

The Case for Social Investment in Microcredit



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EXECUTIVE SUMMARY

There are strong arguments for continued investment in microcredit.

These arguments are based on, not in contradiction to, the recent evaluations of microcredit impact. That the average impact of access to microcredit is modest is not in serious doubt. However, every evaluation of the impact of microcredit shows that there are people who benefit, and that most borrowers, when lenders behave responsibly, do not experience harm.

Comprehensive research on microfinance and subsidy shows that virtually all microfinance institutions are subsidized, but these subsidies are small.

There are two clear paths for increasing microcredit's impact through continued investment:

- » Lowering the cost of microcredit by lowering operating cost or increasing subsidy
- » Boosting the impact of microcredit through innovations such as better targeting (by identifying borrowers most likely to benefit) or better "products" (which more closely meet the needs of borrowers)

This paper particularly focuses on the latter.

Investors must take into account several additional considerations:

- » **Absent continued investment, little innovation is likely to happen**, and microfinance institutions are likely to move away from poor borrowers
- » Infrastructure like the MIX, Smart Campaign and MIMOSA have been crucial for the industry and customer protection and will require continued investment
- » Context will matter a great deal in determining the suitability and expected outcome of specific innovations
- » Simply investing in microfinance institutions is not sufficient to yield necessary innovation

Introduction

There are many dimensions microcredit can be judged on. It is the only social investment to reach global scale (200 million borrowers, 500+ “investable” organizations in more than 75 countries). It is the only social sector to build a complete infrastructure (e.g. capital and information intermediaries). It is the only social enterprise to tap into commercial capital on multiple continents. Indeed it is the only social sector to produce enough profit to generate actual controversy over the returns to social investment.

Still, the promise of microfinance, the dimension most relevant on which to judge it, is to materially and measurably improve the lives of borrowers. Social investors flocked to the sector not just because there was infrastructure and not just because there seemed to be a profitable or at least a self-sustaining business model, but because investors believed (based primarily on inspiring anecdotes, but also some early research) it was having a large effect on borrowers, allowing many to escape poverty.

For at least a decade the news on that critical measure has gotten steadily worse. As microfinance scaled up, it increasingly failed to pass the eyeball test: villages and regions weren't being transformed; most microenterprises were not in sectors that could plausibly generate the kind of returns to capital necessary for widespread poverty impact; indeed, most microenterprises were obviously not growing.

After some early academic work measuring the impact of microfinance showed significant gains for microfinance borrowers in Bangladesh, there was a dearth of additional credible research from other contexts. Instead, the conclusions of that early work were called into question. Finally, the results of rigorous evaluations of microcredit in a variety of contexts began coming in.

Six of these evaluations were published together in the spring of 2015. All pointed to similar conclusions: the average microcredit

borrower saw very modest gains from access to credit. The findings were consistent whether in urban India, rural Mongolia, (relatively) wealthy Bosnia, poor Ethiopia, or among women in Mexico or men in Morocco.

The impact evaluation results were published roughly 35 years after the Ford Foundation launched social investment in microfinance by creating an \$800,000 loan guarantee fund for Grameen Bank. Unsurprisingly, the combination of time and disappointment has caused many social investors to ask whether it is time to move on from microfinance (the lack of scalable alternatives notwithstanding).

The answer is no.

There are strong arguments for continued social investment in microfinance. These arguments are based on—not in contradiction to—research, including the recent impact evaluations.

Understanding the Microcredit Impact Evaluations

While it's increasingly common to hear and read phrases such as “the research shows” or appeals for evidence of impact, far too often these statements oversimplify research or reflect a naïve understanding of evidence. Research on complex topics like poverty is almost never going to yield simple and unequivocal answers. Drawing conclusions from research requires understanding individual studies beyond a simple binary answer. The case for continued social investment in microfinance begins in delving deeply into the research on microcredit impact.

Prior to the publication of the randomized evaluations of expanding access to microcredit in the spring of 2015, the most well-known academic study of the impact of microfinance was done by Mark Pitt and Shahid Khandker using data from Bangladesh. This work was heavy on statistics, attempting to compare the

outcomes of borrowers with just under a half-acre of land to people from the same or similar villages who were ineligible for loans because they owned more than a half-acre of land. The Pitt and Khandker work suggested that there were large differences in outcomes between those that got access to loans and those that didn't: borrowers were able to increase income and consumption. Extrapolating from those results yielded a widely publicized estimate of the percentage of borrowers who could escape poverty as a result of access to credit.¹

Until the recent randomized trials, then, there was little reliable evidence about the impact of microcredit. But just as with the Pitt and Khandker work, the results of more recent impact evaluations deserve scrutiny. The graphics on pages six and seven provide an overview of the contexts and results.

There are ten impact evaluations of microcredit in ten different countries that used randomization to ensure that comparisons between borrowers and non-borrowers are credible. While there are of course significant

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Analysis of the data behind the best-known study published prior to 2015 of the anti-poverty impacts of microcredit shows that many borrowers were better off than originally thought, making it difficult to make meaningful comparisons between borrowers and non-borrowers.

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Shortly after that paper was published, however, other researchers delved into the data and raised questions. After nearly 15 years of back and forth over the statistics involved, two things became clear:

1) While there was technically a rule that borrowers with more than a half-acre of land were ineligible to borrow, field staff did not follow this rule and many borrowers were better off than originally thought making it difficult to make meaningful comparisons between borrowers and non-borrowers.

2) The gains seen in the data were the result of a handful of households who did much, much better than others, and if they were not included there was no apparent gain from borrowing.²

It is important to understand that the revised perspective on the Bangladesh study is not that there was no impact on the group of women that were studied. It is that the data and context of the study mean that no definitive conclusions can be drawn. We simply don't know from this data whether there was an impact on incomes or consumption.

differences between each of the studies in terms of context and even the exact product offered, the results are consistent in showing that the average impact is modest. Only two found measureable increases in consumption, and three found consistent gains in revenue or income. Even where gains were found they were well short of what would be required to achieve meaningful reductions in poverty.³

There are important nuances to these studies. There are three particularly important points that everyone should understand:

- » These evaluations measure the impact of increased access to microcredit, not the impact of microcredit when it is (or was) first introduced.
- » The headline results report the average impact of access to microcredit across the entire group of potential borrowers. Take-up rates for microcredit and the average impact are too low to reliably estimate the impact only on those who take loans.
- » There was meaningful variation within the average impact and indications that some borrowers, particularly those that already had businesses, saw significant gains from increased access to credit.

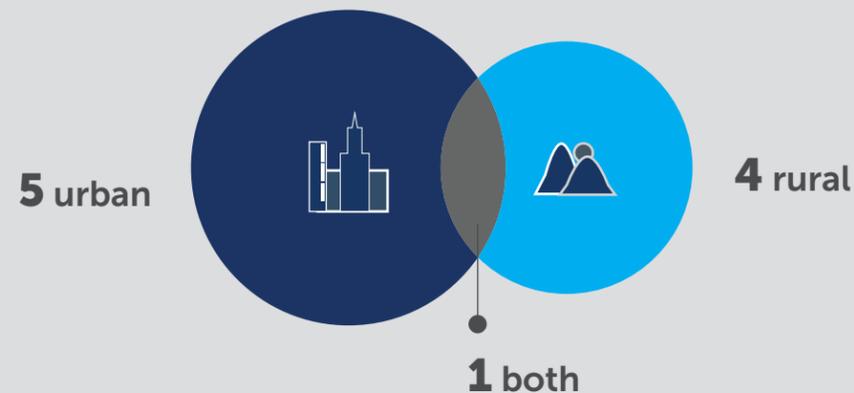
WHAT WE KNOW SO FAR

from 10 randomized control trials (RCTs)
about the impact of **microcredit**

WHERE



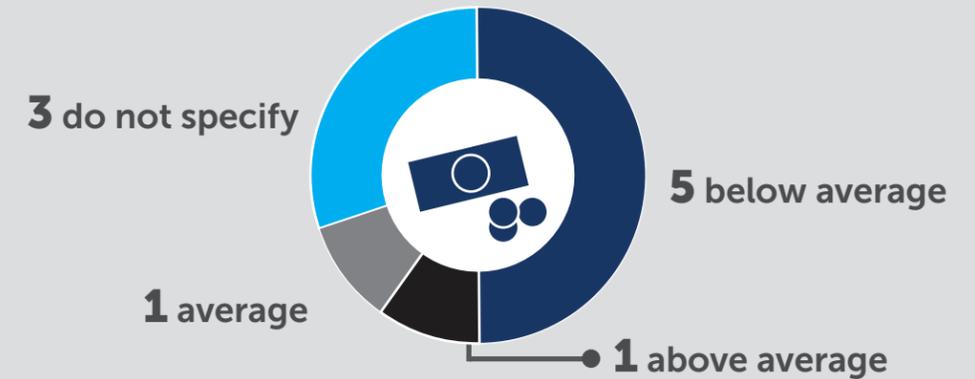
CONTEXT



WHO - GENDER



WHO - INCOME LEVEL



RESULTS

		REVENUES	INCOME	CONSUMPTION
1	Mexico	Increase	No change	No change
2	Morocco	Increase	No change	No change
3	Bosnia-Herzegovina	No change	No change	No change
4	South Africa	No change	Increase	Increase
5	Ethiopia	No change	No change	Decrease
6	Uganda	No change	Mixed	No change
7	Pakistan	No change	No change	No change
8	India	No change	No change	No change
9	Mongolia	No change	No change	Increase
10	Philippines	No change	No change	No change

These three points do not undermine the validity and usefulness of the impact studies. The studies are relevant to the first order question about ongoing investment in microcredit: does the continued expansion of microcredit in the manner and form in which it has been expanding yield measurable reduction in poverty? Answering that question definitively does not answer other important questions about the impact of and future of microcredit.

For instance, averages are important when evaluating microcredit as an intervention. But an average impact can also obscure important information about how much the impact of a program varies from person-to-person. A modest average impact can hide that some borrowers are deeply harmed or that some borrowers gain a great deal, or both.

Had the average results been strongly positive, many would have concluded that rapid expansion of access to microcredit was appropriate. Without delving into the details of the findings, that conclusion would be wrong. Similarly, concluding that microcredit “doesn’t work” because the average impact is modest is wrong.

Those conclusions would only be appropriate if there was negligible variation between borrowers and estimates of impact were within a small range. A close look at the results shows that this is not the case. Some borrowers do in fact see marked gains from borrowing. It’s also critical to note that there is little evidence of significant numbers of borrowers being harmed.

A more accurate conclusion from these studies would be: if you continue to expand microcredit access to additional borrowers without any alterations to the product or client selection, you should expect that the average impact will be modest, but there is little danger

of harm (provided that there is not rampant oversupply of credit as has been seen in some countries).ⁱ

Thus, practitioners and investors need to know more than the average impact and more than the answer to the specific question about the impact of continued expansion. It is crucial to understand that there was meaningful variation within the results; that some borrowers are able to put credit to good use, grow their businesses and increase household consumption; and therefore, that the impact studies provide good reason to alter the status quo, not just stop it.

Putting the Impact Evaluations in Perspective

Even understanding that there were groups of borrowers who showed material benefit from access to credit is not sufficient for drawing conclusions about next steps. Since the six most well-known evaluations were published, two additional working papers have been released that provide important insight for interpreting the results of other microcredit impact studies.

First, a group of researchers involved in the microcredit evaluation in India continued to follow-up with the participants in the research (during that time, the Andhra Pradesh microcredit crisis occurred leading to a drastic reduction in microcredit). The researchers find that borrowers who had already started businesses before gaining additional access to microcredit through the program see large gains from borrowing for a few years, and that these gains persist even after they are no longer able to borrow due to the AP crisis. Borrowers

i. The question of harm from microcredit is a difficult one. Clearly there are some instances of coercive and predatory practices on the part of some lenders that directly, and physically, harm borrowers. However these cases are similar to the instances of microcredit success. While real they do not allow for any systematic conclusion about microcredit, or in many cases even about a particular institution. Indeed, one of the reasons that regulators are more lenient about regulating lenders than about regulating deposit-taking institutions is that the consequences of poor lending decisions are primarily borne by the lender, not the borrower—especially in countries without strong credit reporting.

who were induced to start a business by gaining access to microcredit do not see gains from borrowing and are indistinguishable from non-borrowers.⁴

This new research provides important insight into distinguishing who benefits from increased access to credit. While confirming that some borrowers are able to use credit to grow their businesses is important, it is only useful when it is possible to determine who those borrowers might be before making loans.

Second, some of the same researchers took advantage of the AP crisis' effect on the availability of credit across India to measure something that the impact evaluations could not: the impact of microcredit on wages for

market, pushing down wages for everyone; conversely, making microcredit available has positive effects for non-borrowers who see their wages increase. Again this finding reinforces the concept that there are borrowers capable of growing their businesses, but that many borrowers use microcredit to start business that are simply alternatives to wage labor. These borrowers don't see substantial gains compared to non-borrowers because wage rates rise when they exit the labor market.^{ii, 5}

Importantly, this insight also aligns with the findings of research on interventions other than microcredit. There have been a number of evaluations of the effect of providing microenterprises with "grant" capital—either

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non-borrowers. It is possible that the effects of microcredit are muted because while borrowers benefit, there are also benefits that accrue to an entire community, including non-borrowers. Since the six evaluations of microcredit published in 2015 all are measures of expanding access to microcredit in areas where microcredit was already available to some borrowers, these evaluations are not able to measure what are known in economics as general equilibrium effects.

In this new work, the researchers take a look at what happens to wages in areas (outside of Andhra Pradesh) where there is a large decrease in the availability of microcredit as a result of the AP crisis. They find that in these areas there is a decrease in casual labor wages, which leads to decreases in consumption. The strong indication is that when microcredit is withdrawn, the less well-run microenterprises shut down and the owners enter the labor

in cash or in kind. These are gifts, not loans. In each of the cases (in Uganda, in Sri Lanka, in Ghana) there are significant differences within the population of recipients, with some showing large returns to capital and some showing no effect. In general, the differences appear to boil down to the opportunities available to, and the skills and motivation of the recipient. For instance in Ghana, the highest returns are shown by women who had the largest profits before the grants were received. In Uganda and Sri Lanka, the large returns were seen among businesses engaged in trades that were identifiable beforehand as having potential for growth and scale.⁶

Similarly, a number of evaluations of "Ultra-Poor" programs—a set of interventions targeted at households who are too poor for microcredit—found that there are substantial gains from the program, except in an area

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ii. From a pure economic perspective, while not measurable in an impact study looking for gains in income or consumption compared to a control group, this indicates that households do gain from access to microcredit. These households prefer running a microbusiness to wage labor (since they freely choose to do so) even if it does not increase their income, and access to credit enables them to make their preferred choice.

where wage labor was an important alternative source of income.⁷ In that context, participants in the program simply swapped labor earnings for participation in the program (or vice versa) and did not see gains typical in other contexts, where the options to switch between labor and “self-employment” were less available. The finding reinforces evidence from Morocco that found microcredit borrowers reduced their participation in the labor market, and therefore saw no net increase in income, and findings from other research that a substantial portion of borrowers do not use loan proceeds to invest meaningfully in their businesses. It’s clear that many borrowers are not motivated to be entrepreneurs and grow their businesses but are simply trying to generate income and manage their financial lives through whatever means are available.

That being said, there is an emerging story that makes sense of much of the research and is well supported enough to guide future action.

It is likely that the majority of people who have access to microcredit are not frustrated entrepreneurs, as much of the early rhetoric around microcredit implied, but frustrated employees. As a consequence, the average impact of microcredit that only selects borrowers on likelihood to repay is likely to be modest.

Furthermore, absent reckless behavior by lenders, there is little reason to be concerned about harming people by making credit available through institutions with a pro-poor mandate (In every market there are going to be predatory financial services providers who exploit poor customers; that is not the

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Finally, while there aren’t impact evaluations of access to basic financial services, research such as financial diaries have clearly established that households desire access to reliable financial services, specifically tools to build up lump sums and to cushion against volatility.⁸ Thus even in the absence of measurable gains in business revenue or household consumption, borrowers often value access to credit and to microfinance institutions.

focus here). It’s worth noting that before the microcredit revolution, conventional wisdom was skewed toward “debt is bad for the poor.” A finding that you could massively expand poor households’ access to credit and not harm them would have been surprising and counter-intuitive. The modest average results from impact evaluations are disappointing only insofar as expectations changed radically from prior beliefs. Large-scale escape from poverty is not a reasonable goal and never was.

Drawing Conclusions

What can we then conclude from the impact evaluations of microcredit and other related research?

First and foremost, we can conclude that we do not yet have all the answers. Practitioners, investors, policymakers and researchers should be prepared to be surprised by new research in the coming years.

There was plenty of magical thinking around microcredit for many years. The emerging story is what most social investors would have believed absent that magical thinking: most microenterprise opportunities available to poor households do not generate large profits; given other constraints, running a business successfully is difficult and requires skills and effort; entrepreneurial talent, drive and opportunity is unevenly distributed in any population; if your primary client selection criteria is likelihood of repayment, your loan

ALTERNATIVE CHANNELS OF IMPACT

Appropriately, the focus of efforts to identify the impact of microcredit is on direct changes in the lives of borrowers. That was the original intent of microcredit. But there are other potentially important, though more difficult to quantify, channels for impact.

First, development economists have long recognized that lower-income countries lack mid-size companies and other organizations. More recently, economists have come to see the importance of the “technology of management.” Effectively managing even moderately complex organizations is a learned skill—and there are few ways to learn the skill in an economy that lacks dynamic mid-size formal organizations. If you consider “investability” as a reasonable proxy for “well-run” organizations, under conservative assumptions, the 500+ microfinance institutions in that category have collectively trained more than 50,000 people in the technology of management. And that training has been delivered at zero cost from social investors perspective given that most of that training happens simply by being in the job. The number of managers trained will continue to grow and those managers will spread through the economies of the countries they work in, amplifying the effect of their training (and transferring their knowledge to others).

Second, well-functioning countries and economies rely on demanding citizens and customers who expect to be respected and well-treated. For many borrowers, a microfinance institution is the first formal organization that has treated them fairly and with respect. In other words, microfinance institutions (at least those that put customer protection and customer service principles into action) have been training borrowers to be better customers and citizens by showing them how they can and should expect to be treated by other institutions. This isn’t a novel perspective on impact—it can be traced back to the Jewish scholar Maimonides, who reasoned that going into business with the poor was superior to most forms of giving because it treated them as equals and changed the perspective of both the giver and recipient.

Neither of these channels of impact are likely to yield measurable or noticeable impact in the short- or even medium-term. But they are worth considering as plausible additional ways that investing in microfinance institutions can have an impact.

portfolio is unlikely to be made up of borrowers with the most entrepreneurial talent and opportunity; a person with little entrepreneurial talent or drive is unlikely to rapidly grow their business. Given that expectation, microcredit’s substantial achievement is building out a platform to bring more than 100 million people formerly thought to be beyond the reach of formal financial services into the formal financial sector.

The bottom line is that microcredit is a compelling product platform to build on. It can be substantially beneficial to a minority of borrowers, and is likely to be modestly beneficial to others, especially in contexts where wage labor options are limited or there is little access to financial services (formal or informal).

The Other Side of the Calculation: Understanding Microcredit Subsidy

Choices in social investment are not one-sided, of course. Investors have to not only consider the effectiveness of an intervention, but its cost-effectiveness. Just as with microcredit's impact on poverty, there have been a great deal of unsupported claims when it comes to the cost of delivering microcredit.

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The claims that microcredit does not require subsidy, that it can be profitable and self-sustaining, that it can deliver market-rate returns on investment with no trade-offs, are too numerous to count. They are also difficult to challenge or refute given that there are so many different microfinance institutions, such diversity in structure (not just for-profit/non-profit, but also relationships with commercial banks or larger charities, etc.), such variety of business models and global scope.

Still, researchers at the World Bank particularly have done painstaking work to help document and understand the role of subsidy in microcredit delivery, and thus shed light on the cost-effectiveness of microfinance.⁹ This work has uncovered significant differences, for instance, in the types of clients served by for-profit and non-profit microfinance agencies. Non-profits tend to serve poorer customers and a higher proportion of women than their for-profit counterparts. Nonetheless, for-profits in total serve more poor customers and more female customers because of their greater scale.

Reviewing data from 1335 microfinance institutions, the researchers calculated the accounting profit (revenues less operating costs), the economic profit (revenues less operating costs less cost of capital at market rate) and the amount of subsidy being used. They found that while two-thirds of institutions generated accounting profit, as few as 18 percent generated an economic profit, which would make them truly self-sustaining. If social investors withdrew from the market, requiring microfinance institutions to self-fund through market-rate capital, less than a fifth would be able to do so without cutting outreach or raising rates.

Instead, most of the institutions were receiving a subsidy from social investors—**virtually all of it in the form of below-market rate debt or equity**. The subsidy, however, was quite small relative to customers served. The median institution used a subsidy of \$26 per borrower per year. To put that figure in context, it costs roughly \$2 per child to provide deworming medicine; GiveDirectly makes unconditional cash grants of \$1000 per household per year. The \$26 per borrower figure, though modest, is somewhat inflated due to very high subsidies at some commercial institutions. The amount of subsidy falls off quickly below the median.

The need for subsidy is a factor of the fixed costs of making loans. The median operating costs for loans is 14 percent of the loan amount. Non-profits have done better at reducing operating costs, despite, or perhaps because of, the fact they make smaller loans. As a consequence, for-profit institutions rely more heavily on subsidy than non-profit ones.

Subsidies are also long-lasting. Despite the rhetoric of microfinance institutions moving quickly to sustainability, the majority of

subsidy—just over three-quarters—was flowing to institutions more than 10 years old.¹⁰

The pervasiveness, but small size per borrower, of subsidies bolsters the case for investing in microcredit. With relatively low costs, even modest benefits from microcredit can yield very impressive cost-benefit ratios. But it also illustrates that serving poor customers is costly and there are limits to how much operating costs can be cut, particularly if there is an increase in the variety of credit products offered (as evidence suggests that there should). The drive to cut operating costs to reach self-sustainability goes hand-in-hand with the “cookie-cutter” approach to products and client recruitment and selection that has dominated the industry—and plays a role in the modest measured impact.ⁱⁱⁱ

The other important point to understand about microcredit subsidy is the likely behavior of institutions if subsidies fade out in response to perceptions of disappointing impact. Since subsidies are essentially off-setting high fixed operating costs, loss of subsidy will force institutions to raise costs for borrowers or shift to serve wealthier customers with larger loans.

Social investors now face a choice:

- 1) Withdraw funding for microcredit recognizing that it will mean higher costs or reduced access for poor communities
- 2) Sustain funding in order to maintain the status quo—recognizing that the potentially high cost-effectiveness ratios do at least in part justify maintaining the status quo, though expectations for overall poverty impact will have to be dramatically reduced
- 3) Fund innovation in microcredit recognizing that there is substantial potential to increase impact by building on the low-cost platform that the microcredit industry has built.

The rest of this paper will focus on this third option, particularly from the perspective of social investment funds and philanthropy (as distinct from development finance institutions).

The Innovation Investment Imperative

The path to increased impact is innovation. Innovation requires investment. It is inherently risky and almost always involves multiple rounds of experimentation and failure (meaning no profits or even losses) before profitable processes are discovered and refined.

Social enterprises in general and microfinance institutions in particular are ill-suited for funding innovation. As the above discussion of subsidy shows, the profit margins of current operations are not sufficient to cover most organizations’ true cost of capital. Profits are certainly not enough to fund innovation—particularly in an industry where even the existence of profit is often controversial. It may not be logical that profiting from lending is more controversial than profiting from other services (for instance, mobile telecoms), but the fact is that lending has been controversial in almost all societies dating back to ancient Mesopotamia. Raising interest rates enough to generate the surplus needed for risk-taking innovation is simply not on the cards for most microfinance institutions.

Significant innovation will only happen if it is funded by social investors.

Social investors also have a role to play in driving innovation in microcredit beyond just providing cash but playing this role also requires changing the norms of the social investment infrastructure. One of the reasons the microfinance industry has been able to attract so much capital is that there are

iii. Certainly there are differences from institution to institution but the primary way to drive down operating costs is standardizing the product and delivery. Beyond that, because of strong networks seeded by international organizations (like Grameen or Accion) there are many similarities between institutions.

widely accepted “rules-of-thumb” for judging the quality of institutions. In loan pricing, operational ratios, and repayment ratios, the conventional wisdom rewards avoiding risk and limiting costs. In other words, the prevailing measures of microfinance institutions that social investors pay attention to send a very clear message to executives: do not innovate.

Increasing the impact of microcredit will require new products, new operational procedures and perhaps even new business models. Testing these new products, procedures and business models will almost inevitably lead to higher default rates, higher operating costs and lower sustainability ratios in the short-term.

Social investors will need to adapt their mindset to drive innovation in microcredit.

Promising Channels for Innovation

While we waited for many years for rigorous evaluations of microcredit impact, there was a great deal of other research being done on microcredit in an effort to understand demand for and use of credit, and borrowers’ needs and preferences. While the indications from impact evaluations that some borrowers see gains from microcredit indicate one promising

channel for innovation, other research that has been overshadowed by the impact evaluations can also inform innovation (see Appendix for details of studies referenced in the following sections).

There are five promising channels for innovation to increase the effectiveness of microcredit. They are:

1) Targeting

This is the most obvious channel, but that makes it no less challenging. Targeting loans toward borrowers most likely to achieve high returns is the goal of every business lender (and venture capitalist for that matter) in every market—and boom and bust cycles indicate it is never easy. Still there are a number of possibilities for better targeting that bear exploring, from the mundane to the more speculative. As noted above, in the India microcredit evaluation, if the lender had focused on borrowers who had already started microenterprises, rather than encouraging the start of new microenterprises, the impact of expanding access would have been much higher. Similarly, targeting loans to particular industries that are likely to benefit from increased capital investment, while less exact, may also be a useful targeting approach. In each of the studies where grants were provided to microenterprise owners, male-

A MINDSET FOR INNOVATION IN MICROCREDIT

- » Drop the “no trade-offs” myth—outreach to poor customers is always going to be more expensive
- » Drop the “no subsidy” myth
- » Explicitly fund innovation—simply providing below market-rate capital will not be enough. Establish innovation-related metrics and hold organizations accountable
- » Blow up the theory of change—the standard microcredit approach is not going to yield large gains for the average borrower
- » Choose new theories of change to test

VACCINE OR ANTIBIOTIC?

To formulate a new theory of change, it's useful to consider an analogy to medicine: Is microcredit a vaccine or an antibiotic? Both vaccines and antibiotics are vital tools in the fight against disease but they operate very differently, and require completely different delivery models and processes to have maximum effect.

If you believe credit constraints are pervasive then it makes sense to inoculate entire communities. This would mean making microcredit easily available to limit the overall effect of credit constraints on the whole community recognizing that it would be difficult or impossible to identify who would be affected in the future. Note that in a vaccine frame it can be very difficult to identify the value of being vaccinated at the individual level—when herd immunity is achieved the value of vaccination to a particular individual will appear to be zero.

On the other hand, you may believe that credit constraints are not significant to large parts of the community (perhaps because they do not have opportunities to invest at a rate of return above the cost of credit) or that access to microcredit does not sufficiently relieve the constraint except when delivered at the right dose and at the right moment. If so, microcredit is more like an antibiotic than a vaccine. Making it easily available to an entire population without diagnosing the constraint and delivering the correct dosage would limit the benefits even for those who need it. If that is the case, it will be difficult to identify the impact of microcredit if it is widely available. The most important investment to make to improve effectiveness would be better diagnostic and targeting tools, even at the expense of reducing availability.

Both the vaccine and the antibiotic stories are plausible and concordant with current evidence. It's also possible that whether microcredit should be thought of as a vaccine or antibiotic varies from context to context. Thinking through the vaccine or antibiotic frame can help social investors clarify their theory of change and guide what areas of innovation to invest in.

led microenterprises in urban areas tended to have higher returns. The likely reason for this is that urban men were more likely to be running businesses with higher returns to capital and more scope for growth.

Another possibility is outsourcing targeting to third parties who have tacit knowledge of potential borrowers. For instance, one study found that using agricultural brokers to identify farmers most likely to use credit well worked better than traditional group lending models. The Entrepreneurial Finance Lab offers a different approach—using psychometric profiles to evaluate borrowers. EFL focuses on small and mid-size businesses rather than microenterprises, but the approach should theoretically work for smaller businesses. It may be the case, as is documented in developed

countries, that a single question can be a good predictor of which small businesses will grow: asking the owner how much she plans to grow. Small businesses owners who are able to answer the question with specific detail are much more likely to grow and hit those targets than people who aren't.

Finally some research has explored whether transaction patterns can predict business-owner behavior and likely growth. For example, a bank in India offered small business owners a transactional (current) account and then evaluated the transaction patterns in the businesses that were growing versus ones that were not. While many microfinance institutions can't accept deposits, those that can may find that using transaction data can be an effective targeting mechanism.

2) Product Design

One of the best kept secrets in microcredit is that the core product, a small loan that requires steady repayment beginning one week after disbursement is unsuited for business investment. At the very least it requires the borrower to generate free cash flow immediately. Another secret is that take-up rates for microcredit are generally quite low, less than 20 percent of eligible borrowers actually take out a loan. These two features go hand-in-hand. It's likely that the product design of microcredit loans discourages many potential borrowers who could generate higher returns if they did not have to begin repayment immediately from taking out a loan.

A test of allowing borrowers more time before beginning repayment by just two weeks increased the amount borrowers invested in their business and business profits. The product was canceled however, because while it was profitable for the MFI, default rates exceeded the thresholds set by investors.

Other product design innovations supported by research include working capital loans—delivered in-kind rather than in cash—and loans with payment cycles geared toward production cycles such as agricultural loans that defer repayment until harvest, or provide a grace period during planting season.

Outside the microenterprise-lending space, making loans specifically for the purchase of useful consumer goods has shown promise in a number of areas including loans for housing, solar power generation equipment, more efficient engines for motorbikes, and improved sanitation.

3) Lines of credit

Many of the people microfinance targets don't have reliable and predictable incomes or expenses. Traditional microcredit is built on the opposite premise with rigid rules about when you can borrow and when you must repay. More flexibility could be better for customers. Instead of providing a one-time loan, providers could offer lines of credit that allow customers

to borrow quickly or delay payments during an emergency. Lenders who have experimented with more flexible borrowing and repayment terms haven't seen defaults rise but have seen happier customers.

4) Business consulting and services

Running a business of any size is hard—and learning to run one efficiently via trial and error is unlikely to happen in many parts of the world. There are big potential gains in helping microentrepreneurs run their businesses better. Recent research has documented that there are business practices that make a large difference in microenterprise performance, predicting survival rates and sales growth in several different countries. Helping firms adopt these practices could have significant effects.

One study found large gains for shopkeepers from reminding them to keep enough change on hand; another from encouraging them to invest in more inventory. Another study found promising business benefits from teaching shop owners simple accounting rules-of-thumb.

To be clear, traditional business training—a few boring lectures in a classroom for a total of few hours of instruction—doesn't work. The traditional model can give way to innovative approaches like setting up peer-to-peer learning opportunities, deploying “business extension agents,” helping borrowers set up supply chain cooperatives, or even offering traditional business practice consulting.

Finally, there is emerging evidence that one factor holding back borrowers is aspirations. Borrowers don't plan to grow their businesses because they do not think it is possible. Working with these clients to raise their aspirations could induce them to take more steps to grow their businesses and generate higher returns.

5) Hybrid products

We generally think of financial products in very distinct buckets: savings, credit, insurance. But customers don't really think this way. They are

trying to solve problems, not consume financial services. The first day of business school, marketers learn that no one wants a 3/8" drill bit—what they want is a 3/8" hole. Microfinance could benefit from innovative packaging of financial products more closely attuned to customers' needs: a post-paid savings account; a virtual ROSCA; a permanent weekly payment that may be a savings deposit, a loan repayment or an insurance premium in any given week—or all three.

Lessons on Investing in Innovation

Use of the term "corporate finance" today is likely to call to mind complex financial instruments, credit default swaps, derivatives, initial public offerings and Goldman Sachs. That is particularly true in the social sector where many participants think of their activities as an antidote to the perceived evils wrought by corporate finance in recent decades. Misconceptions and ignorance of the origins and foundations of corporate finance come at a significant and increasing cost for the social sector however.

Investing in innovation raises important, though often unasked, questions. How can investors ensure MFIs will live up to their promises about investing in innovation? How can entrepreneurs protect their vision if it clashes with that of funders? When conflict between double-bottom line goals occurs, do managers or investors have the final say? When innovations deliver gains, who reaps the benefits?

Such questions all boil down to principal-agent problems, which are the foundations of corporate finance. How do investors ensure that executives use capital to further the goals of the investors? How do executives ensure that managers and front-line staff serve the goals of the enterprise?

There is a rich corporate finance literature that explores how various forms of financing influence the behavior of executives and

firms. There are compendiums of studies of the effects of debt versus equity financing, the role of metrics and reporting, the role of governance and so on—all written about for-profit firms, but clearly relevant to innovation in the social sector. Unfortunately this literature and knowledge has generally been neglected in social investment.

A short summary necessarily obscures nuance and details, but a quick overview of the options and considerations that social investors must consider may be useful:

In general, **equity** is used when an investor wants more direct oversight of strategy and the ability to directly enforce accountability. By owning shares, and especially joining a board of directors, an investor has some measure of authority and ability to challenge executives in their decisions or ensure that plans are being followed. The tradeoff is that the equity holder can lose all of their money if things go wrong, with very limited recourse. Making equity investments also requires more attention to the goals of other equity investors—which likely do not share exactly the same goals and timelines of other investors. With multiple investors providing "oversight of strategy" with mismatched goals, innovation efforts (and even operational survival) can be hamstrung.

Debt allows more discretion to executives—the executives' responsibility is to ensure loan repayments are made in full and on time, but the social investor trusts that the executives' methods for generating surplus for debt payments will be in accord with stated goals without needing additional oversight (or the lender simply doesn't care what methods executives use). The upside of this lack of authority over executive actions is that the providers of debt financing usually hold a binding claim on the assets of the firm and are somewhat protected from losses.

Grants, of course, provide neither the direct or indirect check on executive actions that equity or debt provide. Grants do have some ability to compel action however. First, there is the "dynamic incentive" of grants if there is the

possibility of future funding—executives know if they fail to take agreed actions they lose access to the future funds. Often grantmakers use this dynamic incentive within a single grant, by dividing it up into various tranches with the release of additional funds dependent on the grantee reaching defined milestones. The effectiveness of dynamic incentives is entirely dependent on the availability of alternative sources of funding. And grantmakers who *ex ante* make it clear that further funding will be unavailable essentially give up any power they have to hold grantees to account. Second, large grantmakers can insist on a being named to an organization’s board, providing some of the opportunity for oversight similar to equity.

Finally, particularly in the microfinance sector, there is another form of social financing that can resemble any of the three main forms, depending on how it is structured: **loan guarantees**. A loan guarantee, by absorbing risk, is usually used to lower the cost or increase the amount of debt financing available from other investors. Terms of loan guarantees vary widely and may resemble equity, debt or grants. Loan guarantees typically offer less influence or protection than equity or debt, but allow smaller investors to leverage limited funds and influence larger investors.

Smart Subsidy

Social investment is necessarily a subsidy—it must sacrifice some feature of pure profit-maximizing investment to earn the moniker “social.” There can be pure profit-maximizing investments in social enterprises, but such investments shouldn’t be considered social investment. The sacrifice that social investors make could take many forms, including lower or zero returns (compared to alternative investments), higher risk, longer timeframes, less liquidity, etc. The social investor is therefore lowering the market cost of financing for the social enterprise—in other words, providing a subsidy.

Subsidies purposefully change the signals the market sends, but subsidies do not necessarily

send the signal that the social investor desires. The form the subsidy takes—equity, debt, grants, loan guarantees—matters, but is not sufficient to ensure the right signals and incentives are in place. That requires aligning not only the funding form, but also structure, governance, process and metrics.

When alignment across these dimensions is reached, subsidy can be considered smart. Smart subsidy begins with a shared understanding of what would happen in the absence of subsidy. What actions or investments would the organization not undertake if subsidy was not available? Beginning with the negative can make it easier to reach clear agreement on the intent and specific goals of subsidy.

It’s useful to think of the goals of smart subsidy in four categories:

1. Experimenting
2. Extending
3. Multiplying
4. Demonstrating

1) Experimenting: Developing new models

Subsidy is critical to experimentation in the social sector. Research and development is challenging for non-profits and social businesses to self-fund: the benefits of R&D are enjoyed widely while the costs are borne by the innovator alone (in economic jargon, investment in innovation has a strong positive externality). This externality weakens any one institution’s incentives to invest in research and new product development, which leads to inefficiently low levels of R&D.

Funding for this type of work is almost never available from commercial sources, as the risks seem too high and the financial returns too uncertain (or impossible given regulations around various corporate forms).

Example: Piloting new credit products such as agricultural-cycle loans, or water & sanitation loans

Subsidy Form: Equity or grant, not debt

Metrics: Operational data

2) Extending: Scaling successful models

When experimentation proves successful – when new models have been developed, tested, and piloted with seemingly positive results for the targeted clients – an institution will generally seek to expand its operations. Expansion may be to new clients in the same markets, or to new locations. The purpose of subsidy for extending should be based on the desired speed and size of scaling. The product or organization in question may not be profitable enough to scale at the pace or ultimate size the social investor would prefer.

Example: Providing business training consulting in additional, or underserved, areas

Subsidy Form: Debt, Equity

Metrics: Operational data, quality measures, client outcome measures

3) Multiplying: Attracting additional investment

As noted above, the infrastructure of investment in microfinance has created pronounced rigidities in operational metrics that discourage innovation. Subsidy for innovation can be directed specifically to helping demonstrate the concept, capacity,

and impact on innovation in ways that attract additional social investors and help breakdown those rigidities. Attracting additional social investors to fund innovation in microcredit will allow innovation (and funding) to go much further.

Example: Investment in MFI with successful new products or models

Subsidy Form: Equity, Loan Guarantees, Grants

Metrics: Finance measures

4) Demonstrating: Documenting and disseminating lessons from successful innovation

Maximizing the gains from supporting innovation requires deliberate steps to evaluate and communicate lessons. Too often these steps are incomplete. To derive the full benefit of subsidy invested to develop public goods, the lessons learned (positive and negative) must be captured, analyzed, and disseminated to the broader field.

Example: Funding an MFI operations team to train other MFIs

Subsidy Form: Grants

Metrics: Take-up measures

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Appendix: Research Summaries

Targeting

Microcredit has generally been delivered with little effort to identify borrowers most likely (or least likely) to gain, instead focusing on targeting those most likely to repay. There is evidence that there are important differences among borrowers and that these differences can be identified before credit is extended.

S. de Mel, D. McKenzie, & C. Woodruff, "Returns to Capital in Microenterprises: Evidence from a Field Experiment," Quarterly Journal of Economics 123 (4) (2008): 1329-1372.

Providing randomly assigned grants to Sri Lankan microenterprises showed a relatively high average real return to capital, and also found that returns vary according to entrepreneurial ability and industry.

J. Bauchet, J. Morduch, & S. Ravi, "Failure vs. displacement: Why an innovative anti-poverty program showed no net impact in South India," Journal of Development Economics 116 (2015): 1-16.

This evaluation of an ultra-poor graduation model program by SKS in Andhra Pradesh, India found that the program led to income gains from investment in livestock rearing microenterprises, but showed insignificant net impacts due to substitution away from wage employment. Where wage labor is dominant and relatively lucrative, overall gains from microenterprise investment may be smaller; where the local labor market provides fewer opportunities for substitution, gains may be larger.

P. Maira, S. Mitra, K. Mookherjee, A. Motta & S. Visaria. "Financing Smallholder Agriculture: An Experiment with Agent-Intermediated Microloans in India," NBER Working Paper No 20709 (November 2014).

Offering loans to farmers selected by local traders yielded increases in farm income of 17 to 21 percent and had higher repayment and take-up rates than traditional lending.

M. Fafchamps, Marcel, D. McKenzie, S. Quinn, and C. Woodruff. "Microenterprise Growth and the Flypaper Effect: Evidence from a Randomized Experiment in Ghana," Journal of Development Economics 106 (2014): 211-226.

In Ghana, businesses owners were provided grants in either cash or in-kind. Female-owned subsistence enterprises show no gains from either type of grant, but larger, more profitable female-owned businesses gain from in-kind grants. Male-owned enterprises of all sizes seem to benefit more from in-kind grants than cash.

N. Fiala, "Stimulating Microenterprise Growth: Results from a Loans, Grants and Training Experiment in Uganda." Working Paper (April 2014)

Male-owned businesses with access to loans and training were able to grow, but female-owned businesses did not. One possible explanation is that the profits of women-owned businesses are appropriated by family and social networks.

A. Banerjee, E. Breza, E. Duflo, and C. Kinnan. "Do Credit Constraints Limit Entrepreneurship? Heterogeneity in the Returns to Microfinance." Working Paper. (September 2016).

Following up on the impact evaluation in Hyderabad, India, researchers find that microenterprises that existed before microcredit expansion maintain gains over six years, while new businesses show no gains.

Business Training

It is simplistic to think that an influx of financial capital is all that is missing in order for microentrepreneurs to flourish. Evidence from around the world shows that many factors contribute to business success and failure, but that there is significant scope for improving the practices of microenterprises.

D. McKenzie & C. Woodruff, "Business Practices in Small Firms in Developing Countries," NBER Working Paper 21505, (August 2015).

As with larger firms, there are management practices that predict the success or failure of microenterprises. These practices matter in a wide range of countries and contexts.

D. McKenzie & C. Woodruff, "What Are We Learning from Business Training and Entrepreneurship Evaluations around the Developing World?" World Bank Research Observer. 29(1) (2014): 48-82.

This overview of evaluations of business training and entrepreneurship programs shows that few have enough statistical power to detect impact and many programs don't provide enough training or provide it in a manner which would produce measurable effects during the evaluation period. In other words, there is room for much more experimentation in business training.

S. Anderson, R. Chandy, and B. Zia. "Pathways to Profits: Identifying Separate Channels of Small Firm Growth Through Business Training." World Bank Policy Research Working Paper 7774 (July 2016).

In South Africa, business training focused on financial practices or marketing/sales practices both had a positive effect on profits; but marketing/sales training was more effective for younger, newer businesses, while the finance training was more effective for older, more established businesses.

W. Brooks, K. Donovan and T. Johnson. "The Dynamics of Inter-Firm Skill Transmission Among Kenyan Microenterprises." Working Paper (August 2016).

When young Kenyan microenterprises are paired with an older, successful "mentor," profits increase mostly from finding lower cost suppliers and better inventory management. Oddly, these gains do not persist when the mentorship ends.

S. de Mel, D. McKenzie, & C. Woodruff, "Who Are the Microenterprise Owners? Evidence from Sri Lanka on Tokman v. de Soto," Policy Research Working Paper 4635, World Bank (May 2008).

Data from surveys in Sri Lanka shows that self-employed workers have little in common with larger firm owners in terms of background, ability, attitudes, and risk aversion, suggesting that most microenterprise owners are unlikely to grow their businesses and providing support for the idea that financial capital is not the only constraint to microenterprise expansion.

M. Bruhn, D. Karlan, & A. Schoar, "What Capital is Missing in Developing Countries?" American Economic Review: Papers & Proceedings 100 (May 2010): 629-633.

Managerial capital, distinct from human capital, is a critical but under-recognized and under-researched input for firm productivity, profitability, and expansion in lower-income countries.

L. Beaman, J. Magruder, & J. Robinson, "Minding small change among small firms in Kenya," Journal of Development Economics 108 (2014): 69-86.

Lack of small change to break larger bills lead to losses of 5-8% of total profits among micro-enterprises in Kenya; increasing the salience of running out of change and quantifying the associated sales losses both led to improvements in change management and lost sales.

X. Giné & G. Mansuri, "Money or Ideas? A Field Experiment on Constraints to Entrepreneurship in Rural Pakistan," *World Bank Policy Research Working Paper 6959* (June 2014).

An experiment in rural Pakistan found that increasing the microfinance loan size received by clients had little effect, but training had positive effects on business practices and operations among men.

M. Kremer, J. Lee, J. Robinson & O. Rostapshova, "Behavioral Biases and Firm Behavior: Evidence from Kenyan Retail Shops." *American Economic Review* 103(3) (2013): 362-368.

Small retail shops frequently lose sales because of lack of inventory. The returns to optimizing inventory would be very high. Using data from small Kenyan retailers, the likelihood of having more inventory is associated with better math skills and somewhat explained by high levels of risk aversion among shopkeepers.

Product Design

The basic microcredit contract—short-term group lending (whether individual or group liability), immediate repayment, weekly payments, set lending cycles—has seen relatively little innovation. There is a great deal of scope for altering the basic product design on each of these dimensions.

E. Field, R. Pande, J. Papp, & N. Rigol, "Does the Classic Microfinance Model Discourage Entrepreneurship among the Poor? Experimental Evidence from India," *American Economic Review* 103 (6) (2013): 2196-2226.

Giving clients an eight-week grace period before loan repayments begin increased short-term microenterprise investment and long-term profits, but also increased default rates. Microfinance loans requiring immediate repayment may discourage riskier business investments, leading to more repayment reliability but less potential for high returns.

E. Field & R. Pande, "Repayment Frequency and Default in Microfinance: Evidence from India," *Journal of the European Economic Association* 6, no. 2-3 (2008): 501-509.

This experiment in urban India found that randomly assigning microfinance clients to a weekly or monthly repayment schedule had no significant effect on loan delinquency or default.

X. Cadena & A. Schoar, "Remembering to Pay? Reminders vs. Financial Incentives for Loan Payments," *NBER Working Paper 17020* (May 2011).

An experiment in Uganda showed that simple text message reminders were as effective as interest rate reduction incentives in reducing late loan repayments.

B. Feigenberg, E. Field, & R. Pande, "The Economic Returns to Social Interaction: Experimental Evidence from Microfinance," *NBER Working Paper no. 16018* (May 2010).

When microfinance groups meet more frequently, social distance between group members decreases and social capital increases, largely due to expectations of reciprocal behavior. Additionally, these changes are associated with increased informal risk-sharing and reduced default.

X. Gine & D.S. Karlan, "Group versus individual liability: Short and long term evidence from Philippine microcredit lending groups," *Journal of Development Economics* 107 (2014): 65-83.

This study found that individual lending led to more attraction of new microfinance clients and greater retention of new clients.

A. Schoar, "The Personal Side of Relationship Banking," *Working Paper*.

Borrowers who were randomly selected to receive regular follow up from their loan officer demonstrated better repayment and more satisfaction than those that received follow up only when behind on repayments or no follow up at all.

Lines of Credit

The poor have many goals and needs beyond business investment. Providing credit products that can be used for other purposes has enormous potential to improve quality of life, reduce financial uncertainty and volatility, and permit investment in other areas.

T. Ogden & J. Morduch, "Beyond Business: Rethinking Microfinance," Foreign Policy (March 28, 2013).

Limiting the narrative of microfinance to supporting entrepreneurship limits its potential to benefit clients beyond the self-employed, who can and have used loans to finance investments in health and education, make large purchases, and smooth consumption.

J. Morduch, "How Microfinance Really Works," Milken Institute Review (Second Quarter, 2013): 51-59.

The original expectation that microfinance would transform microenterprises into thriving larger businesses has largely not been borne out, but microfinance customers have many other goals for their loans and use them as part of a broader money management strategy.

C. Dunford, "What's Next? Chris Dunford on Proving the Consumption Smoothing Benefits of Microfinance," Financial Access Initiative Blog (January 30, 2013).

Rather than financing business investments, many microfinance clients appear to be using loans to smooth consumption or cope with shocks, something like the way consumer loans are used. This can be an extremely valuable use for the poor.

D. Rozas, "Microfinance without the MFI? Zidisha tests the boundaries of microlending methodology," Financial Access Initiative Blog (July 5, 2011).

Zidisha is a platform for person-to-person loans that connects lenders and borrowers around the world through online profiles. It has more flexibility around interest rates and repayment than is typically seen in microfinance, without major impacts on operations.

D. Karlan & J. Zinman, "Expanding Credit Access: Using Randomized Supply Decisions to Estimate the Impacts." Review of Financial Studies 23 (1) (2010): 433-64.

Providing small dollar on-demand credit to employees in South Africa led to significant gains for borrowers, despite relative high interest rates.

Hybrid Products

Households have a variety of needs that do not line up directly with standard product categories of borrowing, saving and insurance. It is possible to save by borrowing, or insure through saving for instance. Product designs that blend borrowing and saving or borrowing and insurance have potential to better meet household needs.

U. Afzal, G. d'Adda, M. Fafchamps, S. Quinn and F. Said, "Two Sides of the Same Rupee? Comparing Demand for Microcredit and Microsaving in a Framed Field Experiment in Rural Pakistan," CSAE Working Paper (2015).

When women were offered short-term saving and borrowing products, many used both simultaneously indicating that their chief need was turning a set of small sums into a larger lump sum rather than a desire or need to specifically borrow or save.

D. Karlan, R. Osei, I. Osei-Akoto, & C. Udry, "Agricultural Decisions after Relaxing Credit and Risk Constraints," Quarterly Journal of Economics (2014): 597-652.

Experiments in northern Ghana showed that having rainfall index insurance changed farmers' investment decisions, leading to significantly more investment in agriculture and riskier production choices.

S. Cole, X. Giné, & J. Vickery, "How Does Risk Management Influence Production Decisions?" Evidence from a Field Experiment," Working Paper 13-080, Harvard Business School (September 9, 2014).

This experiment in India found that rainfall insurance provision increased the probability that farmers adopt higher-return but higher-risk cash crops.

L. Casaburi & J. Willis. "Time vs. State in Insurance: Experimental Evidence from Contract Farming in Kenya." Working Paper, November 2016.

A hybrid loan/insurance product—farmers are essentially loaned the insurance premiums—radically increases take-up of crop insurance, especially among the poorest farmers.

End Notes

1. Pitt, Mark M., and Shahidur R. Khandker. "The Impact of Group-Based Credit on Poor Households in Bangladesh: Does the Gender of Participants Matter?" *Journal of Political Economy* 106 (5) (1998): 958–96.
2. Roodman, David, and Jonathan Morduch. "The Impact of Microcredit on the Poor in Bangladesh: Revisiting the Evidence." *Journal of Development Studies* 50 (4) (2014): 583–604.; Roodman, David. "Bi-Modality in the Wild: Latest on Pitt & Khandker." David Roodman's Microfinance Open Book Blog, Center for Global Development, Washington, DC, December 16, 2011.
3. Banerjee, Abhijit, Dean Karlan, and Jonathan Zinman. "Six Randomized Evaluations of Microcredit: Introduction and Further Steps." *American Economic Journal: Applied Economics* 7 (1) (2015): 1–21.
Banerjee, Abhijit, Esther Duflo, Rachel Glennerster, and Cynthia Kinnan. "The Miracle of Microfinance? Evidence from a Randomized Evaluation." *American Economic Journal: Applied Economics* 7 (1) (2015): 22–53.
Crépon, Bruno, Florencia Devoto, Ester Duflo, and William Parienté. 2015. "Estimating the impact of microcredit on those who take it up: Evidence from a randomized experiment in Morocco." *American Economic Journal: Applied Economics* 7 (1): 123-150.
Tarozzi, Alessandro, Jaikishan Desai and Kristin Johnson. "The Impacts of Microcredit: Evidence from Ethiopia." *American Economic Journal: Applied Economics* 7 (1): 54-89.
Attanasio, Orazio, Britta Augsburg, Ralph de Haas, Emla Fitzsimmons and Heike Harmgart. "The Impacts of Microfinance: Evidence from Joint Liability-Lending in Mongolia." *American Economic Journal: Applied Economics* 7 (1): 90-122.
Angelucci, Manuela, Dean Karlan and Jonathan Zinman. "Microcredit Impacts: Evidence from a Randomized Microcredit Program Placement Experiment by Compartamos Banco." *American Economic Journal: Applied Economics* 7 (1): 151-182.
Augsburg, Britta, Ralph De Haas, Heike Harmgart and Costas Meghir. "The Impacts of Microcredit: Evidence from Bosnia and Herzegovina." *American Economic Journal: Applied Economics* 7 (1): 183-202.
Karlan, Dean, and Jonathan Zinman. "Expanding Credit Access: Using Randomized Supply Decisions to Estimate the Impacts." *Review of Financial Studies* 23 (1) (2010): 433–64.
Karlan, Dean, and Jonathan Zinman. "Microcredit in Theory and Practice: Using Randomized Credit Scoring for Impact Evaluation." *Science* 332 (6052) (2011): 1278–84.
Giné, Xavier and Ghazala Mansuri. "Money or Ideas? A Field Experiment on Constraints to Entrepreneurship in Rural Pakistan." World Bank Policy Research Working Paper 6959, June 2014.
4. Banerjee, Abhijit, Emily Breza, Esther Duflo and Cynthia Kinnan. "Do Credit Constraints Limit Entrepreneurship? Heterogeneity in the Returns to Microfinance." Working Paper, July 2015.
5. Breza, Emily and Cynthia Kinnan. "Measuring the Equilibrium Impacts of Credit: Evidence from the Indian Microfinance Crisis." Working Paper, September 2016.
6. de Mel, Suresh, David McKenzie, and Christopher Woodruff. "Are Women More Credit Constrained? Experimental Evidence on Gender and Microenterprise Returns." *American Economic Journal: Applied Economics* 1 (3) (2009):1–32.
de Mel, Suresh, David McKenzie, and Christopher Woodruff. 2008. "Returns to Capital in Microenterprises: Evidence from a Field Experiment." *Quarterly Journal of Economics* 123 (4): 1329-1372.

Fafchamps, Marcel, David McKenzie, Simon Quinn, and Christopher Woodruff. "Microenterprise growth and the flypaper effect: Evidence from a randomized experiment in Ghana," *Journal of Development Economics* 106 (2014): 211-226.

Fiala, Nathan. "Stimulating Microenterprise Growth: Results from a Loans, Grants and Training Experiment in Uganda." Working Paper, April 2014.

7. Banerjee, Abhijit, Esther Duflo, Nathanael Goldberg, Dean Karlan, Robert Osei, William Parienté, Jeremy Shapiro, Bram Thuysbaert, and Christopher Udry. "A Multifaceted Program Causes Lasting Progress for the Poor: Evidence from Six Countries." *Science* 348 (6236), May 15, 2015.

Bauchet, Jonathan & Morduch, Jonathan & Ravi, Shamika. "Failure vs. displacement: Why an innovative anti-poverty program showed no net impact in South India," *Journal of Development Economics*, 116(2015): 1-16.

8. Collins, Daryl, Jonathan Morduch, Stuart Rutherford, and Orlanda Ruthven. *Portfolios of the Poor: How the World's Poor Live on \$2 a Day*. Princeton: Princeton University Press, 2010.

Rutherford, Stuart. *The Poor and Their Money*. Oxford: Oxford University Press, 2000.

9. Cull, Robert, Asli Demirgüç-Kunt, and Jonathan Morduch. "Microfinance Meets the Market." *Journal of Economic Perspectives*, 23(1) (2009): 167-192.

10. Cull, Robert., Asli Demirgüç-Kunt, and Jonathan Morduch. "The Microfinance Business Model: Enduring Subsidy and Modest Profit." World Bank Policy Research Working Paper 7786, August 2016.