HOW EFFECTIVE IS MICROFINANCE IN REACHING THE POOREST? EMPIRICAL EVIDENCE ON PROGRAMME OUTREACH IN RURAL PAKISTAN

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Abstract. Microfinance has emerged on the global scale as a key strategy to reduce poverty and promote development. Most literature however, tends to concentrate on *breadth* as opposed to *depth* of programme outreach. This paper is based on a primary household survey of 1,132 respondents in the Punjab Province of Pakistan to assess which category of the poor is being served by microfinance institutions: are they the very poor, middle poor or less poor ones? In order to make comparisons, borrower (treatment) and non-borrower (control) households are ranked by poverty scores generated by employing Principal Component Analysis. The study reveals that the depth of poverty outreach is significantly lower than what has been claimed by lenders. The paper reflects on policy implications to enhance depth (as opposed to breadth) of outreach to address the needs of the 'poorest of the poor' in order to contribute meaningfully and effectively towards combating poverty.

Keywords: Microfinance, poverty alleviation, depth of programme outreach, poverty ranking, South Asia, Pakistan.

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1. Introduction

Financial services access is associated with giving access to capital and providing job opportunities to the poor. Offering such services underpins their ability to increase and diversify incomes, build human, social and economic assets and improve livelihoods in ways that reflect the multidimensional aspects of poverty (Sananikone 2002). Despite efforts to provide access to financial services, it has often been argued that both formal and informal sectors in the developing world have failed the people (Chowdhury 2008). As the rural poor have very limited access to the organized and formal financial sector, they resort to private money lenders in order to finance their immediate needs. Unfortunately, credit market isolation coupled with an inelastic demand for credit, allow such private moneylenders to decide freely what interest rate to charge (Sundrum 1992;

Gupta and Chaudhuri 1997), thus forcing their low-income borrowers to pay much higher interest for credit than would be necessary if commercial microfinance were widely available through financial institutions with broad outreach (Robinson 2001). Studies by Dowla (1998) reveal that interest rates being charged by the informal sector are simply exorbitant and may vary anywhere from 10 to 120 percent per annum for initial investment, and up to 240 percent for working capital financing. Banerjee and Duflo (2011: 158) put such high interest rates in context by citing the example of a 'daily loan' obtained by a typical vegetable vendor in India from a money lender at an interest rate that amounts to 4.69 percent per day. On these terms, the equivalent of a $5 loan, if unpaid for a year, accumulates to a debt of nearly $100 million.

The restraints and inadequacies in the financial sectors, as noted above, have led not only to the evolution of Microfinance, but also towards its immense popularity all over the developing world as a key tool in development-related programmes (Chowdhury 2008). The underlying premise of microcredit is to provide credit without borrowers having to surrender their assets as security in case of non-payment.

Microfinance has gained rapid popularity in Pakistan as a tool to assist the poor to work their way out of poverty. This study assesses the type of the poor that are being reached by microfinance providers in the country by measuring the depth of its outreach across rural parts. By means of administering an extensive household questionnaire to both microfinance borrowers and non-borrowers, their relative poverty levels are assessed. A poverty index is constructed, which enables ranking of all surveyed households. Survey findings reveal that outreach is substantially low, thus providing evidence that the poorest are not being effectively targeted and adequately reached. The paper further provides a number of polices that can be implemented in order to efficiently target, reach and serve the poorest as a measure to successfully combat poverty. This research makes an important contribution to the limited empirical studies carried out in Pakistan that assess microfinance programme outreach. As opposed to assessing the geographical coverage of various microfinance programmes (the breadth), it assesses the *type* of the poor being served by MFIs. The paper consists of four sections: following this introduction, section two briefly explores current literature on poverty targeting and outreach. Section three expounds the methodology and geographics of the surveyed region. It also details the empirical work carried out in the study. The concluding section draws together the major points of the paper, comments on its findings and discusses policy implications.

2. Combating poverty by targeting: findings from empirical studies

Development policies are either targeted at certain specific individuals or segments of the society (*'targeting'*), or are designed to influence the entire population (*'universalism'*). Though it may seem to be a fairly straightforward two-part classification, Mkandawire (2005) argues that there is hardly ever pure universalism or targeting, as policy regimes are often hybrid and tend to lie between these two extremes. There is relatively little empirical work that focuses exclusively on poverty targeting and outreach of microcredit programmes; as most research concentrates on assessing impact explor-

ing income poverty and household assets, etc. Nevertheless, there are a few instances of empirical work focused exclusively on poverty targeting and outreach. In an extensive study carried out in Western Cape Province in South Africa, for example, Adato and Haddad (2001) examine the targeting performance of seven programmes and analyze the role of government, community-based organizations, trade unions, and the private sector in explaining targeting outcomes. The findings concluded that the programmes were not well-targeted geographically in terms of poverty, unemployment, or infrastructure and within localities; jobs went to the poor and unemployed, though not always the poorest. Srivastava (2004) addresses two broad questions related to poverty targeting programmes with particular reference to India: how much in aggregate does the government spend on poverty-targeted programmes and how effective have these programmes been in targeting the poor and in alleviating poverty. Martin (2001), in a study based in Mozambique, suggests that the most efficient method to identify and target the poor would be 'geographic targeting', which can be achieved by first generating a disaggregated map of poverty and living conditions by combining data from both a nationwide standards of living survey and a national population and housing census. Zeller and Johannsen (2006) use data from nationally-representative household expenditure surveys undertaken in 2004 in Bangladesh and Peru and examine the poverty status of clients of different types of microfinance institutions in both countries. The analyses show that microfinance institutions are able to reach the poor, but that also a large share of their clients belongs to the non-poor population. A report by Asian Development Bank (ADB 2012) found low outreach and no clear evidence that the Bank's interventions reached the majority of households living below the national poverty lines and that in the six case countries, fewer than 9% of microfinance clients lived below $1.25 per day, and fewer than 22% lived below $2 per day.

How effective is targeting towards poverty alleviation? Goldberg (2005) cites two major studies pertaining to ASA and Grameen Bank that strongly suggest that microfinance *works better for the poorest than the less-poor*. Both organizations established their own programmes to reach the hardcore poor. Neither involves grain handouts, but they offer very small loans with flexible repayment schedules (Goldberg 2005; Hulme 2008). Grameen's 'Struggling Members' or 'Beggars Program' constitutes a typical loan to a beggar member amounting to Tk. 500 (US$ 9.00). It is both collateral and interest-free. The repayment schedule is flexible and decided by the struggling members themselves. The instalments are to be paid according to their convenience and earning capability.

As of December 2011, cumulative members under this programme reached 110,902 out of which 107,077 are women. The total amount disbursed stands at Tk. 159.13 million (approx. US$ 2 million), out of which Tk. 128.96 million (US$ 1.65) has already been repaid (Grameen Bank 2011). BRAC's own assessment of its impact found that while landless clients benefited least from the programme, while those with 1–50 decimals of land ('the poor') benefited most (Goldberg 2005). In a study that looked into inequality and the polarizing impact of microcredit in Zambia, Copestake (2002) found that clients below the poverty line benefited *significantly more* from access to credit. A study by Hossain and Diaz (1997) that evaluated a Grameen Bank replication in the Philippines

found that income from older borrowers' microenterprises was 3.5 times higher than newer borrowers' enterprises, and older borrowers also increased income from other sources.

On the contrary, however, a study on community-driven rural development projects carried out by the Inter-American Development Bank concurred that the poorest and the most vulnerable generally are not necessarily reached by targeting (Dahl-Ostergaard *et al.* 2003). Certain projects of The World Bank have tried to reach the poor through targeting, but there is limited evidence to show that they have done this more successfully than any other Bank investment. It is not surprising, therefore, that a recent literature review (Mansuri and Rao 2004; cited in The World Bank 2005) found that projects that rely on community participation have not been particularly effective at targeting the poor (The World Bank 2005).

Despite results of studies noted above, the question of which group benefits *most* from microfinance is probably misguided. Evidence shows that the very poor *do* benefit from microfinance, and this justifies the decision of many programmes to recruit them (the ultra poor) and to develop products and services that suit their needs (Goldberg 2005). Some microcredit advocates argue that microfinance services should reach the 'poorest of the poor' as access to credit is a human right in the fight against economic exclusion and therefore narrow targeting of the poorest is necessary (in-depth targeting) (Aguilar 2006). Some studies have also shown that most poor people have benefited from microfinance programmes but that narrow targeting is not necessarily a condition for reaching the poorest while some large-scale non-targeted schemes have proven to reach the poorest (*ibid.*).

3. Assessing depth of outreach: methodology overview and geographics of the surveyed region

This study assesses the extent to which various Microfinance programmes target and actually reach the poor across the rural areas of the province of Punjab in Pakistan. This is done by first assessing and later contrasting poverty levels of MFI clients to non-clients within the area being surveyed. The methodology applied is not designed and does not intend to provide information on the households' absolute levels of poverty but to develop a poverty index of all the households that are contained by the sample. The ensuing poverty index provides a tool to calibrate *relative* poverty – the extent to which a household is *worse off* or *better off* compared to the other households within the surveyed sample (Henry *et al.* 2003). Once relative poverty levels are ascertained, the poverty index can be constructed, with which the depth of outreach can be subsequently determined. This procedure is discussed in detail in section 3.3, but first the section that follows provides an overview of the region that forms the backdrop for this study and discusses the selection and choice of the dimensions along with the associated indicators that were employed to capture households' relative well-being.

Out of the four provinces, Punjab is the second largest province of Pakistan. It contributes more than 50 percent of Pakistan's GDP and is home to 56 percent of its total popu-

lation. Punjab's GDP growth rate for FY2007 was estimated at 7.8 percent (Haider 2008).

The administrative structure of Punjab constitutes 36 *districts* further divided into 130 *tehsils*. The number of villages in every tehsil depends on its population density and geographical area.
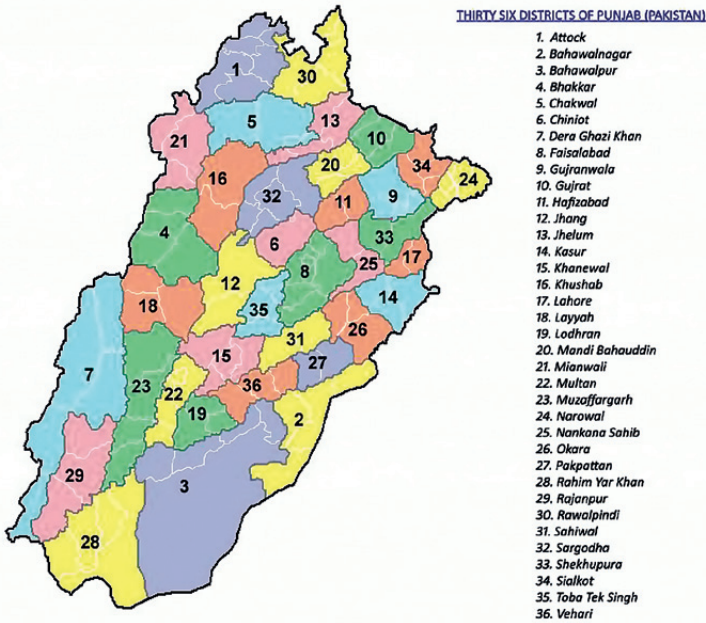

Fig. 1. Map of Punjab showing the 36 districts of the province

In order to select households (as units of survey), a four-stage random stratified sampling technique was applied. In the first stage, 11 out of the 36 districts were selected from the entire province. In order to control for social and economic disparities that occur across the province within and amongst various districts and tehsils, and in order to ensure that the selected districts represent maximum and diverse geographical regions of the entire province, the selection of districts was done systematically as opposed to being done randomly. Starting from the North of the province, districts were selected towards the East, West and South of the province. In the second stage, at least one tehsil was randomly selected from each identified district. In the third stage, at least two villages were subsequently selected randomly from amongst the selected tehsils and in the fourth and final stage; participating and non-participating households were selected at random for conducting surveys. A total of 1,132 households were interviewed comprising 463 borrower and 669 non-borrower households.

3.1. Selection and choice of indicators applied

Due to the multidimensional nature of poverty, a representative mix of indicators were selected that had the capability to accurately recognize, represent and characterize poverty levels. Indicators for this study were first identified and later screened to select

those that had the strongest capability to distinguish relative levels of poverty. The final list was divided into four groups as shown in Table 1 below.

Table 1. Final list of variables used to construct the poverty index

Human resources	Dwelling-related indicators	Food security and vulnerability	Ownership of household assets
Age and sex of adults in household Adult literacy Number of children Occupations of adults in household Number of children below the age of 15 in household Annual expenditure on clothing and footwear for all members in household	House ownership Type of floor Material used for constructing exterior walls and roof Number of rooms in the house Source of water supply Type of toilet. Method of bathroom waste disposal Energy for lighting in the house Type of fuel used for cooking Structural condition of house	Number of days when staple foods were served Number of days when vegetables were served Number of days when meat was served	Livestock (cattle and buffalo, sheep and goats, poultry, horses and donkeys, etc.) Transportation-related assets (motorcycle, bicycle, carts) Appliances and electronics (television, VCR, refrigerator, washing machine, radio/tape/stereo, mobile phone, sewing machine, etc.)

These variables were selected to calculate poverty scores due to their global acceptability as indicators of poverty based on the CGAP Poverty Assessment Tool (Henry *et al.* 2003). Due to the multi-dimensional nature of poverty, this approach is very sensitive in discriminating different levels of poverty amongst both borrower and non-borrower households. Although the use of multiple indicators tends to capture a more comprehensive description of household poverty and well-being, it complicates the task of drawing comparisons. This is due to the wide range of indicators that have to be summarized in a logical manner, underlining the importance of combining information from indicators into a single index. The creation of this index requires applying a method of weighting that can be meaningfully applied to different indicators so as to reach an overall conclusion (Zeller *et al.* 2001).

The questionnaire was initially field-tested and a number of indicators were consequently adjusted in order to meet research objectives, control for local specificities, and to ensure that they fully capture and reflect relative poverty levels of both groups of households. Indicators such as those relating to highly contextual and subjective responses were subsequently dropped from the final field instrument.

3.2. Procedure for calculating the poverty index

The assessment tool used in this study develops a relative poverty index by applying Principal Component Analysis (PCA), which is a typical multi-variable statistical

method that helps to reveal a simpler pattern from a complex set of variables (Lian *et al.* 2002; Márquez and García-Pardo 2009). Shlens (2005) describes results generated from PCA as one of the most valuable from applied linear algebra, and maintains that PCA is used abundantly in all forms of analysis – from neuroscience to computer graphics – because of its simple, non-parametric method of extracting relevant information from confusing data sets and also provides a roadmap to reduce a complex dataset to a lower dimension, to reveal the sometimes hidden, simplified structure that often underlies it.

Developing an objective measure of poverty requires first identifying the strongest individual indicators that distinguish relative levels of poverty and then pooling their explanatory power into a single index (Henry *et al.* 2003). Prior to running the PCA model, the poverty indicators first undergo a series of filters to ensure that relative well-being is reflected accurately, and do not present a distorted picture due to too much emphasis on a particular indicator or group of indicators. In order to achieve this, the linear correlation coefficient procedure is applied to determine which of the variables best appear to capture differences in relative household poverty levels. A coefficient value at or near −1 indicates a negative relationship, while a value at or near +1 indicates a positive relation of the variable with the selected poverty benchmark indicator (per capita expenditure on clothing and footwear). The strength of the poverty indicators is determined by calculating the level and direction of each variable in the questionnaire. Variables are then selected from each of the four main poverty dimensions to avoid over-emphasising any one aspect of poverty.
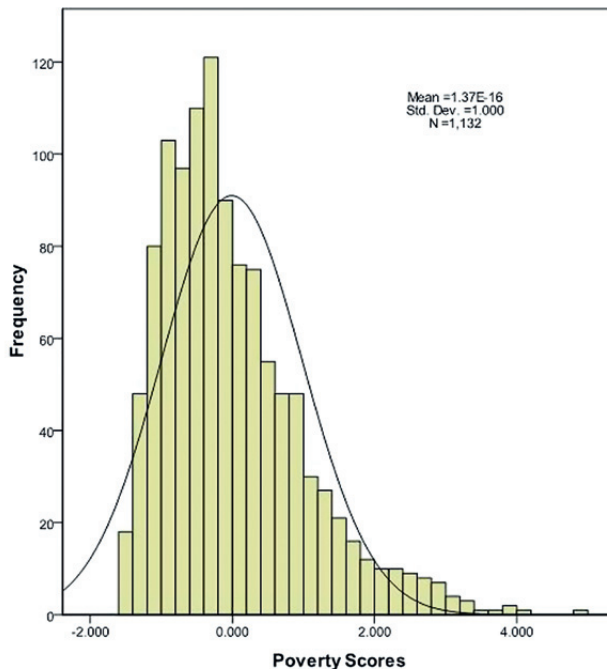
Fig. 2. Histogram showing poverty scores of respondents' households
Source: Survey data

With the PCA method, each underlying component that is calculated represents a linear combination of the indicator variables used in the model. The first component is the combination that accounts for the largest amount of variance in the sample. The second component accounts for the next largest amount of variance and is uncorrelated with the first. Successive components explain progressively smaller portions of total sample variance and all components are uncorrelated with one another (Zeller *et al.* 2001; Henry *et al.* 2003). The end result of running the PCA model is a poverty score assigned to every household in the data set. The end result of the PCA model is a single index of relative poverty that assigns a specific value to each sample household, called a *poverty score*. This score signifies the poverty of every household *relative* to all others that have been interviewed. A lower poverty score represents greater relative household poverty and vice versa (*ibid.*). Relative comparisons can then be made between poverty levels based on this index.

The resulting poverty index is estimated from standardised indicator values. Standardisation of the variables strips away the units in which the variables are measured (*ibid.*). The standardised variable has a mean of zero and a standard deviation of one, as shown in the histogram in Figure 2, illustrating the distribution of the poverty scores in a standardised form. The scores derived from the PCA range from –1.599 to 4.863.

Out of the total 1,132 households surveyed, 667 (about 60 per cent) fall below zero, that is, those with negative scores, reflecting greater levels of poverty. Out of these, 413 (about 36 percent) belong to the non-borrower category, while 254 (22 percent) are clients of various MFIs.

3.3. Forming relative poverty groups

In order to make comparisons, all households in the surveyed sample are ranked in order of relative poverty by using the poverty scores obtained in the steps above and then allocating them across a grouping such as low, medium and high levels of poverty. In a similar framework for classifying clients' poverty status put forth by Woller *et al.* (2004), various socio-economic indicators, such as labour market participation, physical assets, savings and credit, social and cultural resources and vulnerability, are viewed across three classifications: high, medium and lower levels of poverty. In the descriptions, it becomes apparent that as the status shifts towards greater levels of poverty, there is a proportional rise in incidences of inconsistency in labour activities accompanied by lower levels of asset ownership, whereas the reliance on informal credit and financial services increases as opposed to making use of the formal banking and financial services sector. Moreover, households who live in a higher state of poverty are also classed as being highly vulnerable whereas those who are relatively better-off have a diversified portfolio and enhanced capacity to manage shocks.

To facilitate classification of respondents in a similar pattern, the data are first filtered to select the non-borrowers. These respondents are then sorted in ascending order according to the poverty scores. Finally, they are divided into three equal parts: *terciles*, each consisting of 223 households. After classification, the bottom tercile households (lowest) are the *very poor* ones, followed by the *moderately poor* (second tercile, middle)

and then the *less poor* (third tercile, highest). The cut-off scores that are thus obtained for each tercile define the limits of each poverty group. Once the cut-off scores have been obtained, borrower households can be allocated to the three terciles on the basis of poverty scores, thus reflecting borrower households that fall in each of the three poverty groupings, as shown in Table 3 below.

**Table 2.** Framework for classifying the poverty status of clients

Dimensions	Higher Poverty	Middle Poverty	Lower Poverty
Labour market participation	Casual and/or unskilled Limited employment; limited formal education	Limited employment but secure claims on other household members with stable employment	Stable, salaried employment or good employment prospects
Physical assets	Very few – hand-to-mouth existence	Some – including household goods and business capital	Diverse – especially own dwelling
Savings and credit	Unbanked; reliant on informal services	May have a savings account; but saving has a high opportunity cost	Direct access to regulated savings and credit services
Social and cultural resources	Dependent on informal sources of patronage as security against shocks; rendered often on exploitative terms	Intermediate – scope for diversification away from, dependence on a single patron	Diversified social networks; forms of security against shocks
Vulnerability	Medium/high – but at cost of losing autonomy ("security through servitude")	High – overwhelming fear of falling back into low group (e.g., through resources through separation or illness)	Low – diversified portfolio of which to manage shocks

Source: Woller *et al.* (2004)

Table 3. Summary of distribution of the entire dataset across the three poverty levels

Poverty Groups	Frequencies (N)				Total	Poverty Scores	
	Borrower Households	% age	Non-Borrower Households	% age		Minimum	Maximum
Lowest	104	22.50	223	33.33	327	–1.599	–0.630
Middle	164	35.40	223	33.33	387	–0.631	0.112
Highest	195	41.10	223	33.34	418	0.113	4.863
Totals	**463**	**100.00**	**669**	**100.00**	**1132**		

The cut-off scores now form the basis for classifying the borrowers across the same three groups (lowest, middle and highest level of poverty). The borrowers can be even-
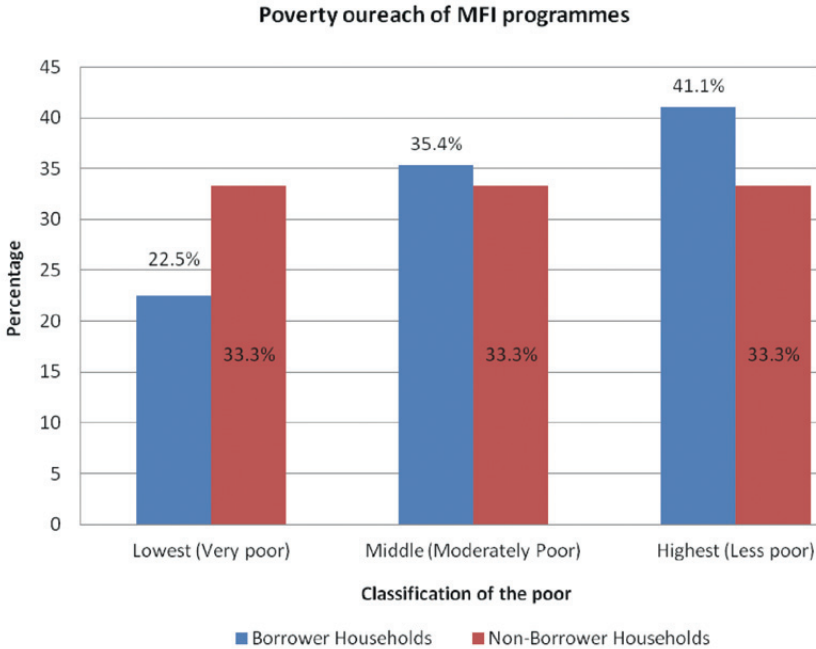
Fig. 3. Distribution of borrowers and non-borrowers amongst the relative terciles

tually divided across the three levels of poverty rankings. The result is shown in Table 3 above, with the distribution of the borrowers across the three levels as follows: 22.5 per cent in the *very poor* group, 35.4 per cent in the *moderately poor* group and 41.1 per cent in the *less poor* group. Table 3 is graphically represented in Figure 3 showing that there is an unequal distribution of borrowers across the three categories, with 42.8 percent in the less poor (highest category) and 20.3 percent in the very poor category.

Survey results reveal that the poorest households amongst the surveyed sample are not being reached to the desired extent. Given that the sample has been drawn randomly across different districts located throughout the province, it seems that various MFIs operating in the province do not seem to be targeting the poorest households and the outreach to this segment of the society remains low. As shown in Table 3 and Figure 3 above, a large portion (over 41 percent) of total outreach is focused on the *least poor*, as opposed to 34.5 percent of the *middle poor* category, whereas outreach to the *poorest* people is considerably low, which was measured to be less than a quarter (22 percent) of all surveyed households.

4. Concluding remarks and policy implications

Despite universal acceptance that the poorest need greater flexibility in the financial services, there has not been any such innovation so far that can successfully address their needs on a large scale (Barua and Sulaiman 2006). As witnessed in the foregoing

section, a higher representation of borrowing households in the *less poor* category dominates the sample, while those belonging to the *very poor* classification are significantly less. The findings lie broadly in agreement with a report by the Asian Development Bank (ADB 2012) which concluded that although the scale and outreach of MFIs grew steadily over the past decade in the region, depth of outreach remained limited, with fewer than 15 percent of clients living below the national poverty line in Pakistan.

Most discussions about outreach argue that there is a trade-off between depth of programme outreach and institutional sustainability: if MFIs focus on achieving depth, they have to sacrifice breadth, as the poor are more difficult and costly to reach and generate lower revenues. Lending to the poor is therefore not considered to be financially viable because serving them entails higher processing costs and generates little income; moreover, they do not have a good credit history and are more prone to default (Pischke 1991; Churchill *et al.* 2002; Ivatury 2005). Maes and Foose (2006a,b), on the other hand, claim that despite the high risk, high transaction costs, and other challenges, a number of lenders are already specifically targeting microfinance services at very poor people, while other microfinance programmes, realising that they are not reaching very poor people, are interested in finding new approaches.

How can the extremely poor be reached, if, as noted above they are not being served adequately by the concerned institutions? Matin *et al.* (2002) recommend three ways of making MFI services more poverty focused: identifying and reaching the poor, attracting the poor, and discouraging or excluding the non-poor. On top of these, a fundamental driving force towards achieving greater depth of outreach is rooted in visionary leadership and organisational commitment, a fact that several studies have highlighted (see Hulme and Mosley 1996; Johnson and Rogaly 1997). If the top management is strongly committed with a social mission towards reaching the very poor (even if this means foregoing revenues, as discussed above) organisational procedures will ultimately be designed and implemented around this objective. Maes and Foose (2006a) argue that while buy-in from top management is essential, this commitment needs to be accompanied by an overall institutional culture dedicated to providing continued microfinance services to very poor people. The World Bank (2005) cites the example of the Pakistan Aga Khan Rural Support Program and argues that even such strong NGO interventions operating for nearly 20 years, have found it difficult to reach the poorest, the reason for which is that the process involves not just economic change, but also a series of social and cultural changes. Effecting such fundamental transformation requires considerable time and sustained effort.

Staff incentives (that take into account client-outreach and impact) can be introduced to target the very poor as opposed to selecting the relatively better-off. Apart from these measures, simplified and decentralized branch-level operations and reduced paperwork in the field can assist towards cost reduction, and can also help in encouraging the very poor from joining such programmes by making products more approachable and congenial. Diversifying and adapting the product mix and considering services and features that may better suit the extreme poor can also contribute towards deepening programme outreach. An Asian Development Bank study (ADB 2012) concludes that

for microfinance to have a greater impact on reducing poverty in the region, it needs to better target the poor and focus more on educating them in using basic financial services, as well as more effectively link microfinance services to complementary pro-poor interventions. Grameen Bank and BRAC are good examples of organisations that, in addition to regular microcredit programmes, offer tailored products that specifically target very poor people. BRACs Income Generation for Vulnerable Groups Development (IGVGD) programme, for instance, 'provides food subsidies and intensive skills training to vulnerable women, as well as a standard package of microcredit, healthcare and social services; and another recent programme, Challenging the Frontiers of Poverty Reduction/Targeting the Extreme Poor (CFPR/TUP), abandons loans altogether and offers enterprise asset grants instead, to the same target group' (Maes and Foose 2006a: 11). Other helpful measures can be small initial loan sizes over a short term with frequent and flexible repayment options and tailored financial products that correspond with seasonal income streams. Apart from offering customised products, proximity is also vital and if services are delivered close to homes and clients are served in the form of groups rather than individually in offices, the intended ultra-poor will be in a better position to access services with greater convenience, ease and flexibility. Borrowers should also be assisted in managing and spreading risk by providing tailored products such as micro-insurance, voluntary savings and emergency loans, etc.

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