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ACCION Poverty Assessment Framework

ACCION's Poverty Assessment Project

To understand and measure the poverty level of microfinance clients, ACCION International is undertaking a multipart poverty assessment project. The project will analyze the poverty levels of clients of ACCION's affiliates and partners using a variety of means. The first phase of the project involves analysis of data that exists in the MIS systems of several partner MFIs and comparison of that data against national household survey data. The document you are reading now lays out the analytic framework for this phase of the analysis that will be employed to compare income, expenditure and socio-economic characteristics of ACCION partner clients with international and national poverty lines.

In subsequent phases, ACCION may carry out additional survey research as well as qualitative studies. The final aim of the poverty assessment project is to incorporate the findings on client profiles into ACCION's ongoing market research to enable our partners to develop or amend products and strategies in order to reach farther downmarket. ACCION's poverty assessment will be a long-term effort, aimed at continually providing poverty analysis services to affiliate microfinance institutions.

Objectives of the First Phase of Analysis

The objective of this framework document is to propose a structure for the initial poverty assessment. In order to assess poverty level and determine how poverty relates to demographic and socio-economic characteristics and credit profile, ACCION will address the following key questions:

- How does the poverty distribution of ACCION affiliates' clients compare with the poverty distribution of the country's overall population? How do both compare with national and international poverty lines?
- How do the demographic and socio-economic characteristics of ACCION affiliates' clients compare with the overall population and how are those correlated with poverty? (i.e. gender, household size, education, housing)
- What are the general borrowing patterns of poorer clients? How are loan size, repayment amount, loan maturity, number of previous loans, and repayment status related to poverty level?

The following sample institutions have been selected and will be included in the first phase of the analysis: BancoSol (Bolivia), Banco Solidario (Ecuador), Genesis (Guatemala), Mibanco (Peru) and Sogesol (Haiti). The selection of institutions is based on the availability of detailed information in MIS systems on borrowers and their households, collected in the credit evaluation process for individual loans.

This framework is comprised of several sections. Section 1 is an overview of various poverty indicators and means of conducting poverty assessments. Section 2 includes the detailed research questions that will be addressed through the analysis. Section 3 is a comparison of available national-level household data and ACCION’s client data. Section 4 presents the actual poverty assessment framework. Section 5 concludes with methodological issues inherent in this framework and recommended means of adjustment.

Section 1: Poverty Indicators and Assessment

Poverty is multidimensional and as a result, there exist multiple means of conceptualizing it and conducting a poverty analysis. The most common and traditional method of measuring poverty is through measuring “standard of living” in which consumption is considered to be a proxy for an individual’s welfare, including health, education, and housing. Another approach is to measure welfare more directly through assessing health outcomes, educational attainment, or the quality of housing. Sen (1999) and Narayan (2000) have contributed to an even broader definition of poverty, taking into account such factors as social empowerment and political freedom to supplement more traditional measures

The first phase of ACCION’s poverty assessment will utilize the “standard of living” approach to measuring poverty using the most frequently employed indicators of consumption, namely income and expenditure. Subsequent phases of the ACCION poverty project may collect more qualitative information, but this phase is based on data existing already in MFI MIS systems.

To date, most attempts to define a poverty framework for microfinance have avoided the traditional approach due to the lack of income and expenditure data. Poverty assessment frameworks have been developed and implemented by the Consultative Group to Assist the Poorest (CGAP) and USAID’s AIMS (Assessing the Impact of Microenterprise Services) project, among numerous others. Although ACCION will begin with a different approach from any of the approaches developed within the microfinance community so far, it is worth briefly discussing the alternative methodologies in order to better understand the existing work and how ACCION’s assessment will contribute to a broader understanding of the profile of microfinance clients.

The CGAP model utilizes a poverty index based on variables that capture dimensions of poverty, such as household demographics, economic activities, clothing, food security, housing, and ownership of assets. The poverty index is then constructed using an analytical technique known as principal component analysis which weights the individual components based on which are most effective in predicting poverty in a given area. The CGAP model measures poverty on a relative, rather than an absolute, basis. The national population sample is divided in thirds based on household poverty index scores and the MFI poverty scores are compared to these low, middle, and high income groups and classified accordingly.

The strengths of CGAP's approach include the fact that it incorporates multiple measures of poverty into a single indicator. In addition, through the principal component analysis, it is uniquely based on local conditions and poverty indicators. However, because it is a relative measurement, the CGAP method does not allow for direct cross-regional or cross-country analysis.

The AIMS method focuses on describing how microfinance services interact with the lives of their clients. It is a comprehensive analysis which includes surveying overall impact, clients' use of loans, profitability, savings, client satisfaction and empowerment. While the household is the center of the analysis, the AIMS method also examines the individual, enterprise, and community. The AIMS methodology enables MFIs to gain an in-depth and multi-level understanding of their clients.

Dunn (1999) and Dunn and Arbuckle (2001) conducted an assessment of the impact of microcredit in Peru as part of the AIMS program¹. The project surveyed clients from ACCION affiliate Mibanco along with non-clients in 1997 and 1999. Like ACCION's proposed framework, the AIMS project in Peru compared the incidence of poverty for both clients and non-clients and compared the two groups along numerous demographic and socio-economic variables. In contrast to the AIMS survey, ACCION will rely on existing data obtained through its affiliates' MIS systems and national-level household surveys. Finally, while the AIMS project focused on assessing the *impact* of microfinance, ACCION's poverty assessment will focus on profiling the poverty level of its clients relative to the overall population and the correlation between poverty, demographic variables, and its clients' microfinance activity.

Poverty Lines. In principle, poverty lines based on the "standard of living" approach distinguish between the "poor" and the "non-poor" by testing individuals' ability to purchase basic food and non-food necessities². Such poverty lines may be either absolute or relative in nature. The former represent the real fixed cost of a set of basic food and non-food goods. Relative poverty lines change over time with changes in the general standard of living. They are typically based on median income or expenditure and are more commonly used in the context of the developed world. The ACCION analysis will employ absolute poverty lines, which are generally the basis of poverty assessments in the developing country context.

The most common methodology for calculating absolute national poverty lines is called the "cost of basic needs" approach. National poverty lines theoretically represent the real cost of a consumption basket of food and non-food necessities. The food component of the poverty line is calculated by first determining a bundle of food items that represent the tastes and preferences of the poor in a given country. This bundle will be unique to each country. For example, in the case of Indonesia, the bundle would include more rice, a staple in the Indonesia diet, than Ecuador's bundle, which might include more beans. After determining the composition of a country's food basket, that basket is priced based on current market prices.

Rather than computing the cost of non-food necessities in a similar manner to food, this second component of the poverty line is generally imputed based on survey data. The overall poverty line includes non-food necessities, using broad assumptions about the percentage of a poor household's total expenditure represented by such necessities. However, it is not based on a complete itemized basket of both food and non-food items.

¹ AIMS has also conducted similar impact assessments in India and Zimbabwe.

² The definition of "necessities" varies across countries.

Once established, national poverty lines are generally fixed for several years at a time and simply adjusted for inflation. The composition of the consumption basket does not change based on individual household surveys conducted. Rather, updated survey data is used to calculate the poverty level based on household income or expenditure and assessing whether it is sufficient to afford the consumption basket in real terms.

National poverty lines come from a variety of sources, the most common of which are governments and national household surveys such as the World Bank's Living Standard Measurement Study (LSMS) or others performed by the United Nations or the Inter-American Development Bank in partnership with national statistical institutes. The national poverty line is most useful for within-country comparisons, for it uniquely reflects the tastes and preferences along with the costs in a specific country. However, typically, the government must approve the poverty line, and it therefore is subject to political considerations. There is considerable variability among poverty lines based on different institutions' calculations and different household surveys. ACCION will address this issue and its impact on the poverty incidence findings in each country in the individual country poverty assessment documents.

The World Bank created an international poverty line in its 1990 *World Development Report*. Since then, this international poverty line and the associated \$1/day and \$2/day (per capita) poverty measures have gained political and popular recognition. This international poverty line is based on purchasing power parity (PPP) and represents the purchasing power of \$1/day across countries. It was constructed based on 1993 price data and PPP estimates³ and calculated as the median of the 10 lowest poverty lines. It equals \$1.08/day in 1993 PPP terms, although it is commonly referred to as "\$1/day." The upper international poverty line or "\$2/day" poverty line is simply twice the \$1/day poverty line (World Bank, 2000).

The international poverty line, theoretically, represents a standard of poverty that is consistent across all countries and allows for cross-country comparisons. "It tests for the ability to purchase a basket of commodities that is roughly similar across the world" (World Bank, 2000). However, it does not account for economic and social conditions that are unique to individual countries and the associated poverty measurement is based on relative PPP prices, which may not be representative of the consumption habits of the poor. The World Bank does not recommend this tool for within-country poverty assessments and advises that country-specific poverty lines that reflect the special circumstances and purchasing patterns of individual countries be utilized for country-specific poverty assessments.

Poverty Indicators. Both national and international PPP poverty lines are consumption-based. Therefore, the most common "standard of living" indicators used to measure poverty in reference to these lines are expenditure and income (adjusted for savings), both of which are considered proxies for consumption. Expenditure is generally the preferred poverty indicator for developing country poverty assessments for several reasons. First, expenditure is not as volatile as income, particularly due to the seasonality of income from agriculture and agriculture-related enterprises. Secondly, in societies with large rural populations, a large proportion of poor households' income is non-monetary and therefore is not captured in a traditional income indicator. Third, researchers believe that in surveys income tends to be underreported and expenditure data is generally more precise. However, these strengths of utilizing expenditure as the key poverty indicator may not

³ 1993 PPP estimates were obtained through the United Nations' International Comparison Project (ICP)

be applicable for ACCION’s poverty assessment due to the population of ACCION’s clients and the nature of its data, as will be discussed in the following section.

Social indicators such as health, education, and housing are other potential poverty indicators that measure welfare more directly. Vulnerability is another potentially appealing poverty measure, particularly given the literature that suggests microfinance plays an important role in decreasing vulnerability (Cohen and Sebstad, 1999). Although ACCION’s data contains some data on these indicators, they will not be the focal point of the analysis in this phase.

A number of aggregate measures are sometimes employed by poverty analysts; for example the poverty gap, which summarizes the depth of poverty in one number. ACCION’s approach is to compare the distributions of income and expenditure across populations. The distribution shows the number or percentage of people in the population (or client base) at all levels of poverty. A poverty distribution gives more complete information and is more easily interpreted by the lay person.

Unit of Measurement. Poverty can be measured either at the household or the individual level. National surveys and the affiliates of ACCION credit applications collect data at the household level. However, Deaton (1997) and the majority of the literature recommend employing an individual measure. They argue that it is both clearer and conceptually more appropriate to assess welfare on an individual level. This requires converting household-level data to a per capita basis, as will be discussed in section 4.

Section 2: Research Questions

Through its poverty analysis project, ACCION intends to gain a better understanding of its clients and how they compare with the overall population in several sample countries, as well as their demographic and socio-economic profile and how such characteristics relate to poverty level and borrowing activity. ACCION seeks to answer a number of specific questions, detailed here. However, this paper does not present an exclusive list of research questions. ACCION intends to supplement the questions with cluster-based analyses of groups that are particularly large and/or predictive of poverty level and microfinance activity when possible throughout the statistical analysis phase of this project. In addition, all questions may not apply to each sample institution, due to data limitations. However, when possible, ACCION will address the following research questions.

Core questions that compare the poverty level of ACCION clients with the national population and explore the relationship between poverty levels, economic activity, and credit history include the following:

1. How does the poverty level of ACCION borrowers compare to the poverty level of the overall population?
 - a. What is the poverty distribution for each group?
 - b. What percentage of ACCION borrowers and the overall population are considered poor based on each of the following poverty lines: national, \$1/day, \$2/day?

2. How does the poverty level of ACCION borrowers compare to the poverty level of the overall population within specific demographic groups?
 - a. Female versus male
 - b. Female-headed households
 - c. Households with more than 5 people
 - d. Other distinct demographic groupings that may be found

3. What is the relationship between loan characteristics, poverty level, demographic and socio-economic variables?
 - a. How is poverty level associated with loan size, repayment amount, loan maturity, number of previous loans, and repayment status?
 - b. How is poverty level associated with specific products? (working capital loans, fixed asset loans, housing loans, small business loans, etc.)
 - c. How is loan size associated with the following: poverty level, age, gender, location, female-headed household, household size, education, housing status, and business sector?
 - d. How is the number of previous loans associated with the following: poverty level, age, gender, location, female-headed household, household size, education, housing status, and business sector? (i.e. are borrowers with certain demographic characteristics more likely to obtain more loans from the affiliate over time?)
 - e. How is a client's repayment status associated with demographic and socioeconomic variables?

4. Among ACCION clients, how is economic activity correlated with poverty level, borrower performance and demographic characteristics?
 - a. Economic sector of business (i.e. commerce, service, or production)
 - b. Location of enterprise (i.e. fixed, market, or traveling)
 - c. Stage of the household enterprise (as measured by years in existence)
 - d. What is the demographic profile (in terms of gender, age, rural or urban, education, household size) of clients' enterprises by sector and location?

Additional questions in order to assess the demographic and socio-economic profile of ACCION's clients include the following:

5. How are certain demographic characteristics correlated with poverty level?
 - a. Location (urban/rural)
 - b. Gender
 - c. Female-headed households
 - d. Household size
 - e. Marital status
 - f. Age

6. How are certain socio-economic characteristics correlated with poverty level?
 - a. Education (measured as the highest level of education attained)
 - b. Amount of money spent on food (as a percentage of overall budget)
 - c. How do consumption patterns vary with expenditure?

7. How is housing correlated with poverty level?
 - a. Owning and renting housing
 - b. Access to electricity
 - c. Running water
 - d. Telephone
 - e. Based on an index of the above characteristics, what is the relationship between quality of housing and poverty level?

8. How are asset-ownership and diversification correlated with poverty level?
 - a. Fixed salary (for at least one member of the household)
 - b. Diversity of a household's income sources (as measured by the number of sources)
 - c. Having a savings account
 - d. Having an outstanding loan or other source of credit

Section 3: Data Comparison

The recommended framework for ACCION's poverty assessment cannot be strictly based on theoretical merits of various poverty measures, but must also consider data availability and the cost and feasibility of execution. This section discusses the data that is available from both national household surveys and ACCION's affiliates, the strengths and limitations of existing data, and means of quantifying and correcting measurement errors inherent in the datasets.

National-Level Data. The World Bank's Living Standard Measurement Study (LSMS) is one of the largest national household survey projects and includes a high degree of coverage among Latin American countries, including all of the countries included in ACCION's poverty assessment project except Haiti. The LSMS survey model was developed and funded by the World Bank; surveys are executed by partner organizations, such as national statistics institutes, in each country. While the World Bank does not regularly summarize or publish the data obtained through the LSMS surveys, the LSMS surveys represent a significant and relatively consistent source of household data. Using the data requires access to the database itself in electronic form. Fortunately, these databases are generally available for public purchase through the World Bank and individual countries' statistics offices.

The primary strengths of the LSMS datasets are their breadth and the quality data obtained through detailed household, community, and price questionnaires. The LSMS surveys include data on a wide range of topics, including household demographics, economic activity, education, housing, and health. Specifically, the LSMS surveys include: general identification and location information; demographic data including gender, age, marital status, and household size; socio-economic information, including level of education, housing data such as rental status, number of rooms, and whether the household has electricity, running water, and telephone service. The LSMS surveys also collect detailed data on household economic activity. This data includes information on household employment, income, food and non-food expenditure, and saving and borrowing activity. The LSMS surveys create several aggregate expenditure indicators by summing the responses given to the detailed expenditure questions (rather than by asking respondents about their total expenditures).

While the LSMS datasets represent a vast amount of household information across its sample countries, ACCION is aware of their inherent limitations. The income data available from the LSMS datasets is weaker than the expenditure data, due to the fact that the income questions are not as specific as the expenditure questions. Furthermore, as discussed in Section 1, income is more volatile than expenditure and the LSMS income data is subject to the business and economic environment at the time of the survey. Finally, despite the quality controls in place, the LSMS surveys are not entirely consistent across countries and are subject to inherent biases in sample populations and collection methods.

ACCION will utilize the LSMS databases as its primary source of national household data. In the case of Haiti, in which a LSMS survey has not been performed, ACCION will obtain data from the UNDP's Haiti Living Conditions Survey (ECVH) and/or Household Income and Expenditure Survey (EBCMIII).

Other potential sources of data include The United Nations Economic Commission for Latin American and the Caribbean (ECLAC/CEPAL) and the Inter-American Development Bank Program for the Improvement of Surveys and the Measurement of Living Conditions in Latin America and the Caribbean (MECOVI). However, while the ECLAC's *Social Panorama of Latin America, 2000-2001* report summarizes various household surveys, potential analysis is limited to the summary information provided without the actual underlying household surveys. While the MECOVI project includes the underlying datasets, they have not been performed in as many of ACCION's sample countries.

ACCION Data. ACCION's affiliates collect a great deal of information from clients through the credit application process, particularly on individual loans. The majority of this data is recorded in the affiliates' MIS systems and can be retrieved in a usable format. This extensive dataset will enable ACCION to perform a broad assessment of its clients' poverty levels and profiles. However, because it is obtained for the purpose of evaluating potential clients' credit worthiness, it differs from data obtained in the national household surveys. It is extremely important to recognize the strengths and weaknesses of the ACCION data compared to those of LSMS studies, and inherent biases that may result.

ACCION data includes both enterprise and household data. The enterprise data includes the economic sector, type of activity, and year initiated. It includes the profit margin of the enterprise based on a comprehensive analysis of the business's income statement and balance sheet. The household-level information includes demographics, housing, education (in certain cases), and economic data on income, total income, and total expenditure. However, detailed information on sub-items comprising total income and total expenditure is not available on all MIS systems and therefore can only be analyzed for some of the institutions included in the poverty assessment. In addition, the ACCION data contains information regarding loan size, maturity, repayment amount, number of previous loans, and repayment status, which allows comparisons between poverty levels and borrower performance.

While the ACCION data represents a rich dataset, one must remain cognizant of the fact that it is based on a credit application process. On the plus side, both the loan officer and client invest great care in providing extensive information, as the outcome of the credit application matters to them both (while researchers and their subjects have less stake in providing sound, complete information). Particularly with respect to business and household cash flow, the credit evaluation process contains several cross-checks to ensure that information is consistent. On the other hand,

it is known that credit applicants may have the incentive to inflate household income or underreport expenses in order to obtain credit approval, and loan officers may have the incentive to omit sources of income that they are unsure about. However, certain affiliates require documentation of income sources in order to include income in the credit application, leading to some systematic underreporting of income for families with multiple income sources and no documentation. Another factor which may offset any income inflation is that ACCION data does not include self-consumption as income, as the LSMS data does.

Uncertainties also exist regarding the quality of the expenditure data for several reasons. First, as noted above, clients and loan officers may have the tendency to underreport expenditure data. Secondly, while certain affiliates collect detailed expenditure data, income generally receives greater focus. Thus, much of the detail as well as the built-in cross-checking in ACCION's data collection is focused on income, while in the LSMS surveys it tends to focus on expenditure.

In order to ensure the quality and consistency of both the ACCION and the LSMS data, ACCION intends to conduct validation testing as part of the poverty assessment project. This component of the project will consist of several steps, the first of which is verifying the accuracy of the data transfer from ACCION's MIS systems to project datasets through cleaning the data and omitting missing observations and obviously erroneous data. ACCION will examine the data in detail to ensure the comparability of definitions between the LSMS and ACCION datasets. In addition, in the case of Peru, ACCION will compare its affiliate and national-level data with the household surveys conducted as part of the AIMS impact assessment discussed in section 1 in order to identify and estimate the magnitude of any biases. Finally, ACCION may need to conduct small-scale in-country validation surveys. While such controls are unable to eliminate the risk of measurement error, they should enable ACCION to identify potential biases and mitigate the risk of systematic biases that would affect the project's findings.

Section 4: Framework and Recommendations for Performing the Analysis

Based on an understanding of the potential poverty indicators and data available, this section outlines an actual framework for conducting the first phase of ACCION's poverty analysis. It then outlines the steps necessary for performing and presenting the analysis.

Poverty Measures. As discussed in Section 1, reference points must be established to delineate the various levels of poverty. ACCION will employ both national and international poverty lines. National poverty lines which better reflect local economic conditions and consumption patterns are particularly well suited for a within-country cross sectional analysis, such as the comparison of ACCION clients with the overall population. However, the international poverty lines which are referred to as the \$1/day and \$2/day poverty lines are often employed in the development community and are useful in making comparisons across countries.

As discussed in Section 1, national poverty lines utilized in the World Bank's 1990/91 and 2000/01 *World Development Reports* and the majority of poverty assessments are based on a variety of sources. Most commonly, they are based on a household survey (such as LSMS or another national household survey) and approved by the government. Both the national and international poverty lines must be adjusted for inflation. In addition, the international poverty line must be adjusted based on the appropriate PPP estimate.

The poverty line is a benchmark that represents the expenditure level necessary to purchase a basket of basic necessities. Therefore, in order to calculate the poverty level, it is simply necessary to compare an individual's aggregate expenditure (or adjusted income) with the poverty line.

Because the primary goal of ACCION's assessment is to compare the *distribution* and not simply the incidence of poverty between ACCION clients and the population, its assessment is more sensitive to the poverty indicators selected as opposed to the precise poverty line. Therefore, it is essential to ensure that the ACCION and national poverty indicators are comparable. ACCION will use both expenditure and income as poverty indicators. As discussed in section 3, LSMS surveys focus on expenditure over income. However, in ACCION's case, income information is likely to be more relevant. Therefore, ACCION's poverty assessment will use both indicators.

When utilizing the expenditure indicator, ACCION will compare total household and per capita expenditure data with the LSMS expenditure aggregate that is comprised of the same components for each country analysis. As discussed earlier, ACCION's expenditure data does not always include the disaggregated expenditure data. However, ACCION's total expenditure variable should be generally consistent with the LSMS expenditure aggregate that includes total food and non-food expenses.

The income poverty indicator must be adjusted in order to compare it with national and international poverty lines, which are expenditure-based. In order to do this, the World Bank scales down the income data in the survey by the ratio of national consumption to national income in the national accounts in order to account of savings. This method adjusts the mean, but assumes a constant distribution across all income levels. However, this method makes the unsubstantiated assumption that the poor save an equal proportion as the rich.

While national-level and ACCION-level data are collected on a household-level, poverty lines are computed on a per capita basis. Therefore, total household expenditure (or income) must be converted to per capita expenditure (or income). Although there are methodological flaws to this method, which will be discussed in the following section, ACCION will simply convert data to the individual basis by dividing total household expenditure by household size at the observation unit level⁴.

Performing the Analysis. Based on the poverty measures discussed, the analysis must be performed in order to answer the research questions articulated in Section 2. The first research question is the foundation of the poverty assessment. It asks how the poverty level of ACCION's clients compares to the poverty level of the overall population. Specifically, it asks what the poverty distribution is for each group and what percentage of ACCION borrowers and the overall population are considered poor based on each of the poverty lines discussed above.

To answer these questions, ACCION will calculate the median income and expenditure and the inter-decile distribution of income and expenditure for ACCION clients and the overall population. In addition, ACCION will calculate the poverty incidence (percentage of the population below the poverty line) for both groups based on each of the three poverty lines (national, \$1/day, \$2/day).

⁴ This step has already been completed in the case of the LSMS data.

Poverty Profile. In addition to calculating simply the poverty incidence, it is important for ACCION to gain a deeper understanding of how the profile of its clients compares with the overall population. Therefore, ACCION will construct and graph the distribution and cumulative distribution functions for a limited set of demographic variables. Secondly, it will compare a larger number of socio-economic characteristics for the poor and non-poor across ACCION clients and the population through summary statistical analyses. Finally, ACCION will employ correlation analysis and multivariate econometric analysis to analyze the correlation between poverty, demographic, socio-economic, and loan characteristics.

Distribution Functions. The poverty distribution and the cumulative distribution function (CDF) are valuable tools in depicting and understanding the distribution of poverty across multiple groups. The standard distribution function displays the total observations (individuals or households) at each expenditure (or income) level, while the CDF poverty incidence curve traces out the percentage of the population that have incomes (or expenditure) below a given level. In either case, multiple poverty curves can be charted simultaneously in order to compare to poverty levels of different subsections of the population. The poverty lines can be imposed upon either distribution as points of reference. Due to the fact that the distributions are not sensitive to the poverty line, one can analyze the poverty level without regard to the imperfections and assumptions underlying the precise poverty line. However, as previously discussed, the poverty comparison across groups is based on the assumption that the poverty measures of expenditure and income are calculated consistently for ACCION clients and the national population.

ACCION will calculate the distribution functions for the following sub-groups, which should be adjusted and augmented based on clusters that are found through the data analysis:

- overall population and the population of ACCION borrowers;
- female clients and the overall population of females;
- female-headed households for both the ACCION and the overall populations;
- households with more than 5 members for both groups;
- urban and rural households for both ACCION clients and the overall population
- ACCION clients with loan sizes above and below a certain threshold⁵.

⁵ The specific threshold should be determined based on analysis of individual affiliate-level data.

Correlation analysis will be used to analyze the empirical relationship between poverty, demographic and socio-economic characteristics, business activity, and loan characteristics. The correlation matrix will examine the following variables:

Demographic and Socio-Economic	Economic Activity	Poverty Level	Microfinance Performance
<ul style="list-style-type: none"> • Gender • Female-headed household • Household size • Urban/Rural • Age • Marital status • Education • Rent/own home • Electricity, water, phone • Housing index 	<ul style="list-style-type: none"> • Enterprise sector • Enterprise location • Age of enterprise • Fixed salary in household • Number of income sources 	<ul style="list-style-type: none"> • Income • Expenditure 	<ul style="list-style-type: none"> • Loan size • Loan product • Repayment amount • Number of previous loans • Repayment history

The final section of ACCION’s analysis will be based on multivariate regression analysis using the OLS (ordinary least squares) methodology in order to assess the empirical relationship between a limited set of variables. Specifically, this analysis will assist ACCION in assessing the strength of proxy variables for poverty level.

Many MFIs hypothesize that loan size is a proxy variable for poverty level. ACCION will test this hypothesis by regressing income and expenditure (individually) on loan size and a set of control variables. ACCION hypothesizes that in addition to poverty level, loan size is a function of certain demographic variables along with a client’s microenterprise and credit history. Therefore, the analysis will control for age, gender, location (rural/urban), economic activity, number of previous loans, and home ownership.

ACCION will also analyze the correlation between income and expenditure through regression analysis. Determining the correlation between the two variables is important in determining whether it is appropriate to use income as a proxy for expenditure in future poverty work or whether there is a means of adjusting income data so that it could be used. In order to assess this relationship, ACCION will regress expenditure on income, while controlling for age, gender, location (rural/urban), and loan size.

Section 5: Methodological Issues and Means of Adjustment

Poverty assessments involve methodological issues that are inherent to the processes of both quantifying poverty and comparing across time and groups. While certain such pitfalls can be corrected easily, others require experimental designs that are costly and often not feasible. This section describes the methodological issues of this poverty assessment framework, proposes means of adjustment for many, and recognizes the shortcomings in other cases.

Inflation. The first methodological issue is that of cross-time comparisons, which is easily adjusted for using price indices. One must consider how much it would cost in, for example,

1999 to purchase the basket of basic goods that would produce the same level of welfare as the nominal expenditures that defined the poverty line in 1996.

In order to compare expenditure (or income) figures across periods, one must adjust nominal expenditures (or income) to real terms so that all figures are in real constant currency terms. To inflate a figure based on an increase in the price index, simply multiply the figure by $(1+\Pi)$, where Π is the inflation rate, or percentage increase in prices between two years. The consumer price index is generally used. In order to deflate a figure to compare in terms of a previous period, simply divide by $(1+\Pi)$.

While the adjustment process for inflation is relatively straightforward, one must consider the flaws of relying on CPI as the price index. CPI is comprised of both food and non-food goods that theoretically are representative of an overall population's tastes and consumption patterns. However, this index is not necessarily representative of the poor, as illustrated by Suryahadi et al (2000). The poor spend a larger percentage of their income (or expenditure) on food than the non-poor. Therefore, changes in food prices will have a greater impact on the poor than the non-poor and will not be entirely reflected in changes in the CPI. While ACCION will not make specific adjustments for this issue, it is worth noting.

Overall Economic Conditions Overall economic conditions may impact the consumption patterns and incomes of households across time periods. For example, during an economic recession, one would expect households' consumption and incomes to decrease. Therefore, one must ensure that the LSMS data and ACCION data are taken from time periods with similar economic conditions in order to mitigate the risk that differences in poverty level are due to underlying economic conditions.

This is not a significant issue in the case of Bolivia, Guatemala, or Haiti, ACCION's sample countries in which national-level data is based on surveys conducted in 2000 or 2001. However, it may be an issue in the case of Ecuador and Peru which had economic recessions in the late 1990s, given that the most recent LSMS surveys were conducted in 1998 and 1994, respectively. If preliminary analysis suggests that this is an issue, ACCION will obtain more recent surveys, particularly for analyzing the income and expenditure levels across groups.

Regional Cost of Living Differences. The cost-of-living varies within countries and therefore adjustments must be made to ensure that the poverty indicators are spatially comparable. Generally, this is accomplished through using regional price indices (e.g. urban vs. rural) to adjust nominal consumption (or income). However, another alternative, which ACCION will employ, is limiting the national sample (from the LSMS data) to the regions in which ACCION's affiliates operate. This method not only eliminates the need for regional price adjustments, but also ensures that comparisons between the two samples (population and ACCION) are not affected by other regional differences that may affect other variables in the poverty assessment (e.g. regional customs, availability of public services, etc.)

Household Size and Composition. As noted before, the measurement framework is based on average per capita income and expenditure. However, data is captured on a household level in both the LSMS and ACCION datasets. If average household size is used as a basis for moving from household to individual level of analysis, biases may arise from systematic differences in household size among population segments. However, to the extent to which both ACCION and LSMS datasets contain household size at the household observation level, this will not be an issue in ACCION's analysis.

Poverty estimates are also sensitive to the assumption that consumption (or income) is shared equally on a per capita basis, regardless of gender or age. One may correct for the fact that, for example, children and women consume less than adult males. There is little reason to be concerned about this issue unless it turns out that the household size distribution for ACCION clients differs dramatically from the population at large.

Survey Design and Data Quality. The most fundamental methodological issue relates to potential flaws in the underlying national surveys and ACCION datasets. The ACCION data is obtained through credit applications. This data regarding household income and expenditure is not as detailed as the household surveys. Because the credit application process focuses more on income than expenditure, there may be less attention paid to verifying the expenditure information. In addition, the ACCION expenditure data does not include the market value of subsistence production (as this is considered negligible in the urban environments where ACCION affiliates work) or the value of durable goods. As a result, ACCION expenditure data may be biased downward, relative to the overall population. Finally, credit applicants and loan officers may have the incentive to inflate or underreport income and expenditure. It should be recognized that no dataset, including LSMS surveys, is entirely accurate or bias-free. The important thing is to be aware of where the biases are most likely to lie.

Outstanding Loans and Informal Savings and Loan Activity. In the case of ACCION data, outstanding microenterprise loans are generally treated as business expenses on the balance sheet and as liabilities on the balance. Therefore, they affect the microenterprise's profitability and enter into the measure of household income that includes profit from the microenterprise. However, in addition to formal loans outstanding, the poor save and borrow through a variety of informal mechanisms, such as ROSCAs. The treatment of savings or loans obtained for non-business purposes will not be reflected on the microenterprise's balance sheet, but may be reflected as a component of household income or expenses, depending on the affiliate and the time period in which deposits and payouts are made. While this issue is worth noting, there is little reason to be concerned about it, given that it will not result in any systemic biases or significant deviations from the LSMS data.

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