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Estimating the depth of microfinance programme outreach: empirical findings from 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 of the relevant 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* households? In order to make comparisons, borrower (treatment) and non-borrower (control) households are interviewed and, by employing Principal Component Analysis (PCA), each household is allocated a specific poverty score in relation to all other households in the sample. Once the poverty index is obtained, sampled households are ranked in order of varying poverty levels. Comparisons are later made between borrower and non-borrower households to estimate programme outreach. The paper concludes with findings that the depth of poverty outreach is significantly lower than what has been hitherto proclaimed by service providers and reflects on policy implications to enhance depth (as opposed to breadth) of programme 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, South Asia, Pakistan

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1 Introduction

Financial services access and outreach is associated with giving access to capital and providing job opportunities to the poor. Access to such services underpins the ability of the poor to achieve the Millennium Development Goals (MDGs) on their own terms in a sustainable way; since they are enabled to increase and diversify incomes, build human, social and economic assets, and improve their lives 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 organised 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, allows 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 by anywhere from 10 to 120 percent per annum for initial investment, and up to 240 percent for working capital financing. Robinson (2001) argues that, given the large share of credit market which moneylenders hold in many developing countries, the high interest that borrowers pay can have a substantial negative effect on development efforts, as it tends to impede the growth and progress of borrowers' microenterprises.

The restraints and inadequacies in the formal as well as informal financial sectors, as noted above, have led not only to the evolution of microfinance (Chowdhury 2008; 2009), but also towards its immense popularity all over the developing world as a key tool in development-related programmes (Germidis, Kessler et al. 1991; De Aghion and Morduch 2000; Cheston and Kuhn 2002; Gallardo 2003; Brau and Woller 2004; Dunford 2006; Chowdhury 2009). The underlying premise of microcredit is to provide credit without the borrower having to surrender his assets as security in case of non-payment. Yunus (1997) criticises collateral provisions for depriving poor people of credit facilities within the formal financial sector institutions, stating that it constitutes a form of 'financial apartheid'.

This paper assesses the *depth* of microfinance programme outreach in rural Pakistan. It consists of five main sections. This brief introduction looks into the underlying factors that led to the evolution of microfinance and how the model endeavours to challenge and defy the age-old, established practice of private, collateralised money-lending; Section 2 briefly explores current literature on poverty targeting and outreach. It examines how, why and to what extent microfinance providers extend services to the 'poorest of the poor' and how such *depth* (as opposed to *breadth*) of programme outreach aids them. Section 3 leads a discourse on Pakistan's poverty profile and the current state of the microfinance industry in the country. Section 4 pertains to empirical work carried out that measures the depth of outreach by means of an extensive household survey carried out across rural parts of the Punjab province of Pakistan, in order to gauge the success of various programmes in reaching the poorest. Finally, the concluding section draws together the major points of the

paper, comments on its findings, and discusses policy implications to target the poor in order to deepen outreach.

2 Financial services outreach poverty targeting and sustainability: concepts, measures and dimensions

Development policies are either targeted at certain specific individuals or segments of the society (*'targeting'*), or are designed to influence the entire population (*'universalism'*). Mkandawire (2005) argues that there is hardly ever pure universalism or targeting, however; policy regimes are often hybrid and tend to lie between these two extremes. Since the 1980s, however, the balance has tilted from universalistic policies towards targeting (*ibid.*). The principles, cost-related potential benefits, as well as ethical and political problems of targeting versus broad or universal services. have been extensively discussed in the literature (see for instance, Besley and Kanbur 1993; Sen 1995; Johannsen 2006). Londero (2001) asserts that concerns about the ability of reaching the poor have led to promoting the design of poverty-targeted interventions, in some cases leading to the dichotomous classification of projects into *poverty targeted* and the rest. To that effect, two definitions of poverty-targeted projects seem to be in use: the first common definition describes a project as poverty targeted 'whose design includes specific instruments to channel to the poor *more benefits* than would otherwise have been the case', while the second definition pertains to headcount impact: 'for a project to be poverty targeted, it is normally asked that the percentage of poor beneficiaries exceeds a certain pre-established threshold, for example, the headcount poverty incidence in the country or region' (Londero 2001: 3).

As the field of microfinance has diversified and matured over the years, the dual goals of outreach and sustainability have led to considerable debate. While some argue that both are complementary, others contend that they are, in fact, a trade-off, as the pursuit of institutions to become sustainable undermines their ability to reach and serve the poor, because as they gradually move towards profitability, they shift away from those poor clients that they had previously served with subsidies. According to Stephens and Clark (2002), those who contend that there is a trade-off between sustainability and outreach argue that the push for microfinance institutions (MFIs) to cover operating costs, gradually become sustainable and 'wean' themselves from donor financing, moves them away from targeting and reaching the very poor clients. Consequently, over the longer term, the poorest clients cannot afford to pay for the full cost of services. The argument follows that the push for sustainability and the ensuing demands that it places on institutions will result in a decrease in outreach, thereby leaving the poor underserved by new MFIs and abandoned by those who once counted the poor among their clients when they were subsidised by donor funding.

Cohen (2003) suggests that donors should invest in a range of promising financial institutions to ensure that diverse clients at many income levels are reached, extending outreach both *outwards* and *downwards* as far as possible. In practice, however, this might be arduous to achieve. This might be due to a number of reasons. Martin (2001:18), for instance, identifies one major concern in efforts to fight poverty as identifying the poor, since

'it is difficult, time consuming and costly to measure poverty on a nationwide scale'. Churchill, Hirschland et al. (2002: 3-4) describe why serving the extremely poor or those in remote areas is costly:

reaching the poor implies delivering services near their homes, which requires more staff time and greater internal controls. Furthermore, the extreme poor may need to be actively recruited, exclusively targeted, or offered different or more flexible products. These strategies increase operating costs. The extreme poor or persons in remote areas may not be able to afford products priced to cover the associated risks and transaction costs. Managing a range of customized services can also drive up costs, making it difficult to viably serve the very poor. In particular, customized services will require field staff with a higher level of skills.

2.1 Combating poverty by targeting: findings from empirical studies

Experiential work dedicated exclusively to poverty targeting and depth of outreach of microcredit programmes is relatively less, owing to a majority of the work on programme outreach being merely a part of larger and more comprehensive impact assessment studies that investigate economic poverty, household assets, household income and expenditure, community and social capital formation and gender empowerment, etc. While such studies highlight issues concerned with outreach, they often tend to overlook in-depth analysis and are generally more inclined towards discourses on economic and social impact on borrower livelihoods at a broader scale.

Despite a dearth of dedicated research, there are 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 analyse the role of government, community-based organisations, 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.

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 organisations 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 July 2009, about 111,645 beggars have already joined the programme. The total amount disbursed stands at Tk. 136.56 million (approx. US\$ 2 million), out of which Tk. 102.26 million (US\$ 1.48) has already been paid off (Grameen Bank 2009). BRAC's own assessment of its impact found that, while landless clients benefited least from the programme, those with 1-50 decimals of land ('the poor') benefited most (Goldberg 2005). In a study that looked into inequality and the polarising 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, Moore et al. 2003). Certain World Bank projects 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 been proven to reach the poorest (*ibid.*).

3 Poverty profile of Pakistan

According to the Government of Pakistan's Population Census Organisation (GoP 2011), the estimated population stood at 175 million in February 2011. With an average annual growth rate of 1.5 percent, it is expected to reach almost 200 million by 2015, the year to achieve the Millennium Development Goals (MDGs). Despite falling growth rates, Pakistan is still the sixth most populous country in the world; 36 percent of the total population is urbanised, with an estimated 113 million still living in rural areas (CIA 2010). Given an area of 796,095 square kilometres, the population density is 220 persons per square kilometre, with two percent of the world's population living on less than 0.7 percent of the world's land (The Library of Congress 2005). According to the projections of the United Nations, Pakistan will become the world's third most populous country by 2050.

Despite considerable efforts through various poverty alleviation programmes, widespread social and economic poverty still remains a core problem in the country. Poor people in Pakistan not only have low levels of income, they simultaneously lack access to basic services, such as clean drinking water, adequate sanitation, proper education, access to financial services, sufficient and timely health facilities, employment opportunities, efficient market access, etc. (Government of Pakistan 2009: 43).

A long-term trend of poverty in Pakistan over a period of 22 years, from 1987-2009, is shown in Figure 1 below. Poverty, measured in terms of the headcount of the poor (the proportion of the population with consumption below the official poverty line), has fluctuated over the period, as discussed above. The government's Mid-Term Development Framework (MTDF) aims to reduce poverty to 21 percent during 2009-10. The Millennium Development Goal of eradicating extreme poverty and hunger and halving (between 1990 and 2015) the proportion of people earning less than \$1.25 a day is also given, in order to put the current status in perspective. As shown in the figure, if Pakistan is to meet the target, poverty will have to be reduced at least to 13 percent by 2015. If estimates put poverty figures at around 40 percent for 2009, the targets set forth for the medium term are unlikely to be achieved.

At the time of writing, there were no officially published poverty figures for Pakistan for 2009, and researchers have estimated these at various levels. Ahmed and Donoghue (2010), for instance, estimate poverty to have climbed to as much as 40 percent, an increase of almost 80 percent from the 22 percent recorded in 2006. Given the poor performance that the country showed in terms of GDP growth rate (only 1.2 percent in 2009), coupled with the high inflation experienced during 2008-09 (22 percent) and the country's involvement in internal and external conflicts, estimates such as these cannot be regarded as excessive.

The recent flooding in the country will place an additional burden on the already fragile and dwindling economy and, analysts say, will drag the country back by many years. Given these signs, poverty levels are set to rise in the coming years, and the targets set seem over-ambitious.

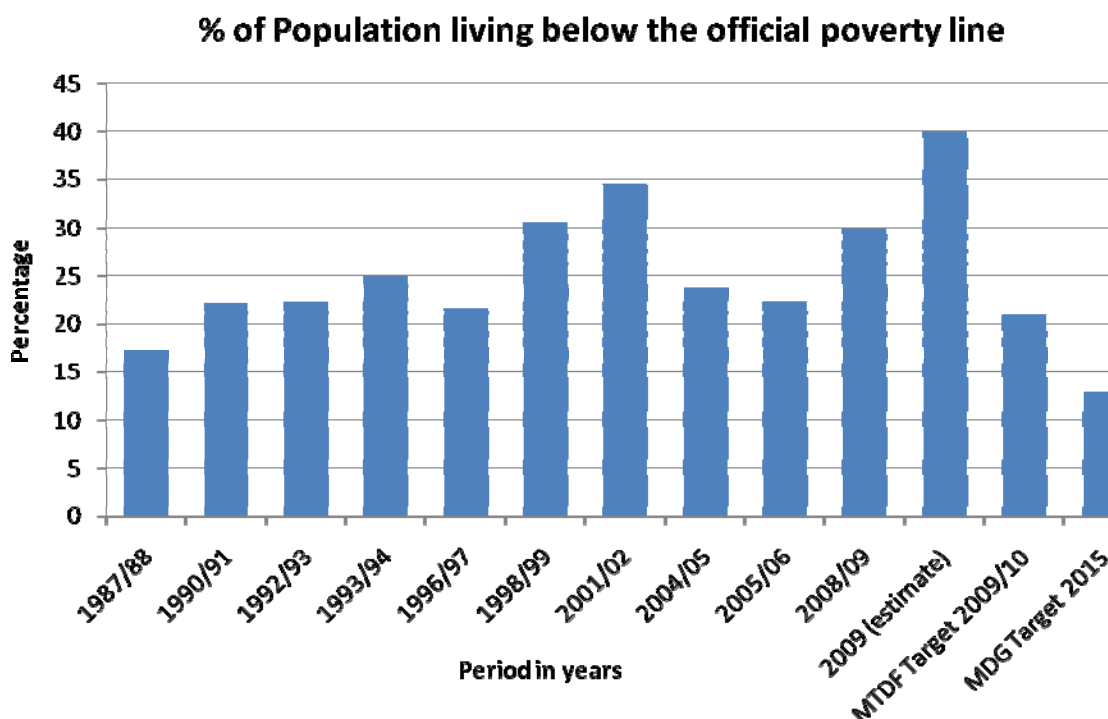


Figure 1. Poverty trend in Pakistan – percentage of population living below the official poverty line (1987-2009)

Sources: Compiled from GoP 2008, 2009, 2011; IMF 2010a; Ahmed and Donoghue 2010.

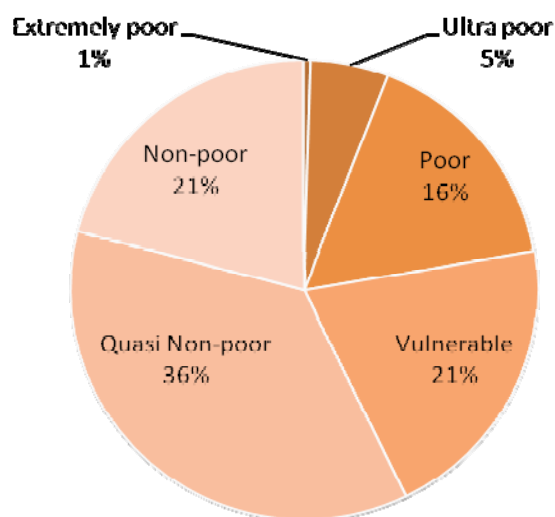
Table 1. Poverty profile of Pakistan

Poverty band	Ranking range	Percentage of population		Difference between 2001-02 and 2005-06	Estimated headcount (million)
		2001-02	2005-06		
Extremely poor	<50% of poverty line	1.1	0.5	-0.6	0.81
Ultra poor	>50% and <75% of poverty line	10.8	5.4	-5.4	8.69
Poor	>75% and <100% of poverty line	22.5	16.4	-6.1	26.39
Vulnerable	>100% and <125% of poverty line	22.5	20.5	-2	32.99
Quasi non-poor	>125% and <200% of poverty line	30.1	36.3	6.2	58.41
Non-poor	> 200% of poverty line	13.0	20.9	7.9	33.63
Total population		100	100	N/A	160.9

Sources: Compiled from Pakistan Economic Survey 2007-08, Finance Division, Ministry of Finance and PMN estimates, GoP 2008, 2009.

As shown in Table 1 and Figure 2, 22.3 percent of the country's population lives below the poverty line, with another 20.5 percent living in vulnerable conditions (Haq 2008). Table 1 also shows a detailed breakdown of the 2005-06 statistics for the poor across four major groups (extremely poor, ultra poor, poor and vulnerable), along with a comparison of data from 2001-02. There are some positive signs of reduction across all categories between the two time periods, as discussed in the section above.

Figure 2. Distribution of the poor in Pakistan



Sources: Compiled from Pakistan Economic Survey 2007-08, Finance Division, Ministry of Finance and PMN estimates, GoP 2008, 2009.

Table 2 below presents Pakistan's poverty profile in a different context, in relation to other countries in the region. Based on the UNDP's Annual Human Development Reports (2009 and 2010), countries in the region are ranked according to their Human Poverty Indexes (HPI-1). For each country the percentage of population that lives below the standard measures (of less than \$1.25 and \$2.00 per day) and below the national poverty line is also given, along with the GDP per capita. Although Pakistan ranks below Nepal and India, it fares better in terms of the percentage of population that lives below \$1.25 and \$2.00 per day. In comparison with Nepal, this can be attributed to the relatively better standing in terms of GDP per capita (\$2,600 compared with \$1,200).

Table 2. Comparison of Pakistan with South Asian countries across Human Poverty Indexes

Country	Human Development Index (HDI) rank (2010)	Human Poverty Index (HPI-1) rank (2009)	% age of population living below:			GDP per capita (US\$) 2009 est.
			\$1.25 per day	\$2.00 per day	National poverty line	
Sri Lanka	91	67	14	39.7	22.7	4,500
India	119	88	41.6	75.6	28.6	3,100
Nepal	138	99	55.1	77.6	30.9	1,200
Pakistan	125	101	22.6	60.3	32.6	2,600
Bhutan	..	102	26.2	49.5	..	5,400
Bangladesh	129	112	49.6	81.3	40	1,600

Sources: UNDP *Human Development Reports* 2009, 2010 (HDI, HPI-1 and poverty rankings); CIA *World Factbook* (2010) (GDP per capita).

3.1 Microfinance in Pakistan

Microfinance in Pakistan dates back to the 1960s, when initiatives such as the Comilla Project experimented with microcredit. The first large-scale microfinance projects in the country were the Orangi Pilot Project in Karachi and the Agha Khan Rural Support programme (AKRSP), which was subsequently replicated throughout the country during the 1990s with the establishment of the National Rural Support Programme (NRSP) and the Sarhad Rural Support Programme (SRSP) (Haq 2008). These Rural Support Programmes (RSPs) were general support institutions that provided a wide variety of social services, including financial services (State Bank of Pakistan 2001; Duflos, Latortue et al. 2007). The microfinance sector did not gain momentum until the late 1990s, when a number of specialised MFIs were incorporated. Kashf Foundation, one of the largest MFIs in the country, was established in 1996, while in 2000, the Pakistan Poverty Alleviation Fund (PPAF) started disbursements to the rural poor. A leap forward was made when the Microfinance Ordinance came into force in 2001. The State Bank of Pakistan established a specialised microfinance unit and laid the foundations to stimulate the development of an inclusive financial system. This strategy was driven mainly by the pretext that microfinance banks (MFBs) can play an important role in increasing the outreach of financial services. To this effect, by 2007, six MFBs had received licences (Duflos, Latortue et al. 2007; Haq 2008).

The sector has been slow to scale up in the country, and outreach to women has been especially limited. It is estimated that only about eight percent of poor households receive credit from formal sources (The World Bank 2007). As shown in Table 3, in March 2009 outreach stood at approximately 1.7 million active borrowers and two million active savers, with a gross loan portfolio of Rs. 19.2 billion and Rs. 5.8 billion in savings, respectively. The size of Pakistan's population and number of poor imply that there is a large potential market

for microfinance in Pakistan. According to PMN estimates, and as indicated in Table 3, this is close to 27 million individuals (Haq 2008; PMN 2009).

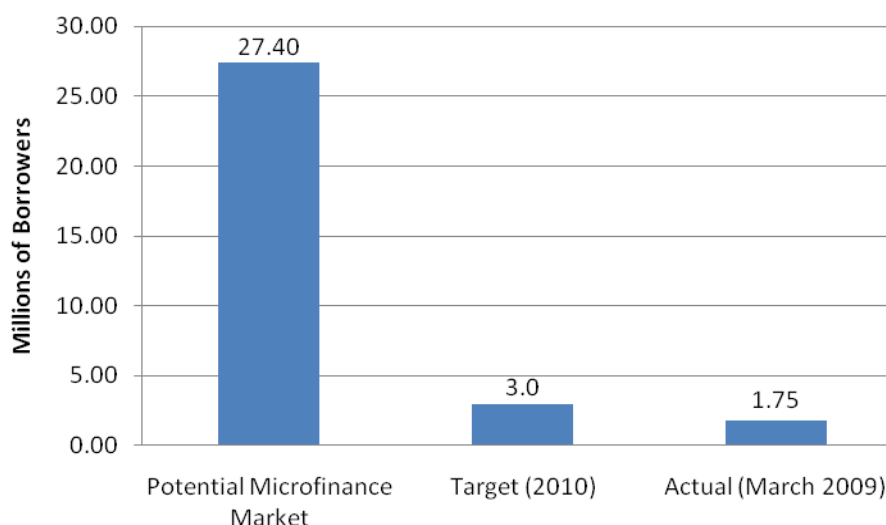
Table 3. Summary of microfinance outreach in Pakistan (as of March 2010)

Offices	
Fixed	1,593
Mobile	6
Microcredit	
Number of active borrowers	1,909,100
Gross loan portfolio (PKRs. millions)	23,354
Micro-savings	
Number of active savers	2,720,967
Value of savings (PKRs. millions)	8,346
Micro-insurance	
Number of policy holders	3,913,516
Sum insured (PKRs. millions)	54,823
Potential microfinance market	27,407,048
Penetration rate (%)	6.97

Source: Compiled from Pakistan Microfinance Network (2009).

According to The World Bank (2007), following recent legislations, Pakistan's microfinance policy environment now appears to be quite conducive to the efficient delivery of microfinance to poor households. The challenge, however, is for the various actors to seek out efficiency and scale. Despite various significant subsidies in various forms to the sector (largely related to low interest rates), microfinance projects have generally failed to lead towards long-term institutional development (*ibid.*). A possible explanation may be that in almost all of the country's development plans, microfinance has hitherto been presented and treated as merely a tool and as a part of a broader framework of development-related national strategies. To work at its best, microfinance should ideally not be combined with other areas, such as literacy and health-related campaigns, but should receive the specialised attention that it deserves, and must be addressed independently (Council on Foreign Relations 2003).

Figure 3. Microfinance outreach in Pakistan



Source: Compiled from Pakistan Microfinance Network (2009).

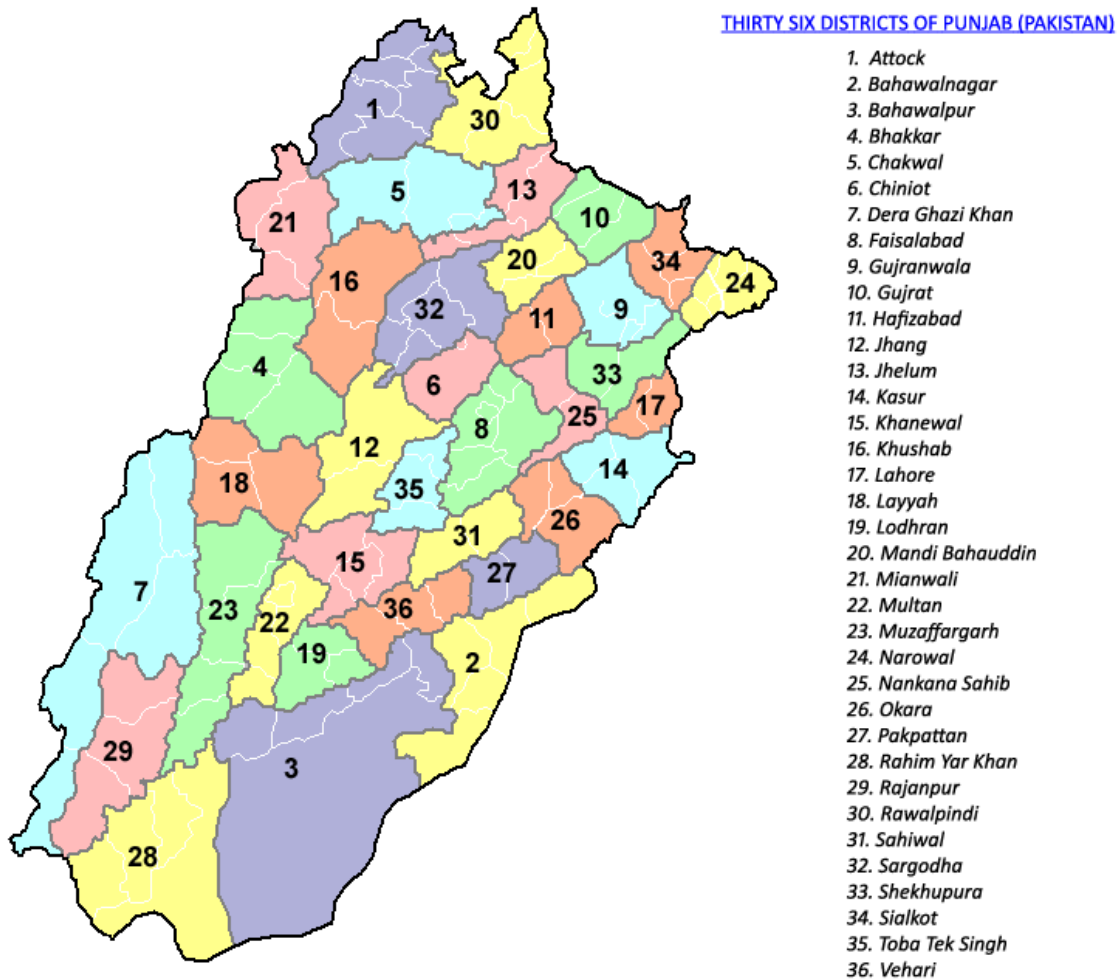
4 Assessing depth of outreach: methodology overview

The principal objective of the survey was to assess the extent to which various microfinance programmes target and actually reach the poor across the rural areas of the province of Punjab in Pakistan. The underlying impetus of this research is to assess and contrast the poverty levels of MFI clients to those of 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 frame (Henry, Lapenu et al. 2003). Once relative poverty levels are ascertained, the poverty index can be constructed, with which the depth of outreach can subsequently be determined (this procedure is discussed in detail in Section 4.3). The section below provides an overview of the region that forms the backdrop for this study and discusses the selection and choice of dimensions, along with the associated indicators that were employed to capture households' relative wellbeing.

4.1 Geographics of the surveyed region

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 population. 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.

Figure 4. 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 (see Figure 4 and Table 4 for selected districts). 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 for the survey, comprising 463 borrower and 669 non-borrower households. Table 4 below shows a summary of the districts and a breakdown of the number of borrowers and non-borrowers that were interviewed during the course of this survey.

Table 4. Summary of the surveyed districts and the breakdown of borrowers and non-borrowers of the surveyed sample

No.	District	Non-borrowers	Borrowers	Total
1	Chakwal	69	54	123
2	Khushab	75	27	102
3	Gujranwala	22	34	56
4	Chiniot	54	11	65
5	Lahore	71	31	102
6	Kasur	77	91	168
7	Sahiwal	38	17	55
8	Muzaffargarh	36	21	57
9	Bahawalpur	46	70	116
10	R.Y.Khan	76	50	126
11	Rajanpur	105	57	162
	Totals	669	463	1,132

Source: Survey data.

4.2 Selection and choice of indicators applied

Due to the multidimensional nature of poverty (Armendariz and Morduch 2005; Daley-Harris 2006), it becomes necessary to have a representative nature of indicators that have the capability to accurately recognise, represent and characterise poverty levels of a typical household within the sample frame. Indicators were first identified and later screened to select the strongest individual ones that have the capability to distinguish relative levels of poverty. The final list was divided into four groups, as shown in Table 5 below. The details of the variables captured by the household survey are provided in Appendix 1.

Table 5. Final list of variables used to construct poverty index

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

The choice of these variables for the calculation of the poverty scores is due to their global acceptability as indicators of poverty, based on the CGAP poverty assessment tool (Henry, Lapenu et al. 2003). Due to the multidimensional nature of poverty, this approach is very sensitive in discriminating among different levels of poverty amongst both borrower and non-borrower households. The use of multiple indicators tends to capture a more comprehensive description of household poverty and wellbeing, but at the same time complicates the task of drawing comparisons, since the wide array of indicators has to be summarised in a logical manner, underlining the importance of combining information from indicators into a single index. The creation of this index requires finding a method of weighting that can be meaningfully applied to different indicators, so as to reach an overall conclusion (Zeller, Sharma et al. 2001).

The questionnaire was initially field-tested and a number of indicators were consequently altered in order to meet research objectives, to 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.

4.3 Procedure for calculating the Poverty Index

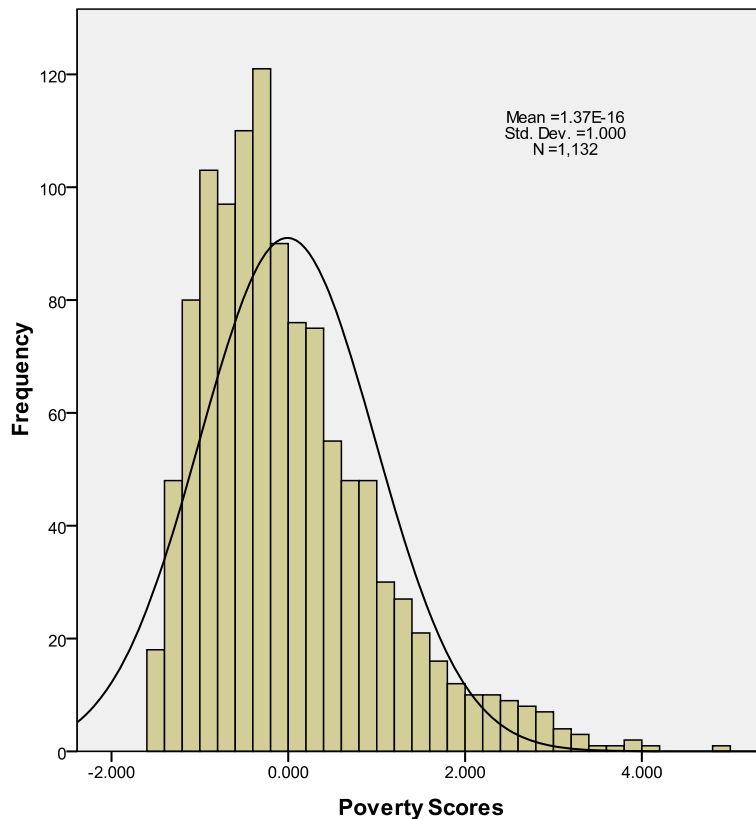
The assessment tool that this research applies develops a relative poverty index by applying Principal Component Analysis (PCA), which is a typical multi-variable statistical method that helps to reveal a simpler pattern from a complex set of variables (Lian, Lai, *et al.* 2002; Márquez and García-Pardo 2010). 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 that it 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, Lapenu *et al.* 2003). Prior to running the PCA model, the poverty indicators first undergo a series of filters to ensure that relative wellbeing 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. The end result of the PCA model is a single index of relative poverty that assigns to each sample household a specific value, called a *poverty score*, representing the poverty status of that particular household relative to all other households in the sample (*ibid.*). Relative comparisons between poverty levels can then be made based on this index.

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, Sharma *et al.* 2001; Henry, Lapenu *et al.* 2003). The end result of running the PCA model is a poverty score assigned to every household in the data set. This score signifies the poverty of every household *relative* to all others that have been interviewed. A lower poverty score signifies greater relative household poverty and vice versa.

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 5 below, illustrating the distribution of the poverty scores in a standardised form. The scores derived from the PCA range from -1.599 to 4.863.

Figure 5. Histogram showing poverty scores of respondents' households



Source: Survey data.

Out of the total 1,132 households in the dataset, 667 (about 60 percent) 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.

4.4 Forming relative poverty groups (terciles)

The preceding section discussed the complete process of calculating the poverty scores of each household in the surveyed sample. Once these scores have been obtained, a number of analyses can be carried out. As the empirical study ascertains the *depth of microfinance programme outreach*, a foremost measure would be to rank all households in the surveyed sample in order of ascending poverty levels (the poverty score obtained in the steps above will be used for this purpose) and then to allocate 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, Simanowitz, *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 that have been stated (see Table 6 below), 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.

Table 6: Framework for classifying clients' poverty status

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.	Maybe 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, 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, Simanowitz, *et al.* (2004).

In order to classify respondents of this survey in a similar pattern, the entire dataset is first filtered to select the non-borrower sample. These respondents are then sorted in ascending order according to the poverty score. Finally, they are divided into three equal parts: *terciles*, each consisting of 223 households, as shown in Table 7 below.

Table 7. Distribution of non-borrowers across three groups

Poverty group	Relative tercile category	Frequency of non-borrower households	Percentage of non-borrower households
1	Very poor (lowest)	223	33.33
2	Moderately poor (middle)	223	33.33
3	Less poor (highest)	223	33.34
	Totals	669	100.00

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, as shown in Table 8 below.

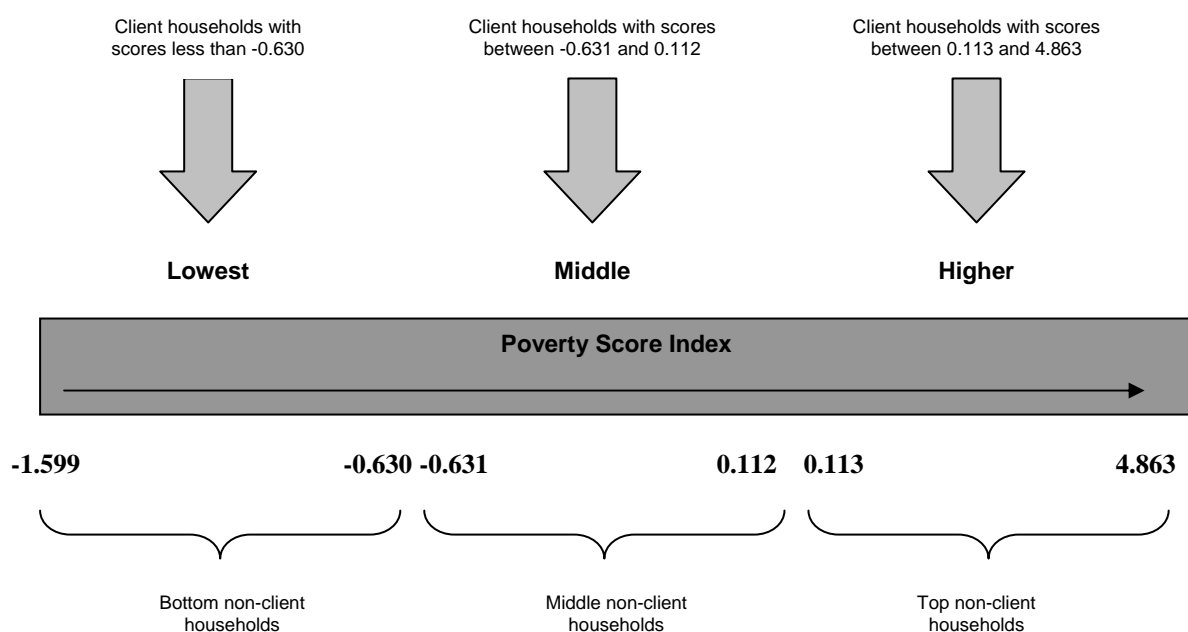
Table 8. Cut-off scores for each category

Poverty groups	Minimum poverty score	Maximum poverty score
Very poor (lowest)	-1.599	-0.630
Moderately poor (middle)	-0.631	0.112
Less poor (highest)	0.113	4.863

Once the cut-off scores have been obtained, borrower households are allocated to the three terciles on the basis of poverty scores. This will show how many households of the borrower sample fall into each of the three poverty groupings.

Figure 6 below shows how the cut-off scores obtained by segregating non-borrowers across the three different categories are employed to allocate borrowers according to the same minimum and maximum scores.

Figure 6. Cut-off scores and terciles for the three classes of poor households



Source: Adapted from Henry, Lapenu *et al.* (2003). Figures: Survey data.

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 eventually divided across the three levels of poverty rankings. The result is shown in Table 9, with the distribution of the borrowers across the three levels as follows: 22.5 percent in the *very poor* group, 35.4 percent in the *moderately poor* group and 41.1 percent in the *less poor* group.

Table 9. Cut-off scores of the three terciles used to allocate borrowers

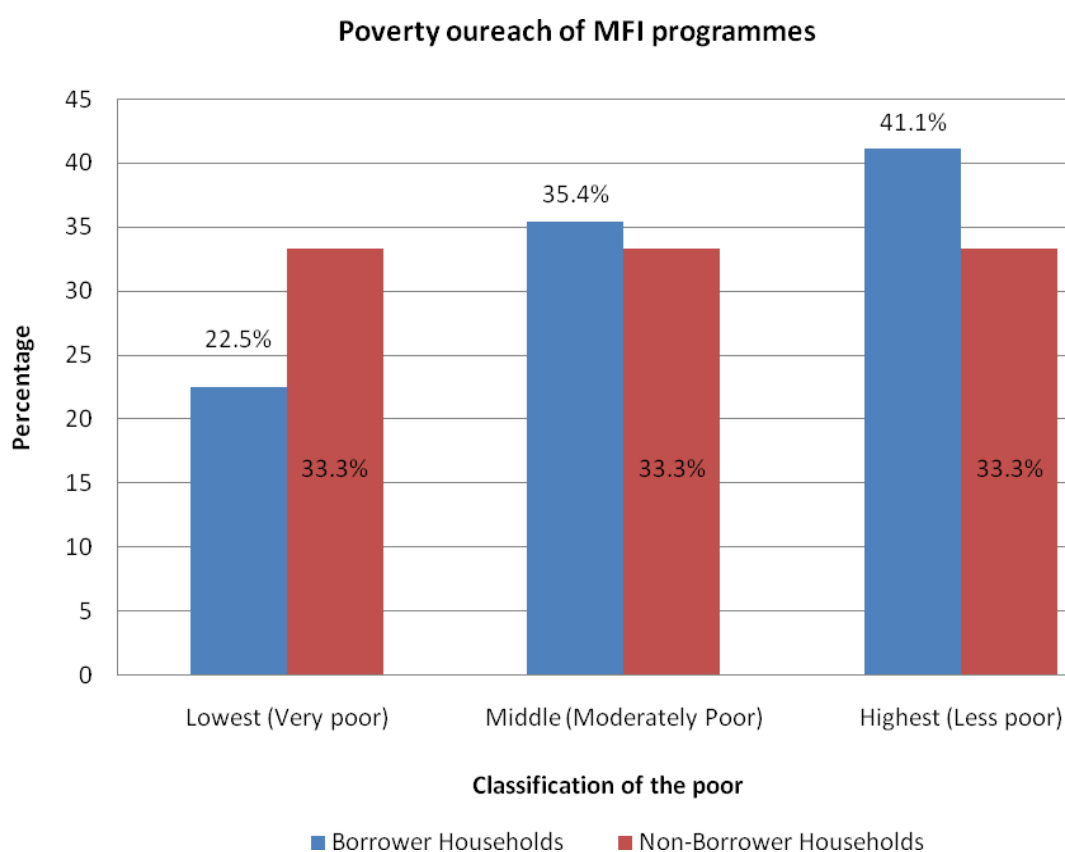
Poverty group	Relative tercile category	Frequency of borrower households	Percentage of borrower households
1	Very poor (lowest)	104	22.50
2	Moderately poor (middle)	164	35.40
3	Less poor (highest)	195	41.10
	Totals	463	100.00

The entire dataset can now be distributed across the three terciles as shown in Table 10 below. This table is graphically represented in Figure 7, 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 in the very poor category.

Table 10. Summary of distribution of the entire dataset across the three poverty levels

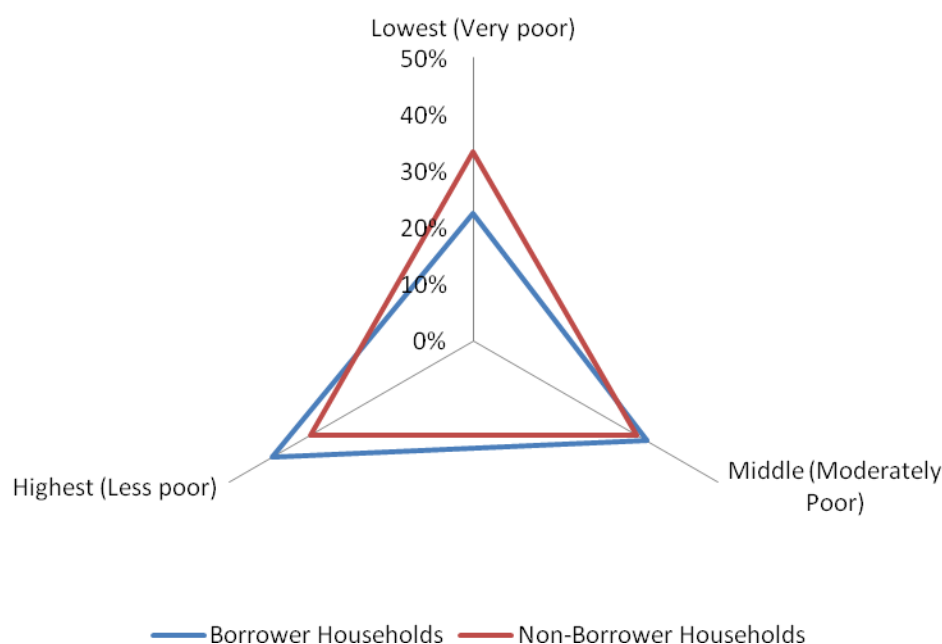
Poverty groups	Frequency (N)				Total	Poverty scores	
	Borrower households	% age	Non-borrower households	% age		Minimum	Maximum
Lowest	104	22.50	223	33.33	327	-1.599	-0.630
Middle	164	35.40	223	33.33	387	-0.631	0.112
Highest	195	41.10	223	33.34	418	0.113	4.863
Totals	463	100	669	100	1132		

Figure 7. Distribution of borrowers and non-borrowers amongst the relative terciles



As can be seen from Figure 7 above, a higher representation of borrowing households in the less poor category dominates the distribution, with less than a quarter of the entire surveyed sample of borrowers belonging to the very poor classification. Figure 8 below presents the same data in the form of a radar graph, where the 'pull' of the borrower households (blue triangle) can be seen to incline towards the *less poor* classification.

Figure 8. Radar graph showing the distribution of borrowers and non-borrowers in survey areas



5 Concluding remarks and policy implications

Ever since microcredit was introduced formally in the late 1970s, it has been hailed as a major poverty reduction model across the developing world. Where its positive impact has been lauded by many in lifting millions out of poverty, it has, on the flipside, been a major theme for criticism by many academics and practitioners alike (see for instance: Dignard and Havet 1995; Mallick 2002; Brau and Woller 2004; Khuwaja 2009). Hermes and Lensink (2007) conclude after reviewing the debate on microfinance and poverty that it is still unclear whether microfinance contributes *substantially* to a reduction in world poverty and whether microfinance is the most efficient method to reduce poverty. Lucarelli (2005), however, takes a more cautious approach and warns that although microcredit does have an important role to play in the development process and in overcoming poverty traps, it should not be relied upon too much as a panacea for complex development problems. Even Yunus, deemed one of the pioneers of the model, reiterates that microfinance

is not a miracle cure that can eliminate poverty in one swoop, but it can end poverty for many and reduce its severity for others. Combined with other innovative programmes that unleash people's potential, microcredit is an essential tool in our search for a poverty-free world (Yunus and Jolis 1999:171).

In order to be truly effective, however, services offered by MFIs have to be made available to those segments of the society that lie at the bottom of the pyramid. Despite universal acceptance and recognition 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), and outreach has been substantially lower than what is actually required to lift the very poor out of poverty through microfinance.

This paper has focused primarily on the empirics of one of the most important factors that surround microfinance: *poverty targeting and depth of programme outreach*. The geographical areas explored were districts across rural Punjab in Pakistan and data was collected by means of a detailed household survey. Poverty was evaluated on the basis of a series of poverty dimensions and associated indicators that were designed and filtered to capture relative wellbeing across households. The strength of these poverty indicators was determined by calculating the level of significance and direction of each variable to the benchmark indicator: *per capita expenditure on clothing and footwear*. Once the level of association of various indicators to the benchmark indicator was determined, households were finally ranked by the poverty score that assigned a specific value to each sample household, thus representing the poverty status of that particular household *relative* to all other households within the survey (Henry, Lapenu *et al.* 2003.). The households' resulting poverty score enabled ranking of all surveyed cases, eventually grouping them across three poverty levels (terciles), to ascertain which category of the poor the MFIs in the province had been able to reach. Relative comparisons between households' poverty levels were finally made based on this index.

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 at random 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 outreach to this segment of society remains low. As shown in Table 10 and Figure 8 above, a large portion (over 41 percent) of total outreach is focused on the *least poor*, as opposed to 35.4 percent of the *middle poor* category, whereas outreach to the *poorest* people is considerably lower, at less than a quarter (22 percent) of all surveyed households.

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; Tyhs 2000; Churchill, Hirschland *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 described above, a number of microfinance organisations, NGOs and multilateral agencies 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 extremely poor people be reached? Matin and Hulme (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. 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 decentralised branch-level operations and reduced paperwork in the field can assist towards cost reduction, and can also help in encouraging the *very poor* to join such programmes, by making products more approachable and congenial to clients.

Diversifying the product mix, and considering services and features that may better suit the extremely poor, can also assist towards deepening programme outreach. Grameen Bank and BRAC, for example, in addition to regular microcredit programmes, offer tailored products that specifically target very poor people. BRAC's 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. 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 and flexibility. Borrowers should also be assisted in managing and spreading risk by providing tailored insurance services, voluntary savings and emergency loans, etc. If such targeted products can be sustainable – and various forms have proven beneficial across diverse parts of the world – they can be replicated with modifications across rural Pakistan in order to achieve greater depth of programme outreach.

An important point is that targeting alone is not enough to reach the poor. According to The World Bank (2005), even strong NGO interventions such as the Pakistan Aga Khan Rural Support Program, most recently evaluated in 2001 and operating for nearly 20 years, have found it difficult to reach the poorest. The reason for this 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.

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Appendix 1: Descriptions of household survey variables
(A) Business activity
(A1) <i>Type of business/principal source of income:</i> [1] Agriculture [2] Non-farm enterprise/trader [3] Student [4] Labourer [5] Salaried worker [6] Unemployed [7] Retired or unable to work [8] Household work [9] Infant
(A2) <i>Length of time involved in the business stated above:</i> [1] Less than 2 years [2] 3-5 years [3] 6-10 years [4] 11 years and above
(B) Physical dwelling-related indicators
(B1) <i>House ownership:</i> [1] Owned [2] Rented
(B2) <i>Number of rooms in the house (actual)</i>
(B3) <i>Material used for constructing roof:</i> [1] Metal beams and bricks [2] Concrete/cement [3] Wood and bricks [4] Straw
(B4) <i>Material used for exterior walls:</i> [1] Bricks [2] Wood (timber) [3] Mud [4] Metal/aluminium sheet
(B5) <i>Type of floor:</i> [1] Bricked [2] Cemented [3] Mud/earth
(B6) <i>Source of water supply:</i> [1] No supply [2] Piped water [3] Well water [4] Borehole [5] Hand pump [6] Hand pump with motor
(B7) <i>Type of toilet:</i> [1] No toilet [2] Flush toilet (WC) [3] Pit latrine
(B8) <i>Bathroom waste disposal:</i> [1] Into outside gutter (covered) [2] Outside gutter (open) [3] Into soak pit
(B9) <i>Energy for lighting in the house:</i> [1] Electricity [2] Kerosene lamp [3] Gas lamp
(B10) <i>Type of fuel used for cooking:</i> [1] Electricity [2] Gas [3] Kerosene [4] Firewood [5] Charcoal [6] Animal dung 'cakes'
(B11) <i>Structural condition of house:</i> [1] Seriously dilapidated [2] Average/needs major repairs [3] Sound structure
(C) Other asset-based indicators
(C1) <i>Does the household own any agricultural/cultivable land?</i> [0] No [1] Yes
(C2) <i>Current value of any such land (actual)</i>
(C3) <i>Participation in any ROSCA (saving) scheme?</i> [0] No [1] Yes
(C4) <i>Amount of monthly contribution to the ROSCA scheme (actual)</i>
(C5) <i>Total value of ROSCA scheme on encashment (actual)</i>
(D) Household assets
(D1) <i>Livestock:</i> [1] Cows, cattle and buffalo [2] Sheep and goats [3] Poultry [4] Horses, donkeys and mules
(D2) <i>Transportation-related assets:</i>

[1] Motorcycle [2] Bicycle [3] Carts

(D3) Appliances and electronics:

[1] Television [2] VCR [3] Refrigerator [4] Washing machine [5] Radio/tape/stereo [6] Mobile phone [7] Sewing machine

(E) Food-related indicators

(E1) Consumption of 'luxury' food items:

*During the last seven days how many days were the following foods served as a **main** meal in the household?*

[1] Mutton [2] Chicken [3] Beef

(E2) Consumption of 'inferior' food items:

During the last seven days, for how many days did a main meal consist of the following foods? Vegetables, lentils, etc.

(E3) Frequency of purchase of the following staple food items:

[a] Wheat flour [b] Rice

[1] Daily [2] Twice a week [3] Weekly [4] Fortnightly/every two weeks [5] Monthly [6] Bi-annually [7] Annually [8] Do not purchase [9] Received as labour [10] Own production

(E4) Number of weeks for which stock is held of the following storable staple food items:

[1] Wheat/flour

[2] Rice

(F) Household-related data

No	M/F	Age	Relationship to HH head	Occupation (code)	Monthly Income	Can read/write Y/N	Currently attending school Y/N	Maximum schooling/current grade	School dropout (Y/N) and reason code for dropout	Children's schooling expenditure (monthly)	Clothing/footwear expenses (per year)	Total HH monthly expenditure	HH. Exp. on health-care (monthly)	General household health
1														
2														
3														
4														
5														
6														
7														
8														
9														
10														

Codes: reasons for children's school dropout: [1] Inability to pay fees and other expenditure [2] Child truancy

[3] Death of sponsor [4] Child involvement in family business/other labour [5] Because child was a girl

[6] Due to the teachers' attitude [7] School too far [8] Other (please specify):

Health codes: [1] Good [2] Average [3] Poor.

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Poverty Institute**

MANCHESTER
1824

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The Brooks World Poverty Institute (BWPI) creates and shares knowledge to help end global poverty.

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