

ADB Institute
Research Paper Series
No. 63

February 2005

**Great Expectations:
Microfinance and Poverty Reduction
in Asia and Latin America**

Heather Montgomery and John Weiss

ABOUT THE AUTHORS

Heather Montgomery is a Research Fellow at the ADB Institute. Prior to joining ADB Institute, she held visiting positions at various institutions, including the United States Federal Reserve Board of Governors, Japan's Ministry of Finance, the Bank of Japan and Japan's Ministry of International Trade and Industry, while completing her Ph.D. dissertation research in economics at the University of Michigan.

John Weiss is Director of Research at the ADB Institute. He is also Professor of Development Economics at the University of Bradford, UK and has acted as a consultant to most of the major international development organizations. He is the author of a number of books on economic development, focussing principally on cost-benefit analysis and industrialization.

Additional copies of the paper are available free from the Asian Development Bank Institute, 8th Floor, Kasumigaseki Building, 3-2-5 Kasumigaseki, Chiyoda-ku, Tokyo 100-6008, Japan. Attention: Publications. Also online at www.adbi.org

Copyright © 2005 Asian Development Bank Institute. All rights reserved. Produced by ADBi Publishing.

The Research Paper Series primarily disseminates selected work in progress to facilitate an exchange of ideas within the Institute's constituencies and the wider academic and policy communities. The findings, interpretations, and conclusions are the author's own and are not necessarily endorsed by the Asian Development Bank Institute. They should not be attributed to the Asian Development Bank, its Boards, or any of its member countries. They are published under the responsibility of the Dean of the ADB Institute. The Institute does not guarantee the accuracy or reasonableness of the contents herein and accepts no responsibility whatsoever for any consequences of its use. The term "country", as used in the context of the ADB, refers to a member of the ADB and does not imply any view on the part of the Institute as to sovereignty or independent status. Names of countries or economies mentioned in this series are chosen by the authors, in the exercise of their academic freedom, and the Institute is in no way responsible for such usage.

ABSTRACT

Microfinance institutions (MFIs) are often seen by aid practitioners as a manifestly effective means of improving the position of the poor. However, detailed research studies have been much more guarded about their impact. In particular, several studies have raised doubts about the effectiveness of MFIs in reaching the 'core poor.'

This paper surveys the evidence from Asia and Latin America and contrasts experiences in the two regions. Studies on the former have been carried out more rigorously, but in both regions the evidence that microfinance is reaching the core poor is very limited.

TABLE OF CONTENTS

<i>About the Authors</i>	II
<i>Abstract</i>	III
<i>Table of Contents</i>	IV
1. Introduction	1
2. Characteristics of Microfinance in Asia and Latin America	2
3. Poverty and Microfinance	5
3.1. Poverty Impact Studies: Asia	14
3.2. Poverty Impact Studies: Latin America	18
4. Forms of Micro Credit Interventions and Cost-Effectiveness	22
5. Conclusions	26
Bibliography	27

Tables (in body of text)

Table 1. Outreach Indicators by Region	3
Table 2. Microfinance Impact Studies: Asia	10
Table 3. Microfinance Impact Studies: Latin America	14
Table 4. Distribution of MFI Lending by Poverty Classification Relative to Population Share in La Paz, Bolivia	19
Table 5. Cost Effectiveness Ratios: Bangladesh in the Early 1990s	24

Great Expectations: Microfinance and Poverty Reduction in Asia and Latin America

Heather Montgomery and John Weiss

1. Introduction

The microfinance revolution has changed attitudes towards helping the poor in both Asia and Latin America, and in some countries has provided substantial flows of credit, often to very low-income groups or households, who would normally be excluded by conventional financial institutions. Much has been written on the range of institutional arrangements pursued in different organizations and countries, and in turn a vast number of studies have attempted to assess the outreach and poverty impact of such schemes. However, in the academic development community there is a recognition that perhaps we know much less about the impact of these programs than might be expected given the enthusiasm for these activities among donor and policy-making circles. To quote a recent authoritative volume on microfinance:

MFI field operations have far surpassed the research capacity to analyze them, so excitement about the use of microfinance for poverty alleviation is not backed up with sound facts derived from rigorous research. Given the current state of knowledge, it is difficult to allocate confidently public resources to microfinance development. (Zeller and Meyer 2002).

This is a very strong statement of doubt. It in part reflects a lack of accurate data, but also in part methodological difficulties associated with assessing exactly what proportion of income and other effects on the beneficiaries of micro credit can actually be attributed to the programs themselves. Here we compare poverty impact studies from Asia and Latin America. In particular we examine evidence on three specific issues:

- The success of microfinance programs in reaching the core poor;
- The effectiveness of microfinance initiatives in pulling households out of poverty;
- The cost effectiveness of microfinance as a poverty targeting tool.

These are very basic questions, and the fact that they can still be posed reflects the extent of uncertainty in the literature. Since a number of other surveys are also available, we give most attention to evidence produced in the last three or four years¹ and highlight similarities and differences in microfinance as it has developed in Asia and Latin America.

The paper is organized as follows. In Section 2, we provide a brief overview of some of the distinguishing characteristics of the microfinance industry in Asia and Latin

¹ An earlier helpful survey published by ADBI is Meyer (2002). It draws out some of the methodological problems in assessing impact and surveys a number of important studies available at the time of writing (around 2001). Morduch (1999) is an extremely authoritative earlier survey focusing on both conceptual and empirical questions.

America. Section 3 discusses the potential for microfinance to combat poverty and methodological issues relating to assessing its success in doing so, and Section 4 goes on to survey the evidence from selected research studies on this point. Section 5 addresses the question of cost effectiveness. Finally we draw some brief conclusions.

2. Characteristics of Microfinance in Asia and Latin America

Microfinance developed in Asia and Latin America under very different ideological, political and economic conditions. Hence, there are distinctive differences in the industry in the two regions. A brief look at the history of two of the most famous MFIs—the Grameen Bank in Bangladesh and Banco Sol in Bolivia—gives an informative picture of how the industry in the two regions can be characterized.

Modern microfinance was born in Bangladesh in the 1970s, in the aftermath of the country's war of independence, when Muhammad Yunus, an economics professor at the University of Chittagong, began an experimental research project providing credit to the rural poor. That experiment, driven by a strong sense of developmental idealism, developed into what is now the world's most famous microfinance institution, the Grameen Bank, and institutions that replicate its pioneering methodology worldwide.

Microfinance in Latin America developed under quite different conditions. In Bolivia, a collapsing populist regime led to widespread unemployment. Banco Sol, a pioneering microfinance institution in the region, developed to address the problem of urban unemployment and provide credit to the cash-strapped informal sector. The notion of commercial profitability was embraced relatively early in this approach.

As a result of the different conditions under which the very first microfinance institutions (MFIs) were founded, the industry in the two regions developed distinctive characteristics. In the beginning, “by comparison with Bangladesh, the Bolivian intervention was typically urban rather than rural, less concerned with poverty and more focused on micro-enterprise. It targeted the ‘economically active poor’—people with established businesses that needed capital to grow. ... from the start, Bolivian microcredit was itself seen as a business, potentially as a branch of commercial banking” (Rutherford [2003] p.5). Many of these differences still characterize the industry in the two regions today.

For example, data from various sources suggest that Asian MFIs lead the world in terms of both breadth (number of clients) and depth (relative poverty of clients) of outreach. In their analysis of over 1,500 MFIs from 85 developing countries, Lapeneu and Zeller (2001) find that Asia accounted for the majority of MFIs, retained the highest volume of savings and credit, and served more members than any other continent. The most recent data from the *Microbanking Bulletin*², reinforces these findings. The average size of loans and deposits are often taken as a simple proxy of depth of outreach. By these criteria, Asian MFIs have among the lowest Loan and Savings Balance per Borrower, even after adjusting for GNP per capita, suggesting that they are effectively reaching the poor.

² *Microbanking Bulletin* reports only data on a limited number of MFIs who choose to participate. Those reporting to the Bulletin are thought to be amongst the best and are therefore unlikely to be representative of the industry as a whole (Meyer 2002: 14).

Table 1. Outreach Indicators by Region

	Average Loan Balance per Borrower (US\$)	Average Saving Balance per Saver (US\$)
Africa	228	105
Asia	195	39
Eastern Europe/Central Asia	590	N/A
Latin America	581	741
Middle East/ North Africa	286	N/A

Source: *Microbanking Bulletin* Issue #9, July 2003

The same data indicate that Latin American MFIs are ahead of Asia in terms of financial viability. On average, Latin American MFIs registered with the *Microbanking Bulletin* show a higher return than those in Asia. Latin America MFIs are also further advanced in the process of drawing in external funding through savings deposits, with registered institutions on average in the region having a deposit-loan ratio of 29%, roughly double the comparable figure for Asia (Ramirez 2004).

Regional data of course cover up some wide disparities within each region. Microfinance is a highly concentrated industry and the giants of the industry—BRI, BRAC and ASA—account for more than 50% of the total number of borrowers from the more than 300 MFIs worldwide who report to the MIX Market. BRI alone accounts for nearly 40% of their gross loans. Bangladesh, Indonesia, Thailand and Vietnam, all in Asia, have the largest number of members served and the largest distribution of loans and mobilization of savings in terms of GNP in the world. In contrast, the two most populated countries in Asia—India and the PRC—have very low outreach, despite a high concentration of the region's poor. In Latin America, there is very strong skew, with MFIs playing a major role as financial providers to micro-enterprise in Bolivia and Central America, but being largely insignificant in the larger countries of Brazil, Mexico and Argentina. There is wide disparity in terms of financial viability as well. Within Latin America there is a wide range, with the larger MFIs showing a return on assets in 2001-02 well above the average for the commercial banking sector in their countries, and with the smaller MFIs in the region, on average, operating at a substantial financial loss when capital costs are calculated at commercial rates.

The strong financial performance of the larger MFIs in Latin America is linked with a trend toward commercialization of microfinance in the region. In 1992, Banco Sol became the first example of an NGO becoming a commercial bank, and thus became the first regulated microfinance bank. Banco Sol surpassed other Bolivian banks in profitability and became the first MFI to access international capital markets. Following this successful example, at least 39 other important NGOs worldwide transformed themselves into commercial banks over the period 1992–2003 (Fernando [2003]). Given that the failure of commercial financial institutions to reach the poor provided the initial impetus for MFIs, this new trend is paradoxical and raises the question of whether the initial poverty reduction objectives of the transformed NGOs will be subjugated to commercial criteria (so-called 'mission drift'). This potential

disadvantage is still unexplored empirically, but the advantages of transformation are clear: increased access to funding and regulatory authority, freeing the institutions from dependence on donor funds and capital constraints on growth, and allowing them to offer a wider range of financial services.

There is also a recent trend in the opposite direction—traditional banks getting involved in microfinance in a variety of ways. In both regions there are examples of large state banks moving into microfinance, such as Banco Nacional de Costa Rica and Bank Rakyat Indonesia's (BRI) Micro Business Division.³ Recently there is a similar trend in the private banking sector as well. Until it was closed in April 2004 for noncompliance with prudential regulations, Bank Dagang Bali (BDB) was an early example of commercial banking involvement in microfinance in Indonesia. Rural banks in the Philippines are the dominant providers of microfinance and the USAID-funded Microenterprise Access to Banking Services (MABS) program aims to assist participating rural banks in expanding the services they provide to the micro-enterprise sector. Pakistan has established a number of private commercial banks that provide retail microfinancial services. Malaysia, Nepal and Thailand also have programs in effect to encourage commercial bank involvement in microfinance.⁴ In Latin America, Banco Agrícola Comercial (El Salvador), Banco del Desarrollo (Chile), Banco Wiese (Peru) and Banco Empresarial (Guatemala) are examples of private commercial banks that are involved in varying degrees with microfinance. Falling in between state involvement and private commercial initiatives is a program in India started by the National Bank of Agriculture and Rural Development (NABARD), under which a number of private banks have become involved in microfinance. ICICI Bank in particular has experimented with some innovative approaches to microfinance involvement under the NABARD program. These trends place microfinance squarely within the conventional financial sector and raise important issues of governance and regulation in connection with the new institutions.

In both regions, therefore, we see similar trends towards a provision of a wider range of financial services, a move away from traditional group lending to individual loans, and in summary a greater shift towards commercialization of the sector, with Latin America being more advanced in this process. However, in both regions, NGOs remain important providers, and in Asia they are still the dominant mode of delivery. The NGO sector is still, with exceptions, not financially sustainable and continues to rely on subsidies of various sorts. In these circumstances, given what seems to be a fragmenting MFI sector in many countries with a division between NGO-based lending and commercially-driven banking operations, there is a strong need for studies that shed light on the poverty consequences of different modalities. If NGOs are to continue to draw on subsidized finance, there is a need to demonstrate that they can reach the

³ Patten et al (2001) find evidence that the microfinance side of the Indonesian banking system performed much more robustly during the macro crises of the late 1990s than did the commercial banking sector.

⁴ In Sri Lanka, the microfinance sector is highly subsidized, discouraging entry by private commercial banks, but Hatton National Banks (HNB), Seylan Bank and Sampath Bank have become involved in the sector. However, Charitonenko, Campion and Fernando (2004) report that their combined microloans accounted for just 1.2% of the industry total at the end of 2000 and that none of the microfinance programs are profitable. Thus, the future of the involvement of private commercial banks in microfinance in Sri Lanka is questionable.

poor and do so in a cost-effective manner, compared with other forms of poverty targeting interventions. If public policy is to encourage the transformation of NGOs into regulated financial institutions or if the delivery of small loans is to be left to the commercial banking sector, the concern that the client base will change so that poor clients are excluded by application of tighter commercial criteria must be addressed. In such instances there is a need to learn more about the poverty consequences of the ongoing changes in the MFI sector in many countries.

3. Poverty and Microfinance

Here, we define poverty as an income (or more broadly welfare) level below a socially acceptable minimum, and microfinance as one of a range of innovative financial arrangements designed to attract the poor as either borrowers or savers. In terms of understanding poverty, a simple distinction can be drawn within 'the poor' between the long-term or 'chronic poor' and those who temporarily fall into poverty as a result of adverse shocks ('transitory poor'). Within the chronic poor, one can further distinguish between those who are either so physically or socially disadvantaged that without welfare support they will always remain in poverty (the 'destitute') and the larger group who are poor because of a lack of assets and opportunities. Furthermore within the non-destitute category, one may distinguish by the depth of poverty (that is how far households are below the poverty line) with those significantly below it representing the 'core poor', sometimes categorized by the irregularity of their income. In some Latin American cases, for example, the core poor or destitute are taken to be those below 50% of the poverty line (although Latin American poverty lines are generally higher than those in Asia).

In principle, microfinance can relate to the chronic (non-destitute) poor and to the transitory poor in different ways. The condition of poverty has been interpreted conventionally as one of lack of access by poor households to the assets necessary for a higher standard of income or welfare, whether assets are thought of as human (access to education), natural (access to land), physical (access to infrastructure), social (access to networks of obligations) or financial (access to credit) (World Bank 2000:34). Lack of access to credit is readily understandable in terms of the absence of collateral that the poor can offer conventional financial institutions, in addition to the various complexities and high costs involved in dealing with large numbers of small, often illiterate, borrowers. The poor have thus to rely on loans from either moneylenders at high interest rates or friends and family, whose supply of funds is limited. MFIs attempt to overcome these barriers through innovative measures such as group lending and regular savings schemes, as well as the establishment of close links between poor clients and staff of the institutions concerned. The range of possible relationships and the mechanisms employed are very wide.

The case for microfinance as a mechanism for poverty reduction is simple. If access to credit can be improved, it is argued, the poor can finance productive activities that will allow income growth, provided there are no other binding constraints. This is a route out of poverty for the non-destitute chronic poor. For the transitory poor, who are vulnerable to fluctuations in income that bring them close to or below the poverty line, microfinance provides the possibility of credit at times of need and in some schemes the opportunity of regular savings by a household itself that can be drawn on. The

avoidance of sharp declines in family expenditures by drawing on such credit or savings allows 'consumption smoothing.' In practice this distinction between the needs of the chronic and transitory poor for credit for 'promotional' (that is income creating) and 'protectional' (consumption smoothing) purposes, respectively, is over-simplified since the chronic poor also have short term needs that have to be met, whether they are due to income shortfalls or unexpected expenditures like medical bills or social events like weddings or funerals. One of the most interesting generalizations to emerge from the microfinance and poverty literature is that the poorest of the chronic poor (the core poor) borrow essentially for protectional purposes given both the low and irregular nature of their income. This group, it is suggested, is too risk averse to borrow for promotional measures (that is for investment in the future) and therefore is only a very limited beneficiary of microfinance schemes (Hulme and Mosley 1996: 132).

The view that it is the less badly-off poor who benefit principally from microfinance has become highly influential and, for example, was repeated in the World Development Report on poverty (World Bank 2000:75). Apart from the risk aversion argument noted above a number of other explanations for this outcome have been put forward. A related issue refers to the interest rates charged to poor borrowers. Most microfinance schemes charge close to market-clearing interest rates (although these are often not enough to ensure full cost-recovery given the high cost per loan of small-scale lending). It may be that, even setting aside the argument of risk aversion, such high rates are unaffordable to the core poor given their lack of complementary inputs. In other words, despite their having a smaller amount of capital, marginal returns to the core poor may be lower than those to the better-off poor. If the core poor cannot afford high interest rates, they will either not take up the service or take it up and get into financial difficulties. Also, where group lending is used, the very poor may be excluded by other members of the group, because they are seen as a bad credit risk, jeopardizing the position of the group as a whole. Alternatively, when professional staff operate as loan officers, they may exclude the very poor from borrowing, again on the grounds of repayment risk. In combination, these factors, it is felt by many, explain the weakness of microfinance in reaching the core poor.⁵ The sector has responded in a number of cases by establishing special programs for the core or 'ultra poor'. The best known of these are in Bangladesh and involve the well-established institutions of BRAC and ASA. The programs essentially aim to provide a range of services, covering training, health provision and more general social development for the disadvantaged, as well as grants of assets or credits. The ultra poor are encouraged to build up a savings fund and to graduate to conventional microfinance programs. Other variants of this approach involve greater flexibility in repayment terms for the poorest (Fernando 2004).

Given the new trends in the sector and their possible effect in diluting the original poverty focus of MFIs, the question of their impact on the poor (and

⁵ An important attempt to address this problem has been the Income Generation for Vulnerable Group Development (IGVGD) program run by BRAC in Bangladesh, which combines measures of livelihood protection (food aid) with livelihood promotion (skills training and micro credit). Hence micro credit is provided as part of a package approach. Matin and Hulme (2003) survey the evidence on how far the benefits of this program actually reach the core poor and conclude that although the program was more successful than more conventional micro credit schemes, nonetheless many target households were still missed.

particularly the core poor) is clearly of great policy interest. It might be thought that if such institutions are designed to serve only poor clients and if repayment rates are high, no further detailed analysis is needed. Such a view is misleading for a number of reasons. First, there is no guarantee that only the poor will be served unless strong eligibility criteria (such as land ownership) are enforced. Often the aim is to dissuade the non-poor through the inconvenience of frequent meetings or the stigma of being a member of a credit group of the poor. Such disincentives need not work and eligibility criteria, where they exist, may not be enforced. Second, high repayment rates may be due to social pressure within a group or family and may not reflect the capacity to repay (if for example loans from moneylenders have to be taken out to repay the micro credit). Third, even if the poor are genuinely served by MFIs, as long as public funds are required to finance the MFI, there is the issue of how cost-effective this means of reaching the poor is compared with alternatives. This requires a comparison of the cost of transferring the funds through a micro credit institution per unit of benefit received by the target group, as compared with the benefit-cost ratio for alternative schemes for reaching the core poor, such as food subsidies, workfare, and integrated regional development initiatives. Such comparisons must take account of not just the administrative costs involved, but also the leakage rate (that is, the benefits to the non-poor).

Hence for these reasons there is a strong case in favor of attempting to assess both the depth of outreach of microfinance programs, the impact of access to microfinance services on the welfare of clients and the costs of achieving this impact.

On the first point, assessing the depth of outreach or access of the poor to microfinance programs, it is important to note from the outset that most MFIs probably do not consider their institutional mission to be serving the poorest of the poor. Particularly in Latin America, most MFIs report a broader agenda to provide financial services to poor communities or specific groups such as female entrepreneurs who would not otherwise have access. Among MFIs that report to the Mix Market, slightly less than half of those in Asia identified “specifically targeting very poor clients” as their institutional mission. In Latin America, the share is even smaller: only around 10%. Of the Latin American MFIs that claim to target very poor clients, only two use some sort of targeting tool to identify clients. In Asia, most of those specifically targeting the very poor use some sort of targeting tool, such as a means test, participatory wealth ranking or a housing index to identify the target group.

For those MFIs that do explicitly aim to serve the poorest within their community, recent work on poverty outreach of MFIs has focused on constructing a poverty index that can be used to establish whether the target group is being reached. The Consultative Group to Assist the Poorest (CGAP) has developed a poverty assessment tool (PAT) that can be used to compare clients and non-clients of MFIs in the same community. This is done through the construction of a weighted index of poverty based on a range of indicators covering the human resources of households, characteristics of their dwellings, measures of food security and assets. The different indicators are weighted by principal components analysis, which allows weights to differ between cases (Zeller et al 2001). The approach here is to sort a non-client sample into three equal groups (high, intermediate and low) on the basis of their poverty score. The poverty index scores at the cut-off points between the three groups then become a

reference point for the client or participant sample and their distribution between the three categories can be compared with that of the non-clients. As the non-client groups are divided equally, any deviation from equal proportions amongst the clients signals a skew either for or against greater poverty outreach.⁶

The PAT is an assessment of outreach, rather than impact, and therefore does not directly address the question of what impact the programs have on their clients. Conducting a rigorous impact assessment is challenging. It is not simply a case of looking at a group of borrowers, observing their income change after they take out micro loans and establishing who has risen above the poverty line. Accurate assessment requires a rigorous test of the counterfactual—that is how income (or whatever measure is used) with a micro credit compares with what it would be without it, with the only difference in the two cases being the availability of credit. This requires empirically a control group identical in characteristics to the recipients of credit and engaged in the same productive activities, who have not received credit, and whose income (or other measure) can be traced through time to compare with that of the credit recipients.

A practitioner-friendly impact assessment toolkit is also available: the result of the Assessing the Impact of Microenterprise Services (AIMS) Project. This assessment tool has been used in longitudinal studies of the impact of programs in Peru (Mibanco), India (SEWA) and Zimbabwe (Zambuko Trust). This procedure looks at change over time and matches pairs of observations between borrowers and members of a control group, where each pair have similar starting values for the impact variable (like income or sales revenue) and other characteristics, like age, gender or sector of activity. Simplifying, this approach identifies impact as:

$$\text{Impact} = 1/n \sum (Y_{t+1} - Y_t)p$$

Where Y_t and Y_{t+1} are an impact variable (like income) in period t and $t+1$ respectively, and p refers to matched pairs of borrowers and non-borrowers, where there are n pairs. Thus impact can be rationalized as the average difference between matched pairs of program participants and control group.⁷ Where impact is greater than zero (and statistically significant) microfinance will have made a difference and once again initially poor and non-poor borrowers can be distinguished in the analysis. The weakness in the applications of this approach to date is that researchers have only been able to control for observable characteristics.

Failure to account for unobservable characteristics may lead to biased measures of impact. Two key sources of bias can arise in empirical work that attempts to assess

⁶ CGAP reports that the CGAP-PAT has been used to assess the relative poverty level of clients of 7 MFIs—2 of these are in Asia and 2 in Latin America. Three of these MFIs who explicitly identify serving the poorest of the poor as an institutional mission appear to be succeeding in that goal. Institutions with broader goals tended to serve a clientele that is more representative of the communities in which they operate, which may or may not be poorer than the national average.

⁷ The analysis of covariance (ANCOVA) essentially allows separate parallel regression lines to be fitted through the data for the treatment (borrower) and control groups. The regression lines measure the outcome variable for a given year ($t + n$) relative to an earlier year (t). Insofar as a program like microcredit has a tangible effect this will be picked up by the distance between the two lines, that is by the difference in intercept terms. The statistical significance of this distance gives a test for the impact of the program.

the impact of micro credit on poor households—selection bias and placement bias. The former arises where there are key differences between borrowers and non-borrowers that cannot be observed, measured and allowed for, with self-selection bias (that is where those with particular characteristics choose to participate in a program) being a key problem. Hence whilst differences in education, age or gender can be controlled for statistically, there can also be differences in attitude to risk or ‘entrepreneurship’, which will be basically unobservable. A bias will arise if there is an association between the decision to take a micro loan and these unobserved characteristics. For instance, if the more entrepreneurial individuals are those who take out loans, growth in their income relative to that of those who have not taken out a loan may be due in part to the effect of the loan itself, but in part to their entrepreneurial ability. Attribution of all of the change to the loan will overstate its impact. Placement bias arises where loans go to locations or activities that are in some way favored, such as villages with better infrastructure or sectors with strong demand growth. Comparing income change for households in a superior location (or sector) who have a loan, with income change for similar households in another location (or sector), who have not taken out a loan, and attributing of all this to the loan will create an upward bias.

Best-practice approaches to resolving these problems employ a form of “difference-in-difference” (two-stage least squares instrumental variables) analysis that compares participants and a similar control group and between locations or sectors with and without access to the program.⁸ One approach (as used for example by Pitt and Khandker [1998] on Bangladesh) is to use exogenous eligibility criteria for participation in a microfinance program (for example lack of land ownership) as a means of avoiding a self-selection bias. A placement bias is avoided by comparing those who are eligible with those who are ineligible, both in villages that are covered by programs and those that are not. Hence the analysis based on a double difference can be simplified as follows

$$\text{Impact} = (Y_{ep} - Y_{ip}) - (Y_{en} - Y_{in})$$

Where Y is change in an outcome measure (such as income) over the study period, e and i stand for eligible and ineligible households, respectively, and p and n stand for program and non-program villages, respectively. For microfinance to produce positive results, Impact must be greater than zero. If poor and non-poor borrowers can be identified, there will be a quantification of the poverty impact.

The chief problem with this approach is that many microfinance schemes do not use formal eligibility criteria and those that do may not always enforce them, creating a further source of error. An alternative where no formal criteria are set out but approvals for borrowing are known is to use as a control group those approved for loans who have not yet taken them up (for example as used by Mosley and Hulme [1996] in their country studies). This addresses the self-selection issue, unless not taking up a loan reveals an aversion to risk and is correlated with subsequent outcomes.

A variant of this approach (as applied by Coleman [1999, 2004] for Thailand) draws on the fact that most microfinance activities start in a narrowly defined area and then expand their coverage to similar villages elsewhere or within urban centers. In the

⁸ This discussion draws extensively on Coleman (2001).

rural case, if the villages are similar and if the borrowers can choose to participate, then self-selecting participants in villages that have been identified for later inclusion in a program should provide an accurate control group for current borrowers in villages with a program. Here, again simplifying, this is equivalent to estimating impact as

$$\text{Impact} = (Y_{Pt+1} - Y_{Nt+1}) - (Y_{Pt} - Y_{Nt})$$

Where Y is as before, P and N stand for (self-selecting) participants and non-participants respectively, t stands for time a program has been operative in a particular village, so t + 1 covers the early and t the late entrant villages.

Here we examine some of the recent ‘rigorous’ studies on the impact of MFIs based on survey data that employ versions of these methodologies. We do not report the results of work based on more qualitative or participatory approaches.⁹ Table 2 summarizes the results of the studies surveyed here for Asia, and Table 3 does the same for Latin America. In general, it is perhaps not surprising that studies based on a rigorous counterfactual find much smaller gains from microfinance than simple unadjusted before-and-after type comparisons, which erroneously attribute all gains to micro credit. Also, although the results are far from consistent, studies on Asia tend to report a stronger poverty impact from microfinance than do comparable ones from Latin America.

Table 2. Microfinance Impact Studies: Asia

Study	Coverage	Methodology	Results
Hulme and Mosley (1996)	Indonesia (BKK, KURK, BRI), India (Regional Rural Banks), Bangladesh (Grameen, BRAC, TRDEP), Sri Lanka (PTCCS)	Borrowers and control samples, before and after.	Growth of incomes of borrowers always exceeds that of control group. Increase in borrowers income larger for better-off borrowers.
MkNelly et al (1996)	Thailand (village banks —Credit with Education)	Non-participants in non-program villages used as controls	Positive benefits, but no statistical tests for differences reported.
Khandker (1998)	Bangladesh (Grameen, BRAC)	Double difference comparison between eligible and ineligible households and between program and non-program villages	5% of participant households removed from poverty annually. Additional consumption of 18 taka for every 100 taka of loan taken out by women.

(cont.)

⁹ See Hulme (1999) for a discussion of different approaches to impact.

Study	Coverage	Methodology	Results
Pitt and Khandker (1998)	Bangladesh (BRAC, BRDB, Grameen Bank)	Double difference estimation between eligible and non-eligible households and programs with and without microfinance programs. Estimations are conducted separately for male and female borrowing.	Positive impact of program participation on total weekly expenditure per capita, women's nonland assets and women's labor supply. Strong effect of female participation in Grameen Bank on schooling of girls Credit programs can change village attitudes and other village characteristics
Coleman (1999)	Thailand (village banks)	Double difference comparison between participant and non-participant households and between villages in which program introduced and villages where not yet introduced	No evidence of program impact. Village bank membership has no impact on asset or income variables.
Chen and Snodgrass (2001)	India (SEWA bank)	Control group from same geographic area	Average income increase rises for bank's clients in comparison with control group. Little overall change in incidence of poverty, but substantial movement above and below poverty line.
Coleman (2004)	Thailand (village banks)	Double difference estimation between participants and non-participants and villages with and without microfinance program	Programs are not reaching the poor as much as they reach relatively wealthy people. Impact is larger on richer committee members rather than on rank-and-file members.
Park and Ren (2001)	China (NGOs, government programs, mixed NGO-government programs)	(i) Probit estimation of participation and eligibility for each type of program; (ii) OLS and IV estimation of impact of micro credit on household income	In NGO and mixed programs the very rich even if eligible (for mixed programs) are excluded from participation. In the government program the rich are both eligible and more likely to participate. Impact estimation finds evidence of positive impact of micro credit on income.

(cont.)

Study	Coverage	Methodology	Results
Duong and Izumida (2002)	Vietnam (VBA 84% of total lending), VBP, PCFs, commercial banks, public funds)	Tobit estimation of (i) participation in rural credit market; (ii) behavior of lenders toward credit-constrained households and (iii) weighted least square estimation for impact on output supply.	The poor have difficulties in accessing credit facilities: livestock and farming land are determinants of household participation; reputation and amount of credit applied for to MFI are determinants of credit rationing by lenders. Impact estimation showed positive correlation between credit and output.
Kaboski and Townsend (2002)	Thailand (production credit groups, rice banks, women groups, buffalo banks)	Two-staged LS and MLE test of microfinance impact on asset growth, probability of reduction in consumption in bad years, probability of becoming moneylender, probability of starting business and probability of changing job. Separate estimation according to type of MFI and policies of MFI	Production credit groups and women groups combined with training and savings have positive impact on asset growth, although rice banks and buffalo banks have negative impacts. Emergency services, training and savings help to smooth responses to income shock. Women groups help to reduce reliance on moneylenders.
Amin et al. (2003)	Bangladesh (Grameen Bank, BRAC, ASA)	1) Nonparametric test of stochastic dominance of average monthly consumption of members and nonmembers 2) Maximum likelihood test of micro credit membership on vulnerability, consumption and household characteristics.	Members are poorer than nonmembers. Programs are more successful at reaching poor, but less successful at reaching vulnerable. Poor vulnerable are effectively excluded from membership.

(cont.)

Study	Coverage	Methodology	Results
Gertler et al. (2003)	Indonesia (Bank Rakyat Indonesia, Bank Kredit Desa, commercial banks)	1) Basic consumption-smoothing test on household's ability to perform daily living activities (ADL Index) 2) State dependence tests of basic regression (relative man-woman earning, physical job, savings) 3) Test of geographical proximity to financial institutions on consumption smoothing	Significantly positive correlation between household's consumption and measure of health. Wealthier households are better insured against illness. Households that live far from financial institutions suffer more from sudden reduction in consumption.
Khandker (2003)	Bangladesh (Grameen bank, BRAC, BRDB)	1) Fixed effect Tobit estimation of borrowing dependent on land education endowments of households. 2) Panel data fixed effects IV estimation to define long-term impact of microfinance borrowing on expenditure, non-land assets and poverty (moderate and extreme)	Households who are poor in landholding and formal education tend to participate more. Microfinance helps to reduce extreme poverty much more than moderate poverty (18 percentage points as compared with 8.5 percentage points over 7 years). Welfare impact is also positive for all households, including non-participants, as there are spillover effects.
Pitt et al (2003)	Bangladesh (BRAC, BRDB, Grameen Bank)	Maximum likelihood estimation controlling for endogeneity of individual participation and of the placement of microfinance programs. Impact variables are health of boys and girls (arm circumference, body mass index and height-for-age)	Significantly positive effect of female credit on height-for-age and arm circumference of both boys and girls. Borrowing by men has either negative or non-significant impact on health of children.

Table 3. Microfinance Impact Studies: Latin America

Study	Coverage	Methodology	Results
Hulme and Mosley (1996)	Bolivia, BancoSol	Borrowers and control samples, before and after. Retrospective assessment of incomes.	Growth of incomes of borrowers always exceeds that of control group. Absolute increase in borrowers income larger for better-off borrowers.
Mosley (2001)	Bolivia, BancoSol, ProMujer, PRODEM and SARTAWA	Borrowers and control samples, before and after. Time series data for BancoSol only; for other retrospective assessment of incomes.	Growth of incomes and assets of borrowers always exceeds that of control group. Increase in borrowers income larger for better-off borrowers. No evidence of impact on 'extreme poverty'.
Banegas et al (2002)	Ecuador, Banco Solidario and Bolivia, Caja de los Andes	Logit model. Control group selected from households working in the same sector but with no loans from other institutions.	Being a client of a program is associated with rising incomes.
Dunn and Arbuckle (2001a, 2001b)	Peru, Mibanco	Longitudinal study using 'analysis of covariance' methodology; control group based on non-participants with similar observable characteristics to participants. Focus on micro-enterprises	Micro-enterprises of participants are found to have substantial increases in net income, assets and employments relative to those of non-participants. Positive impact on poverty reduction with incomes in participating households rising relative to control group. Poor participants are more likely to sell assets in face of a shock than control households.
MkNelly and Dunford (1999)	Bolivia, Credit with Education program	Longitudinal study of comparison with baseline for nutritional data. Control group of communities who would be offered same program two years later.	No evidence of improvements in household food security or nutritional status of client's children relative to the control group.

3.1. Poverty Impact Studies: Asia

One of the early and most widely cited of the poverty impact studies is Hulme and Mosley (1996). It employs a control group approach looking at the changes in income for households in villages with microfinance programs and changes for similar households (for example, in terms of initial income, gender, education, and location) in non-program areas. As far as possible, the control groups are drawn from households

eligible for loans who have been approved for loans by the institutions concerned, but who have not yet received a loan. Programs in a number of countries are considered 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 (1988-92) with an average increase over the control groups ranging from 10-12% in Indonesia, to around 30% in Bangladesh and India (Hulme and Mosley 1996, table 8.1). Gains are larger for non-poor borrowers, however, and within the group the poor gains are negatively correlated with income. However, despite the breadth of the study and its use of control group techniques, it has been criticized for possible placement bias, since microfinance programs may be drawn to better placed villages, so that part of the advantage relative to the control group may be due to this more favorable location. The quality and accuracy of some of the data, particularly in relation to the representative nature of the control groups, has been questioned (Morduch 1999:1600). There also appears to be a basic problem with the data side of the case studies, since they are not based on a comparison between baseline data and that for a later survey year. Rather there is at least partial recourse to a recall approach for the earlier years of the period covered, as respondents are asked to estimate their income retrospectively. Finally, the major conclusion of the study that there is a positive correlation of gains from microfinance with income, so that poorer borrowers gain proportionately less, has also been challenged on the grounds that their comparison of income changes for different categories of borrowers biases their results in favor of the conclusion. This is because gains for different income groups are compared with the average for a control group, rather than with the change for comparable income categories within the control group; in other words, gains to very poor borrowers are compared with average gains in the control group, and not to the gains to the very poor controls (Morduch 2003).

Another major early initiative that provides some of the firmest empirical work is the surveys conducted in the 1990s by the Bangladesh Institute of Development Studies (BIDS) and the World Bank; these provided the data for several major analyses, such as Pitt and Khandker (1998). Khandker (1998) summarizes a number of different studies conducted in Bangladesh using the 1991/92 survey, focusing on three major microfinance programs, including the Grameen Bank and the Bangladesh Rural Advancement Committee (BRAC). As discussed above, impact is assessed using a double-difference approach between eligible and ineligible households (with holdings of land of more than half an acre making households ineligible) and between program and non-program villages. After controlling for other factors, such as household characteristics, any remaining difference is 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.

Khandker (2003) follows up this earlier work employing panel data. He uses the BIDS - World Bank survey conducted in 1998-99 that traces the same households from the 1991-92 survey. He finds apparently strong and positive results. Whilst borrowing by males appears to have no significant impact on consumption, that by females, who are the dominant client group, does have a positive impact. From this

analysis, a 100 taka loan to a female client is found to lead to a 10.5 taka increase in consumption (compared with 18 taka in the earlier analysis). Allowing for the impact of higher consumption on poverty gives estimates of poverty impact. It is estimated that due to participation in microfinance programs, moderate poverty among program participants decreased by 8.5 percentage points over the period of seven years and extreme poverty dropped about 18 points over the same period.¹⁰ He also finds evidence of positive spillovers on non-program participants in the villages, with the impact being greater for those in extreme poverty. Over the study period of seven years, poverty for non-participants is found to decline by 1 percentage point due to the programs, whilst extreme poverty declines by nearly 5 percentage points. This impact is due solely to female borrowing.

The same data set has also been used to identify health impacts as opposed to income changes. Pitt et al (2003) find that credit going to females has a large and significant impact in two out of three health measures for children. Male borrowing has no such effect. For example, a 10% increase in credit to females increases the arm circumference of daughters by 6.3%. A 10% increase in female credit on average increases the height of girls by 0.36 cm annually and of boys by 0.50 cm. The relations are stronger for daughters than sons. Hence in Bangladesh, micro credit and improved family health appear to be related.

These are strong and positive results and are probably the clearest evidence that microfinance is working in the way intended to bring sustained relief from poverty. However a couple of caveats are in order. First, 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 what are claimed to be more directly comparable households, no impact on consumption from participation in a program is found (Morduch 1999:1605).¹¹ Second, in the BIDs-World Bank survey data, the 'ultra poor' (defined as those with less than 0.2 acres of land) form nearly 60% of participants and the likelihood of participation is strongly negatively associated with the level of land holding. Nonetheless, how much is borrowed depends principally on the entrepreneurship of households, so that the charge that the risk-averse very poor will benefit proportionately less has not been totally dispelled. Furthermore, the panel data reveal a relatively high dropout rate of around 30%, indicating that there may have been problems of repayment for many households.

For Asia, there are examples of studies that are either inconclusive or provide less convincing results. Coleman (1999) and McNelly et al (1996) both focus on experiences with village banking in Thailand. Coleman (1999) utilizes data on villages that participated in village bank microfinance schemes and control villages that were designated as participants, but had not yet participated. As noted above, this allows a double 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. From the results here, the

¹⁰ Poverty is based on a daily calorie intake of 2112 and extreme poverty on one of 1739.

¹¹ 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).

poverty impact of the schemes appears highly dubious. Months of village bank membership have no impact on any asset or income variables and there is no evidence that village bank loans were directed to productive purposes. The small size of loans means that they were largely used for consumption, but 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.

Coleman (2004) uses the same survey data but reconsiders the estimation strategy to control for self-selection. He argues that the village bank methodology, which relies on self-selection by loan size and monitoring by frequent meetings, may not reach the poorest. As many better-off households tend to be on village bank committees, the failure to control for this leads to systematic biases. The regression results of Coleman (2004) indicate that there is a substantial difference between ordinary members and committee members of village banks. The impact of micro credit on ordinary members' wellbeing is either insignificantly different from zero or negative. On the contrary, the impact of microfinance programs on committee members' measures of wealth, such as income, savings, productive expenses and labor time is positive, implying a form of program capture by the better-off in the village, even though this group may not be well-off by national standards. A similar result in terms of rationing micro credit in favor of better-off groups or members is found by Doung and Izumida (2002) in a study of six villages in Vietnam. There, whilst credit availability is linked with production and income, household economic position and prestige in a village plus the amount of credit applied for are the main determinants of how credit is allocated.

MkNelly et al (1996) evaluate the Freedom from Hunger credit with education program in Thailand operated through village banks. The results show positive benefits. However, although non-participants in non-program villages are used as controls, there are problems in accepting the results. No statistical tests are reported, so one cannot judge whether differences between participants and non-participants are significant. There is also a potential measurement bias, since the staff responsible for the program also did the interviewing.

Chen and Snodgrass (2001) examine the operations of the Self Employed Women's Association (SEWA) bank in India, which provides low-income female clients in the informal sector with both saving and loan services. The study tests for the impact of these services by comparing the bank's clients against a randomly selected control group in a similar geographic area. Two surveys were conducted two years apart. Average incomes rose over time for all groups—borrowers, savers and the control, although the increase was less for the latter. In terms of poverty incidence, there was little overall change, although there was substantial 'churning', in that amongst the clients of SEWA there was significant movement above or below the poverty line. In interpreting these results, Meyer (2002) argues that the evidence on the counterfactual—that is what would have happened to the clients in the absence of the services of SEWA—is not sufficiently strong to draw any firm conclusions on poverty impact.

The smoothing of consumption over time to protect the poor against adverse shocks is one of the principle objectives of micro credit. Using data again for

Bangladesh, Amin et al (2003) compute several measures of vulnerability.¹² They find that the micro credit participants in the two villages covered are more likely to be below the poverty line than if they had been selected at random, and conclude that the programs have reached the poor. However, the vulnerable are more likely to join a micro credit program in only one of the two villages. Further, for the vulnerable below the poverty line, in one village there is no evidence that they are more likely to be members of a program and in the other village there is evidence that they have either chosen not to join or are actively excluded, presumably on the grounds that they are a poor credit risk. Hence the very poor and vulnerable do not appear to be reached.

More positive conclusions in terms of the ability of microfinance to reduce vulnerability are found for Indonesia by Gertler et al (2003), who find that access to microfinance helps households smooth consumption in the face of declines in the health of adult family members. Having established an empirical relationship between health condition and consumption, the authors test for a relation between access to a financial institution and consumption shortfalls associated with ill health. Using geographic distance as a measure of access, they find that for households in an area with a BRI branch, health shocks have no effect on consumption. This study does not differentiate within the group of the poor.

3.2. Poverty Impact Studies: Latin America

In Latin America in general, the impact of microfinance on poverty has been less well documented both in a methodological sense and in terms of coverage in individual studies, which tend to be concentrated in a small number of countries, principally Bolivia and Peru. The overall impression, however, is that compared with Asia, microfinance has reached less far down the income scale and that a significant proportion of borrowers are not in fact below the poverty line, although they may well have below average incomes. This is likely to be due at least in part to a greater commercial orientation with a focus on credit for urban micro-enterprises, with lower rural outreach in Latin America as compared with other regions. A typical requirement for access to credit from an MFI has been that the borrower should be the owner of a micro-enterprise, holding a national identification card and having at least six to twelve months experience in the economic activity for which the loan is to be used (Gulli and Berger 1999:26). It is perhaps not surprising that many of the poor do not meet these criteria.

For example, detailed evidence on the outreach of MFIs in Bolivia is provided by the survey reported in Navajas et al (2000), who use an index of basic needs fulfillment to classify borrowers into poor and non-poor groups. For the urban area of La Paz, they find that two of three MFIs tend to lend disproportionately to those above of the poverty line. For two of the three, the share of 'moderately poor' borrowers (at 29%) is lower than their share of the population (at 38%), although this is not the case for the third MFI, BancoSol (at 47%). However of the very poorest group, the share of borrowers in all three institutions (at 2-5%) is well below their share in the population, reinforcing the view that MFIs have difficulty in reaching the very poor. When rural

¹² Unlike the Khandker studies, these data choose households before they join a micro credit scheme. Their vulnerability measure is broader than simply fluctuations in consumption.

lending activities are also included there is a tendency for a skew in lending towards the ‘threshold’ group, defined as those just above the poverty line and the ‘moderately’ poor. Table 4 gives the ratio of the share of groups of borrowers by poverty class in the portfolio of the different MFIs to their share in total population. A figure above unity indicates a positive skew towards a particular poverty class, and a figure below unity indicates the opposite.

In terms of institutional mix FIE, PRODEM and Sartawi are NGOs, whilst BancoSol and Caja Los Andes are regulated financial institutions. Table 4 shows that being an NGO (like FIE) is no guarantee of a strong allocation of loans to the poor and that both regulated institutions have a superior distribution to FIE. However in turn the rural-based NGOs, PRODEM and Sartawi outperform BancoSol by these criteria.

Table 4. Distribution of MFI Lending by Poverty Classification Relative to Population Share in La Paz, Bolivia

Urban	Fulfilled NonPoor	Threshold NonPoor	NonPoor Subtotal	Moderate Poor	Poorest Poor	Poor Subtotal
FIE	1.2	2.1	1.6	0.7	0.1	0.5
Caja Los Andes	0.7	2.9	1.5	0.8	0.2	0.6
BancoSol	0.6	2.0	1.1	1.2	0.3	0.9
Rural						
PRODEM	0.0	4.8	3.2	2.4	0.5	0.9
Sartawi	1.6	4.4	3.5	2.2	0.5	0.9

Source: Navajas et al (2000) table 4.

This type of evidence on poverty outreach does not address the issue of how far incomes of poor borrowers have been affected. Among the limited number of detailed poverty impact studies on Latin America, BancoSol of Bolivia remains by far the most studied institution. Hulme and Mosley (1996, Table 4.1) look at a small sample of BancoSol borrowers. Using approved borrowers who had not yet taken out a loan as a control, they find an average annual increase in income of 28% for borrowers compared with an average of 14.5% for the control group. An estimated 8% of borrowers crossed the poverty line in 1992 alone. However in comparison with the MFIs from other countries in their study, BancoSol had only a relatively small proportion of borrowers in the sample below the poverty line (29%) and average borrower household income from the sample was nearly five times the national poverty line, a figure far higher than for any institution studied in other countries. BancoSol also showed the largest average absolute income increase for borrowers, and the proportionate increases were greater for the poor. Although the Hulme and Mosley study has a reasonable control group criteria (approved borrowers who had not yet taken out a loan, but who might be expected to share the self-selection characteristics of current borrowers) it suffers from several problems: there is only a small sample of 36 borrowers; it is not clear whether the

control group matches borrowers exactly in terms of characteristics such as education, gender or sector of activity; and the sample is surveyed at a point in time so that retrospective income estimates are required to derive rates of change.

The last of these problems is addressed for BancoSol, but not the other Bolivian MFIs covered, in Mosley (2001), which resurveys the households covered earlier to obtain income data at two points in time. Mosley (2001) finds that for BancoSol borrowers re-surveyed, on average income growth was a little more than twice (214%) that of the control group; for the other three institutions the excess income growth for borrowers over the control group was between 132% and 158%. For poor borrowers (who were a minority of those surveyed) gains relative to the average for the control group were lower than for all borrowers, for example 151% in the case of BancoSol. Regression analysis relating income increase per household relative to the control group average to initial income shows a positive relationship, so that proportionate gains from borrowing rise with household income, although at a declining rate. There is a positive poverty impact, although given the fact that only a minority of borrowers (around one third) were poor at the starting point of the analysis in 1993, this is modest. Between 10%–20% of poor borrowers, varying between institutions, crossed the poverty line over the period studied as a result of microfinance.¹³ However when the core poor (those in ‘extreme poverty’ defined in Bolivia as those living on half the poverty line) are considered, it is clear that none of the MFIs studied are reaching them. From a sample of 200 borrowers over six years for four institutions, there is only one case of the removal of extreme poverty. Hence, this segment of the poor was not reached.

Dunn and Arbuckle (2001a, 2001b) use an analysis of covariance to examine loans to micro-enterprises for 305 households in Lima, Peru by Mibanco. The study draws on data at two points in time (1997 and 1999) and looks at changes in the borrowers relative to a control group of households who had not received a micro-enterprise loan. On average, the borrower group appears to be around or slightly above the national poverty line, with approximately 30% below the national poverty line. As noted above, the procedure uses matched observations in the borrower and control groups that have the same starting values for performance variables, like net revenue, assets or employment, as well as the same values for ‘moderating’ variables, like gender of entrepreneur, sector of activity and location. Change in the performance variables for the matched observations over 1997–1999 are compared to establish if there are significant differences between the borrowers and the control group. The results suggest on average a significant difference in terms of enterprise revenue (roughly \$1000 annually), fixed assets and employment creation (as much as nine extra days per month). These results are very substantial. The study however recognizes that it may be difficult to attribute all of these changes to the micro credit program of Mibanco, as the matching system used does not adequately address self-selection bias and the moderating variables used seem crude (for example, the sector variables reported are

¹³ There is some ambiguity in the interpretation of poverty impact since the definition of the headcount poverty index in the notes to Table 5 in Mosley (2001) does not seem to match the explanation in the text. This refers to between 10 and 20 per cent ‘of borrowers’ crossing the poverty line as a consequence of microfinance. We take this to mean ‘of poor borrowers’ given the low poverty outreach reported in Table 5.

‘commercial, service and industrial’ rather than anything more precise such as industrial subsectors).

The poverty dimension of the study as reported in Dunn and Arbuckle (2001b) shows a positive poverty reduction effect. For households starting with the same poverty level, number of income sources and economically active members in 1997, on balance after net effects are allowed for by 1999, borrowers were 6% more likely to be above the poverty line than non-borrowers. There is the contrary result, however, that in the smaller group of new borrowers who took out a loan during 1997–1999, but not initially in 1997, new borrowers were 15% less likely to have moved out of poverty than the control group.¹⁴ The poor and non-poor appear to benefit almost equally in absolute terms, although there is evidence that the poorer borrowers were 20% more likely to liquidate assets in response to a financial shock.

Banegas et al (2002) look at the operations of two MFIs in Ecuador (Banco Solidario) and Bolivia (Caja los Andes) utilizing the CGAP poverty index noted above to establish outreach and a logit regression model (where being a client and taking a loan gives a dependent variable of 1.0 and being a non-client a dependent variable of zero) that links participation in a program with income changes and poverty scores. It is found that for both institutions, taking a loan is associated with increases in income. However income change is measured not by the size of monetary values but by a simple scoring system (1 for income decrease, 2 for unchanged income and 3 for income increase). The relation with poverty varies since in the case of Banco Solidario lower poverty is associated with a greater probability of taking a loan, and in the case of Caja los Andes with a higher probability. On the other hand Banco Solidario has a greater depth of outreach, as 75% of its clients belonged to the lower and intermediate groups as defined by the CGAP poverty score, as compared with 48% for Caja los Andes. Again it seems therefore it is the better-off amongst the poor who are benefiting. Limitations of this analysis are the crudity of some of the indicators, for example for income change, and the way in which a control group of non-clients are selected; i.e. from households in the same locality that have micro-enterprises in the same sector as the borrowers and which have not had a loan from a formal sector institution. This simply ignores the issue of self-selection bias and does not control for factors like education and skills.

From a nutritional perspective, McNelly and Dunford (1999) look at the impact of Credit with Education loans to women in rural Bolivia. A relatively rigorous approach is applied by collecting data two years apart from a participant group and a control group, who would be offered the credit at the end of the study period. In addition, amongst the participants, a sub-group of those who joined during the course of the study, rather than immediately, is examined separately. Small loans were available in combination for training in health and nutrition, as well as micro-enterprise management topics. Roughly two-thirds of participants reported an increase in income over the study period, and their net incomes in 1997 appeared far higher than the control group (perhaps casting some doubt on the representativeness of the latter). However, on

¹⁴ To explain this worrying result, the authors suggest that as the poverty measure is expenditure based, new borrowers may curtail their consumption in the short-term to invest in their micro-enterprise at the same time as they take out a new loan, and that this lower consumption may show up as higher poverty in the short-term.

the key concern of the study, nutritional status (for example child height-for-age or weight-for-height measures), there is little evidence of any impact due to the program. The most positive result is that for households suffering 'food stress', participants are less likely to sell off animals and are more likely to take out loans as a coping strategy, than are non-participants.

In general, for Latin America the available studies suggest that MFIs, whilst they may be flourishing in commercial terms, and providing a valuable service to micro-enterprises often run by poor entrepreneurs, have relatively weak impact on those at the very bottom of the income distribution.

4. Forms of Micro Credit Interventions and Cost-Effectiveness

It is clear that experimentation and local variation are likely to be important aspects of successful MFIs. A few studies (more in Asia than in Latin America) have looked in detail at the impact and cost effectiveness of different forms of intervention. The Hulme and Mosley (1996) cross-country study of 13 institutions in seven countries (Bolivia in Latin America and Bangladesh, India, Sri Lanka and Indonesia in Asia) found that loan impact, in terms of change in borrower income, (which is not necessary the same as poverty impact) was greater in the more financially viable institutions (such as BRI and BancoSol). They explain this in terms of the screening efficiency of higher interest rates and tighter repayment conditions, which deter less financially sound borrowers. The institutions involved used a range of delivery mechanisms, and the analysis does not allow firm judgments between these. Within-country comparisons by ownership are made explicitly in Park and Ren (2001), who look at the Chinese experience drawing on household survey data for 1997. They are able to compare three types of program based on ownership characteristics—NGO-based, mixed programs and government ownership. Whether in terms of conventional financial criteria like repayment rates, or measures of initial impact like targeting effectiveness, the NGO programs appear to function best, with the government-run programs being the least successful.

Detailed mechanisms for micro lending are examined for Thailand by Kaboski and Townsend (2003), who look at different institutional variants such as production credit groups, women's groups, rice banks and buffalo banks, as well as a variety of services including training and various savings facilities. Of the forms of institution, allowing for a range of other factors, women's groups appear to have the largest positive impact on their members. Of the services offered, training in conjunction with credit appears to work well and the availability of savings facilities appears to be associated with asset growth amongst households. Of the savings services, regular 'pledged savings' have the largest positive impact. Explanations offered for this include the use of savings as collateral for further loans either from the institution itself or from other sources, and a reduction in the cost and risk of infrequent deposits and withdrawals. However since the poorest may not be in a position to offer regular savings, this also provides an explanation for why they may benefit relatively little from MFIs.¹⁵

¹⁵ Fujita (2000) makes this point in the context of Bangladesh.

Most studies of the impact of different forms of microfinance do not conduct a full cost effectiveness analysis in order to judge both the effectiveness of different alternatives and how microfinance interventions compare in efficiency terms with other ways of reaching the poor. However there is often a general expectation that MFIs are an effective and efficient means of reaching the poor. For example, Wright (2000) argues that "...microfinance has a particular advantage over almost (and probably) all other interventions" in providing cost-effective and sustainable services to the poor. In fact, the evidence to support such a strong claim is not yet available. Bangladesh and Bolivia, the most widely studied countries for microfinance, provide most of the evidence on its cost effectiveness.

The early work by Khandker (1998) attempts to assess the cost-effectiveness of micro credit in Bangladesh (that is costs per taka of consumption for the poor) as compared with more formal financial institutions and other poverty-targeted interventions. His data are summarized in table 5. They appear to be based on the assumption of a zero leakage rate to the non-poor. The interesting result that emerges is that the Grameen Bank is considerably more cost-effective than BRAC and that as expected, loans to female borrowers are considerably more cost-effective than loans to males. Further, subsidies to Grameen (but not to BRAC) appear to be a more cost effective means of reaching the poor than various food-for-work programs. However a food-for-education scheme appears very cost-effective relative to the food-for-work programs and to BRAC.¹⁶ Formal financial institutions are less cost-effective than Grameen for both female and male borrowers, and less cost effective than BRAC in some, both not all, cases examined (Khandker 1998:134-139). The high figure for BRAC is in part due to the range of services, such as training, offered in addition to micro credit, but nonetheless if such services are essential to the success of micro credit, it is legitimate to include their cost in a cost-benefit assessment of micro credit.

¹⁶ The study on this scheme by Wodon (1998) appears considerably more sophisticated than the other studies and compares costs with the future stream of estimated benefits to the poor in terms of gains from education. The ratio for this activity may not be directly comparable with the other figures in the table.

Table 5. Cost Effectiveness Ratios^a: Bangladesh in the Early 1990s

Intervention	Female	Male	All borrowers
Grameen Bank	0.91	1.48	
BRAC	3.53	2.59	
Agricultural Development bank (BKB) ^b			4.88
Agricultural Development Bank (RAKUB) ^c			3.26
Vulnerable Group Development			1.54
Food for Work (CARE) ^d			2.62
Food for Work (World Food Programme)			1.71
Food for Education ^e			0.94 (1.79)

Source: Khandker (1998) tables 7.2 and 7.3 and Wodon (1998)

Notes:

- a) Ratio of costs to income gains to the poor.
- b) Bangladesh Krishi Bank
- c) Rajshahi Krishi Unnayan Bank
- d) Run by CARA on behalf of USAID
- e) Source is Wodon (1998); the figure in brackets is the cost effectiveness ratio for the very poor.

The above data provide ambiguous support for the idea that microfinance is a cost-effective means of generating income for the poor. The figures for Grameen support this view, whilst those for BRAC do not. More recently a couple of other estimates are available. Burgess and Pande (2003) examine whether the pattern of commercial bank expansion in India into rural areas, previously not served by banks (so-called 'social banking'), has had an impact on rural poverty, and their work allows a simple comparison with microfinance. Their estimates suggest that it costs 2.72 rupees to generate an additional rupee of income for the poor via social banking program. Compared with the data in Table 5, this ratio is higher than the cost-effectiveness ratio for Grameen, but lower than that for BRAC.¹⁷

A further look at the effectiveness of Grameen is provided by Schreiner (2003), who calculates the subsidy-lending ratio at 0.22 over the period 1983-97. This is not directly equivalent to the ratios in Table 5, but assuming the same return to borrowing as in Khandker (1998) these figures can be converted into a broadly equivalent ratio of cost to gains to the poor of 1.15. This is consistent with the figures in Table 5, which would need to be averaged to give an overall return to male and female borrowing

¹⁷ It should be noted that the benefits from Grameen lending found in Khandker (2003), which are almost half of those found in his earlier study, imply considerably higher cost effectiveness ratios than those reported in Table 5, unless there has been a corresponding rise in the efficiency of operations.

combined. The result confirms Grameen as a relatively cost-effective form of poverty intervention, although it says nothing about how the benefits from its activities are distributed between the poor, the very poor and those above the poverty line.

For Latin America, Mosley (2001) provides a rare, if approximate, estimate of cost-effectiveness of MFIs relative to other poverty interventions in Bolivia. He compares the estimated numbers in a particular area brought over the poverty line by four different MFIs, as a result of micro credit, to the organizations' expenditure that can be allocated to activities in that area. This gives a cost per person brought out of poverty for four MFIs that use different approaches. BancoSol and Fundacion para la Promocion y Desarrollo de la Microempresa (PRODEM) are more commercial with greater use of individual loans, whilst ProMujer lends largely to women in urban co-operative groups, and Sartawi offers both group and individual loans, but also provides a range of training and education services in addition to credit. The cost-effectiveness in the MFIs, defined as the cost per person brought out of poverty, is \$603 for BancoSol, \$467 for ProMujer, \$373 for PRODEM and \$589 for Sartawi. These figures are not directly comparable with those for Bangladesh reported in Table 5, as the latter are the ratio of MFI costs to benefit in income (or consumption) received by the poor. Although the range is relatively wide, perhaps due to the approximate nature of the calculations, the author himself suggests that they show that there is little difference between the institutions and that no single model dominates micro credit delivery in Bolivia (or indeed elsewhere). Some approximate comparisons have also been made with the cost of poverty reduction from Social Fund investment in health, education and rural roads, which show microfinance from all of the institutions to be lower in cost than the Social Fund programs.¹⁸ However, the cost effectiveness figures found for MFIs in Bolivia in dollars per person brought out of poverty are much higher than some of the anecdotal figures used for Bangladesh. The fact that these estimates, approximate as they are, provide one of the few indications of the cost-effectiveness of MFIs in Latin America, is an indication of the undeveloped nature of research on this issue in the region.

In general, in terms of cost-effectiveness, there is limited support for the view that MFIs can be a cost-effective way of reaching the poor, although the range of figures within both Bangladesh and Bolivia suggest that this is far from inevitable for all types of MFI. BRAC in particular appears relatively high cost. However, even if it could be shown that microfinance uniformly outperformed other targeting measures in cost effectiveness terms, one could still not conclude that other measures should be abandoned and their funds diverted to microfinance. As Khandker (1998) points out, participants in microfinance borrowing self-select (that is they judge that micro credit suits their particular needs, often for self employed work), whilst microfinance may not be suitable for others amongst the poor. For this latter group, perhaps more risk adverse or more disadvantaged, other forms of targeting will still be required.

¹⁸ As defined in Table 5 of Mosley (2001), the indicators for the MFIs and the Social Fund programs are not directly comparable as the former are cost per person brought out of poverty and the latter are cost per income benefit received by the poor. Additional assumptions would have been used to convert the ratios for the Social Fund programs to cost per person brought out of poverty, but these are not referred to.

5. Conclusions

Despite the current enthusiasm in the donor community for microfinance programs, rigorous research on the outreach, impact and cost-effectiveness of such programs is rare. Design of aid programs would ideally incorporate evidence on all three points, but the research that does exist generally focuses on only one of these criteria: either outreach, impact *or* cost-effectiveness. In part, this reflects the difficulty of establishing an appropriate statistical methodology and implementing those standards in practice, and in part no doubt reflects the variations found in practice in the way in which microfinance operates. The evidence surveyed here suggests that the conclusion from the early literature, that microfinance may have had positive impacts on poverty but is unlikely to be a simple panacea for reaching the core poor, remains broadly valid. Reaching the core poor is difficult, and some of the reasons that made them difficult to reach with conventional financial instruments mean that they may also be high risk and therefore unattractive microfinance clients.

Asia has much to learn from Latin America in terms of developing a vibrant commercially oriented MFI sector. However MFIs in Latin America have often been seen as a vehicle for the development of the micro-enterprise sector rather than as a tool for the removal of core poverty, which was its initial focus in much of Asia. Work on Bolivia has demonstrated this at least for that country. There has been an extensive debate that we do not touch on here, on the financial sustainability of MFIs. We would simply make the point that just because an institution requires a subsidy to cover its costs in itself is not a reason for not supporting the institution. The issue should be what benefits, in terms of income gains for the poor, can be achieved with the subsidy and how the ratio of subsidy to benefits compares with that for other interventions. Detailed cost effectiveness studies are rare and those that are available show both high and low scores for MFIs in the same country. Hence there is a need to continually improve design and outreach and to see MFIs as part of the package for targeting the poor, rather than the whole solution.

Our view is that despite the difficulties, there is a need for more careful research on the outreach, impact and cost-effectiveness of microfinance programs—studies that rigorously address the critical issues of selection and placement bias. Such studies can inform the debate on microfinance by sharpening the donor community's understanding of the role of microfinance in reaching the poor, its impact in different environments, and its cost-effectiveness as a poverty intervention.

Bibliography

- Amin S., Rai A.S. and Ropa G. (2003) "Does microcredit reach the poor and vulnerable? Evidence from Northern Bangladesh," *Journal of Development Economics*, vol. 70, pp. 59-82.
- Banegas, O., Jarrin, S., Escobar de Pabon, S., Rojas, B., Nusselder, H. and Sanders, A. (2002) *HIVOS Outreach and Impact of Microcredit: Case Studies of Banco Solidario (Ecuador) and Caja los Andes (Bolivia)*, Centro de Estudios para el Desarrollo Rural – Free University of Amsterdam, mimeo, San Jose.
- Burgess, R. and Pande, R. (2003) "Do Rural Banks Matter? Evidence from the Indian social banking experiment," The Suntory Centre, Suntory and Toyota International Centres for Economics and Related Disciplines, Discussion Paper No. DEDPS/40, London School of Economics and Political Science.
- Charitonenko, S., Campion, A. and Fernando, N. (2004) "Commercialization of Microfinance: Perspectives from South and Southeast Asia," Asian Development Bank.
- Chen, M.A. and Snodgrass, D. (2001) Managing resources, activities, and risk in urban India: the impact of SEWA Bank, Washington D.C.: AIMS, September 2001.
- Coleman, B.E. (1999) "The impact of group lending in Northeast Thailand," *Journal of Development Economics*, vol. 60, pp. 105-141.
- Coleman, B.E. (2001) "Measuring impact of microfinance programs," *Finance for the Poor*, Asian Development Bank, December 2001, vol.2, no. 4, pp. 5-7.
- Coleman, B.E. (2004) "Microfinance in Northeast Thailand: who benefits and how much?" *World Development*, forthcoming.
- Dunn, E. and Arbuckle, J.G. (2001a) "Microcredit and microenterprise performance: evidence from Peru," *Small Enterprise Development*, vol. 12, no. 4, pp. 22- 31.
- Dunn, E. and Arbuckle, J.G. (2001b) *The Impacts of Microcredit: a case study from Peru, Assessing the Impact of Microenterprise Services (AIMS)*, mimeo, Management Systems International, Washington DC.
- Duong, Ph.B. and Izumida, Y. (2002) "Rural development finance in Vietnam: a microeconomic analysis of household surveys," *World Development*, vol. 30, no. 2, pp. 319-335.
- Fernando, N. (2003) "Transformation of NGOs into Regulated Financial Institutions: expectations fulfilled?" paper presented at *ADB Annual Conference, Microfinance in Asia: poverty impact and outreach to the poor*, Dec 5, 2003, Tokyo.

- Fernando, N. (2004) "From niche market to mainstream: changing face of the microfinance industry in Asia," paper presented at the *Asian Development Bank Institute workshop on 'Modalities of Microfinance Delivery in Asia'* Manila, 4-8 October; paper available at www.adbi.org
- Fujita, K. (2000) "Credit flowing from the poor to the rich: the financial market and the role of Grameen Bank in rural Bangladesh," *The Developing Economies*, vol. 38, pp. 343-373.
- Gertler, P., Levine, D.I. and Moreti, E. (2003) Do microfinance programs help families insure consumption against illness? *University of California, Berkeley, Center for International Development Economics Research (CIDER), Working Paper* no. C03-129.
- Gulli, H and Berger, M. (1999) "Microfinance and Poverty Reduction: evidence from Latin America," *Small Enterprise Development*, vol. 10, no. 3 pp. 16-28.
- Hulme, D. and Mosley, P. (1996) *Finance Against Poverty*, vol. 1 and 2, Routledge: London. 1996.
- Hulme, D. (1999) "Impact Assessment Methodologies for Microfinance: theory, experience and better practice" *Finance and Development Research Program, Working Paper* no. 1, IDPM, University of Manchester.
- Kaboski, J. and Townsend, R. (2002) Policies and impact: an analysis of village-level microfinance institutions, mimeo, University of Chicago.
- Khandker, S. (1998) *Fighting poverty with microcredit: experience from Bangladesh*, New York: Oxford University Press for the World Bank.
- Khandker, S. (2003) "Micro-finance and poverty: evidence using panel data from Bangladesh," *World Bank Policy Research Paper* 2945, World Bank, Washington.
- Lapenu, C. and Zeller, M. (2001) "Distribution, growth and performance of microfinance institutions in Africa, Asia and Latin America, *Food Consumption and Nutrition Division Discussion Paper* no.114, International Food Policy Research Institute. June 2001.
- Matin, I. and Hulme, D. (2003) "Programs for the Poorest: Learning from the IGVGD Program in Bangladesh," *World Development*, vol. 31, no. 3, pp. 647-665.
- Meyer, R.L. (2002) "Track record of financial institutions in assisting the poor in Asia," *Asian Development Bank Institute Research Paper* 49, ADB Institute, December 2002.
- MkNelly, B., Watetip, C., Lassen C.A. and Dunford, C. (1996) "Preliminary evidence that integrated financial and educational services can be effective against hunger and malnutrition," *Freedom From Hunger Research Paper* no.2, Freedom From Hunger, April.

- MkNelly, B. and Dunford, C. (1999) "Impact of Credit with Education on Mothers and Young Children's Nutrition: CRECER Credit with Education Program in Bolivia," *Freedom From Hunger Research Paper* no.5, Freedom From Hunger, December.
- Morduch, J. (1999) "The Microfinance Promise" *Journal of Economic Literature*, XXXVII December, pp. 1569-1614.
- Morduch, J. (2003) "Can the poor pay more? Microfinance and returns to capital in Indonesia," mimeo.
- Mosley, P. (2001) "Microfinance and Poverty in Bolivia," *Journal of Development Studies*, vol. 37, no. 4, pp. 101-132.
- Navajas, S., Schreiner, M., Meyer, R., Gonzalez-Vega, C. and Rodriguez-Meza, J. (2000) "Microcredit and the Poorest of the Poor: theory and evidence from Bolivia," *World Development*, vol. 28, no. 2, pp. 333-346.
- Park, A. and Ren, C. (2001) "Microfinance with Chinese characteristics," *World Development*, vol. 29, no. 1, pp. 39-62.
- Patten, R.H, Rosengard, J.K. and Johnson, D.E. (2001) "Microfinance success amidst macro economic failure: the experience of Bank Rakyat Indonesia during the East Asian Crisis," *World Development*, vol. 29, no. 6, pp. 1057-1069.
- 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.
- Pitt, M.M., Khankder Sh.R., Chowdhury, O.H., and Millimet, D.L. (2003) "Credit programs for the poor and the health status of children in rural Bangladesh," *International Economic Review*, vol. 44, no. 1, pp. 87-118.
- Ramirez, A. (2004) "The Microfinance experience in Latin America and the Caribbean," paper presented at the *Asian Development Bank Institute workshop on 'Modalities of Microfinance Delivery in Asia'*, Manila, 4-8, October; paper available at www.adbi.org
- Rutherford, S. (2000) *Money Talks: conversations with poor households in Bangladesh about managing money*, at IDPM website www.man.ac.uk/idpm
- Rutherford, S. (2003) "Microfinance's evolving ideals: how they were formed and why they're changing," paper presented at *ADB Annual Conference, Microfinance in Asia: poverty impact and outreach to the poor*, Dec. 5, 2003, Tokyo.
- Schreiner, M. (2003) "A cost-effectiveness analysis of the Grameen Bank of Bangladesh," *Development Policy Review*, vol. 21, no. 3, pp. 357-382.

- Wodon, Q.T. (1998) "Cost-benefit analysis of Food for Education in Bangladesh," background paper for the poverty assessment of Bangladesh at the World Bank, mimeo, World Bank, April 1998.
- World Bank (2000) *World Development Report 2000/01: Attacking Poverty*, World Bank, Washington.
- Wright, G.A.N. (2000) *Microfinance systems: Designing quality financial services for the poor*, The University Press Limited, Dhaka, Bangladesh.
- Zeller, M. and Meyer, R.L., eds., (2002) *The Triangle of Microfinance: Financial Sustainability, Outreach and Impact*, John Hopkins for the International Food Policy Research institute, Baltimore.
- Zeller, M. Sharma, M. Henry, C. and Lapenu, C. (2001) "An Operational Tool for Evaluating Poverty Outreach of Development Policies and Projects," *Food Consumption and Nutrition Division Discussion Paper* no. 111, International Food and Policy Research Institute, June, available at www.ifpri.com