Type of latrine 	<ul style="list-style-type: none"> • Number of meals served in last two days • Serving frequency (weekly) of three luxury foods • Serving frequency (weekly) of one inferior food • Hunger episodes in last one month • Hunger episodes in last 12 months • Frequency of purchase of staple goods • Size of stock of local staple in dwelling 	<ul style="list-style-type: none"> • Area and value of land owned • Number and value of selected livestock resources • Value of transportation-related assets • Value of electric appliances 	<ul style="list-style-type: none"> • Nonclient's assessment of poverty outreach of MFI

² Per-capita clothing expenditure was chosen as the benchmark indicator since it bears a stable and highly linear relationship with total consumption expenditure, a comprehensive and widely accepted measure of poverty. Annex 1 shows the cumulative distributions for this benchmark indicator for the four countries.

5. ESTIMATION OF THE POVERTY INDEX WITH PRINCIPLE COMPONENT ANALYSIS

The use of multiple indicators enables a more complete description of poverty, but it also complicates the task of drawing comparisons. The wide arrays of indicators have to be summarized in a logical way, underlining the importance of combining information from the different indicators into a single index. The creation of an index requires undertaking the difficult task of finding a set of weights that can be meaningfully applied to different indicators so as to come to an overall conclusion.

The usual practice is for the evaluator to set the weights himself, taking account of local conditions but otherwise involving a significant degree of arbitrariness. However, in order to allow comparisons across MFIs within and across countries, an aggregation method was required that would evaluate each indicator and determine the weights in a standardized and rigorous way. We expected, however, that the relative strengths of different indicators in predicting poverty were very likely to vary across regions and countries. This explained our preference for a method that allows adjusting weights for each situation, taking into account the specific poverty context existing therein. For example, for the case of nutritional indicators, Habicht and Pelletier (1990) show that context matters in the choice of appropriate nutrition-related indicators. Moreover, the aggregation method should allow the testing and eventual inclusion of indicators that are location-specific and are recommended by national experts. Thus, while the indicators in Table 1 are recommended, the poverty assessment tool allows the inclusion and testing of

additional local indicators. For example, in Nicaragua, a large share of rural households had members who worked abroad and improved the living standard of the family through remittances. Hence, a remittance-related indicator was deemed important.

The method of principal component (PC) analysis, when used as an aggregation procedure, addresses most of the concerns raised above in an objective and rigorous way (see, for example, Temple and Johnson [1998] and Filmer and Pritchett [1998, 1999]).³ Specifically, PC analysis isolates and measures the poverty component embedded in the various poverty indicators and creates a household-specific poverty score or index. Relative poverty comparisons are then made between client and nonclient households based on this index. Basically, the principal component technique slices information contained in the *set* of indicators into several components. Each component is constructed as a unique index based on the values of all the indicators. The main idea is to formulate a new variable, X^* , which is the linear combination of the original indicators such that it accounts for the maximum of the total variance in the original indicators. That is, X^* is computed as

$$X^* = w_1 X_1 + w_2 X_2 + w_3 X_3 ,$$

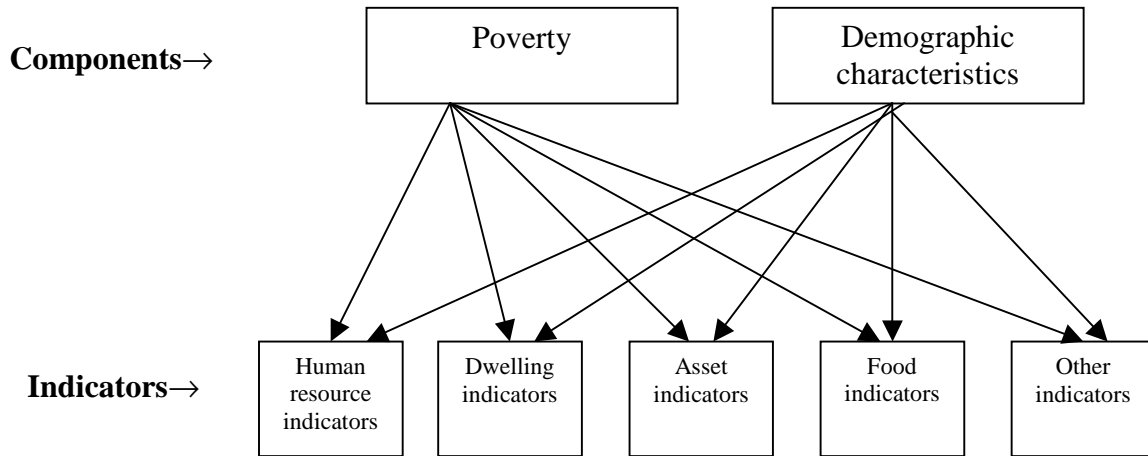
³ Because of lack of income and expenditure data, Filmer and Pritchett (1998) and Sahn and Stifel (2000) use the principal component method, and apply it to national household data for India and for data from the Demographic and Health Surveys of various African countries, respectively. Filmer and Pritchett (1998) estimate the relationship between household wealth and the probability that a child is enrolled in school. As a proxy for household wealth, they constructed a linear “asset” index from a set of asset indicators, using a principal component technique. They conclude that this index is robust, produces internally coherent results, and provides a close correspondence with available economic data at higher aggregation levels. Filmer and Pritchett (1998) then validate this method with other datasets from Nepal, Indonesia, and Pakistan, which contain asset indicators and consumption expenditures as well. They find that the asset index has reasonable coherence with current consumption expenditures and works as well—or better than—traditional expenditure measures in predicting enrollment status.

where the weights (the w_s) are specified such that X^* accounts for the maximum variances in X_1 , X_2 , and X_3 . This index has a zero mean and a standard deviation equal to one (Basilevsky 1994; Sharma 1996).

The PC analysis therefore extracts underlying components from a set of information provided by summary indicators. In the case of this poverty assessment tool, information collected from the questionnaires make up the “indicators,” and the underlying component that is isolated and measured is “poverty.” The first principal component accounts for the largest proportion of the total variability in the set of indicators used. The second component accounts for the next largest amount of variability not accounted by the first component, and so on for the higher order components.

In the example presented in Figure 1, PC analysis uses the information on the co-movement among the indicators to isolate and quantify the underlying common components, e.g., poverty and demography. The poverty component is expected to account for most of the movements in the indicators and will be the “strongest” of all the components. The poverty component can be easily identified by analyzing the signs and size of the indicators in relation to the new component variable. For example, according to theory, education level should contribute positively—not negatively—to wealth.

PC analysis, hence, can be used to compute a series of weights that mark each indicator’s relative contribution to the overall poverty component. Using these weights, a household-specific poverty index (or score) can be computed based on each household’s indicator values.

Figure 1: Indicators and underlying components

In our case, the indicators contributing to the index were selected in two stages of statistical analysis. First, the strength and significance of the correlation of each of the initial 300 indicators used in the test studies with the poverty benchmark indicator, i.e., per-capita clothing expenditure, was tested. Only those that are significantly correlated (with a probability of error less than 10 percent) with the benchmark indicator were submitted to the second stage involving principal component analysis. In each of the four case-study countries, 40–50 indicators passed the first stage. In the second stage, various criteria and cutoff values concerning the results⁴ of the PC analysis were used across all

⁴ The following criteria or levels for accepting an indicator recommended in the manual are (1) the component loading has the expected sign following theory; (2) the values for communality for an indicator should be above 0.2, and the overall PC model should have a Kaiser-Meyer-Olkin (KMO) index above 0.6. These criteria were followed in all four case studies, and led—after having them prescreened by their correlation with the poverty benchmark—to the selection of about 20 indicators for contributing to the country-specific poverty index.

case studies to accept or reject indicators. Table 2 contains the list of indicators for the four country studies that were selected by the standard two-stage selection procedure.⁵

Each of the four case studies uses 14–20 indicators that combine different dimensions of poverty concerning human resources, housing conditions, assets, and food security and vulnerability. It is noteworthy that nine indicators (out of a potential 300) were commonly used in three of the four cases studies.

HUMAN RESOURCES

Eight indicators related to human resources were used in the four case studies. These indicators reflect the level of education in the household and the presence of unskilled labor force. The percentage of wage laborers in the household seems to be particularly important in the relatively poorer countries of Southern Africa and South Asia (MFI-C and MFI-D). The indicator expressing the level of education of the household head was used in three out of four countries.

DWELLING

Dwelling indicators discriminated between relative poverty levels well. In the case of MFI-D in South Asia, 8 of 20 indicators were related to housing quality. The importance of dwelling indicators in South Asia supports the use of the housing index as

⁵ Cumulative frequency distribution of per-capita clothing and footwear expenditure by client and nonclient households is provided for each of the case studies in Annex 1.

Table 2: Indicators selected to represent the poverty index, by countries

Poverty indicator	MFI-A	MFI-B	MFI-C	MFI-D	#
Human resources	1	2	2	3	8
1. Maximum level of education in household			x	x	2
2. Percent of adults who are wage laborers			x	x	2
3. Education level of household head	x			x	2
4. Percent of literate adults in household		x			1
Dwelling	5	4	5	8	22
1. Value of dwelling	x			x	2
2. Roof made of permanent material			x	x	2
3. Walls made of permanent material		x		x	2
4. Quality of flooring material				x	1
5. Electric connection		x	x	x	3
6. Source of cooking fuel	x			x	2
7. Latrines in the house	x	x	x	x	4
8. Number of rooms per person	x		x	x	3
9. Access to water		x	x		2
10. Structure of the house	x				1
Assets	5	4	3	3	15
1. Irrigated land owned				x	1
2. Number of TVs	x	x			2
3. Number of radios				x	1
4. Number of fans			x	x	2
5. Number of VCRs	x				1
6. Value of radio		x			1
7. Value of electrical devices	x	x	x		3
8. Value of vehicles	x				1
9. Value of assets per person/adult	x	x	x		3
Food security and vulnerability	4	4	7	6	21
1. Number of meals served in last two days				x	1
2. Episodes of hunger during last 30 days	x	x		x	3
3. Episodes of hunger in last 12 months	x	x	x	x	4
4. Number of days with luxury food 1		x	x	x	3
5. Number of days with luxury food 2		x	x	x	3
6. Number of days with inferior food			x	x	2
7. Frequency of purchase of basic good	x		x		2
8. Frequency of purchase of basic good			x		1
9. Food stock in house	x				1
10. Use of cooking oil			x		1
Miscellaneous indicator	1	1	0	0	2
1. Per person expenditure on clothing	x	x			2
Total number of indicators	16	15	17	20	

an important indicator of poverty in that region. However, in the African cases (MFI-B and MFI-C), where housing is relatively homogenous, only four and five housing indicators were used, respectively. The quality of latrines appeared in all the case studies. House size (rooms per person) was used in three countries.

ASSETS

A total of 15 indicators on the number or value of assets is included in the four case studies. They were particularly important (5 out of 16 indicators) in the Central American country (MFI-A), the most well-off country in the sample. The amount of land possessed is important only for MFIs serving rural and agricultural areas, as is the case in MFI-D.

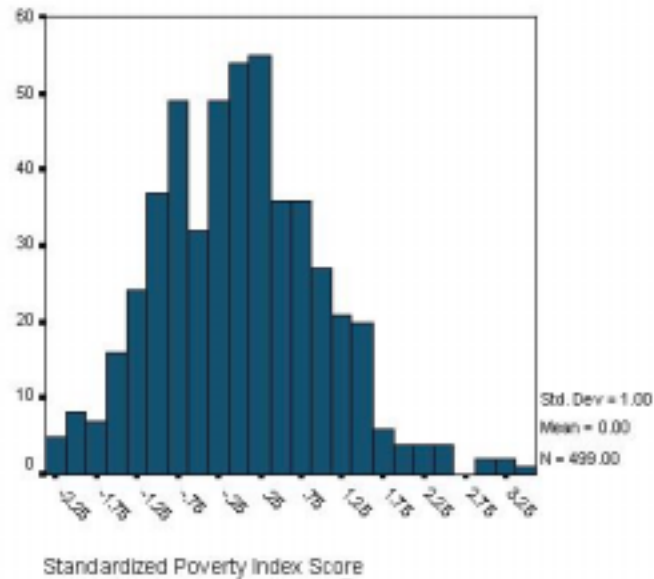
FOOD SECURITY AND VULNERABILITY

These indicators turned out to be very important in explaining differences in relative poverty in all four studies, particularly in the Southern African country (MFI-C), which is the poorest. The indicator of chronic hunger (episodes of hunger in the last 12 months) appears in all four cases. Indicators of short-term hunger (episodes of hunger in the last 30 days) and frequency of luxury food consumption during the week appeared in three cases.

6. INTERPRETATION OF RESULTS

As indicated above, principal component analysis produces a household-level poverty index. Figure 2 gives an example of the distribution of the poverty index across households using MFI-B data.

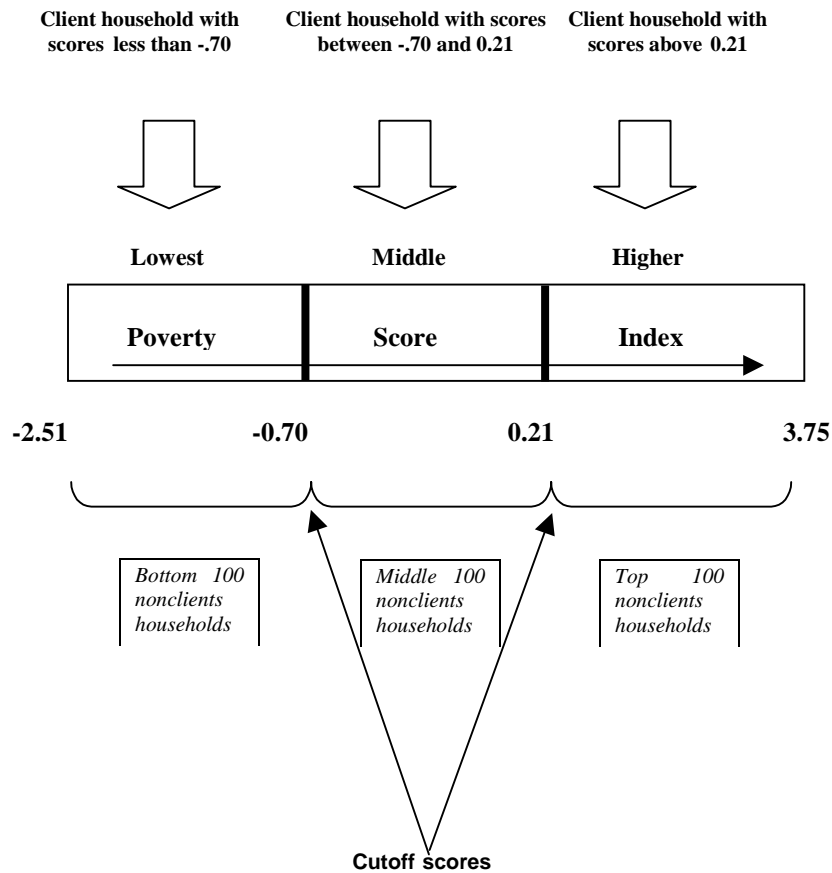
Figure 2: Histogram of the standardized poverty index (MFI-B)



In each case study, a random sample of 300 nonclient households and 200 client households was chosen. To use the poverty index for making comparisons, the nonclient sample is first sorted in an ascending order according to its index score. Once sorted, nonclient households were divided into terciles based on their index score: the top third of the nonclient households were grouped in the “higher” group, the middle third in the “middle” group, and the bottom third in the “lowest” group (Figure 3). Since there are

300 nonclients, each group contains 100 households each. The cut-off scores for each tercile define the limits of each poverty group. Client households are then categorized in the three groups based on their household scores.

Figure 3: Constructing poverty groups



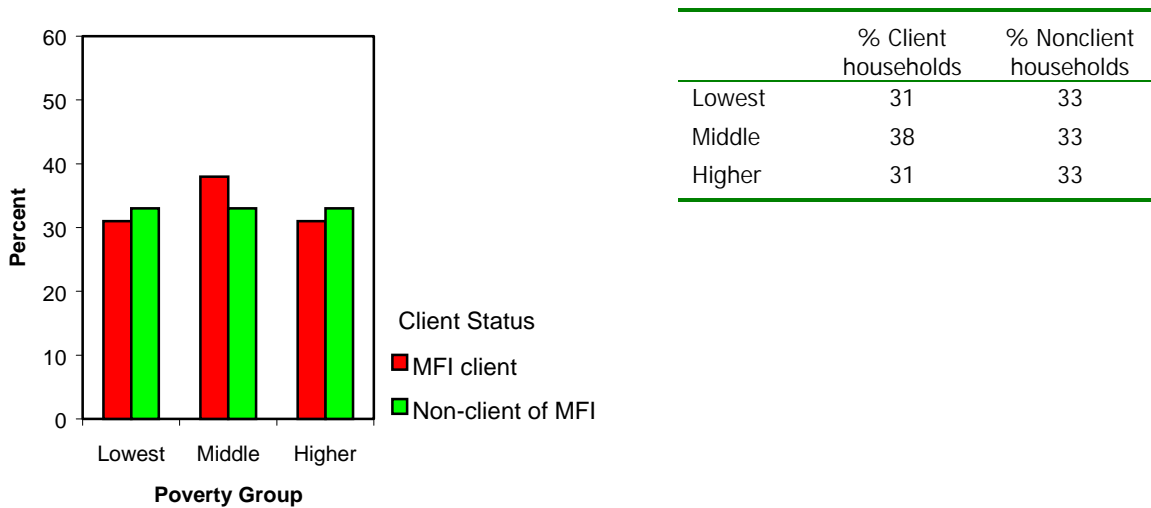
If the pattern of the client households' poverty matches that of the nonclient households, client households would divide equally among the three poverty groupings just as the nonclient households, with 33 percent falling in each group. Hence, any

deviation from this equal proportion signals a difference between the client and the nonclient population. For instance, if 60 percent of the client households fall into the first tercile, or poorest category, the MFI reaches a disproportionate number of very poor clients relative to the general population. Illustrative examples from the four case studies are provided below.

MICROFINANCE INSTITUTION A

Figure 4 presents the poverty groups by client and nonclient households. The distribution of MFI-A’s clients across the poverty groups closely mirrors the distribution of nonclients, indicating that MFI-A serves a clientele that is quite similar to the general population in its operational area. This result is consistent with MFI-A’s stated objective

Figure 4: MFI-A: Distribution of client and nonclient households across poverty groups

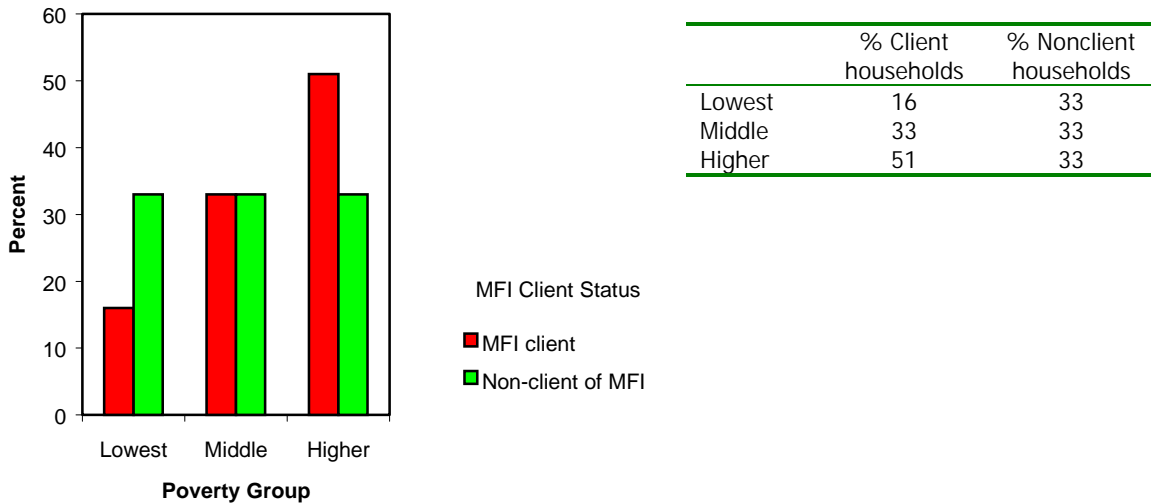


of reaching micro, small, and medium enterprises and the diversity in the financial products that it offers.

MICROFINANCE INSTITUTION B

Figure 5 shows that the poorest households are underrepresented among MFI-B clients. However, about one-half of the clients fall into the two poorest categories, which is remarkable, considering the mission of the institution (to reach all women in business), the focus of the product (to finance businesses after submitting a business plan), and the lack of overt targeting.

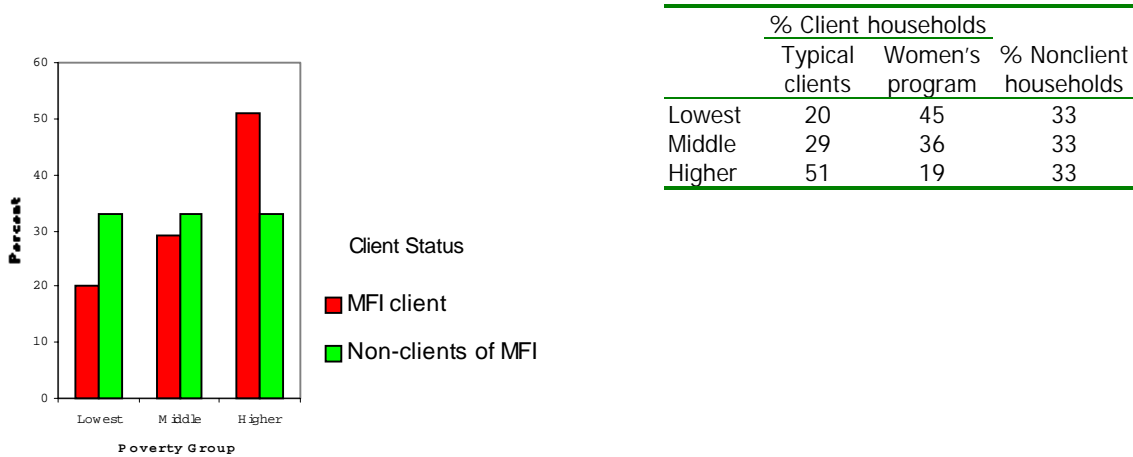
Figure 5: MFI-B: Distribution of client and nonclient households across poverty groups



MICROFINANCE INSTITUTION C

About half of MFI-C’s clients belong to the “higher” group, while they are underrepresented in the poorest group (Figure 6). This result reflects the fact that MFI-C’s membership is share-based and open to all individuals. However, poverty outreach is significantly higher when considering only clients belonging to the new program for women. Nearly one-half (45.2 percent) of these clients belonged to the “lowest,” and only 19 percent of the new women clients belonged to the “higher” group.

Figure 6: MFI-C: Distribution of client and nonclient households across poverty groups

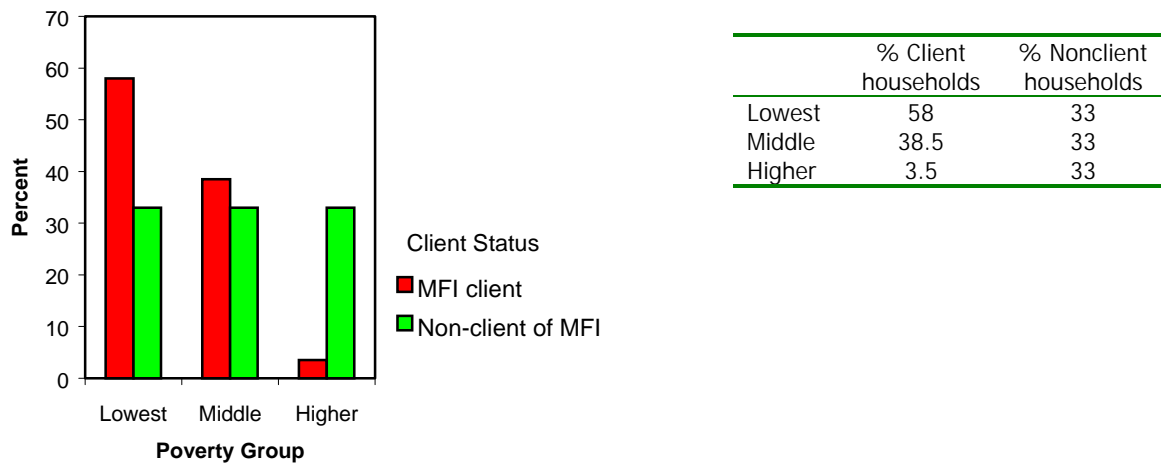


MICROFINANCE INSTITUTION D

Figure 7 indicates quite clearly that the poorest groups are strongly overrepresented and that less poor households are underrepresented among MFI-D’s clients. This result is not only consistent with MFI-D’s explicit aim to serve the poorest

households in its operational area, but also indicates considerable success in its targeting practices.

Figure 7: MFI-D: Distribution of client and nonclient households across poverty groups



Information contained in Figures 4-7 can be further summarized by expressing it in simple ratios that facilitate quick comparative assessments in operational settings (Table 3). *Ratio1* is computed by dividing the percentage of client households that belongs to the poorest group by 33, the percentage of nonclient households that belongs to this group. The ratio reflects the extent to which the poorest households are represented in the client population. A value of 1 indicates that the proportion of the poorest households among the MFI's clients equals that of the general population. Ratios higher than 1 imply that the proportion of the poorest households among the MFI's

clients exceeds that of the general population. On the other hand, ratios less than 1 imply that the proportion of the poorest households among the MFI's clients falls below that of the general population.

Table 3. Relative poverty ranking of client versus nonclients

Percentage/ratio	MFC-A	MFC-B	MFC-C	MFC-D
Percent of client households who are as poor as the poorest one-third of the nonclient population	30.9	16	20.3	58
Ratio1	0.94	0.48	0.62	1.76
Percent of client households who are as well of as the least-poor one-third of the nonclient population	31.4	51	50.8	3.5
Ratio2	.95	1.55	1.54	0.11
Ratio of country HDI to HDI for all developing countries taken together	0.98	0.79	0.75	0.79

A similar ratio, *Ratio2*, divides the percentage of client households that belongs to the less poor group by 33. The ratio reflects the extent to which less poor households are represented in the client population. A ratio above 1 indicates that, in comparison to the nonclient population, a greater proportion of client households falls into the “less poor” group.

While *Ratio1* and *Ratio2* provide relative poverty comparisons in the operational area of the MFI, this information must be supplemented by country-level information when making comparisons across countries. This is because the index uses relative, and not absolute, poverty; thus, it may well be that the “poorest” clients in a relatively rich

country have higher standards of living than the “least poor” clients in a poorer country. A particularly simple way to account for between-country poverty levels using an indicator-based framework like ours is to use the human development index (HDI) computed by the United Nations Development Programme (UNDP). In the case studies reported here, for example, countries had HDI indices that fell below the “developing country average.” To take a more specific example, the HDI for the Southern African country where MFI-C is located is less than 60 percent of the average for all developing countries taken together. Therefore, even the “less poor” clients of MFI-C are likely to be very poor according to international standards. We further suggest a ratio, either based on expert knowledge or national poverty assessments, that compares the poverty level of the operational area (province, counties, etc.) of the MFI with the national average to determine whether the MFI operates in above- or below-average areas. Clearly, an MFI operating in a better-off area of a country with a high HDI, and having a low ratio 1 and a high ratio 2, will receive low ranks for poverty outreach.

Finally, a comprehensive assessment of an MFI must include an evaluation of how its poverty outreach record reconciles with its mission and program objectives. As the case studies themselves have shown, MFIs differ in terms of geography, their stated mission, the type of market niche they seek, their preference for a specific type of institutional culture, and a host of other factors. Ignoring these considerations or providing incomplete information on institutional details fails to tell a complete story, and the method can be easily misused. In all of the case studies reported on here, the concerned managers of the MFIs considered the results to be credible. The results, as

discussed above, are also consistent with the mission, priorities, and targeting practices of the case-study MFIs.

7. CONCLUDING REMARKS

The case studies presented in this paper contribute to the development and testing of a relatively simple tool that can be used to assess the poverty level of clients of development projects in relation to nonclients. The main features of this new tool are that (1) it identifies and/or constructs a small set of indicators that are powerful descriptors of poverty and applicable across relatively diverse socioeconomic settings, (2) the chosen indicators are such that reliable information on them can be collected quickly and inexpensively, (3) the tool offers an objective method for summarizing overall poverty information and unambiguously ranking households by their relative poverty levels, and (4) it recommends computation of three simple ratios that facilitate quick comparison of the poverty outreach of development policies and projects, even across international boundaries. However, as with any new method, we recommend its additional testing and validation. In particular, there is a need to compare ranking produced by this method with rankings produced by other methods and using other benchmarks (e.g., total household income or expenditure).

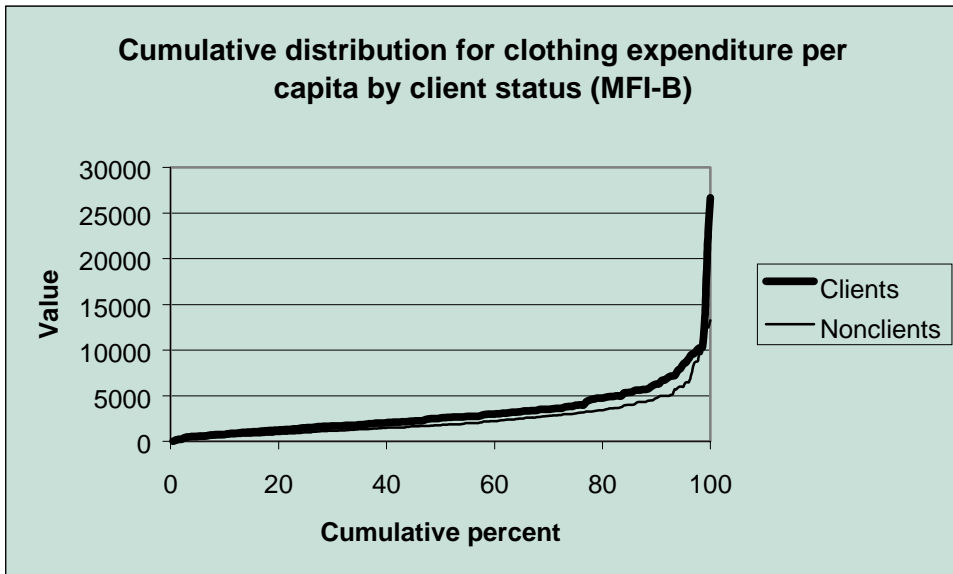
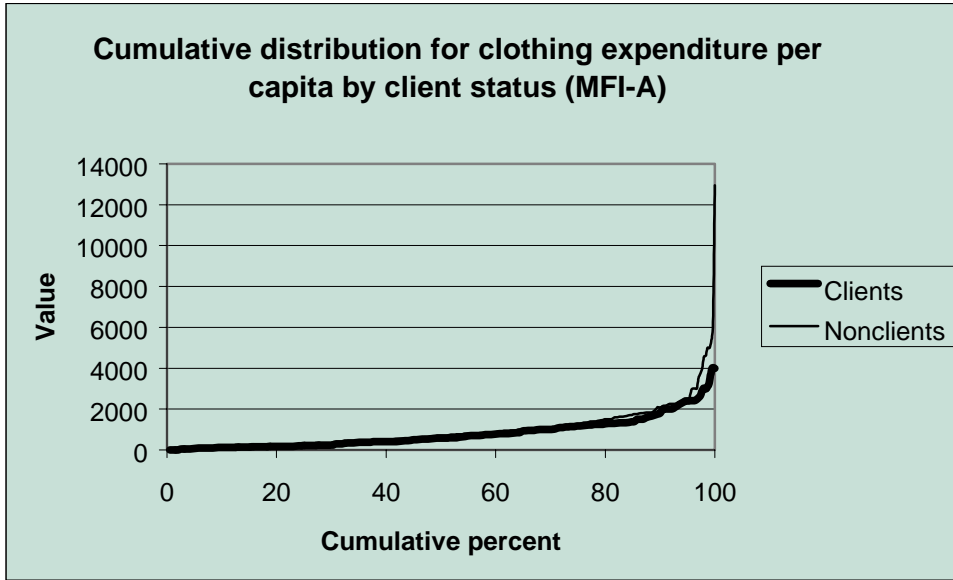
A disadvantage of the method presented here is that it does not provide information on the absolute level of poverty. However, in many cases, it is relative rather than absolute poverty that is of concern to the policymakers or evaluators. Further, many

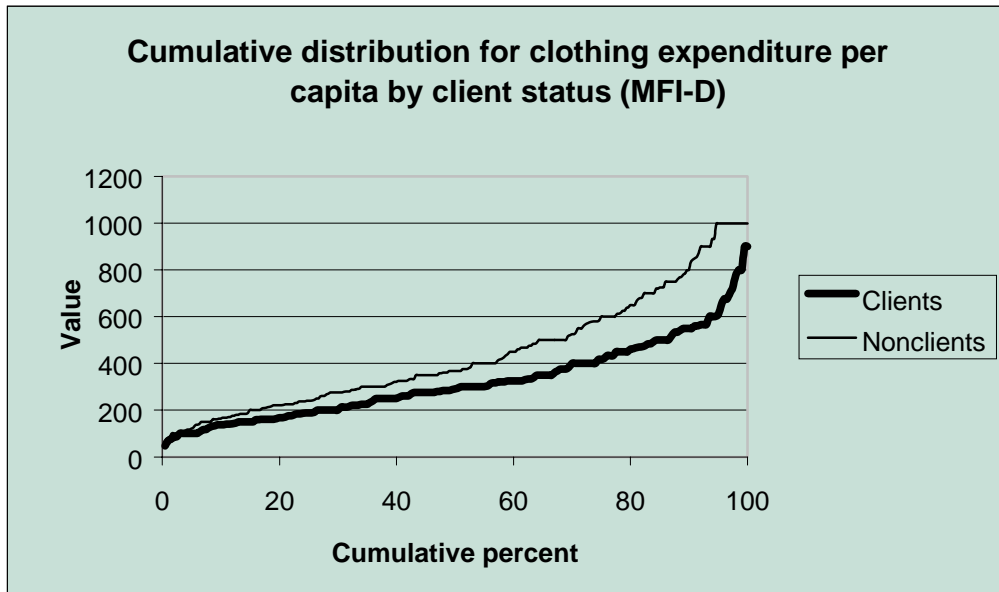
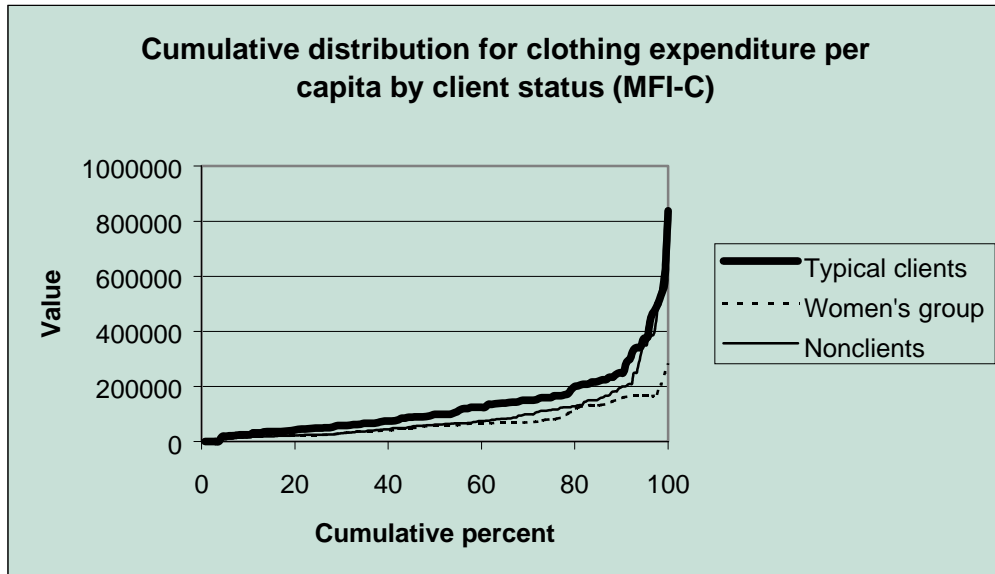
summary measures used in development policy to measure absolute poverty, such as the cutoff of US\$1–2 per day used by the World Bank and other international organizations, are essentially quite arbitrary, and the merits of using such measures are not clear in many cases. More precise measures of absolute poverty based on the poverty line and the basic needs concept are riddled with problems relating to the definition of the representative basket of basic needs in a country. Poverty is an inherently relative concept, and the tool developed in this paper is indeed aiming to measure relative poverty. Therefore, the tool, and the poverty outreach ratios it generates, allows evaluating at low cost the poverty targeting efficiency of development projects.

ANNEX 1**Cumulative Distribution for Clothing Expenditures per Capita,
by MFI and Client Status**

This annex contains cumulative frequency distributions of per-capita clothing and footwear expenditure by client and nonclient households for each of the case studies. This indicator represents a poverty benchmark proxy (in lieu of total per-capita consumption expenditures) and was used to screen other indicators in the poverty assessment methodology.

In the case of MFI-D, the percentage of households that consume less than any given level of clothing expenditure is higher for the client population, indicating that client households are worse off at all points of the distribution. The opposite is true in the case of MFI-B. The client/nonclient distribution pattern is remarkably similar in the case of MFI-A, indicating that MFI-A's clients represent a good cross-section of the nonclient population. In the case of MFI-C, a three-way split was made: while classical clients were generally better off than nonclients, households belonging to the newly formed women's groups were generally worse off.





ANNEX 2: Recommended Questionnaire

**Assessing Relative Poverty Levels of Beneficiaries of
Development Policies and Projects**

International Food Policy Research Institute

A study supported by the Consultative Group to Assist the Poorest (CGAP)

Section A Household Identification

A1. Date (mm/dd/yyyy): ___/___/___

A2. Division code:

A3. MFI unit code:

A4. Group code:

A5. Group name:

A6. Household code:

A7. Household chosen as (1) client of MFI, or (2) nonclient of MFI?

A8. Is household from replacement list? (0) No (1) Yes

A9. If yes, the original household was (1) not found or (2) unwilling to answer, or (3) client status was wrongly classified:

Note: Questions A3–A9 relate to sample households being clients of the development project under consideration. In the example questionnaire presented here, the development project considered is a specific MFI in a country. If a general development institution or project is chosen for evaluation, replace MFI with the name of the institution or project selected.

A10. Name of respondent:

Name of the household head:

Address of the household:

A11. Interviewer code:

A12. Date checked by supervisor (mm/dd/yyyy): ___/___/___

A13. Supervisor signature: _____

Section B. Family Structure

ID code	Name	Status of head of HH ^a	Relation to head of HH ^b	Sex ^c	Age	Maximum level of schooling ^d	Can write ^e	Main occupation, current year ^f	Current member of MFI ^e	Amount of loan borrowed	Expenses for the last 12 months in local currency ^g
1	(HH head)										
2											
3											
4											
5											
6											
7											
8											

^a(1) single; (2) married, with the spouse permanently present in the household; (3) married with the spouse migrant; (4) widow or widower; (5) divorced or separated; (6) living mostly away from home but contributing regularly to household.

^b(1) head of the household; (2) spouse; (3) son or daughter; (4) father or mother; (5) grandchild; (6) grandparents; (7) other relative; (8) other nonrelative.

^c(1) male; (2) female.

^d(1) less than primary 6; (2) some primary; (3) completed primary 6; (4) attended technical school; (5) attended secondary; (6) completed secondary; (7) attended college or university.

^e(0) no; (1) yes.

^f(1) self-employed in agriculture; (2) self-employed in nonfarm enterprise; (3) student; (4) casual worker; (5) salaried worker; (6) domestic worker; (7) unemployed, looking for a job; (8) unwilling to work or retired; (9) not able to work (handicapped).

^gIn order to get an accurate recall the clothes and footwear expenses for each adult are preferably asked in the presence of the spouse of the head of the household. If the clothes were sewn at home, provide costs of all materials (thread, fabric, buttons, needles).

B2. Children members of household (from 0 to 14 years)

ID code	Name	Age	Clothes/ Footwear expenses for past 12 months, in local currency ^a

Clothes and footwear expenses are asked for once those for adults have been recorded, and in the presence of the spouse of the head of the household. In case of ready-to-wear clothing and footwear items, include full price. In other cases, include cost of fabric, cloth as well as tailoring and stitching charges

Section C. Food-Related Indicators

(Both the head of the household and spouse should be present for this section.)

C1. Did any special event occur in the last two days (for example, family event, guests invited)? (0) No
(1) Yes

C2. If no, how many meals were served to the household members *during the last 2 days*?

C3. If yes, how many meals were served to the household members *during the 2 days preceding the special event*?

C4. Were there any special events in the last *seven days* (for example, family event, guests invited)? (0) No
(1) Yes

(If “Yes,” the “last seven days” in C5 and C6 should refer to the week preceding the special event.)

C5. During the *last seven days*, for how many *days* were the following foods served in a main meal eaten by the household?

Luxury food	Number of days served
Luxury food 1	
Luxury food 2	
Luxury food 3	

C6. During the *last seven days*, for how many *days* did a main meal consist of an inferior food only?

C7. During the *last 30 days*, for how many days did your household not have enough to eat everyday?

C 8. During the *last 12 months*, for how many months did your household have at least one day without enough to eat?

C9. How often do you purchase the following?

Staple	Frequency served
Staple 1	
Staple 2	
Staple 3	

(1) Daily (2) Twice a week (3) Weekly (4) Fortnightly (5) Monthly (6) Less frequently than a month

C10. For how many weeks do you have a stock of *local staples* in your house?

Section D. Dwelling-Related Indicators

(Information should be collected about the dwelling in which the family currently resides.)

D1. How many rooms does the dwelling have? (Include detached rooms in same compound if same household.)

D2. What type of roofing material is used in main house? (1) Tarpaulin, plastic sheets, or branches and twigs (2) Grass (3) Stone or slate (4) Iron sheets (5) Brick tiles (6) Concrete

D3. What type of exterior walls does the dwelling have? (1) Tarpaulin, plastic sheets, or branches and twigs (2) Mud walls (3) Iron sheets (4) Timber (5) Brick or stone with mud (6) Brick or stone with cement plaster

D4. What type of flooring does the dwelling have? (1) Dirt (2) Wood (3) Cement (4) Cement with additional covering

D5. What is the observed structural condition of main dwelling? (1) Seriously dilapidated (2) Need for major repairs (3) Sound structure

D6. What is the electricity supply? (1) No connection (2) Shared connection (3) Own connection

D7. What type of cooking fuel source primarily is used? (1) Dung (2) Collected wood (3) Purchased wood or sawdust (4) Charcoal (5) Kerosene (6) Gas (7) Electricity

D8. What is the source of drinking water? (1) Rainwater, dam, pond, or river (2) Spring (3) Public well—open (4) Public well—sealed with pump (5) Well in residence yard (6) Piped public water (7) Bore hole in residence

D9. What type of toilet facility is available? (1) Bush, field, or no facility (2) Shared pit toilet (3) Own pit toilet (4) Shared, ventilated, improved pit latrine (5) Own improved latrine (6) Flush toilet, own or shared

Note: Information on D2, D3, D4, and D5 can be obtained by the enumerator through visual inspection of the household's residence.

E. Other Asset-Based Indicators

E1. Area of land owned: Agricultural _____ Nonagricultural _____

Value of land owned: Agricultural _____ Nonagricultural _____

E2. Number and value of selected assets owned by household. (Ask household to identify any assets purchased with MFI loan and eliminate these from the table below.)

Asset type and code	Number owned	Resale value at current market price
Livestock		
1. Cattle and buffalo		
2. Adult sheep, goats, and pigs		
3. Adult poultry and rabbits		
4. Horses and donkeys		
Transportation		
5. Cars		
6. Motorcycles		
7. Bicycles		
8. Other vehicles		
9. Carts		
Appliances and electronics		
10. Televisions		
11. Video cassette recorders		
12. Refrigerators		
13. Electric or gas cookers		
14. Washing machines		
15. Radios		
16. Fans		

E3. What is your overall assessment of the general wealth levels of MFI clients? (1) Poor (2) Average (3) Rich (4) Don't know MFI

Source of questionnaire: Henry et al. (2000).

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