

Does it Work? The Need for and Potentials of Randomized Evaluations in Microfinance

Francesco Ariel Coco

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Advisor: Jay Aronson

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Carnegie Mellon University

Email: fcoco@andrew.cmu.edu

Abstract

During the last thirty years, microfinance has spread all over the globe from its roots in Bangladesh. However, as this paper will show, this expansion has not been high quality research demonstrating its effectiveness in improving the lives of the poor. In addition to showing the statistical shortcomings of the research that has been done on the subject, I will show how and why randomized evaluations can fill that gap. Several factors that have historically been considered unrealistic, including financial sustainability for most microfinance institutions and the feasibility of performing randomized evaluations on small scales, have recently become a reality. This has opened the doors for three specific opportunities within microfinance. Firstly, organizations can now improve their understanding of whether microfinance improves the lives of the poor using statistically compelling methods. Second, it gives microfinance institutions the opportunity to provide a better financial product for clients via randomized evaluations. Lastly, as I will argue, it puts microfinance in the position to use loan manipulation and group meetings to improve the lives of the global poor in a more meaningful way.

Introduction

One of the newest weapons in the war against poverty is microfinance. It is exactly what it sounds like: the provision of financial services, such as credit, savings, and insurance, on a smaller scale. Initially conceptualized and put into practice by Muhammed Yunus more than thirty years ago in Bangladesh, the essential idea behind microfinance is that in the fight against global poverty, access to financial services for the destitute can be a valuable tool. In the same way that the developed world had and has been able to use financial services to its advantage, Yunus believed that the global poor could do the same. Today, the international aid community has, for the most part, embraced this basic philosophy. Today, over 150 million have gained access to formal credit and, in most cases, other basic financial services (Banerjee, Duflo, Glennerster and Kinnan 2009).

Despite Yunus receiving the Nobel Prize for Peace in 2006, the United Nations declaring 2005 the International Year of Microcredit, and the establishment of more than 12,000 microfinance institutions (MFI's) worldwide as of 2007 (Swibel, 2007), there is still no strong scientific evidence that microfinance is universally effective at fighting poverty. This is not to say that it is ineffective, or that it has negative effects. This is only to say that there is not enough rigorous scientific evidence regarding the efficacy of microfinance.

This thesis has three main goals. First, to show that the expansion of

microfinance has been conducted largely without consideration for scientific inquiry--that the evidence of its efficacy was not nearly overwhelming enough to warrant such tremendous expansion prior to any experimental verification. Second, I want to argue how and why randomized evaluations, the gold standard for determining the effectiveness of interventions, can help microfinance organizations and their supporters create a better, more effective financial product (JPAL, 2010). Though there appear to be practical and financial concerns among smaller organizations regarding the feasibility of conducting randomized evaluations, some determined researchers have found that it is in fact possible for MFI's of all sizes to perform them (Kremer, 2003). With more MFI's contributing to the body of knowledge around microfinance, this paper will show that the field would benefit tremendously by gaining new perspectives from those who have approached microfinance with unique and innovative practices, practices that could help expand our understanding of the product in order to improve it. Lastly, I want to demonstrate how and why microcredit is in a very unique position to fight the consequences of poverty, separate from the provision of financial services. I want to suggest how and why we can use group meetings and the manipulation of interest rates, loan size, and loan maturity to ameliorate the lives of the global poor in newer, more cost effective ways.

The Risks of Conjecture

Theoretically it is easy to see the benefits that simple access to credit could have on one's business and, concomitantly, her livelihood. For a woman who needs another stove to cook with in her restaurant, a loom to weave with, or a cow whose milk can provide income, the money from local MFI's can be invaluable. Anywhere you look, microfinance affiliates have the anecdotes of this sort to show how their product changed the lives of those that borrowed. (USAID, 2002; Grameen Foundation, 2010; Kiva, 2010). It is easy to see how anecdotal evidence of this sort can resonate with the trend in western philanthropy toward market-based solutions to social problems. For societies that champion individualism and the entrepreneurial spirit, the notion that the global poor can lift themselves out of poverty through financial ingenuity has unquestionable appeal; the success of microfinance validates those values (Morduch, 1999).

However, there is evidence that access to credit can also have negative consequences. Since MFI's primarily target women, for instance, access to credit can be something which abusive domestic partners use to their advantage rather than for healthy investment (Schuler, Hashemi and Badal, 1998). Additionally, access to credit can lead people unwillingly into debt traps that are not easy to escape from; there is evidence that people might over-borrow to their detriment (Zinman, 2008). One needs to look no further than the United States to see the

dangers of easy credit--the economic maelstrom was in large part due to liberal lending practices. When one looks at the rates charged by MFI's, it is easy to understand where the concern with microcredit comes from. Even the best MFI's charge interest rates on their loans that could easily be considered usury in developed countries. The Association for Social Advancement (ASA), a large MFI that was ranked by Forbes magazine as the best microfinance organization in the world (Swibel, 2007), charges a 12.5% flat interest rate (ASA, 2010). This translates into an Annual Percentage Rate (APR) of around 20%, a number that is on the very low side in the world of microfinance.

While this may be better than the alternative, a local moneylender that might charge much higher rates, it is easy to see how such rates might worry those interested in mitigating poverty rather than adding to it. This worry becomes even more apparent if institutions begin to accumulate profits, such as the private Mexican MFI Compartamos did three years ago by charging loans above 85% and cashing in on a substantial public offering (Rosenberg, 2009). But then again, 20% interest might seem to be a number that borrowers could pay back when one considers diminishing returns. What is important, however, is not this type of conjecture, since it can often lead us to the wrong conclusions about what is actually happening (Duflo, Glennerster and Kremer, 2005). What is important, instead, is to formulate policy off of evidence.

What Does the Evidence Say?

In 2004, at the G8 Summit in Sea Island Georgia, the representatives at hand endorsed something they called the "Key Principles of Microfinance". The second principle averred:

"Microfinance is a powerful tool to fight poverty. Poor households use financial services to raise income, build their assets, and cushion themselves against external shocks." (CGAP, 2006)

Similar sentiments have been echoed by the World Bank, the US Agency for International Development (USAID), the United Nations Development Program (UNDP), and others associated with poverty alleviation (Roodman and Morduch, 2009). But can these claims be supported by valid and reliable evidence? Does the research done on the success of microfinance commit the objective observer to agree with the conclusion of the G8? This is a very important question to ask since statements made by such high profile organizations command attention from those involved not just with development economics, but also philanthropy in general.

If we are to believe that it is a "powerful tool" that tangibly improves the lives of the poor, then, because of the microfinance industry's newfound financial success, there can be no doubt that the spread of microcredit is a boon. As microfinance practitioners have learned from past mistakes, and have

developed their business strategies accordingly, they have been able to take microfinance from a ridiculous concept (from a traditional banking standpoint) to the point of not only sustainability, but profitability (Rosenberg, 1999). Of the microcredit clients whose MFI's report to the Microfinance Information Exchange (MIX Market), an organization that gathers and synthesizes MFI data, almost three quarters of borrowers take loans from MFI's that are profitable, while another fifth take loans from those who are close to profitability (Rosenberg, 2010). For this cohort of MFI's, a group which includes the biggest names in microfinance, the number of organizations that are profitable or close to it comes out to an impressive 93%.

Not long ago achieving this rate was essentially considered impossible; the 93% stands in sharp contrast to the 5% that microfinance researchers and practitioners thought might be the optimal rate over a decade ago (Morduch, 2000). With the help of past lessons learned, MFI's can stand on their own two feet within a few years of establishment. It is true that there are large numbers of MFI's who, for one reason or another, do not report their financial data to the MIX Market. Some don't in order to charge lower interest rates, some because they receive enough subsidies, some because they just don't want to. While these MFI's are not included in the aforementioned 93% of MFI's that are profitable or close to profitable, what we do know is that MFI's which are run well and without government regulation can stay afloat without public subsidies¹ (Rosenberg, 2009). What are the implications of this? If microfinance is

sustainable, and if it fights poverty as these MFI's and international organizations suggest, then it ostensibly appears that we are putting not nearly enough emphasis on its proliferation.

When it comes to other methods of development assistance, or any other general way of improving the lives of the global poor, the methods that normally come to mind cost money: providing clean, accessible water, adequate nutrition, universal education, health care, and so on. Essentially all of the MDGs require financing in one-way or another (United Nations Development Programme, 2010). Unlike these goals, providing people with access to credit and financial services can be done free of charge, at least for those MFI's that choose to try and be sustainable. Therefore, if we believe that the second key principle of microfinance is true, once we add self-sufficiency to the equation we are faced with what microfinance researcher Jonathan Morduch called a 'win-win' (Morduch, 2000). Not only can microfinance help, but it can do it at a profit. This is in contradiction with a classic aphorism of economics: there is no such thing as a free lunch. While rules inevitably have exceptions, any exception to a rule should be looked upon with a contemplative eye. We should not believe that this lunch is free because the G8 says so. We should believe it because the best pieces of scientific and statistical evidence compel us to agree.

In an attempt to better understand the results of previous research done on microfinance, I will provide a review of the most ubiquitous studies done on

the effect of microcredit. I will also group them according to five separate factors that are loosely based off of the Millennium Development Goals, a group of benchmarks set forth by the UN that are intended to be a rubric for poverty alleviation (United Nations Development Programme, 2010): poverty, risk management, health, education, and women's empowerment.

¹ Despite this assumption, which is one that I will not only assume to be true for this paper, but is in fact an assumption that I believe to be true, it is important to note that the concept of absolute financial sustainability of microfinance is put into question in some circles. A bulletin put out by the MIX Market highlighted some interesting perspectives on the sustainability of microcredit. In a description of the Bolivian microfinance milieu, Catalina Robledo described how client over-indebtedness is becoming an issue and how it is exacerbated by three increasingly significant factors: thin margins, currency risk, and high leverage (Robledo, 2008). Despite these warning signs the paper did mention other more promising indications that microfinance is sustainable. Her research found that while those potential dangers exist, macro-economic conditions are relatively stable and delinquency rates have been dropping for almost all MFI's. While there are potentially valid concerns that microfinance is a house of cards, answering that question is not the focus of this paper. Though the answer has serious repercussions for this inquiry, I will leave that question to be answered at another time. So, for the sake of argument and brevity, I will assume that microcredit is financially sustainable.

Poverty

- MckNelly and Dunford (1999) found that incomes of over 60% of CRECER clients in Bolivia rose after joining the MFI.
- Simanowitz and Waters (2002) report that clients of SHARE in India experienced tremendous gains in poverty reduction, 75% experiencing "significant improvements in their economic well being", and half coming out of poverty.
- In an earlier paper, MckNelly and Dunford (1998) found that Ghanain Freedom from Hunger clients increased incomes by twice as much as non-clients.
- Coleman (1999) used data from a quasi-experiment in Northeast Thailand. He tried to address for issues of self-selection and endogenous program placement. After this he found that "loans have little impact" and that failing to account for those two issues results in "significantly overestimating impact".
- Borrowers in Indonesia reported increases in their income by 12.9% as opposed to just 3% for non-borrowers (Remenyi and Quinones, 2000)
- Borrowers with Indonesian MFI BRI reported 112% increases in income, corresponding to 90% of them escaping poverty (Panjaitan, Rositan and Cloud, 1999)
- In a USAID-AIMS study, Barnes (2001) found that participation in the Zambuko Trust, a Zimbabwean MFI, increased consumption of high protein foods despite decreased expenditures on food throughout the country.
- A study of BRAC in Bangladesh followed long term members and found that those who stayed longer than four years were able to increase expenses by 28% and assets by more than double (Mustafa et al., 1996)
- A World Bank study in the 1990's of MFI's BRAC, Grameen Bank, and RD-12 found that female borrowers experienced 18% returns on borrowed money, while 5% of clients escaped poverty every year. These gains were not only sustainable over time, but they were also experienced by the local population: there were 21% increases in wages in program villages (Khandker, 1998).
- An early study of Grameen Bank found that borrowers had incomes 43% higher than control groups in villages without microcredit, and 28% higher than non-borrowers in program villages, with the greatest gains coming for the landless. The study also found that wage rates increased in program villages. However, the study cautioned that members were younger and better educated, and that this might be driving some of the results (Hossain, 1988).
- Morduch (1998) found that households eligible to borrow did not have higher consumption than control households.

Risk Sharing, Consumption Smoothing, Insurance, Saving, and Wealth Accumulation

- Coleman (1999) found slight impacts on wealth accumulation for committee members.
- McKNelly and Dunford (1999) found that clients report consumption smoothing via diversified income sources and bulk purchases in CRECER.
- Simanowitz and Waters (2002) published that though 78% of clients had no savings before joining, 86% reported increases in savings for CRECER as well. They also reported that in India, clients were able to diversify sources of income and increase employment for family members.
- A study of BRAC clients found that participation with the MFI allowed them to smooth consumption, build assets and receive help during natural disasters (Zaman, 2000).
- McKNelly and Dunford (1998) also reported that Ghanaian Freedom from Hunger clients were 30% more likely to have secondary sources of income
- An early study of Grameen members found that they could use savings to cope with problems better than non-borrowers (Hossain, 1988).
- Morduch (1998) found that relative to controls, households eligible for programs had significantly less variation in consumption and labor supply across seasons.
- An evaluation in Manila found that borrowers substitute away from formal insurance and into informal risk sharing mechanisms such as other sources of credit (Karlan and Zinman 2009). Their results suggest that the microcredit works by creating investment at the household level and by improving risk management.
- Banerjee, Duflo, Glennerster, and Kinnan (2009) report on a randomized evaluation in India which shows that access to microfinance had no effect on expenditures per capita, but that it was associated with an increase in durable spending for new businesses.
- A study of six institutions in Africa found that microcredit was able to reduce improve borrowers' risk management capacity through the enhancement of social capital, stabilisation of village income, information sharing, and the pooling of resources. (Mosley and Rock, 2004).

Health

- Banerjee, Duflo, Glennerster, and Kinnan (2009) report on a randomized evaluation in India which shows that access to microfinance has no impact on health.
- In measuring the impact of microfinance on child health, DeLoach and Lamana (2009) find that introducing microfinance access in Indonesia had a positive impact on child weight gain, increasing it by an average of 3% over a seven year period.
- Researchers in Bangladesh found that credit programs for the poor had substantial impacts on children's health, as measured by height and arm circumference, when women were the borrowers (Pitt, Khandker, Chowdhury, and Millimet, 2003).
- In Ghana, MKNelly and Dunford (1998) found that in addition to the increased income, borrowers were more likely to breastfeed, delay the introduction of other food into their babies' diets, and rehydrate babies with the proper solution during bouts with diarrhea. This led to significant increases in height-for-age and weight-for-age.
- Both Husain (1998) and Steele, Amin, and Naved (1998) find that in their respective studies of microfinance in Bangladesh, participation with the program is positively correlated with contraceptive use.
- Barnes, Gaile and Kimboombo (2001) find in their USAID-AIMS study in Uganda that clients who received health care lessons on preventative health, breastfeeding, and family planning through their MFI, FOCCAS, had much better health care practices than non-borrowers. Some 95% of clients involved themselves with health and nutrition improving practices, while 32% engaged in at least one AIDS prevention practice. For non-clients these numbers were 72% and 18% respectfully.
- A review of credit programs commissioned by the World Bank in Bangladesh investigated the health status of children and found that a 10% increase in credit for women was correlated with a 6.3% increase in mid-arm circumference of daughters, as well as a statistically significant increase in height-for-age for both sons and daughters. While there was an increase in mid-arm circumference for boys, the effect was not statistically significant (Pitt, Shahidur, Chowdhury, and Millimet, 2003).
- Another study in Bangladesh found that contraceptive use was significantly higher for Grameen members than for non-members, 59% for the former, 43% for the latter (Schuler and Hashemi, 1994). This finding was again supplanted six years later by Rahman, DeVanzo, and Razzaque (2000) who found similar positive correlations between borrowing and contraceptive use. The reasons for this are generally thought to be because of the social capital and awareness generated through group meetings.

Education

- Using a cross sectional survey from Bangladesh, Morduch (1998) found that households eligible to borrow were not more likely to have their children in school.
- Karlan and Zinman (2009) find that borrowing households substitute away from labor and into education.
- A longitudinal study in Bangladesh found that competency in basic arithmetic, reading, and writing increased 12 percent over a three year period for 11-14 year old children in member households. At the end of this three year period, borrowers' children were 10% more likely to pass education competency tests (Chowdhury and Bhuiya, 2001).
- According to Khandker (1998), members reported much higher levels of schooling for children. 81% of male children of member households had schooling as opposed to 54% for non member households. For female students, nearly all in the ethnographic study participated in higher levels of schooling whereas only 60% in the comparison group did.
- Banerjee, Duflo, Glennerster, and Kinnan (2009) report on a randomized evaluation in India which shows that access to microfinance has no impact on education.
- A study of Save the Children in Honduras found that clients had lower student drop-out rates. They were able to send their children to school as a result of increased earnings and the availability of outside resources (Marcus, Porter, and Harper 1999).
- A USAID-AIMS impact study in Uganda found that clients were more likely to invest in education and pay school charges than non-clients. Microbusiness revenues were used to finance the education in over half of the households, which has implication for keeping orphans and children in homes with HIV/AIDS in school (Barnes, Gaile and Kimbombo, 2001).
- Another USAID-AIMS study found that borrowing from Zambuko Trust was associated with an increase in school enrollment for boys ages 6-16, but a decrease for girls of the same age over the same period, 1997-1999. It also found reported that for repeat borrowers there was an increased chance that children 6-21 would remain in school (Barnes, 2001).
- In a similar finding from another USAID-AIMS study, SEWA Bank found that school enrollment for boys ages 11-17 increased 15% for borrowers over the same two year period, 1997-1999. However, they found no relationship between borrowing and school enrollment for girls of the same age and for both boys and girls in primary school (Chen and Snodgrass, 2001).

Women's Empowerment

- In households that have access to microfinance, Morduch (1998) found that men tend to work harder and women less.
- Banerjee, Duflo, Glennerster, and Kinnan (2009) report on a randomized evaluation in India which shows that access to microfinance has no impact on women's decision making.
- The Women's Empowerment Program in Nepal found that 68% of clients, approximately 89,000 women, experienced increased roles in decision making for family planning, children's marriage, buying and selling property, and girls' schooling (Ashe and Parrot, 2001).
- The Centre for Self-Help Development found that while women were able to make small purchases independently following borrowing, larger purchases were still made by males, showing the limitations of microfinance on women's empowerment (Shrestha, 1998).
- World Education, an organization that works in coordination with credit and savings groups to provide education, found that combining lessons and access to credit resulted in women being in a position in which they could ensure greater access to food, schooling and medical care for females (Sherpa, 2001).
- Kabeer (1998) found that for borrowers in the Small Enterprise Development Program (SEDP) not only did empowerment and well-being benefits increase when women managed loans for business purposes, but benefits were incurred for women through the mere act of having the financial resource to access credit.
- Ledesma (2002), and Cheston and Kuhn (2002), reports that at TSPI, a lender in the Philippines, women who reported being in control of household funds increased 18 percentage points after participation in the program, making them 20% more likely to control funds than the control group. Additionally, when women joined the program, they were almost twice as likely to control enterprise finances.
- Freedom from Hunger studies in both Bolivia and Ghana find that participation in the program were associated with an increase in self confidence for women as well as a higher status within the community. They also found that in Bolivia borrowing women were more likely to be a part of local government, while those in Ghana were more likely to play an active role in community life and ceremonies (MkNelly and Dunford, 1998).
- Hashemi, Schuler, and Riley (1996) found that those who borrowed in Bangladesh were significantly more empowered than those who didn't in terms of physical mobility, ownership of productive assets, involvement in household decision making, and political and legal awareness. The effects increased with though they also found that occasionally participation brought about an increase in domestic abuse.

In light of the seemingly contradictory claims implied by some of these studies, coming to a conclusion about the efficacy of microfinance might seem pointless. Or, because so many of the studies report positive results, it might seem that we should just tally up the studies on each side and then make our decision that way. But that would do injustice to the practice of scientific inquiry. Looking at these studies on face value ignores some serious issues, the foremost of these being methodology². Therefore, the next section of this paper will investigate the statistical validity of the studies above--i.e. which ones, if any, we should believe.

² Another issue, which I feel compelled to at least raise, is that of bias. In any field, it is important that evaluations are conducted by parties without a vested interest in the program in question. When MFI's find impacts that are substantially higher, and studies conducted by outside organizations find much smaller effects in general, one should be cautious. It is impossible to rule out that there is a bias in play, and not necessarily a premeditated one, but perhaps one of complacency or a lack of procedural rigor. These organizations have a goal. Just because that goal is not necessarily financial profit, it does not mean that their claims should be taken on face value when those claims serve to further that goal. Their methodologies and procedures, as with any organization, should be taken into consideration before accepting any claims that are made.

Statistical Validity

During a 2007 lecture at MIT, a member of the audience asked the speaker, Mohammed Yunus, what kind of results were found during impact evaluations of his Grameen Bank. Citing a World Bank study, he mentioned that "five percent of Grameen borrowers come out of poverty every year" (MIT World, 2005). In an interview conducted with PBS that same year he mentioned this same figure (PBS, 2007). Surely, these were not the only two instances in which this statistic came up. After all, this is the type of statement that grabs the attention of the listener and resonates with them afterward. This is the type of factoid that you can bring up when someone asks you about what microfinance can do. This is the type of statistic that encourages international agencies like the G8, the World Bank, and the UNDP to pour resources into the expansion of microcredit. The problem with this statement, however, is that it just isn't true.

Now, of course, the Nobel Prize winner did not fabricate the statement. In the 1990's the Bangladesh Institute of Development Studies was given money by the World Bank to carry out four rounds of household surveys which would provide the basis of much research into the effects of microfinance. The 5% statistic came from a quasi-experimental design applied to the data from those surveys (Khandker, 1998). However, because of certain assumptions made in the design, the claim was statistically unconvincing (Roodman and Morduch, 2009). Despite that, and most likely because it's message was one that quickly caught

the attention of microfinance enthusiasts, the claim went unchallenged in the public sphere, despite being questioned in the academic sphere (Morduch, 1998). It was not until just last year that a thorough review of the study in question showed that "evidence for impact is weak", along with several others studies that have enjoyed a position of primacy in microfinance and have similarly reported positive results. (Roodman and Morduch, 2009).

For reasons similar to that given above, the issue of statistical validity can arguably make the claim of being the most significant issue in scientific inquiry. What do we mean by statistical validity? The world's body of scientific knowledge is based upon research and evidence. With opinions and emotions aside, we are supposed to believe claims if and when the evidence meets certain standards of statistical certainty. In several fields, most notably medicine, meeting this standard is easier than in others, such as development economics. In some cases, we can manipulate the situation so that the treatment is doled out randomly with little to no bias. Outside the lab, this idealization often hard to come by. Microcredit, among many other tools of development, is given in so many different settings, that performing a double blind randomized evaluation of its effects is impossible. But, as we have seen, that does not stop researchers from investigating what microfinance can do. And it shouldn't.

The goal of analyzing a treatment in development economics, such as microfinance, is not finding out whether it improves people's lives per se.

Instead, the goal is to find out if the treatment improved people's lives more than their lives would have improved absent the treatment (Duflo, Glennerster and Kremer 2008).

There are a multitude of methodologies that are employed when it comes to overcoming evaluative uncertainty (JPAL, 2009):

- Pre-post, which assumes that the only factor influencing changes in the subject is the treatment.
- Differences in differences, which assumes that the treatment and control group would have had the same trajectories over the period in question.
- Multivariate regression, which assumes that factors which were excluded, because they were not measured or unobservable, did not effect the outcome because those factors were uncorrelated with it, or because they did not differ between participants.
- Statistical matching, which makes the same assumption as the multivariate regression method.
- Regression discontinuity design, which assumes that when a cut-off 'score', based on certain measures, is strictly adhered to when choosing participants, there will not be statistically significant differences between individuals just above and just below that score, allowing them to be compared.

- Instrumental variable, which assumes that there is some incidental variable that can predict participation, but does not effect the outcome.

There is one last methodology used to overcome uncertainty--the randomized evaluation. This method only needs to make one assumption: that randomization worked, i.e. the treatment and control group are statistically identical for all factors. It is this assumption that marks the distinction between experimental and quasi-experimental studies.

In order to gain a better picture of the difference in validity between experimental and quasi-experimental studies in the social sciences, I will perform a short review of some of literature on the subject.

Experimental vs. Quasi-Experimental Methods

- Glazerman, Levy and Meyers (2003) examined a series of case studies in social contexts such as welfare, employment, and job training. Though the case studies were intended to replicate estimates of impact found from experimental designs, the results often came up with estimates that differed by 'policy-relevant' margins.
- Heckman and Hotz (1989) concluded that "causal inference in nonrandomized studies requires more data" than their randomized counterparts, and that causal inference in nonrandomized studies "requires more assumptions than in randomized studies".
- In an earlier examination of replication exercises in social experiments, Glazerman, Levy and Meyers (2002) conclude that while non-experimental methods can replicate the findings of randomized evaluations, they cannot predict the circumstances under which this happens. They also find that averaging out estimates of multiple quasi-experimental studies could possibly eliminate biases, they similarly don't know how to identify when this happens. At the end of their paper they present the results of 16 various replication exercises. Of these quasi experimental estimates, five were able to estimate the impacts accurately, three with mixed results, and eight failed.
- In an analysis of controlled psychotherapy experiments, Shadish and Ragsdale (1996) found that the 64 experiments which used random assignment consistently reported higher and less variable effects than 36 non-random experiments. They conclude that while non-random studies can produce acceptable approximations, we should still rely on randomized experiments as the gold standard.
- Bloom, Michalopoulos, Hill and Lei (2002) conclude that in general even the best quasi-experimental methods cannot replace random assignment.
- While they find that difference in difference estimator and propensity score matching estimators perform better than alternative quasi-experimental methods, Bratberg, Grasdahl, and Risa (2002) conclude that certain nonexperimental evaluations are highly unreliable and do not meet conventional levels of statistical significance.
- Fraker and Maynard (1987) report that in the research of various employment and training programs, nonexperimental designs cannot be relied upon to understand effectiveness. However, for the same program, the National Supported Work Demonstration, Dehejia and Wahba (1999) find that applying propensity score methods were able to replicate experimental results.
- Cochrane (1972) finds that, when assessing the effectiveness of various health care innovations, randomized control trials are the most statistically robust method of investigation.

As we can see, there is a strong consensus regarding the ability of randomized evaluations to achieve more accurate results from experiments than quasi-experiments. When the treatment is not given randomly, it is difficult to know whether the treatment that actually brought about a change or whether outside factors are in play. For example, if there are two individuals who have access to microcredit, but only one of them takes out a loan and over time generates higher income, it is not clear that the loan was responsible or whether the borrower was more educated, or more determined and would have fared better anyway. These questions are common. Many theoretical biases come into play in microfinance, foremost among those being attrition, non-random program placement, client selection and self-selection (Roodman and Morduch, 2009). Going over the assumptions for each of the aforementioned non-randomized methodologies, and putting each within the context of microfinance, helps paint a clearer picture of why experimental studies command more statistical deference.

For the first four methodologies that I mentioned before the research review – pre-post, differences in differences, multivariate regression and statistical matching – the shortcoming of the central assumptions is obvious. For something as complex as microfinance it is extremely difficult and, as a consequence, unconvincing to assert that access to credit is the only thing affecting borrowers. Among others, personality, location, family background and support, education, social status, and wealth can all affect how an individual

makes use of microcredit. In certain cases, however, researchers will often make assumptions that are intended to estimate the effects of salient traits, like those mentioned above, in order to produce more reliable results. Unfortunately, attempting to estimate for all these variables and their effects on microfinance will inevitably produce unconvincing results since the dynamics are so complex and unpredictable. As a group of researchers put it, "it is usually impossible, and always difficult, to ensure that the assumptions are true" (JPAL, 2010).

The fifth type of non-randomized methodology that I mentioned earlier, regression discontinuity design, suffers from the same flaw, but tries to address it by making a cut-off score with which to choose participants. There are noticeable shortcomings of this method as well. The first is that one must assume that the measures used to determine the cut-off score were relevant to the outcome. That each measure affected the outcome, and that other factors which were not included did not affect the outcome. Besides hoping that strictly adhering to the cut-off eliminates statistical bias, which is generally unconvincing in itself, it makes an assumption similar to the first three, namely that a certain factor or group of factors are alone responsible for empirical findings. Additionally, regression discontinuity design fails to include those farther from the cut-off, limiting the sample population and concomitantly undermining universalizability. For the instrumental variable method, one is forced to assume that somehow there is a variable that simultaneously predicts participation in microfinance, but does not affect the outcome. Factors that immediately come to

mind in determining participation, for example education, social status, or drive, all could easily affect outcomes. It seems very difficult to make the claim with a high degree of confidence that any factor could induce participation in microfinance but not affect outcome. Oppositely, it would appear that any factor that was responsible for participation was responsible precisely because it might affect the outcome. Again, the important part is that assumptions about the treatment and population serve to undermine reliability (JPAL, 2010).

Assumptions are the necessary foundation of any mode of inquiry, no matter how banal. The less numerous, simple, and more convincing they are, the stronger the findings of that inquiry. While the examples above are just examples, they shed light on the complexity of the assumptions involved in the quasi-experimental research that dominates the field of microfinance. It is the simplicity of the assumption in randomized evaluations that positions it high above its quasi-experimental counterparts, i.e. that randomization produced two statistically identical groups.

With this in mind, it is important to note that while the basic assumption of randomized evaluations is simple, it is not always so easy to implement them in the field. There are two occasions during which randomized evaluations are limited: 'pre-randomization', and 'post randomization'. Pre-randomization limits essentially make it so that for a given situation, randomization isn't feasible. There are several potential reasons for this (JPAL, 2010. 'When is Randomization

Not Appropriate’): when the study involves evaluating macro-economic policies in which many factors cannot be controlled for; when there are ethical issues involved because, for example, there is prior evidence that the treatment is effective; if conducting the study is not cost effective; if the experimental conditions will be significantly different than normal conditions so as to undo external validity; when there is evidence that the treatment will change over time; or if you know that the sample size will be too small.

There are potential limitations to randomized evaluations that occur post randomization as well (Duflo, Glennerster and Kremer, 2008): when the probability of selection to the treatment is dependent on the strata, or group, that someone is in; if there are issues with compliance, i.e. after randomization researchers the treatment and control groups do not comply perfectly with the demands of the study; when there are concerns that externalities may come into play, for example if the control group is affected by the treatment because of spillover effects; or if there is attrition during the study that is correlated with the treatment, meaning that outcome data for some of the original sample cannot be accounted for.

Pre randomization limitations are ex ante restrictions on the feasibility of randomized evaluations. However, depending on the context of the evaluation, it is possible to perform certain calculations which can help address for the post randomization limitations (Duflo, Glennerster and Kremer, 2008). Of course

doing so involves assumptions, which, as was discussed earlier, limit the strength of the study. While there are limitations to randomization in practice, these limitations are a reality of all research. What is important to note in the end is that when it is feasible, and when post randomization limitations can be adequately addressed, randomized evaluations are the best option available for researchers who want to understand the effects of various treatments such as microfinance.

A Change in Tone

While the last thirty years of microfinance research has been lackluster, there is a growing chorus of support calling for the implementation of more statistically sound methodologies in microfinance (Duflo, 2006). It is a hopeful sign. As the research review mentioned, there have been two random evaluations conducted in the last few years that have answered this call, with others on the way. Banerjee, Duflo, Glennerster and Kinnan (2009), together with Karlan and Zinman (2009), found some surprising results using the first randomized evaluations of the sort. As mentioned in the study review, the randomized supply of microenterprise credit in Manila found several interesting things (Karlan and Zinman, 2009): those assigned the treatment, i.e. credit, did borrow more, signifying that those rejected don't simply turn to other informal mechanisms; those assigned the treatment found more ways to access other

credit, allowing them to substitute away from insurance, meaning that money traditionally used for insurance could be put towards other uses; results showed increases in profits for higher income males despite the fact that they shrunk their business by shedding workers; these profits went towards sending the young to school; increases in profits were not reported for women, the traditional recipients of microcredit; lastly, they found that increased access to credit was associated with a slight, but insignificant decline in well being, not an improvement. They suggested that "microcredit works broadly through risk management and investment at the household level, rather than directly through the targeted businesses". The latter study, which saw the expansion of microcredit operations into half of 104 Indian slums which previously didn't have formal credit, also found some interesting results (Banerjee, Duflo, Glennerster and Kinnan (2009): no effect on average expenditure per capita, but increases in durable purchases in the treatment areas presumably for those starting new businesses, which increased by one third; they found no effect, however, on measures of health, education, or women's decision making.

These randomized evaluations, like other studies, had their own shortcomings (Rosenberg 2010). The Manila study did not look at whether there were outside factors driving their findings that male incomes were higher, for example if it were another factor like education or social opportunity which was the cause. The study in India did not provide very comprehensive questions in the measurement of their outcomes, and both studies reported data less than 18

months after observation, leaving room for revision. Additionally, the studies could only make claims of internal validity. But this should not discourage us. As was mentioned, randomized evaluations have limitations as well, even if they are the gold standard. The external validity problem is not unique to these studies, it is a reality of research. Similarly, the criticism that the questions were not comprehensive enough could be said about any study--as one of the researchers astutely noted, understanding the effects of microfinance is "complex, and hence it is important to measure impacts on a broad set of behaviors, opportunity sets, and outcomes" (Karlan and Zinman, 2009). No study can ask all the questions in all the situations. What these studies have done is contribute to a body of knowledge that, when built upon, will help us better understand exactly how it is that microfinance affects people's lives, and under what conditions. This is exactly what microfinance needs, even if it is a couple decades overdue.

Reacting to Research

In light of findings which show the weaknesses of alternative methodologies, the international aid community should heed the dangers of applying resources and taking large scale action in response to only theoretical, anecdotal, and quasi-experimental case study evidence. The section juxtaposing experimental and quasi-experimental methods was intended to show that randomized

evaluations, even with its aforementioned limitations, are most resistant to the dangers of biases and flawed assumptions, a concern of utmost importance in microfinance and nearly all fields of social science. (JPAL, 2010. 'Why Randomize'). From a political perspective, it is incumbent on policy makers to respond to the results of the best evidence, for any method of poverty alleviation or economic development that they choose to put significant resources into. As the research review has shown, there are examples in various fields in which quasi-experimental methods have arrived at different conclusions than randomized evaluations. And when a randomized evaluation is at odds with the results of a quasi experiment, there is very little debate about which results to believe (JPAL, 2010. 'Why Randomize'). These examples are not intended to show that microfinance is a bad thing; I don't have the ability, or desire for that matter, to make such a claim. They are intended to show that the way microfinance has developed over the past several decades is indicative of irresponsibility on the part of some of the most influential people and organizations on the planet.

As was noted, randomized evaluations are not the perfect method of experimentation, and they have different strengths and weaknesses, suggesting that the "optimal research portfolio from the point of view of policy should blend the two (experimental and quasi-experimental studies)" (Roodman and Morduch, 2010). As my study review has shown, though, the research portfolio as of now looks nothing like a blend of the two. Rather, it is a portfolio of

basically all non-randomized evaluations save the two that I discussed in detail. To add to that, those who promoted a 'blended' research portfolio were quick to warn that "for non-experimental methods to retain a place in the program evaluator's portfolio, the quality of the claimed natural experiments must be high and demonstrated", something which only a handful of studies have done convincingly. The evidence in favor of an expanded role for experimental studies in microfinance is clear.

Why Didn't This Happen Earlier?

A common critique of randomized evaluation sheds light on why the portfolio is so lopsided in favor of non-randomized evaluations. Randomized evaluations are frequently perceived as more difficult to implement because they have traditionally been conducted on large scales, through large organizations, and with large budgets (Kremer, 2003). However, this is not the case. Researchers at the Abdul Latif Jameel Poverty Action Lab (JPAL) have shown that it is possible not only to implement randomized evaluations successfully, but also to do so in "the context of small NGO or pilot programs" (Duflo, Glennerster and Kremer, 2004). In fact, randomized evaluations can *decrease* costs by reducing the amount of work associated with ensuring that the treatment and control groups are statistically identical (JPAL, 2010. 'How to Conduct a Randomized Evaluation').

Even if it were the case that randomized evaluations are costly, the financial argument just doesn't hold much weight. Even if MFI's were hesitant to conduct full-fledged randomized evaluations because they were concerned that such projects would threaten financial sustainability, this argument wouldn't make sense for large international organizations. Development institutions like USAID or the UNDP have committed significant resources towards the expansion of microfinance (Ditcher, 2006), but, as the research has shown, they have not complemented the investment with statistically compelling research.

The time has come for a more nuanced and scientifically accurate understanding of the effects of microfinance. According to the Microfinance Information Exchange (MIX), the operating expense of *only* 1395 of the MFI's that they inspected was over \$13 billion (MIX, 2009). Donors continue to spend between US \$800 million and 1 billion annually on this ostensible panacea (CGAP, 2006), and the UNDP recently committed half of a billion dollars to expand its microcredit program in Africa (Ditcher, 2006). Even if microfinance is on the track towards financial sustainability, it is not there yet, which means a lot of money is being spent in subsidies to keep those afloat that need the assistance. More importantly, we are still not sure how to best provide the product because we don't yet fully understand its effects. In light of the scope that microfinance now enjoys, it is clear that we are well past the point at which the benefits of randomized evaluations will be tremendously significant for policy decisions in the world of microfinance.

While conviction regarding its efficacy and a laudable sense of generosity might lead us toward a continued investment in the proliferation of microfinance, it is important to scientifically examine these convictions. The risk is not necessarily visible in the failure of microcredit to better the lives of the global poor, but arises instead from the potentially dramatic opportunity cost associated with such a widespread operation. If there is a better way to approach microfinance, we will find it only if our sense of altruism is coupled with intelligence.

The studies that I reviewed regarding microfinance, and the investigation of experimental versus quasi-experimental methodologies were intended to accomplish my first goal of the paper--to show that the scaling up of microfinance over the last three decades was done without much regard for rigorous scientific inquiry. However, as I mentioned in the introduction, I understand that this type of critique does not serve to ameliorate the condition of the global poor today. I am of the mind that an investigation of microfinance, or any means to improve the lives of the poor, should not merely criticize. It should pair critiques with solutions. Otherwise, the inquiry will be interesting, but useless. As such, I will move forward and propose how randomized evaluations in microfinance can create a better product for borrowers, and how both loan manipulation and group meetings can be used to benefit the lives of microfinance recipients in innovative and alternative ways.

The Potentials For Randomized Evaluations

As I noted in the introduction, the same group of researchers who have been advocating for an expanded use of randomized evaluations have found that randomized evaluations are feasible on small scales and are no more costly than alternative approaches (Kremer, 2003). The opportunity for these randomized evaluations to take place, on both large and small scales, is greater than ever. Why? As was discussed in the second section, microfinance has recently seen financial sustainability become a reality among many MFI's. Prior to this, financial sustainability was the primary focus of MFI's because, though social goals were their end, financial sustainability was a means to that end. Even today this emphasis on financial performance is ubiquitous. A cursory glance at any of the annual reports of the biggest names in microfinance--Grameen, BRAC, and FINCA--all tell one story. It is a story of returns on assets, low delinquency rates, efficiency, and increasing outreach in a financially conducive way (BRAC, 2007; FINCA, 2007).

Data, however, on social performance indicators are essentially non-existent, which may seem ironic considering their primary goal is to improve the lives of customers. While there is surely no doubt that one of the reasons for this lack of social performance tracking has to do with the fact that there is a general assumption of effectiveness around microfinance (an understandable conclusion to arrive at considering the receptiveness of the customer base), financial

concerns have also played a part. Without the funds to stay afloat alone, it may seem ridiculous for an MFI to invest funds in tracking social performance. And for randomized evaluations, which NGO's might think are costlier because randomized evaluations have been traditionally "conducted by governments with multi-million dollar budgets", this hesitation to do good research may be even more apparent (Kremer, 2003). While the assumption is faulty, it does shed light on a potential reason for the lack of randomized evaluations thus far in the spread of microfinance.

With the realization of financial stability for a large majority of established MFI's, among other salient factors, social performance has recently been the focus of "renewed interest" intended to overcome the "lack of evidence about what is being achieved" (Foose and Greenberg, 2008). Two of the biggest names in microfinance, Grameen Bank and FINCA, have both developed poverty assessment tools for the microfinance community in order to help with the task of tracking social performance (CGAP, 2010). Large international organizations like CGAP and USAID have also joined the crowd with their own tools for MFI's to use (CGAP, 2010). If the dynamics of social performance tracking, which is being adopted by more and more MFI's, can build upon the foundations of randomized evaluations, I believe that the benefits for MFI's and their clients will be invaluable.

With social performance being tracked using random evaluations,

organizations can find out statistically sound ways to improve their product. Rather than making decisions according to generally accepted principles, organizations will instead be able to provide a product that they know is more effective than an alternative that they might have been inclined to pursue absent the data. And often, as recent randomized evaluations have shown, the results will be in contradiction to expectations (Duflo, Glennerster and Kremer, 2005). In order to help with this procedural transition, funding assistance and procedural guidance for MFI's can and should be given by the large international organizations that have the capacity to make randomized evaluations standard practice within the social performance tracking field (Duflo and Kremer, 2003). This more reflective conception of microfinance will simultaneously build up the body of statistically sound knowledge in the world of microfinance, while allowing MFI's to better suit their clients' needs. We have already seen examples in which higher quality research into microfinance has produced or is looking for unique and insightful policy implications that can do more to improve the practice of microfinance:

- Using randomized studies Gine and Karlan found that switching from groups to individual liability does nothing to decrease repayment rates. Having the opportunity to substitute the group-lending model, an unspoken tradition in microfinance, for an individual lending model, might get rid of certain pressures associated with group lending (Harper, 2007). In fact, their finding, that the individual lending model attracted more new

clients, suggests that this is the case (Gine and Karlan, 2007).

- There seem to be potential benefits to restructuring loan design and repayment in order better suit the needs of a client whose income is not completely consistent. One of the complaints of microfinance is that it is often considered too 'rigid' by borrowers (Karlan and Mullainathan, 2009). This is a trait often considered necessary for doing business as it provides structure to an MFI's operations. But what happens when the borrowers' income is not structured? What if they don't get checks every two weeks? This is the reality for nearly all microfinance clientele. Consequently, those with less secure incomes are structurally limited to certain types of loans, conditional on what they know they can pay back according to the loan schedule. Perhaps microfinance can benefit from reevaluating this adherence to rigidity. Perhaps they can accept a \$25 repayment one period, and a \$100 repayment another once a client shows her or himself to be reliable. While the study is ongoing, the findings might allow for borrowers to take out larger, potentially more productive loans.
- In response to evidence that the ultra-poor appear to be less successful at making use of microfinance, researchers are investigating whether providing income-generating assets to the ultra poor can help them utilize their loans more effectively. Instead of using the loans to take care of

necessities, or large financial expenses, they want to know if such assets can provide borrowers with a long term source of more secure income that might not be purchased otherwise (Banerjee, Duflo, Chattopadhyay and Shapiro 2006).

- As discussed earlier, one of the few randomized evaluations found that treatment effects for microfinance participants were strongest for male and higher income entrepreneurs (Karlan and Zinman, 2009). Additionally, another randomized evaluation found that access to microfinance had no effect on female self empowerment (Banerjee, Duflo, Glennerster and Kinnan 2009). Both of these findings go right in the face of microfinance as they point to benefits for wealthier individuals (among the poor) and men as opposed to the traditional targets, women and the destitute. These findings serve to suggest that there might be ways to have greater effects in ameliorating poverty, or that we should think of other ways to empower women through microfinance.
- In Peru, researchers measured the impact of providing business education to clientele using a randomized evaluation (Karlan and Valdivia, 2005). According to their findings, the impacts were "significantly positive" as sales were 15% higher in the treatment group, and 26% higher for the same group during so-called 'bad months' when sales were expected to drop. The

treatment group was more likely to keep accounting records and reinvest profits into the business. Surprisingly, the largest effects were found for those who showed the least interest in training.

Inquiries like the ones made above, done using randomized evaluations when they are appropriate, can provide microfinance with a better blueprint for how to improve the lives of the poor. It is important to remember that the question isn't only 'does microfinance work'. The question is many times 'what type of microfinance works and for whom'? There are different ways to provide credit to the poor. And without a statistically sound way of investigating these variations on the provision of loans, we may miss out on providing the best possible service to the poor. Now is the time for the microfinance world to find out exactly what that service looks like and how it can work in different contexts: MFI's are on the road to financial sustainability, there are more resources that can help them track social indicators, and there is a renewed interest in measuring social performance. If these three factors are complemented by the utilization of randomized evaluations, microfinance will be a tool with far more potential than it has today.

Applying Randomized Evaluations to Loan Manipulation and Group Meetings to Transform Microfinance

The third goal of my paper is to show how and why microfinance is uniquely situated to directly impact the lives of borrowers outside of the mere provision of credit. The idea is simple, and it involves using two salient characteristics of microfinance: loan manipulation (which includes interest rate, loan maturity, and loan size manipulation) and group meetings (group meetings are different than group lending, which I mentioned earlier; MFI's that provide individual lending still hold group meetings). Even though interest rates, loan maturity, and loan size manipulation are three separate concepts, they all serve the same purpose in this context--to use demand for credit in order to achieve better outcomes for borrowers. Loan manipulation can be used not only as a bargaining chip, but also as a way to maximize profits and ensure financial sustainability for MFI's. While maximizing profits might seem pernicious if profits are made for profits sake, it can be a good thing when done for beneficial purposes.

Let us assume that the goal of an MFI is to improve the condition of the lives of their customers. If this is the case, which it is for nearly all MFI's, then we can see how manipulation of interest rates, loan size, and loan maturity can help borrowers in the long run. Firstly, maximizing profits for an MFI will help ensure sustainability. Once that has been established, maximizing profits can allow an

MFI to have more resources with which to help the poor. Imagine that an MFI was getting a 5% return on its investment. Then imagine that it decided to engage in randomly evaluating price manipulation in order to find out what the optimal interest rate would be if it wanted maximize profit. Following this investigation, let's assume that they were now able to get a 10% return on their investment. With this extra money, an MFI would essentially have a bargaining chip with which to incentivize customers to engage in beneficial activities. For example, a lower interest rate could be offered to those who agreed to send their children to school, or practice health improving behaviors, or put money into a savings account. In this way MFI's could engage in promoting a wide range of beneficial actions that, for one reason or another, borrowers might not practice. While this may seem paternalistic, it is important to remember that an operating philosophy of microfinance and the free market is that people only go into transactions that are welfare generating. Borrowers will comply with contingencies if they believe that it is good for them.

This same premise could be used for both loan maturity and loan size manipulation. With demand for alternative loan sizes and payback schedules, MFI's could similarly incentivize customers to pursue welfare improving behaviors that are often ignored.

The question might be asked, 'isn't this just a subsidy'? While this may seem like a subsidy, and while it has features of a subsidy, it is not. The

difference between the two is that the 5% increase in returns is associated with welfare generating activity, namely the provision of loans at a price that is still willing to be purchased by borrowers. Assuming that transactions are welfare generating, the sine qua non of microfinance, MFI's can generate wealth while producing utility, as opposed to subsidies, which can't. Despite the benefits of engaging in randomized evaluations to optimize elasticities and incentivize better habits, "there is little direct evidence on the price elasticity of credit demand in poor communities" (Dehejia, Montgomery, and Morduch, 2009). Some MFI's, such as Grameen Bank, have made it a point to try and learn from their past and provide a product with mutable interest rates, maturity lengths, and loan sizes (Grameen Bank, 2010). Their final product was a program called 'Grameen II'. However, there are two important things to note: this was not tested randomly, and it was not done in order to maximize profit and encourage positive behaviors among borrowers.

Though Grameen has begun to experiment with these issues, the potentials of these types of innovations within microfinance have received little attention in the academic world, and even less within MFI's. Despite this dearth of investigation into the topic, there is a general sense among the few investigations that "it is feasible, and in the interest of many MFI's, to use randomized controlled trials to optimize contracting strategies with respect to profit and/or targeting objectives" (Karlan and Zinman 2008).

The other aspect of microfinance that has tremendous potential is the utilization of group meetings and social capital of microfinance to ameliorate the lives of the poor. Unlike interest rate, loan maturity and loan size manipulation, there are numerous examples of this occurring within the world of microfinance. When one considers the fact that MFI's have almost all been started with the intention of helping the poor, it is no surprise that there has been an integration of microfinance with other welfare improving activities. Dunford (2002) describes the three strategies for the provision of services by MFI's: linked service delivery, parallel service delivery, and unified service delivery. The first and most common strategy, linked service delivery, involves the provision of services through two or more independent organizations operating in the same area. The second, parallel service delivery, is the provision of services by one organization, but by two programs within that organization. This is most common among the giants of microfinance such as Grameen, BRI, and BRAC who have the resources to have separate programs within their organization. The last type, unified service delivery, involves one organization and one program/staff, making it the least common, but effective for more rural populations.

The obvious benefit to integrating services in this way is that microfinance provides a unique social platform for large numbers of people to be addressed, educated, treated or serviced in a way that may potentially improve their lives. This can no doubt reduce costs as the travel and time demands associated with service delivery are often substantial, especially in the context of sparse rural

populations.

Some examples will help shed light on both the potential and realized benefits of using group meetings and loan manipulation in order to improve the lives of the poor outside the provision of credit.

- In one of the earliest examples of this integration between microfinance and service delivery, SEWA, an Indian MFI, started a program in which nearby medical students provided curative care and health education to clientele as a mandatory part of their training (Rose, 1992). In addition to this, they began a program designed to help mothers during pregnancy. SEWA connected women to an organization that provided prenatal services, and they themselves conducted training courses for local midwives. While the literature did not mention the economic efficiencies associated with these programs, and while they would need to be tested, the potentials for efficiencies seem to be there. The provision of services by medical students, along with the midwife training, was done without any need to go door to door or spread the word. They were able to take advantage of the simple the group meetings in order to ameliorate the health of the community.
- In Kenya, Miguel, Kremer and Thornton (2008) performed a randomized evaluation of a merit scholarship program that was designed to incentivize students to perform well in school. They provided students with grants

upon meeting certain criteria. The study found that the grants had a significant positive effect on test scores, student and teacher attendance, and other externalities. Researchers went directly to schools when distributing grants. However, it is easy to imagine how instead of schools, the rewards could be given through MFI's. Interest rate optimization could allow for MFI's to accumulate the necessary funds for grants that similarly rewarded educational performance among students. And, as mentioned earlier, it would not be a subsidy since it would be generating welfare. It could also be done through loan size or loan maturity manipulation. Additionally, researchers encountered some pushback from the local population when it came to implementing the study because of cultural divides. While this is not so apparent, and would need to be verified empirically, MFI's could potentially overcome this barrier since their relationships with local populations develop over time. Either way, it is a perfect example of how MFI's are in a unique position to use loans to incentivize positive behavior among clients.

- Freedom From Hunger (FFH), an international poverty alleviation agency that relies heavily upon microfinance for its mission, engaged in a program several years ago called Credit with Education. The program had a double bottom line of providing microcredit and holding health education sessions for borrowers. FFH was able to provide the educational sessions, which

were correlated with significant improvements in nutritional status and calorie intake for children, at very little cost because their unified delivery service model allowed them to take advantage of the group meetings (Dunford, 2002). Quality and financial self sufficiency were not compromised, while health ostensibly improved for those on the receiving end. While this was not tested randomly, the increased efficiencies associated with holding the sessions in conjunction with group meetings were recorded.

- With a clear picture of those who are not engaging in borrowing, perhaps because they feel they lack the entrepreneurial drive, or because they wish to avoid taking on debt, MFI's are in a good position to draw people into formal financial systems in other ways that may improve their lives, for example through subsidies (Cole, Sampson and Zia, 2009). This is a perfect example of how optimization strategies could be of use to the people that MFI's serve, even if they don't borrow. Engaging in something as simple as putting one's money in a formal savings institution can "greatly lower the transaction costs of accumulating liquid assets" (Gertler, Levine and Moretti, 2009). These types of actions should be investigated and encouraged since there is substantial evidence that the effects of saving are beneficial not only for monetary purposes. Poor individuals, with less predictable sources of revenue, are the least insured and, consequently, the

least protected against income shocks (Jalan and Ravallion, 1997). Thus, we see how encouraging something as simple as savings or insurance through subsidy can help people improve health during crises and keep consumption levels stable.

- A random evaluation in Nepal looked at the effect of menstruation education and the provision of sanitary products for girls on school attendance, attainment, self-esteem, and health, all of which appear to be affected by the social stigma surrounding the menstrual cycle (Oster and Thornton, 2009). In order to convince women to come with their daughters to a meeting, a subsidy was given. The potential for microfinance to become integrated with the study was readily apparent, especially in light of some of the results. Despite providing menstrual cups to the adolescent girls, school attendance did not increase for girls as researchers had expected. However, almost half of girls reported that they missed class because of cramps. An MFI working on these problems would be able to do several things to improve many indicators. Firstly, they could be a distributor of medicines to relieve cramps, either through direct purchase or interest rate manipulation, in order to encourage school attendance. Or, they could distribute menstrual cups, which were received very well by the treatment group. They could also manipulate rates in order to bring borrowers to meetings on the topic. Or, they could just hold the meeting

subsidy free by taking advantage of the group meetings that are already in place. Additionally, group meetings could be the setting of discussions that brake down the pernicious stereotypes associated with the menstrual cycle.

- Thornton (2006) investigated the demand for and impact of learning HIV status in Malawi. No microfinance organizations were involved, but the potential for them to contribute to the project was huge. Firstly, when given the opportunity to take a free HIV test, Thornton found that "barriers to obtaining HIV test results can be easily overcome by offering small cash incentives or by reducing the distance needed to travel for the results". Microfinance is uniquely situated to introduce a level of efficiency to address both of these barriers. As has been discussed, it can provide the equivalent of cash incentives via loan manipulation, all while generating welfare. It can also overcome issues of distance by bringing results to group meetings that are taking place anyway, thereby getting rid of another barrier to learning one's HIV status. While subsidies were able to help incentivize the learning of HIV status, and while learning status was correlated with an uptake in condom purchases, Thornton concluded that a better intervention might be necessary because of cost effectiveness. According to the study, the cost of door-to-door testing was high--\$44.06 per person. However, this number could no doubt be lowered if group meetings were taken advantage of and were set as the site of tests, a benefit

that would be even greater for rural populations. On top of that, meetings could be the site for condom distribution and healthy discussion about the benefits of condom usage.

These are just a few of the examples which show how microfinance can improve lives outside the mere provision of credit. Specifically, those interested in pursuing poverty alleviation in a more efficient and resourceful way could look to group meetings and loan manipulation in order to make a broader impact. For example, as mentioned above, HIV/ AIDS testing could be randomly integrated into the programs of various microfinance institutions in order to see if testing at group meetings could bring costs down. Or, an MFI could begin randomly assigning various interest rates in different regions in order to find an optimal interest rate. Then, using that increased profit, they could begin providing incentives to the same borrowers to send their children to school. Researchers could then examine the effects of this strategy on the lives of borrowers and their children and to see if there was a positive impact.

Any of the suggestions above are only suggestions, and their efficacy has little value in the world of theory. When these potentials are coupled with the statistical strength of randomized evaluations, which have been shown to be feasible on small scales, microfinance appears to be an extremely promising tool to improve the lives of the poor. Hopefully the international aid community will learn from the shortcomings that the field of microfinance has suffered in the

past, see this potential, and pursue it.

Conclusion

So, does microfinance work? I would say that it does. And even though we don't have the statistical backing right now to make such a claim, the truth is that it probably doesn't matter. What does matter is that microfinance is here to stay. With this in mind we should recognize that "business outcomes are not a sufficient statistic for household welfare, nor even necessarily the locus of the biggest impacts of changing access to financial services" (Karlan and Zinman, 2009). Statistically speaking, randomized evaluations are the most effective tool we have to uncover what these other outcomes are and under what circumstances they appear. Moreover, they can be implemented in coordination with pilot programs, small NGO's, and large organizations (Duflo, Glennerster, and Kremer, 2005). When one considers the potentials of microfinance beyond mere lending, in the context of group meetings and loan manipulation, the potentials for randomized evaluations of microfinance becomes significant.

I, along with many others, am an individual who hopes microfinance can ameliorate the lives of the destitute. I do not want to put time, money, and resources into its expansion because it makes me feel as if I am fulfilling a moral obligation. I do not want microfinance to expand because intuition tells me that it

works. I want microfinance to expand if and only if the best scientific evidence available tells me that it actually improves their lives. Otherwise, we risk throwing away the time, money and resources that could have been invested in more proven methods of aid. Since microfinance is expanding regardless of whether I want it to or not, I hope that it is done so in a way that deference towards scientific inquiry, combined with action, brings the world a version of microfinance that is best suited to improving the lives of those less fortunate than us.

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