

Serving the Poorest of the Poor: The Poverty Impact of the Khushhali Bank's Microfinance Lending in Pakistan

Heather Montgomery

The views expressed in this paper are the views of the author and do not necessarily reflect the views or policies of the Asian Development Bank Institute (ADBI), the Asian Development Bank (ADB), or its Board of Directors, or the governments they represent. ADBI does not guarantee the accuracy of the data included in this paper and accepts no responsibility for any consequences of their use. Terminology used may not necessarily be consistent with ADB official terms.

Introduction

Although Pakistan's economy enjoyed relatively stable growth during the 1990s poverty and income inequality continued to rise¹; the most recent official estimates are that roughly one-third the population was below the poverty line at the start of the millennium. (GoP, 2003:12) (see chapter 8 for more details). In response to these widely cited figures, the government of Pakistan established poverty reduction as its overarching objective and recognizing the potential role of microfinance in alleviating poverty, embarked on a Microfinance Sector Development Program (MSDP) to broaden and deepen the microfinance sector to provide a broad range of financial services in a sustainable manner.

Microfinance is still relatively new to Pakistan, both in concept and practice. Prior to embarking on the MSDP, the main providers of microfinance were NGOs² and government sponsored rural support networks³ or, in at least one case, a traditional commercial bank with a specialized microfinance window. With the exception KASHF, a well-known NGO operating out of Lahore, none of these institutions are specialized microfinance institutions and none have demonstrated financial sustainability (Pakistan Microfinance Network (2003)).⁴ Despite the achievements of these institutions⁵, total their total outreach is still less than 5% of the estimated 5.6 million poor households in Pakistan that require microfinance services (see table 9.1).

¹ Real GDP growth fluctuated around 3% throughout the 1990s (Government of Pakistan (2003), p.21), but the head count index using the official poverty line, which is based on calorie consumption rose from 26.1 in 1990-91 to 32.1 in 2000-01 (Government of Pakistan (2003), p.12) and the Gini coefficient, which measures inequality, rose from 28.4% in 1984-85 to 29.6% in 1998-98 (World Bank, 2002, page 26).

² The major NGOs providing microfinance services in Pakistan are Development Action for Mobilization and Emancipation (DAMEN), Sungi Development Foundation (SUNGI), Taraqee Foundation (Taraqee), Orangi Pilot Project (OPP), Sindh Agriculture and Forestry Workers Coordinating Organization (SAFWCO), Asasah and KASHF Foundation (Kashf)

³ National Rural Support Programme (NRSP), Punjab Rural Support Programme (PRSP), Sarhad Rural Support Programme (SRSP) Thardeep Rural Development Programme (TRDP).

⁴ The microfinance division of the Bank of Khyber, the one traditional commercial bank offering microfinancial services, is also not financially sustainable. (Pakistan Microfinance Network Performance Indicators Report 2003)

⁵ The Pakistan Poverty Alleviation Fund (PPAF), for example, a national apex institution wholesaling financial services to eligible institutions – including many of the NGOs and RSPs described above - reports that as of June 2005 its 56 partner organizations had 221,150 active sub-loans.

Table 9. 1: Outreach indicators for Microfinance providers in Pakistan

PEER GROUP	OUTREACH INDICATORS			
	Number of Active Borrowers	Number of Active women Borrowers	Gross Loan Portfolio (PKR)	% of Women borrowers to total active borrowers
A. Financial Institutions (offering microfinance as separate product)				
1. The BOK	9,056	816	258,864,299	9.01
2. Orix Leasing	2,280	1,988	50,029,976	87.19
<u>Subtotal</u>	11,336	2,804	308,894,275	24.74 (average)
B. Specialized MFIs				
1. Kashf	67,552	67,552	479,101,234	100.0
2. Asasah	4,588	3,848	23,756,328	83.87
<u>Subtotal</u>	72,140	71,400	502,857,562	98.97 (average)
C. Rural Support Program				
1. NRSP	88,401	20,362	829,407,585	23.03
2. PRSP	54,555	19,487	351,372,123	35.72
3. SRSP	5,077	313	29,286,303	6.17
4. TRDP	8,421	5,773	73,533,725	68.55
<u>Subtotal</u>	156,454	45,935	1,283,599,736	29.36 (average)
D. NGO's				
1. DAMEN	6,980	6,980	31,552,972	100.00
2. SUNGI	1,108	42	4,825,038	3.79
3. SAFWCO	3,569	1,761	16,821,629	49.34
4. Taraqee	18,194	13,526	150,418,923	74.34
5. OPP	3,895	180	45,086,404	4.62
<u>Subtotal</u>	33,746	22,489	248,704,966	66.64

				(average)
Grand Total (A+B+C+D)	273,676	142,628	2,344,056,539	52.12

Source: Pakistan Microfinance Network "Performance Indicators Report 2004"

To reach these un-served households, in 2001 the government of Pakistan established a regulatory framework that promotes the rapid expansion of microfinance throughout the country. The effect of this legislation has been to dramatically increase the outreach of microfinance in Pakistan. The Khushhali Bank, a retail microfinance bank established in August 2000, was the first licensed microfinance bank established under the MSDP, and the bank now serves over 230,000 active clients: more than the number of clients reached by all the NGOs and rural support programs in total before 2001⁶. It has achieved this substantial outreach while remaining commercially oriented and focused on achieving financial sustainability. In addition to Khushhali Bank, there are now several other licensed microfinance banks⁷ in Pakistan and others are in process of applying.

This chapter examines empirically the poverty impact of Pakistan's microfinance sector development program by looking at the impact of Khushhali Bank's lending program on the welfare of poor households in the country. It does this by drawing on the results of an original national household survey undertaken specifically for this purpose during 2005.

The Poverty Impact of Microfinance

A perfect impact evaluation really needs to answer a counterfactual question: how does the status of participants in the program compare with how those same individuals would have fared in the absence of the program? Or, alternatively, how would non-participants have fared in the presence of a program? The problem with cross-sections of data (observations on many individuals at a given point in time) is, of course, that at any given point in time individuals are observed to be either participants or not. Even panels of data (observations on many individuals through time) are problematic since over time many other things have happened to the individuals in addition to program participation and it is nearly impossible to separate out the impact of the program from all the other influences. In reality, researchers must settle for estimates of the average impact of the program on a group of participants – the treatment group - to a credible comparison group – a control group. The ideal control group is individuals who would have had outcomes similar to those in the treatment group had they not participated in the program.

But constructing a control group comparable to the treatment group is not straightforward. Participants in the program are usually different from non-participants in many ways: programs are usually carefully placed in specific areas, participants within those areas may be screened for participation, and the final decision on whether or not to participate is usually voluntary. To the extent that these factors are known and can be

⁶ The Pakistan Microfinance Network (2001) reports that members had reached a cumulative total of 136,205 borrowers as of June 2001.

⁷ The First Microfinance Bank, Rozgar Bank and Network Microfinance Bank have recently received microfinance banking licenses.

measured, they can be controlled for in the empirical analysis, but in most cases the placement of the program and self-selection of participants in those areas into the program are based on unobservable factors. These unobservable factors lead to at least two kinds of bias in any empirical impact evaluation: program placement bias and self-selection bias.

Controlling for this bias – determining the effects of just microfinance and separating out the impact of microcredit from what would have happened to the same household without credit - is often the most difficult part of careful empirical impact studies. Well-run microfinance institutions do not randomize either the location of their operations or their selection of clients. If microfinance institutions tend to operate in areas that have relatively better or worse infrastructure such as access by roads, or more or less active markets, then estimates of the impacts of the program on participants do not measure the effects just of microfinance, but of these other factors as well. Even within a given village, if, as studies by Coleman (2002), Alexander (2001) and Hashemi (1997) suggest, microfinance clients already have initial advantages over non-clients, then the impact of microfinance will be overestimated if these initial biases are not controlled for. Similarly, the impact of microfinance programs that deliberately target relatively *dis*advantaged households in the areas they operate may find impacts underestimated if these biases are not controlled for.

Despite the importance of thinking carefully about these issues, few studies have addressed them rigorously and for good reason, as rigorous quantitative studies, among other limitations, are costly and time consuming.⁸ Few microfinance institutions have the resources in terms of funds or staff-time to conduct them. There is a movement in the industry to create practitioner-friendly assessment tools (for example, the Imp-Act project based at the Institute of Development Studies at Sussex, USAID's AIMS project and assessment tools by CGAP), but these assessments, while very useful to the institutions themselves in refining their targeting, products and marketing, are not rigorous quantitative measures of impact and do not adequately address the issues of selection bias.⁹

Armendáriz de Aghion and Morduch (2005:pp 238-239) provide a compelling argument to make the substantial investment required to conduct careful impact studies that control for these potential biases:

“Unfortunately, this is not an esoteric concern that practitioners and policymakers can safely ignore. It is not just a difference between obtaining “very good” estimates of impacts versus “perfect” estimates--the biases can be large. In evaluating the Grameen Bank, for example, Signe-Mary McKernan (2002) finds that not controlling for selection bias

⁸ Some of the difficulties are summarized by Hussein and Hussain (2003) in an overview of the impact of microfinance on poverty and gender equity prepared for the Pakistan Microfinance Network. They mention the difficulties of overcoming selection bias as well as the fact that the factors included in quantitative studies are pre-determined, rather than open-ended as in qualitative approaches.

⁹ Within Pakistan, PPAF (2004), conducted by GALLUP is a nice example of this practitioner-friendly type of quantitative assessment. PPAF (2004) recognizes the issue of bias upfront, but for practical reasons is unable to use any of the techniques described below, instead using client recall to proxy for change in income. Zafar and Abid (1999) is an example of the qualitative approach, using focus group discussions with Kashf clients to assess socio-economic outcomes. Zafar and Abid (1999) also discuss survey data from 55 Kashf households, but the sample includes no control group.

can lead to overestimation of the effect of participation on profits by as much as 100 percent. In other cases ...controlling for these biases reverses conclusions about impacts entirely."

There are a handful of studies that rigorously address the issues of selection bias and endogeneity. The approaches of Pitt and Khandker (1998), Hulme and Mosely (1996), Coleman (1999), and work in progress by Banerjee and Duflo are discussed below.

Exogenous Eligibility Requirement

In an innovative approach to controlling for selection bias, Pitt and Khandker (1998) combine the use of a quasi-natural experiment and eligibility requirements to study the impacts of the Grameen Bank, Bangladesh Rural Advancement Committee (BRAC) and Bangladesh Rural Development Board (BRDB). The authors sample 1538 participants and 260 non-participants in a number of 'treatment' villages where group-lending programs are operating as well as randomly selected households from 'control' villages without a program. They use village fixed effects to correct for endogeneity of program placement and take advantage of the fact that the microcredit programs impose eligibility requirements on participants (households with land holdings of more than half an acre are ineligible) to construct eligible and ineligible households in the control villages. Impact is assessed using a difference-in-difference approach between eligible and ineligible households and between program and non-program villages. After controlling for other factors, such as various household characteristics, any remaining difference was attributed to the microfinance programs.

The study draws a number of conclusions, but the main one is that the program had a positive effect on household consumption, which was significantly greater for female borrowers. On average, a loan of 100 taka to a female borrower, after it is repaid, allows a net consumption increases of 18 taka. In terms of poverty impact it is estimated that 5% of participant households are pulled above the poverty line annually.

The accuracy of the original results as presented in Pitt and Khandker (1998) has been disputed on the grounds that the eligibility criteria of low land holdings was not enforced strictly in practice. In a reworking of the results focusing on more directly comparable households, no impact on consumption from participation is found (Morduch 1999:1605). This debate, which in part centers around details of econometric estimation, has not been resolved. An unpublished paper by Pitt reworks the original analysis to address the concerns of Morduch and is said to confirm the original results (Khandker 2003, footnote 1).

Prospective Clients as Control Group

Another approach to controlling for self-selection and placement bias, used by Hulme and Mosley (1996) and Coleman (1999) is to include a sample of microcredit clients who have formed solidarity groups but have not yet received loans as the control group. In this approach, participating and non-participating households are again surveyed in treatment villages where the microcredit program is already operating and has already given loans. The control villages are villages where the micro credit program will operate and households from the village have already self-selected to participate in the program *but have not yet actually received loans*.

Hulme and Mosley (1996) employ this approach in their study of programs in a number of countries including the Grameen Bank in Bangladesh and the Bank Rakyat Indonesia (BRI). In general a positive impact is found on borrower incomes of the poor with on average an increase over the control groups ranging from 10-12% in Indonesia, to around 30% in Bangladesh and India. Gains are found to be larger for non-poor borrowers, however, and within the poorest group gains are negatively correlated with income.

However, despite the breadth of the study and its use of control group techniques, Hulme and Mosley's study fails to control for program placement bias, so part of the advantage of program participants relative to the control group may be due to unmeasured village attributes that affect both the supply and demand for credit.¹⁰

Coleman (1999) advances the literature by expanding on this concept to control for self-selection bias and introduces both observable village characteristics and village fixed effects to control for program placement bias in his study of a village-banking program in Thailand. Utilizing data on 455 households, including participating and non-participating households in treatment villages where a village bank is already offering microcredit and selected future participants and non-participants in control villages that have been identified to receive a village bank program but have not yet actually received funds, Coleman uses a difference-in-difference approach that compares the difference between income for participants and non-participants in program villages with the same difference in the control villages, where the programs were introduced later.

Coleman's study measures the effects of *access to* rather than *participation in a* microcredit program and finds no evidence that months of access to a village bank program has an impact on any asset or income variables and no evidence that access to village bank loans increased productive activity. The author cautions, however, against extrapolating these results to other contexts since Thailand is a rather wealthy developing country. One of the reasons there is a weak poverty impact is that there was a tendency for wealthier households to self-select into village banks, and the relatively small sizes of loans may mean that they were largely used for consumption.

This approach as well is not perfect. Karlan (2001) points out that this approach still fails to correct for possible attrition bias – the fact that the control group includes potential future dropouts (or graduates) of the program, while the treatment group of older borrowers (who have in fact remained active borrowers) does not. Depending on the reasons for attrition, attrition bias can be positive or negative. If attrition is due to successful clients graduating out of microfinance into the formal financial sector, then impact will be underestimated. If attrition is due to dropouts who find the program unhelpful or whose microenterprises fail, for example, then impact will be overestimated. Armendáriz de Aghion and Morduch (2005) review a number of studies that find dropout rates between 3.5%-60% per year in various microfinance programs worldwide. Even the lower-end estimates can add up to a substantial effect over time.¹¹

¹⁰ Morduch (1999) also questions the quality and accuracy of some of the data; particularly whether the control groups are truly representative.

¹¹ Although it should be noted that these rates are still much lower than the rate of failure of newly-established enterprises in developed countries such as the United States or Japan.

Randomized Program Design

There are a few very recent impact studies underway that use randomized study design to control for selection bias. Duflo and Kremer (2003) describe the use of this type of evaluation for an educational program in Mexico. Banerjee and Duflo (in progress) will apply this approach to a microfinance impact assessment for the Center for Micro Finance Research (CMFR)). This approach eliminates selection bias by randomly selecting treatment groups (those who receive microfinance) and control groups (those who do not) from a potential population of participants. With this type of study design, the researcher can be assured that on average those who are exposed to the program are no different than those who are not, and thus that a statistically significant difference between the groups' outcomes can be confidently attributed to the program, not to selection bias.

Well-designed studies of this sort have the potential to rigorously address all kinds of potential biases, although they are limited by the fact that they can only estimate partial equilibrium treatment effects, which may differ from general equilibrium treatment effects. In the case of microfinance, this means that if, for example, microfinance is introduced on a large scale, the program could eventually affect the functioning of financial markets and thus have a different impact than the necessarily smaller scale program introduced for the impact study.

A more practical concern in attempting to apply randomized study design is that such studies require tremendous cooperation from the institutions being evaluated; they must be willing to allow researchers to randomize implementation of their services. Such studies must also be longitudinal, making them costly, and it can be difficult to conduct research over a time period long enough for some impacts to show up. In the case of Banerjee and Duflo's study for CMFR, the time frame between base line and final study is one year, which may not be long enough for some of the impacts of microfinance to show up quantitatively. For these reasons randomized studies are likely to continue to constitute only a tiny fraction of all microfinance evaluations

Research Methodology and Data

The nature of the Khushhali Bank's operations lent itself to an impact assessment using prospective clients who have not yet accessed loans as a comparison, or control group. The bank is rapidly expanding into new villages and the number of active clients is increasing at a rate of approximately 20,000 clients every 3 months. Bank management and staff were willing to cooperate with surveyors in identifying new villages that had just received the service and within those villages identifying new clients, allowing them to be surveyed in the interim between their application and the approval to get a microloan and the actual disbursement of the money.

Using the approach of surveying prospective clients who have not yet accessed loans as a control group, impact can be estimated with a single equation:

$$Y_{ij} = \beta_1 X_{ij} + \beta_2 V_j + \beta_3 M_{ij} + \beta_4 P_{ij} + \beta_5 T_{ij} + \beta_6 P_{ij} T_{ij} + \epsilon_{ij} \quad (1)$$

where Y_{ij} , is a vector of outcome variables (see Appendix 9.1 for a detailed list of variables and summary statistics for each)
 X_{ij} is a vector of household characteristics (see appendix 9.2),
 V_j represents village fixed effects, which control for observable and unobservable variables that may influence program placement,
 M_{ij} is a membership dummy variable equal to 1 for any household that participates in the program
and T_{ij} is a measure of treatment: participation in the microfinance program.

The treatment variable is based on three alternative measures of participation in the program:

- 'Months Since First Borrowed': the number of months elapsed since the household first borrowed
 - 'Total Amount of Loans': the total amount ever borrowed by the household
 - 'Number of Loans': a count of the number of loan cycles the household has borrowed.
- The first two measures of treatment, which only measure the impact of access to microfinance, present the most unbiased results.

The hypothesis tested is whether participation in the microfinance program of the Khushhali Bank has a positive effect on various outcome measures. Support for the hypothesis requires that the estimated coefficient β_3 on one of the treatment variables in (1) is statistically significantly positive. A statistically significantly positive coefficient estimate on one of the treatment variables indicates that the degree of participation in the program – either the length of time the client has participated, or how many loans he or she has taken out or the total value of those loans – has an impact.

In addition to the overall impacts of participation in the microfinance program, we examine whether there are any special impact for poorer borrowers. Defining $P_{ij}=1$ if a household is in the bottom quintile of the population in terms of monthly per capita food consumption, we first control for the fact that these borrowers are likely to have lower overall measures of welfare by including the dummy in all regressions, and then look for differential impact by interacting that dummy variable with the treatment variables to see whether participation in the program has more impact for those borrowers.¹²

The hypothesis tested is whether participation in the microfinance program for very poor borrowers has a more positive effect on various outcome measures than it does for average borrowers. Support for the hypothesis requires that the estimated coefficient β_6 in equation (1), the interaction of the treatment variables with a dummy variable indicating extremely poor borrowers, is statistically significantly positive. A finding of no special impact for these extremely poor borrowers does not mean that the program has no impact on their welfare, but rather that their impact does not differ from the impacts of the program overall.

Estimation of equation (1) above was carried out using primary data from 2,881 rural and urban households in Pakistan. A stratified random sample of 1,454 Khushhali Bank clients and future clients was drawn from 139 rural villages and 3 urban cities where Khushhali operates. A roughly equal number (1,427) of randomly selected non-clients

¹² In this sample, the bottom quintile corresponded to those households consuming less than half of caloric levels set for the official poverty line of the Government of Pakistan. Thus it covers very poor households.

from the same villages or settlements were also surveyed (see appendix 9.1 for details of the survey).

The Khushhali Bank's mandate is to serve the poor, defined as persons who have a meager means of subsistence and whose total income during a year is less than the minimum taxable limit. Accordingly, Khushhali serves clients who are 'poor' and 'very poor' but not those who are 'destitute' (receiving *zakat* as discussed in chapter 8) or the 'non-poor', who receive enough income to pay income tax. Clients are screened by bank staff and classified into one of the above categories when they apply for the loan. The program also has an element of self-targeting in that participation in the program is voluntary and the loan product – uncollateralized micro-loans of between Rs 3,000-30,000 – are designed to be attractive to poor clients. These are loans of approximately \$50 - \$500. Indeed, in the sample drawn for this study, more than 70% of the clients were below the official poverty line of the Government of Pakistan¹³. 20% of the sample, defined here as the 'core poor' or 'poorest of the poor', were subsisting on less than half of the caloric consumption defined by the Government of Pakistan as poor. Rough calculations of total consumption-expenditure indicate that the 70% of the sample defined as poor are living on approximately 87 cents per day and the bottom 20% of 'core poor' are living on less than 50 cents per day (at current exchange rates).

For most of the empirical analysis, ordinary least squares analysis (OLS) was applied in estimating equation (1). For regressions in which the outcome variable of interest was a yes/no dummy variable on qualitative information, logit estimation techniques were used.

Empirical Results

Tables 9.2-9.4 present the results of estimation of equation (1). Since there are many variables included in the regression to control for individual or village characteristics, the tables report only the main variables of interest: the coefficient estimates on the three variables indicating participation in the microfinance program offered by Khushhali Bank. Each coefficient estimate represents a separate regression – dependent variables are reported as column headers and the independent variables of interest in the five rows. (Note that the independent variables indicating access or participation were included in five separate regressions, but they are reported in one row in the tables for economy of space).

¹³ The official poverty line is based on caloric intake and translates into approximately Rs 1,000 per capita per month of food consumption. The author would like to thank Talat Anwar for raising this issue and providing updated poverty line estimates.

Poverty Indicators – Consumption/Expenditure

Table 9.2: Indicators of Poverty: Consumption-Expenditure

	1	2	3	4
	OLS	OLS	OLS	OLS
	Monthly Expenditure per Capita – Food	Monthly Expenditure per Capita – Non-Food	Monthly Expenditure per Capita – Health Care	Monthly Expenditure on Education (per child)
Khushhali Bank Client (0/1)	-25.05 [34.27]	97.55 [93.33]	-48.7 [19.90]**	45.68 [58.73]
Core Poor	-491.44 [29.08]***	-198.42 [79.19]**	6.45 [16.89]	-153.24 [50.03]***
Months since First Borrowed	1.67 [0.92]*	0.21 [2.51]	0.58 [0.53]	0.08 [1.58]
Core Poor*Months since First Borrowed	-0.84 [1.31]	-1.11 [3.57]	0.51 [0.76]	3.23 [2.26]
Total Amount of Loans	0 [0.00]	0 [0.00]	0 [0.00]	0 [0.00]*
Core Poor*Total Amount of Loans	0 [0.00]	0 [0.00]	0 [0.00]	0 [0.00]*
Number of Loan Cycles	19.45 [15.06]	-3.87 [41.01]	3.51 [8.75]	-60.79 [25.85]**
Core Poor*Number of Loan Cycles	-5.51 [18.24]	-13.32 [49.67]	4.16 [10.60]	64.77 [31.35]**
Constant	1,197.83 [36.13]***	1,055.61 [98.38]***	112.29 [20.98]***	215.59 [61.59]***
Observations	2859	2859	2859	2881
R-squared	0.29	0.06	0.02	0.19

Standard errors in brackets

* significant at 10%; ** significant at 5%; *** significant at 1%

The first set of regressions reported in table 9.2 look at conventional monetary indicators of poverty. The first outcome variable, monthly consumption per capita, looks at the impact of the program on caloric consumption as measured by expenditure of food items. The items used in calculating this variable correspond as closely as possible to the items used by the government of Pakistan in calculating the official poverty line, although we could only conduct the survey once and so had to rely on respondents recall and could not control perfectly for seasonal variations in consumption. The other items included here are monthly per capita consumption of non-food items, monthly per capita expenditures on health care and annual educational expenditure per child in the household.

Naturally, the core poor have lower overall levels of expenditure on almost all items, as indicated by the statistically significant parameter estimates on the dummy variable for core poor. The dummy variable for Khushhali Bank clients, however, is statistically insignificantly different from zero in most cases, indicating that upon joining the microfinance program, Khushhali Bank clients do not differ significantly from the overall population. Turning to the parameter estimates of interest, the regression results indicate the program does not impact most consumption expenditure measures – almost all coefficient estimates in table 9.2 are insignificantly different from zero. There is some evidence that participation in the program has a positive impact on educational expenditures for the very poor, as indicated by the statistically significant positive

coefficient estimate in column 4. The more loan cycles very poor clients have taken, the higher the household's annual educational expenditures per child.

Poverty Indicators – Social Indicators

The next set of regressions look at social indicators of poverty: non-expenditure indicators of education and health. The results of these regressions are reported in table 9. 3.

Table 9.3: Social Indicators of Poverty: Education and Health

	1	2	3	4	5	6
	Logit	OLS	Logit	Logit	Logit	Logit
	Education: Probability Children Enrolled in School	Education: Days Children Absent from School	Health: Probability seek medical treatment if child ill	Health: Probability medical treatment from trained professional if child ill	Probability take ORS to treat diarrhea	Probability children vaccinated
Khushalli Bank Client (0/1)	0.41 [0.18]**	1.66 [1.68]	-0.24 [0.18]	-0.21 [0.18]	0.16 [0.24]	-0.02 [0.20]
Core Poor	-0.56 [0.15]***	1.88 [1.43]	-0.07 [0.16]	-0.24 [0.16]	-0.09 [0.20]	-0.45 [0.18]**
Months since First Borrowed	-0.01 [0.00]***	-0.05 [0.05]	0.01 [0.00]**	0.01 [0.00]*	0 [0.01]	0 [0.01]
Core Poor*Months since First Borrowed	0.02 [0.01]**	0.01 [0.06]	0 [0.01]	0.01 [0.01]	0.01 [0.01]	0.02 [0.01]***
Total Amount of Loans	0 [0.00]**	0 [0.00]	0 [0.00]***	0 [0.00]**	0 [0.00]	0 [0.00]
Core Poor*Total Amount of Loans	0 [0.00]	0 [0.00]	0 [0.00]	0 [0.00]	0 [0.00]	0 [0.00]
Number of Loan Cycles	-0.25 [0.08]***	-0.49 [0.74]	0.21 [0.08]***	0.16 [0.08]**	0.08 [0.09]	0 [0.09]
Core Poor*Number of Loan Cycles	0.14 [0.10]	-0.42 [0.90]	-0.02 [0.10]	-0.04 [0.10]	0.01 [0.11]	0.14 [0.12]
Constant	-1.76 [0.20]***	-5.62 [1.76]***	-1.84 [0.20]***	-1.83 [0.20]***	-3.06 [0.27]***	-1.63 [0.22]***
Observations	2881	2881	2881	2881	2881	2881
R-squared	-	0.07	-	-	-	-

Standard errors in brackets

* significant at 10%; ** significant at 5%; *** significant at 1%

The coefficient estimates on the dummy variable for the core poor are statistically significantly negative in some cases, indicating this group of core poor are poorer in non-financial terms as well: their children are less likely to be enrolled in school and less likely to be vaccinated. However, participation in the microfinance program reverses these trends.

For example, the program is found to have special impacts on children's education for the poorest borrowers. Although there is some evidence that the probability of their children being enrolled in school may be *lower* for client households than for non-participants, as indicated by the statistically significant *negative* coefficients reported in column 1 of table 9. 3, for the poorest borrowers these effects are reversed. The longer their participation in the program the more likely children in their household are to be enrolled in school.

Children in the poorest households also reap health benefits. The program positively impacts indicators of children's health for all borrowers – children in participating households are more likely to get medical treatment for their illnesses and that treatment

is more likely to be provided by a trained professional – but the poorest borrowers also benefit from higher likelihood of vaccination, as indicated by the statistically significantly positive coefficient in column 6 of table 9. 3. Since the microfinance program analyzed here does nothing explicit to promote awareness of health issues, these findings most likely reflect the preference or need of poor households to increase the quality of their health care, especially for their children.

Income Generating Activities

The next set of regressions analyse the impact of the program on income-generating activities run by the poor households: animal-raising, microenterprises and agricultural activities. Since microenterprises are mainly in urban areas, in the statistical analysis a dummy for urban households was included and interacted that with the treatment variables as well as the dummy for the poorest households. The regression results are reported in table 9 4.

Table 9.4: Income Generating Activities: Livestock/Microenterprise/Agriculture

	1	2	3	4	5
	OLS	OLS	OLS	OLS	OLS
	Animal Raising – Sales of Livestock and Products	Animal Raising – Profits (reported)	Microenterprise – Sales	Microenterprise – Profits (reported)	Agriculture – Sales to Third Parties
Khushalli Bank Client (0/1)	-12197.81 [51,251.39]	-12881.22 [51,134.82]	12,382.65 [7,568.44]	2,153.37 [3,135.59]	15025.79 [5,236.77]***
Core Poor	67,671.51 [43,654.67]	71,414.62 [43,555.38]	-20,252.92 [5,284.71]***	-7,202.98 [2,189.44]***	-7,280.46 [4,460.55]
Months since First Borrowed	1702.31 [1,376.07]	1678.76 [1,372.93]	-9,977.59 [8,080.84]	-2,154.60 [3,347.87]	146.97 [140.48]
Urban*Months since First Borrowed			52,851.59 [9,621.73]***	14,040.17 [3,986.26]***	
Core Poor*Months since First Borrowed	-3072.86 [1,968.57]	-3125.56 [1,964.08]	-30,036.62 [17,357.99]*	2,135.72 [7,191.37]	456.93 [200.97]**
Total Amount of Loans	0.85 [1.66]	0.77 [1.66]	0.08 [0.20]	-0.02 [0.08]	0.51 [0.17]***
Urban*Total Amount of Loans			3.08 [0.73]***	0.91 [0.30]***	
Core Poor*Total Amount of Loans	-1.77 [2.19]	-1.79 [2.19]	-2.36 [1.36]*	-0.29 [0.56]	0.51 [0.22]**
Number of Loan Cycles	6178.04 [22,574.97]	4913.85 [22,523.44]	1168.93 [2,826.38]	-835.13 [1,170.44]	8608.93 [2,291.27]***
Urban*Number of Loan Cycles			35322.6 [7,589.96]***	9011.63 [3,143.08]***	
Core Poor*Number of Loan Cycles	-19444.87 [27,376.01]	-19778.69 [27,313.52]	-25904.95 [13,579.38]*	-3120.04 [5,623.37]	6435.11 [2,778.55]**
Constant	-25,555.27 [53,748.54]	-20,187.89 [53,626.28]	13,546.76 [35,871.11]	-3,262.25 [14,861.31]	-28,981.67 [5,491.92]***
Observations	2881	2881	2881	2881	2881
R-squared	0.02	0.02	0.08	0.08	0.11

Standard errors in brackets

* significant at 10%; ** significant at 5%; *** significant at 1%

Participation in the microfinance program yields the most impact for urban households running microenterprises and for very poor borrowers engaged in agriculture. Although there is no evidence of higher sales or profits in animal-raising, urban households reported statistically significantly higher sales and profits for their microenterprises, and strong positive impacts are found for sales of agricultural products, especially for the poorest clients.

Conclusions

The empirical analysis here demonstrates that participation in the Khushhali Bank's microcredit program has positive impacts on both economic and social indicators of welfare, as well as income-generating activities, especially for the very poorest participants in the program. Particularly encouraging is the fact that the bank has generated these impacts while remaining focused on the goal of financial sustainability.

Although the microfinance program is not impacting consumption of either food or non-food non-durable consumption, there is evidence that the program enables the very poorest of its borrowers to increase expenditure on their children's education, perhaps affecting the finding that children those households are more likely to be enrolled in school.

Participation in the program overall also has positive impacts on non-expenditure indicators of children's health. Participating households are more likely to seek medical treatment for their children's health problems and more likely to seek trained professionals to provide that treatment. For the very poorest households, we see an increased likelihood of children receiving basic vaccinations.

The highest aggregate impacts of the program on income generating activities were to agriculture, and again these positive impacts were higher for the poorest borrowers. Participating households report higher value of outside sales of their agricultural products and the impact of the program on sales were again even higher for the very poorest borrowers. In addition, urban borrowers, 70% of whom are below the official poverty line, reported significantly higher sales and profits the more they had participated in the program.

These findings challenge what has become the conventional wisdom that microfinance is not an appropriate intervention for reaching the poorest of the poor. Although it should not be expected that all poor households would benefit from micro-loans, these findings demonstrate that even the poorest of the poor, those living at less than half the official poverty line, benefit from microcredit. The empirical analysis presented here shows that these very poor clients are already seeing positive impacts from participation in the program and are effectively using the loans to invest in their household enterprises and, through investments in the health and education of their children, the future of those enterprises; these positive poverty reduction effects have been achieved by an institution that is clearly profit-focused. This provides important evidence for the ongoing debate as to whether or not commercially-oriented microfinance institutions can indeed reach the very poor.

Appendix Table 9.A. 1: Summary Statistics - Dependent Variables

Variable Label	Obs	Mean	Std.Dev.	Min	Max
<u>Consumption-Expenditure:</u>					
Monthly Consumption-Expenditure per capita: Food	2859	863	555	0	8990
Monthly Consumption-Expenditure per capita: Non-Food	2859	772	1316	38	4969
Monthly Medical Expenditure per capita	2859	96	274	0	8333
Expenditure on Education per child	2881	630	897	0	11900
<u>Education:</u>					
Probability Children Attending School	2881	0.44	0.44	0	1
Days Children Absent from School	2881	6.25	24	0	550
<u>Health:</u>					
Probability seek medical treatment if child ill	2881	0.60	0.49	0	1
Probability of medical treatment from trained practitioner if child ill	2881	0.58	0.49	0	1
Probability children vaccinated	2881	0.44	0.47	0	1
<u>Income Generating Activities: Livestock:</u>					
Production/sales of livestock and products	2878	67931	278339	0	5549600
Profits-reported from livestock	2878	61498	273627	-513000	5485000
<u>Income Generating Activities: Microenterprise:</u>					
Sales	2881	37437	109191	0	1024000
Profits-Reported	2881	13540	45040	0	700000
<u>Income Generating Activities: Agriculture:</u>					
Value of sales to third parties	2881	24453	76306	0	1345000

Appendix 9.A.2: Summary Statistics - Individual Household Characteristics

Variable Label	Obs	Mean	Std.Dev.	Min	Max
Education of highest educated male (years)	2881	5.76	5.09	0	20
Literacy of male	2881	1.38	1.41	0	9
Numeracy of male	2881	1.68	1.45	0	9
Male age 16-21	2881	0.52	0.76	0	4
Male age 22-29	2881	0.51	0.76	0	5
Male age 30-39	2881	0.43	0.61	0	4
Male age 40-49	2881	0.31	0.48	0	3
Male age 50-59	2881	0.20	0.40	0	2
Male age over 60	2881	0.19	0.40	0	2
Total Number Males in HH	2881	2.18	1.38	0	11
Education of highest educated female(years)	2881	2.41	3.94	0	16
Literacy of female	2881	0.64	1.04	0	8
Numeracy of female	2881	0.82	1.15	0	8
Female age 16-21	2881	0.51	0.75	0	5
Female age 22-29	2881	0.47	0.68	0	4
Female age 30-39	2881	0.43	0.57	0	3
Female age 40-49	2881	0.30	0.47	0	3
Female age 50-59	2881	0.15	0.36	0	2
Female age over 60	2881	0.33	0.56	0	4
Total Number Females in HH	2881	3.78	1.93	0	14.5
Children age 0-4	2881	0.98	1.11	0	9
Children age 5-9	2881	1.19	1.23	0	8
Children age 10-15	2881	1.10	1.21	0	9
Generations Family in Village	2881	1.70	1.40	0	3
Number of relatives in village	2881	43.71	59.73	0	600
Household member holding office	2881	0.16	0.36	0	1

Appendix: Survey Design

Design of the survey followed international guidelines, in particular those laid out in the three volume series by Grosh and Glewwe (2000) on the Living Standards and Measurement Survey (LSMS).

Survey Instrument – Questionnaire¹⁴

Design of the survey instrument, the questionnaire to be used in gathering data for the study, was primarily guided by the research question: what has been the impact of the microfinance program on household welfare? It was decided to include a relatively wide definition of welfare that includes non-economic measures of welfare such as education, health or empowerment.

Core components of the LSMS were incorporated, and the final questionnaire also drew upon the AIMS-SEEP Impact Survey Tools, impact assessment tools designed specifically for assessment of microfinance institutions, as well as several carefully designed questionnaires used in previous studies in Pakistan including the Pakistan Integrated Household Survey (PIHS, round 3 of which was carried out in 1998-1999), the Household Integrated Economic Survey (HIES, which was combined with the PIHS and last conducted in 2001-2002), the Pakistan Rural Household Survey (PRHS) and the Pakistan Socio-Economic Survey (PSES). The findings of a nationwide participatory poverty assessment¹⁵(GoP 2004) were also consulted and results of focus group discussions with Khushhali Bank clients were incorporated¹⁶.

The length of the questionnaire was limited to what could be reasonably delivered in a maximum of one hour if all components were asked. In the final administration, most questionnaires took substantially less than one hour since very few households actually responded to all sections. The sequence of the questionnaire was guided by the LSMS, and accordingly sensitive questions on finances or empowerment issues were administered last.

To increase the accuracy of the information gathered and to enable the survey to address gender issues such as empowerment, both the male and female head of household were interviewed separately for each household. The suitability of different components of the questionnaire for the male or female version was decided based on the previous questionnaires listed above and confirmed in pre-testing.

The questionnaire was prepared simultaneously in English and Urdu and then translated into the regional languages: Pushto and Sindhi. The accuracy of the translations was checked by back translation into the original language.

¹⁴ The author would like to thank GM Arif of ADB's Pakistan Resident Mission, Tak Kurosaki of Hitotsubashi University and Yasu Sawada of Tokyo University for helpful discussions on design of the questionnaire.

¹⁵ The participatory poverty assessment include locally defined characteristics of the poor and very poor, compiled from well-being analysis.

¹⁶ The author thanks Ms. Farzana Nuzhat and Mr. Asim Anwar of Khushhali Bank for facilitating the focus group discussions with clients.

The survey was pre-tested in late-February 2005 in 5 districts on both client and non-client households. The results of this pre-test were then analyzed and discussed and some final revisions to the questionnaire or its administration were made. During pre-testing, the length of the questionnaire was found to be too long and it was subsequently shortened. Two changes to the components of the male and female questionnaires were also made. Information on animal raising was moved from the female questionnaire to the male questionnaire because during the pre-test surveyors found that although women often care for livestock, in many rural households the males were more knowledgeable about the market price of the animals and their products. Information on children, including male children under 15, was moved to the female questionnaire. Substantial revisions to the actual content of the questionnaire were made only to the most sensitive components of the questionnaire: finances and empowerment, in particular domestic violence.

Implementation

The final survey was implemented over an 8 week period between late May and early July 2005: This period was selected as it was the most practical time to implement in agricultural areas (after the *rabi* agricultural season harvest), did not conflict with any major holidays, and was a time when there would be many new villages and clients just getting access to Khushhali Bank services for the first time, making it easier to collect data on a suitable control group.

The survey was carried out by an independent multinational survey company with offices in Pakistan. Teams of two male and two female surveyors headed by a supervisor with 3-7 years experience, were constructed for each district, making 8 teams of 5. Male surveys were conducted by male surveyors and female surveys by female surveyors. Surveyors and supervisors for each team were recruited from local areas and interviews were conducted in local languages. Since many of the surveyors were new, one week of classroom training on administration of surveys, and field testing of the surveyors skill in both rural and urban areas were conducted. Extra surveyors were trained in the event that any surveyor had to be replaced during the training, field-testing, or once the survey was underway, but that was not necessary.

Quality Control

Survey teams spent 3-4 days in each village included in the survey sample to allow time for the team supervisor to edit all completed questionnaires and back-check 15% of the fieldwork. If any problems were discovered during back-checking, then 100% of that individual surveyor's work was checked. An independent quality control department similarly carried out back-checking of each supervisor's work. Data processing was not able to be conducted on-site due to cost considerations, and was instead done on edited questionnaires in a centralized location. A data program was designed to automatically check the consistency of answers and in addition 10% of the data entry and coding was randomly back-checked.

References

- Alexander, Gwen (2001). "An Empirical Analysis of Microfinance: Who are the clients?" Paper presented at 2001 Northeastern Universities Development Consortium Conference.
- Arif, G. M. (2005) "Poverty Targeting Efficiency of Zakat, Microfinance and Lady Health Workers Program in Pakistan" mimeo.
- Armendáriz de Aghion, Beatriz and Jonathan Morduch (2005) *The Economics of Microfinance*, MIT Press, 2005
- Coleman, B.E. (1999). "The Impact of Group Lending in Northeast Thailand," *Journal of Development Economics*, vol. 60, pp. 105-141.
- Coleman, Brett (2002). "Microfinance in Northeast Thailand: Who benefits and how much?" Asian Development Bank, *Economics and Research Department Working paper* No. 9, April.
- Deaton, Angus (1998) *The Analysis of Household Surveys: A Microeconomic Approach to Development Policy*, Johns Hopkins University Press.
- Duflo, E. and M. Kremer (2003) "Use of Randomization in the Evaluation of Development Effectiveness" Mimeo prepared for the World Bank Operations and Evaluation Department Conference on Evaluation and Development Effectiveness.
- GoP (2003) "Accelerating Economic Growth and Reducing Poverty: The Road Ahead (Poverty Reduction Strategy Paper)" Ministry of Finance, Government of Pakistan, December 2003.
- GoP (2004) "Between Hope and Despair", Pakistan Participatory Poverty Assessment National Report". Planning Commission, Government of Pakistan.
- Grosh, M. and Glewwe, P. (2000). *Designing Household Survey Questionnaires for Developing Countries: Lessons from 15 Years of the Living Standards Measurement Study*. Volumes 1, 2, and 3, World Bank, Washington DC.
- Hashemi, Syed (1997). "Those Left Behind: A Note on Targeting the Hardcore Poor," chapter 11 in Geoffrey Wood and Iffath Sharif, editors., *Who Needs Credit? Poverty and Finance in Bangladesh*. Dhaka: University Press Limited.
- Hulme, D. and Mosley, P. (1996). *Finance Against Poverty*, Vols. 1 and 2, Routledge: London. 1996.
- Hussein, Maliha and Shazreh Hussain (2003) "The Impact of Microfinance on Poverty and Gender Equity: Approaches and Evidence from Pakistan" mimeo for The Pakistan Microfinance Network.
- Karlan, D. (2001) "Microfinance Impact Assessments: The Perils of Using New Members as a Control Group" *Journal of Microfinance*, December 2001.

Khandker, S. (2003). "Micro finance and Poverty: Evidence Using Panel Data from Bangladesh," *World Bank Policy Research Paper* 2945, World Bank, Washington.

McKernan, Signe-Mary (2002). "The Impact of Microcredit Programs on Self-employment Profits: Do Noncredit Program Aspects Matter?" *Review of Economics and Statistics* 84(1), February: 93-115.

Montgomery, H. and J. Weiss (2005) "Great Expectations: Microfinance and Poverty Reduction in Asia and Latin America" *ADB Institute Research Paper* 63. February 2003.

Morduch, J. (1999). "The Microfinance Promise" *Journal of Economic Literature*, XXXVII December, pp. 1569-1614.

Pakistan Microfinance Network (2001) "Performance Indicators Report" Pakistan Microfinance Network Secretariat, Islamabad.

Pakistan Microfinance Network (2003) "Performance Indicators Report" Pakistan Microfinance Network Secretariat, Islamabad.

Pitt, M.M. and Khandker, S (1998). "The Impact of Group-Based Credit Programs on Poor Households in Bangladesh: Does the Gender of Participants Matter?" *Journal of Political Economy*, Vol. 2, pp. 958-977.

PPAF (2004) "PPAF Microcredit Financing: Assessment of Outcomes" prepared by GALLUP Pakistan for Pakistan Poverty Alleviation Fund.

State Bank of Pakistan (2004) "Legal and Regulatory Framework for Microfinance Institutions" prepared for International Microfinance Conference: *Microfinance In Pakistan: Innovating and Mainstreaming*, Islamabad.

Yousaf, K., Amina Hassan and Kanwal (2004) "Credit Makes Good Business Sense for Poor Women", *ADB Review*, February 2004.

Zafar, R. and S. Abid (1999) "Impact Assessment as a Management and Policy Tool: The Social and Economic Outcomes of Kashf's Microfinance Series" *Kash Foundation Discussion Paper Series*, No. 3.