

# AN OPERATIONAL METHOD FOR ASSESSING THE POVERTY OUTREACH PERFORMANCE OF DEVELOPMENT PROJECTS: RESULTS FROM FOUR CASE STUDIES IN AFRICA, ASIA AND LATIN AMERICA

Manfred Zeller<sup>1</sup>, Manohar Sharma<sup>2</sup>, Carla Henry<sup>3</sup> and Cécile Lapenu<sup>4</sup>

<sup>1</sup>Institute of Rural Development, University of Goettingen, Germany

<sup>2</sup>International Food Policy Research Institute (IFPRI), Washington, D.C., USA

<sup>3</sup>International Labor Organization (ILO), Geneva, Switzerland

<sup>4</sup>CERISE, Paris, France

## ABSTRACT

Many development projects seek to reach the poorest in the provision of agricultural inputs, extension, credit, education, and many other services. However, low-cost and reliable methods for assessing whether a project reaches the poor are lacking at present. In this paper, we present an operational method that was designed during a two-year research project from 1999-2001 with the support of an international donor-coordination office. The objective of the research was to develop and test a new method that could be later used by development practitioners to assess the poverty level of beneficiaries of development projects that target the poor in relation to the general population in the intervention area. The method constructs a poverty index using principle component analysis, and is based on a range of indicators that describes different dimensions of poverty and for which credible information can be quickly and inexpensively obtained. To ensure the method's usefulness to a wide number of countries and projects, the method was tested in collaboration in rural and urban areas in four countries: Nicaragua (urban and rural), Kenya (urban and rural), Madagascar (rural), and India (rural). We present results from these studies. We conclude that the method has a promising potential for monitoring and evaluation purposes of development organizations. Since 2001, the method has been used in over 20 project assessments.

**Keywords:** poverty, targeting, evaluation, principle component analysis

## INTRODUCTION

Many development projects (in short used for policies, programs and projects) seek to reach the poorest. However, low-cost and reliable methods for assessing whether a project reaches the poor are lacking at present. Most monitoring and evaluation reports resort therefore to case-study evidence provided by rapid or participatory assessments that are based on non-representative samples and lack standardization of the measurement instruments. Because of these features, they cannot be considered valid tools for within- or between-country comparisons of poverty outreach performance of development projects.

In this paper, we present an operational method that was designed during a two-year research project from 1999-2001 with the support of an international donor-coordination office<sup>1</sup>. The objective of the research was to develop and test a new method that could be later used by development practitioners to assess the poverty level of beneficiaries of microfinance institutions in relation to the general population in the intervention area.

---

<sup>1</sup> We thank Brigit Helms, Syed Hashemi and the members of the Policy Advisory Committee of the Consultative Group to Assist the Poorest (CGAP) as well as participants of a virtual meeting, who provided useful and critical comments. We also thank the managers and staff of the four microfinance institutions which participated in the country studies. A manual (Henry et al., 2001) describing each analysis step in implementing the method can be downloaded at CGAP's website: <http://www.cgap.org/publications/other>.

The method developed answers a relatively simple question: To what extent does a project reach the poorest households in its intervention area? The method constructs a poverty index using principle component analysis, and is based on a range of indicators that describes different dimensions of poverty and for which credible information can be quickly and inexpensively obtained. To ensure the method's widespread usefulness to a wide number of institutions and programs, the method was tested in collaboration with microfinance institutions (MFIs) in rural and urban areas in four countries: Nicaragua (urban and rural), Kenya (urban and rural), Madagascar (rural), and India (rural). The paper presents results from these country studies. We conclude that the method has a promising potential for monitoring and evaluation purposes of development organizations. Since 2001, the method has been used in over 20 project assessment. However, we recommend that future research studies further question the validity of the method, for example by comparing rankings generated by our poverty index method with rankings generated by established poverty measures such as household income or calorie intake.<sup>2</sup>

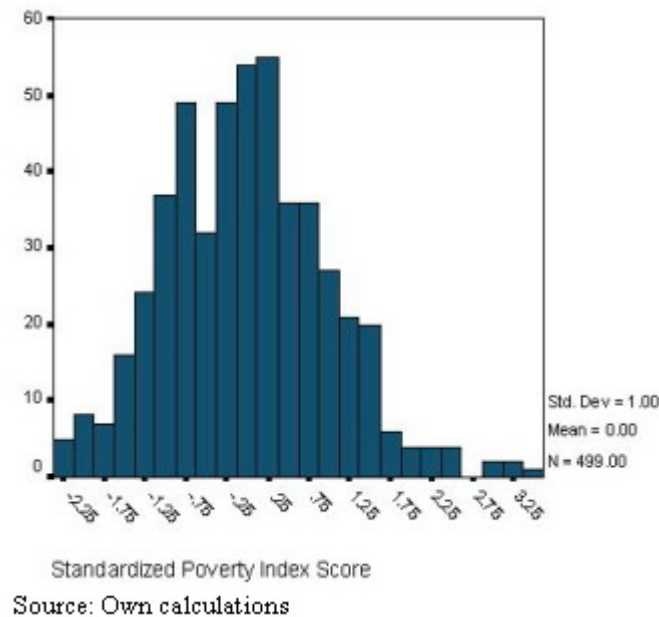


Figure 1. Histogram of the standardized poverty index (Kenya).

## A REVIEW OF METHODS FOR THE MEASUREMENT OF ABSOLUTE AND RELATIVE POVERTY

Poverty is multidimensional. Capturing these dimensions requires both qualitative and quantitative indicator variables.

In development practice, three major types of poverty assessment methods are 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).

<sup>2</sup> The method was developed by the International Food Policy Research Institute (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.

In order to be operational for evaluating the poverty outreach of a development policy or program, a method must yield not only valid results but they must be obtainable within a reasonable period of time and budget and should not require extensive analytical and data-processing skills. In view of these practical concerns, the advantages and disadvantages of the three methods are discussed next.

### **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). 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).

Computation of a poverty line based on household expenditures 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. 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.

### **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 et al., 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. RA methods 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 methods for identifying vulnerable groups in a community (Bilsborrow 1994; Boltvinik 1994; Hatch and Frederick 1998). While these methods can be well suited for targeting within a certain community or location, 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 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 within communities, they considerably violate the design constraints spelled out above.

### Constructing a Poverty Index Based on a Range of Indicators

A third method of assessment is to identify a range of household 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) (Annand and Sen 1994). Another one is the housing index used by many micro-finance institutions (in particular, in South and Southeast Asia) for targeting financial services to poorer clients (Hatch and Frederick 1998).

However, both indices are defined through a predetermined set of indicators and corresponding weights. This is clearly a disadvantage as the mix and weights of indicators reflecting different dimensions of poverty such as food insecurity, education, and assets will necessarily vary between different socio-cultural, economic and agro-ecological contexts. Principle component analysis, a statistical method, can assist in identifying and weighing the most important indicators in order to calculate an aggregate index of relative poverty for a specific sample household.

Table 1. Recommended indicators for assessment of relative poverty.

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

Source: Adapted from Henry et al (2001). Note that the method allows the inclusion of other indicators deemed useful by the analyst. This selection 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. Other important aspects included the suitability of indicators in all four case studies, estimated cost and difficulty associated with each indicator, and the indicator's ability to meet data analysis requirements of being applicable to all households and transformable into an ordinal or scaled variable. Finally, local panels of researchers provided feedback on the validity of indicators.

### USING PRINCIPLE COMPONENT ANALYSIS TO ESTIMATE AN INDEX OF RELATIVE POVERTY

Because the relative strengths of different indicators in capturing poverty are very likely to vary across regions and countries, a method was called for that allows adjusting weights for each situation based on 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 we recommend the indicators in Table 1 based on our extensive field testing in urban and rural areas of four developing countries, our poverty assessment method 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, 2000))<sup>3</sup>. Specifically, PC analysis isolates and measures the poverty component embedded in the various indicators and creates a household-specific poverty score or index. Relative poverty comparisons can then be made between client households of development projects and nonclient households, i.e. households that do not receive any services by the development project under consideration.

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

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

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 method, 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. As the collection of indicators towards those describing poverty, 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, higher education 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.

## **RESULTS FROM APPLICATION OF THE METHOD IN FOUR COUNTRIES**

### **Selection of indicators and country case studies**

Because of the multifaceted nature of poverty, reliance on any one poverty dimension such as housing, food security, or access to education, was deemed inappropriate. Rather, to capture different dimensions of poverty, two groups of indicators were developed and tested with a generic questionnaire with four MFIs, one in Latin America, two in Sub-Saharan Africa, and one in Asia.

---

<sup>3</sup> Because of lack of income and expenditure data, Filmer and Pritchett (1998) and Sahn and Stifel (2000) use principal component analysis, 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 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 data sets from Nepal, Indonesia, and Pakistan that 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.

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 and Narayan 1999). 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. The questionnaire was field tested in four countries that exhibit large differences in poverty-level, socioeconomic, and cultural contexts. The development projects that were evaluated with respect to their poverty outreach were micro-finance institutions that considerably differed in their regional focus, target clientele and financial products<sup>4</sup>.

The application of principle component analysis led to the selection of 14–20 indicators in each of the four case studies. The indicators reflect on 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 tested in the generic questionnaire) were used in three of the four cases studies (Table 2).

#### *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 Madagascar and India, the two countries with the poorest research locations in the sample. The level of education of the household head was used in 3 out of four countries.

#### *Dwelling*

Dwelling indicators discriminated between relative poverty levels well. In the case of rural India, 8 of 20 indicators were related to housing quality. The importance of dwelling indicators found in our study supports the use of the housing index for as a poverty targeting tool in that region. However, in the two African cases where housing was relatively homogenous, only up to five housing indicators were used. 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 Nicaragua, the country with the relatively better-off population in the sample.

#### *Food security and vulnerability*

These indicators turned out to be very important in explaining differences in relative poverty in all four studies, particularly in Madagascar where food insecurity and poverty was found to be widespread in the research area. 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.

---

<sup>4</sup> The micro-finance institutions are the Kenyan Women Finance Trust (KWFT), a local credit union supported by Societe Desjardins in rural Madagascar, the group-based rural credit program of SHARE, a NGO located in Hyderabad, India, and ACODEP, the largest micro-finance institutions serving urban and rural areas in Nicaragua.

Table 2. Indicators selected to contribute to the poverty index, by countries.

Poverty indicator	Nicaragua	Kenya	Madagascar	India	All
<b>Human resources</b>	<b>1</b>	<b>2</b>	<b>2</b>	<b>3</b>	<b>8</b>
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
<b>Dwelling</b>	<b>5</b>	<b>4</b>	<b>5</b>	<b>8</b>	<b>22</b>
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
<b>Assets</b>	<b>5</b>	<b>4</b>	<b>3</b>	<b>3</b>	<b>15</b>
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
<b>Food security and vulnerability</b>	<b>4</b>	<b>4</b>	<b>7</b>	<b>6</b>	<b>21</b>
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
<b>Miscellaneous indicators</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>2</b>
1. Per person expenditure on clothing	x	x			2
Total number of indicators	<b>16</b>	<b>14</b>	<b>17</b>	<b>20</b>	

### Performance of development projects in poverty outreach

As shown above, principal component analysis produces an index score of relative poverty for a sample household. In each case study, a sample of 200 client households and a sample of 300 non-client households was randomly selected using cluster sampling.

To use the poverty index for making comparisons for assessing the poverty outreach of the four micro-finance institutions, the nonclient sample were 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. 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.

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 lowest tercile, or poorest category, the MFI reaches a disproportionate number of very poor clients relative to the general population.

Table 3. Poverty outreach performance of a credit union in Madagascar.

	% Client households		% Non-client households
	Typical clients	Women’s program	
Lowest	20	45	33
Middle	29	36	33
Higher	51	19	33

Source: Own calculations

We report here the results for the case of Madagascar. About half of the credit unions’ clients here belong to the higher tercile, while they are underrepresented in the lower one (Table 3). This result reflects the fact that membership in the credit union is share-based and open to all individuals, not only to the poorest. However, poverty outreach is significantly better when considering only clients belonging to the new program targeted to poor women. Nearly one-half (45.2 percent) of these clients belonged to the poorest tercile.

Table 4. Poverty outreach performance of development projects: The case of micro-finance institutions.

Percentage/ratio	Nicaragua	Kenya	Madagascar	India
Percent of client households who are as poor as the poorest one-third of the nonclient population	30.9	16	20.3	58
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
Ratio of country HDI to HDI for all developing countries taken together	0.98	0.79	0.75	0.79

The results for the four development projects are summarized in Table 4. The distribution of clients of ACODEP in Nicaragua across the poverty groups closely mirrors the distribution of nonclients, indicating that ACODEP serves a clientele that is quite similar to the general population in its operational area. This result is consistent with ACODEP’s stated objective of reaching micro, small, and medium enterprises and with the diversity in the financial products that it offers.



Moreover, Table 4 shows that the poorest tercile of households are underrepresented among the clients of Kenya Women Finance Trust (KWFT). However, about one-half of the clients fall into the two poorest categories, which is remarkable, considering the mission of the KWFT, i.e. to reach all women in business who lack access to formal bank credit, the focus of the product, i.e. to finance businesses after submitting a formal business plan, and the lack of overt targeting by KWFT.

Table 4 indicates quite clearly that the poorest groups are strongly overrepresented and that less poor households are underrepresented among the clients of SHARE, an NGO based on Grameen Bank principles. This result is not only consistent with SHARE's explicit aim to serve the poorest households in its operational area, but also indicates considerable success in its targeting practices. SHARE uses a modified form of the housing index to rate all program applicants, and rejects those found to be too rich.

We suggest two ratios for measuring poverty outreach within the operational area of the development project under evaluation. The first ratio refers to the poorest tercile, and is simply the percentage of clients belonging to this tercile divided by 33 percent. Ratios with values above 1 represent a disproportionately high outreach of the development project within this tercile, and values below 1 disproportionately low ones. In the above example from Madagascar in which the project targets poorer women, ratio 1 would have a value of 1.36 (45 divided by 33). The second ratio assesses the outreach of the development project to households belonging to the higher tercile.

However, ratio 1 and 2 provide insufficient information when making comparisons between development projects not providing the services in the same geographical area of a country. This is because the index uses relative, and not absolute, poverty; thus, it may well be that the "poorest" clients in a relatively rich region or country have higher standards of living than the "least poor" clients in a poorer region or country.

For within-country comparisons beyond the operational area of the development project, we therefore suggest a third ratio, either based on expert knowledge or national poverty assessments (Henry et al 2001), that compares the poverty level of the operational area (province, counties, etc.) of the development project with the national average to determine whether the project operates in above- or below-average areas.

For donor organizations, such cross-country comparisons of poverty outreach of development projects may be useful for policy analysis and programming decisions, particularly if one compares within a certain type of projects across countries (for example considering all projects that sponsor children of poor families to attend primary school or projects targeting free food to needy households). 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). 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 Madagascar is 25 % below the average for all developing countries taken together (Table 4), suggesting that the population reached here by the project is poorer than the developing country average.

With these four ratios, the poverty outreach of a development project can be assessed within and across countries. Clearly, a project operating in a better-off area of a country with a high HDI, a low ratio 1 and a high ratio 2 will receive low marks for poverty outreach. To give an example for a regional assessment based on secondary data, we refer to a recent study in Mexico (Zeller et al 2002) which uses the poverty assessment method presented in this paper for evaluating the poverty level of clients of Compartamos, a MFI working in several states of Mexico. The regional assessment of poverty outreach of Compartamos is based on secondary data provided by INEGI, the National Institute of Statistics, Geography and Informatics. INEGI classified the Mexican states and municipalities according to their level of well-being. The state level classification is presented in Figure 2.

On the basis of these poverty categories (the original seven classes have been summarized into three categories for the purpose of the study), the operational area of Compartamos is compared to the remaining Mexican regions. Interestingly, the results of the state level assessment on the one hand and of the municipality level assessment on the other diverge significantly. State level results indicate that most clients of Compartamos are served in states that have a low living standard. The placement of branches seems to have been guided by the objective of reaching the poorest states in the country. But a state level comparison will not account for major disparities within these areas. Equally relevant for the purpose of evaluating the

level of relative well-being of the operational area are the municipality level results. Compared to states, municipalities are smaller and thus more homogeneous regions providing more accurate data on the level of well-being of the resident population. The comparison at this disaggregated level reveals that most branches of Compartamos are located in municipalities with high living standard. It is likely that this decision of branch placement has been guided by the availability of infrastructure and other facilities, economic opportunities and density of population (Sharma and Zeller, 1999). All these factors tend to favor high living standard areas.

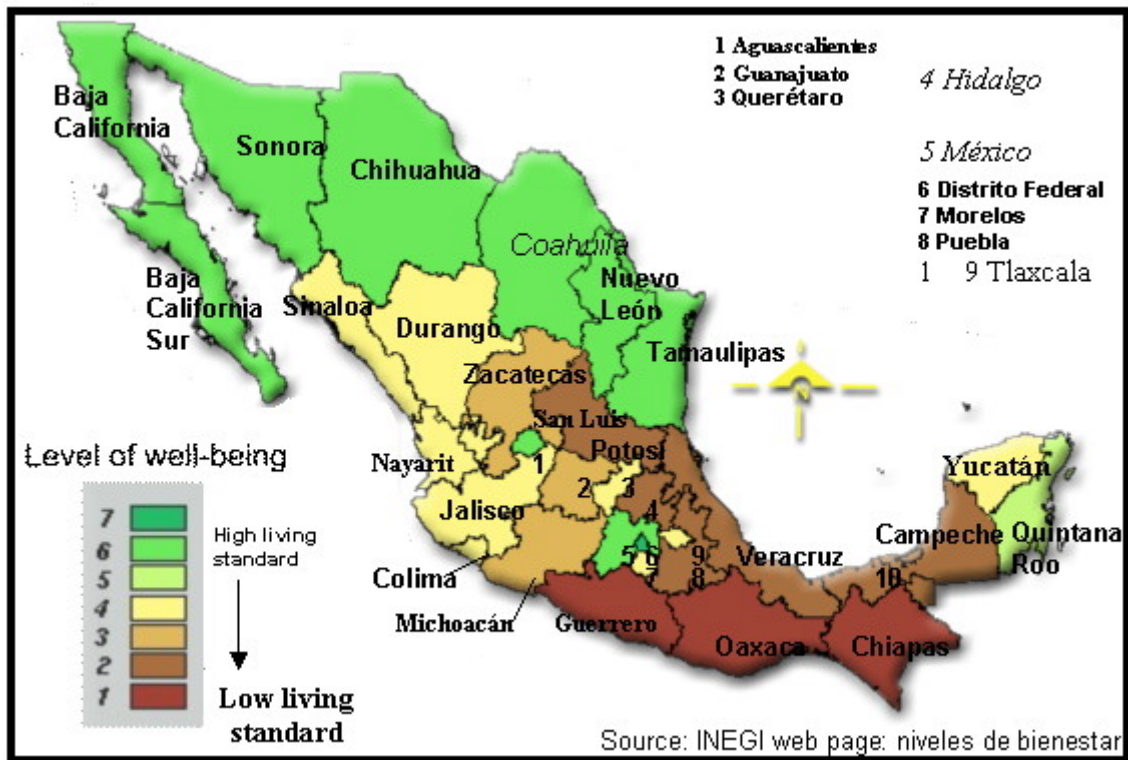
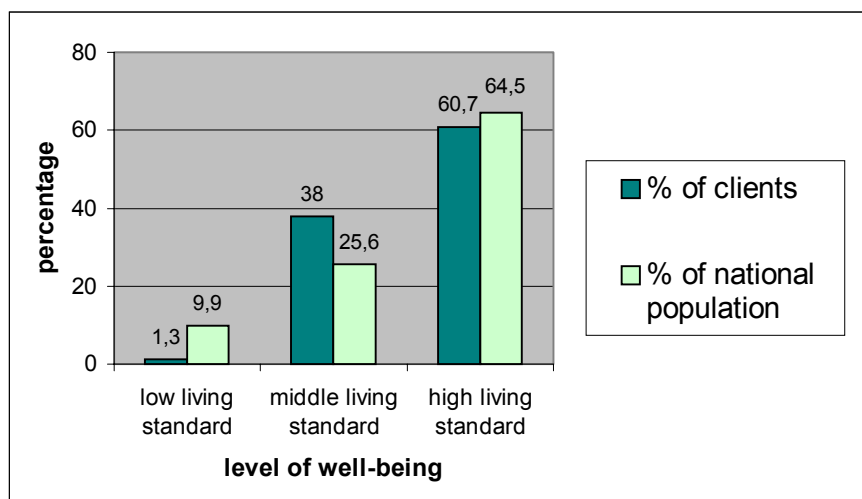


Figure 2. Classification of the Mexican states according to the level of well-being.



Source: Zeller et al, 2002.

Figure 3. Distribution of clients and of the national population across levels of well-being.

Figure 3 shows the distribution of clients and national population across municipalities with different levels of well-being. We can observe that the vast majority (60,7%) of Compartamos' clients lives in high living standard areas, while only 1.3 % of clients is served by a branch located in a municipality with a low living standard. Yet, considering the distribution of the national population, a slightly different picture emerges.

As most Mexicans live in high living standard municipalities, clients are not over-represented in that category. But even taking into account this distribution of the national population, it is evident that the market penetration of COMPARTAMOS is higher in the better-off areas, while the poor areas are clearly under-served.

## CONCLUDING REMARKS

The case studies presented in this paper contribute to the development and testing of a relatively simple method that can be used to assess the poverty level of clients of development projects in relation to nonclients. The main features of this new method are that (1) it identifies and/or constructs a small set of indicators that are powerful descriptors of poverty (2) it is applicable across relatively diverse socioeconomic settings, (3) the chosen indicators are such that reliable information on them can be collected quickly and inexpensively, (4) it allows to unambiguously rank households by their relative poverty levels, and (5) it recommends computation of four ratios that facilitate quick comparison of the relative poverty outreach of development projects within a certain operational area, but also within and across countries. 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 (as the purchasing power varies widely across countries), 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 method developed in this paper is indeed aiming to measure relative poverty. Therefore, the method, and the poverty outreach ratios it generates, allows evaluating at low cost the poverty outreach performance of development projects. Finally, a comprehensive assessment of a development project must include an evaluation of how its poverty outreach record reconciles with its mission, program objectives and strategy. As the case studies themselves have shown, there is considerable variation in terms of geographic targeting, 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.

## REFERENCES

- Aho, G., S. Larivière, and F. Martin. 1998. *Poverty analysis manual: Applications in Benin*. Benin: UNDP, Université Nationale du Bénin, Université Laval.
- Annand, S., and A. Sen. 1994. *Human development index: Methodology and measurement*. Human Development Report Office Occasional Paper No 12. New York: United Nations Development Program.
- Basilevsky, A. 1994. *Statistical factor analysis and related methods*. New York: John Wiley and Sons.
- Bergeron, G., S. S. Morris, and J-M. M- Banegas. 1998. *How Reliable Are Group Informant Ratings? A Test of Food Security Rating in Honduras*. Food Consumption and Nutrition Division Discussion Paper 43. International Food Policy Research Institute, Washington, D.C., April 1998.
- Bilsborrow, R. 1994. Towards a rapid assessment of poverty. In *Poverty monitoring: An international concern*, ed. R. van der Hoeven and R. Anker, 150-158. New York: St. Martin's Press.
- Boltvinik, J. 1994. Poverty measurement and alternative indicators of development. In *Poverty monitoring: An international concern*, ed. R. van der Hoeven and R. Anker, 57-83. New York: St. Martin's Press.
- Chung, K., L. Haddad, J. Ramakrishna, and F. Riely. 1997. *Identifying the food insecure: The application of mixed-method approaches in India*. International Food Policy Research Institute, Washington, D.C.
- Filmer, D. and L. Pritchett. 1998. *Estimating wealth effects without expenditure data or tears: With and application to educational enrollments in states of India*. Working paper No. 1994, Poverty and Human Resources, Development Research Group. The World Bank, Washington, D.C.
- Filmer D. , and L. Pritchett 2000. The effect of household wealth on educational attainment around the world: Demographic and Health Survey Evidence. *Population and Development Review* 25(1). Appeared

- also as World Bank Policy Research Working Paper No. 1980, September 1980. Internet link: <http://www.worldbank.org/research/projects/edattain/edworld.htm>.
- Foster, J., J. Greer, and E. Thorbecke. 1984. A class of decomposable poverty measures. *Econometrica* 52 (3): 761–765.
- Grootaert, C. 1983. The conceptual basis of measures of household welfare and their implied survey data requirements. *The Review of Income and Wealth Series* 29 (1): 1–21.
- Grootaert, C. 1986. *Measuring and analyzing levels of living in developing countries: An annotated questionnaire*. Living Standards Measurement Study, Working Paper No. 24. Washington, D.C: World Bank.
- Grootaert, C. 1998. *Social capital, household welfare, and poverty in Indonesia*. Social Development Department, Environmentally and Socially Sustainable Development Network. World Bank, Washington, D.C.
- Habicht, J. P., and D. L. Pelletier. 1990. The importance of context in choosing nutritional indicators. *Journal of Nutrition* 120 (11) (Supplement): 1519–1524.
- Hatch, J., and L. Frederick. 1998. *Poverty assessment by micro-finance institutions: A review of current practice*. Micro-enterprise best practices. Bethesda, MD.
- Henry, C., M. Sharma, C. Lapenu, and M. Zeller. 2001. *Assessing the relative poverty of microfinance clients: A CGAP operational method*. Consultative Group to Assist the Poorest (CGAP), The World Bank, Washington, D.C. (Internet access via <http://www.cgap.org/publications/other>) (First version was published in July 2000).
- Lipton, M., and M. Ravallion. 1995. Poverty and policy. In *Handbook of development economics*, Vol. III, ed. B. J. Behrman and T. Srinivasan. Amsterdam: Elsevier.
- Moser, C., M. Gatehouse, and H. Garcia. 1996. *Urban poverty research sourcebook. Module I: Sub-City Level Household Survey*. UNDP/UNCHS/World Bank Urban Management Programme, UMP Working Paper Series No. 5. Washington, D.C: World Bank.
- Narayan, C. 1999. Bonds and bridges: Social capital and poverty. Poverty Group, PREM, The World Bank, Washington, D.C.
- Ravallion, M. 1994. *Poverty comparisons*. Chur, Switzerland: Harwood Academic Publishers.
- Sahn, D.E., and D.C. Stifel. 2000. Poverty comparisons over time and across countries in Africa. *World Development* 28(12): 2123-2155.
- Sharma, M., and M. Zeller. 1999. Placement and outreach of group-based credit organizations: The cases of ASA, BRAC, and PROSHIKA in Bangladesh. *World Development* 27 (12): 2123–2136.
- Sharma, S. 1996. *Applied multivariate techniques*. New York: John Wiley and Sons.
- Skoufias, E., B. Davis, and H. Soto. 2000. *Practical alternatives to consumption-based welfare measures*. Mimeograph, International Food Policy Research Institute, Washington, D.C.
- Streeten, P. 1994. Poverty concept and measurement. In *Poverty monitoring: An international concern*, ed. R. van der Hoeven and R. Anker, 15-30. New York: St. Martin's Press.
- Temple, J. and P. Johnson. 1998. Social capability and Economic growth. *Quarterly Journal of Economic Growth*. 113 (3) p. 965-90.
- Zeller, M., M. Wollni, and A. Shaban. 2002. *Do safety net and microfinance programs reach the poor? Empirical evidence from Indonesia and Mexico*. In: Heidhues et al (eds) (forthcoming). *Sustaining Food Security and Managing Natural Resources in Southeast Asia: Challenges for the 21<sup>st</sup> Century*. Proceedings of an International Symposium, January 8-11, 2002, Chiang Mai, Thailand.