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Microfinance:

A Critical Literature Survey

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Microfinance—A Critical Literature Survey

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Abbreviations

GDP	gross domestic product
FINDEX	Financial Inclusion Index
IEG	Independent Evaluation Group
IMF	International Monetary Fund
MFI	microfinance institution
MIX	Microfinance Information Exchange
MNO	mobile network operator
RCT	randomized control trial
NGO	nongovernmental organization
NPL	nonperforming loan
ROSCA	Rotating Savings and Credit Association
SME	small and medium-size enterprise

Preface

This literature review was conducted in the context of a major evaluation by the Independent Evaluation Group (IEG) of World Bank Group support for financial inclusion. Access to financial services has long been believed to lift people out of poverty. Although 700 million people have gained access to formal financial services in the past few years, 2 billion remain excluded. Financial inclusion—access by poor families and microenterprises to financial services—has been an objective of the World Bank Group for a long time, reaffirmed in 2013 by President Jim Kim's commitment to the Universal Access Goal by 2020.

In its evaluation of World Bank Group support for financial inclusion, IEG examined the relevance and effectiveness of seven years (FY07–13) of Bank Group support to financial inclusion and its impact on the poor. This literature review conducted by Professor Beck of the Cass Business School, City University London, and CEPR constituted an essential element of IEG's evaluation of financial inclusion, one of four pillars, which also included a review of policy and strategy documents at the country and corporation level; a portfolio review of World Bank Group projects and activities; and 15 country studies—10 conducted on a desk basis and five involving field missions. These pillars were complemented by important external data sources, including data on the microfinance industry from the Microfinance Information Exchange and the World Bank Group Financial Inclusion Index (FINDEX), a global database of financial inclusion.
The literature review was essential to understanding what is known about financial inclusion, its instruments and its impact. Given a dearth of data on the direct impact of the World Bank Group's own operations on the poor, a literature review (including of the impact literature) was critical to understanding what is known about how the financial services offered to the poor work in practice and whether they lift them out of poverty. Although this was a challenging task covering many aspects and multiple financial services, Professor Beck met these challenges with skill and authority. In doing so, he both illuminates what is known and presents the considerable and challenging agenda of what is yet to be known. The result is sobering for anyone with an irrational exuberance for financial inclusion as an easily attained or uniformly effective solution to poverty.

The result of Professor Beck's work is, on its own, a substantial contribution to understanding financial inclusion, the nature of the challenge, and whether and how a variety of interventions reach and affect poor households and microenterprises. For this reason, IEG is publishing the literature review as a working paper, to make this resource widely and publicly available to enrich thinking about this most vital development challenge.

Helpful comments and suggestions from IEG staff and seminar participants at the World Bank are gratefully acknowledged as well as general guidance by Stefan Apfalter and Andrew H.W. Stone.

The full IEG evaluation, *Financial Inclusion—A Foothold on the Ladder toward Prosperity? An IEG Evaluation of World Bank Group Support for Financial Inclusion for Low-Income Households and Microenterprises* is available at https://ieg.worldbankgroup.org/evaluations/financial-inclusion. A video is available at https://www.youtube.com/watch?feature=player_embedded&v=SpBf1lK3_4s. A related infographic is at https://ieg.worldbankgroup.org/financial-inclusion.

Abstract

This paper offers a critical survey of the microfinance literature of the past 10 years. It reviews studies on the effectiveness of different microfinance techniques and offers a critical assessment of the impact literature of microfinance. The literature so far suggests moderate but not transformative effects of microcredit, with effects being conditional on individuals' characteristics. The effects of microsavings interventions seems more promising, while microinsurance interventions suffer mostly from limited take-up. The biggest impact seems to come from expanding payment services. The paper discusses these findings in the broader context of the financial development literature and touches on methodological issues and regulatory challenges.

1. Introduction

1.1 Though finance has been ignored in the economic development literature and policy debate for many decades, following Joan Robinson's verdict that "where the real economy leads, finance follows", the past two decades have seen an increasing focus on financial sector issues in developing countries. This has been accompanied by an increasingly expansive literature on financial development and its link to real sector outcomes.[1] The financial sector agenda, however, is a multi-faceted one, with access to financial services by the poor only recently gaining more attention.[2]

1.2 This focus has been further fueled by the Nobel Prize for Mohammad Yunus, the founder of Grameen Bank and often seen as the father figure for the modern microfinance movement, and by 2005 being declared the Year of Microcredit. The recent decade has also seen an explosion in empirical research assessing the impact of microfinance and other interventions to reduce the barriers to accessing formal financial services. This comes on top of a 20-year-old empirical literature on gauging the effect of financial deepening on economic development, moving from aggregate cross-country data to more micro-level enterprise and household data. In addition, there has been a move from the use of observational data to focusing on interventions under the control of researchers.

1.3 This literature survey summarizes the literature on interventions to increase access to finance in developing countries. It complements an increasingly large number of systemic reviews and more specialized literature reviews. Though I focus on rigorous studies, I do not differentiate between published and unpublished work and thus cover a broader set of papers. I consider both papers gauging the effect of specific outreach efforts and interventions on take-up and financial behavior and performance and assessing the impact of these outreach efforts and interventions on household and microenterprise outcome variables. In addition, I consider policy papers in several areas of policy concern, including regulation and supervision of low-end financial institutions.

1.4 In addition to individual academic and policy papers, I will also reference systematic reviews where relevant. These reviews, often commissioned by governments and policy institutions, offer an interpretation of existing academic work, where the inclusion into the review is subject to certain criteria (for example, academic rigor, methodology and geographic focus).

1.5 The remainder of the paper is organized as follows. Section 2 defines financial inclusion and discusses the differences between access to and use of financial services. Section 3 focuses on barriers to accessing formal financial services and interventions to overcome these barriers, discussing studies gauging take-up of microcredit, microsavings, micro-insurance, digital payment, and financial literacy interventions. Section 4 provides an overview of empirical studies gauging the impact of expanding access to finance on real sector outcomes. Section 5 discusses the financial sustainability of microfinance institutions, competition, and regulatory issues. Section 6 focuses on the gender dimension in

[1] For a recent survey of the finance and growth literatures, see Levine (2005).
[2] See Karlan and Morduch (2010) for a recent academic survey on the access to finance literature.

microfinance. Section 7 draws policy conclusions on the effectiveness of different types of interventions. Section 8 provides some methodological comments, and section 9 concludes.

2. Financial Inclusion – An Attempt at a Definition

2.1 The discussion on the merit and determinants of financial inclusion has worked with an array of different definitions that vary according to the type of financial services, the degree of formality of the financial service provider and the depth of access. I will first offer a general definition, before discussing different dimensions of financial inclusion.

2.2 Financial inclusion refers to the access by enterprises and households to reasonably priced and appropriate formal financial services that meet the needs of enterprises and households. Access to financial services can be defined along several dimensions, including geographic access (that is, proximity to a financial service provider) and socioeconomic access (that is, absence of prohibitive fees and documentation requirements). Appropriate design of products that meet the needs of clients, are sustainable for both providers and users, but do not involve abusive pricing are other important aspects.[3]

2.3 Formal financial institutions comprise an array of different institutions, including banks, nonbank financial institutions, and microfinance institutions. While there is a critical difference between commercial banks – regulated and supervised by either central bank or a separate regulatory authority – and other financial institutions – typically subject to fewer regulatory rules and constraints – one can also distinguish between an array of different formal and semi-formal non-bank financial institutions, ranging from credit-only finance and leasing companies over postal savings banks to credit and savings cooperatives (for example, SACCOs in Eastern Africa). I will discuss some of these differences in section 5.

2.4 Microfinance can be defined as attempts to provide financial services to households and micro-enterprises that are excluded from traditional commercial banking services. Typically these are low-income, self-employed or informally employed individuals, with no formalized ownership titles on their assets and with limited formal identification papers. It is important to distinguish between the concept of microfinance and the providers of microfinance services, which comprise an array of different institutions, ranging from commercial banks trying to reach out to the low-end of the market with specialized programs and commercial microlenders, such as the Mexican Compartamos, over nongovernmental organizations (NGOs), such as Grameen Bank, to cooperative banks.

2.5 The common feature of these different providers is the focus on the low-end of the market, while they use an array of different techniques to reach this clientele and service it in a commercially sustainable manner. Many of these institutions work with the principle of double (profit and social impact) or triple (profit, social impact and environmental impact) bottom lines. Microfinance is also often referred to as a concept comprising delivery techniques and products that differ from conventional banking and are designed specifically

[3] See, for example, CGAP (2011), which defines financial inclusion as a "state in which all working age adults have effective access to credit, savings, payments and insurance from formal service providers" and defines effective access as "convenient and responsible service delivery, at a cost affordable to the customer and sustainable for the provider…"

to overcome the barriers that prevent conventional banks from catering to the low-end of the market.

2.6 Important in this context is the role of government-owned financial institutions. Although government-owned and -run institutions, such as postal or savings banks, have a reasonable (though not properly tested) track record in providing savings services to segments of the population not reached by private financial institutions, their overall record in credit provision is rather negative; they use subsidized interest rates leading to credit rationing and rent seeking, forbearance if not outright debt forgiveness undermining credit culture (and thus undermining private provision), and inefficient credit allocation that results in high credit losses.[4] Much evidence presented in this paper refers to privately managed financial institutions.

2.7 It is important to stress that the lack of access to and use of formal financial services does not imply that the poor do not have access to any financial services. As documented by Collins et al. (2009) with financial diaries, the poor use an array of informal financial services and access an array of informal providers of financial services, including money lenders, deposit collectors, stores providing credit, pawnshops, and friends and family.

2.8 Although the underlying transactions and even contractual arrangements might not vary too much between formal and informal finance, there are some critical differences, which I would like to stress. On the client level, this refers to dignity and privacy, which are often concerns in the case of informal finance. There is also a lack of formal rules for such transactions, to protect both creditor/provider and borrower/client. On the aggregate level, informal finance is to a large extent local and does therefore not allow for the same geographic and sectoral diversification benefits as formal finance.

2.9 Attempts to expand financial inclusion relate to the literature on financial development and poverty alleviation. Theory predicts that better access to credit by the poor enables them to pull themselves out of poverty by investing in human capital and microenterprises, thus reducing aggregate poverty (Banerjee and Newman 1993; Galor and Zeira 1993; Aghion and Bolton 1997). Access to financial services more generally is predicted to allow households to smooth consumption and smoothen the impact of income shocks (Jappelli and Pagano 1989; Bacchetta and Gerlach 1997; Ludvigson 1999). Access to payment and transaction services allows better integration into modern market economies. Not having to rely on cash, but using safer, less costly, and swifter means of transferring payments allows more economic transactions across greater geographic distances. As will become clear, different financial services often allow for the achievement of the same goal, although with different degrees of efficiency. Importantly, as argued by Collins et al. (2009), savings and credit are often seen as substitutes for poor people, with the former implying many

[4] For aggregate studies on the effect of government ownership of banks, see La Porta et al. (2002), who show that countries with higher share of government-owned banks in 1970 experience subsequently lower financial development and economic growth. Cole (2009a) shows no positive effect of bank nationalization in India in 1980 on subsequent growth, and Cole (2009b) shows that lending by government-owned banks tracks the electoral cycle in India as do repayment patterns. See World Bank (2013) for a more general discussion on the role of government in the financial sector.

small payments upfront with one large pay-out at the end and latter having one large pay-out in the beginning and many small payments later on.

2.10 It is important to stress that behind this theory of change is the concept of a direct link between access to financial services and effects on the household or enterprise level. This is different from the finance and poverty literature that has focused on indirect effects of financial deepening on poverty reduction (Beck, Demirguc-Kunt, and Levine 2007; Gine and Townsend 2004; Beck, Levine, and Levkov 2010). I will come back to this important distinction in section 7.

3. Barriers to Financial Inclusion and Outreach Innovations

3.1 What factors limit access of households and microentrepreneurs to formal financial services across the developing world? Identifying the barriers allows designing policies that help reduce these barriers. It is important in this context to distinguish between demand and supply side factors, that is, factors that prevent households and enterprises from taking up certain products and services and factors that prevent financial service providers to reach out to certain groups of households and enterprises.

3.2 On the most basic level, high costs and risk are at the core of limited supply of financial services to the low end of the market. The fixed cost of financial service provision (i.e. costs that are independent of the amount of deposit or credit, the number of transactions of a client, or the number of clients served in a branch or by an institution) makes provision to low-income segments of the population more difficult, as these are customers with demand for smaller and/or fewer transactions. Dispersed population in rural areas also makes traditional financial service provision through brick-and-mortar branching less commercially viable outside urban centers.

3.3 In addition, the risks to reach out to the low end of the market might be prohibitively high. A large share of households and economic agents in developing countries operate in the informal sector and do not have the formal documentation necessary for financial transactions. This problem is exacerbated with tighter know-your-customer regulations introduced in the past decade across the globe, in conjunction with lack of proper ID systems in many low-income countries. Similarly, volatility – both at the individual level, related to fluctuations in the income streams of many microenterprises and households, and at the aggregate level, related to the dependence of many low-income economies on commodity exports – further increases costs and risks for financial service providers.

3.4 On the demand side, the lack of financial literacy has been identified as a significant barrier. Behavioral and intrahousehold constraints are important especially for savings decisions, but also for decisions surrounding resource allocation of credit resources. In addition, for some population groups religious constraints concerning interest-bearing contracts limit their willingness to access formal conventional finance.

3.5 I will discuss how microfinance institutions have tried to overcome the barriers of cost and risk and evidence on their relative effectiveness; I organize this discussion by different financial services: credit, savings, insurance, and payments.[5] In a separate section I will discuss specifically the challenge of financial literacy; the last part is focused on the sustainability of microfinance institutions. The next section will discuss studies gauging the impact of expanding outreach with these different innovations.

[5] The sequencing of credit, savings, insurance, and payment is driven by the sequencing of attention that these different services have received from donors and researchers.

Microcredit Techniques

3.6 As discussed above, cost and risk are two critical supply-side constraints that prevent credit institutions from reaching out to the low end of the market. The success of microcredit has often been explained with specific techniques, including (i) joint liability lending, (ii) dynamic incentives, (iii) high repayment frequency, and (iv) focus on women. These different mechanisms address both the cost and the risk challenges in different ways.

3.7 One important barrier for lenders in reaching out to low-income segments of the household and enterprise population, active in the informal economy, is the information asymmetries that result in excessive risk. Collateral used to overcome such information asymmetries in the formal financial sector is not available. One of the traditional microcredit lending techniques has therefore been group lending, where liability for loan repayment is shared among a group of borrowers. Joint liability can both have an insurance function and serve as screening and monitoring mechanism, thus impacting repayment incentives, ultimately serving to reduce risks for the lender. Given very high information asymmetries and thus agency costs between lenders and microborrowers, delegating screening and monitoring to groups can reduce agency problems, though there might also be the possibility of collusion between borrowers at the expense of the lender. Joint liability lending is also related to the idea of social capital, with evidence that social capital among group members matters for default probability.

3.8 Using data for microborrowers in Peru, Karlan (2007) finds that individuals with stronger social connections to their fellow group members due to geographic or cultural proximity have higher repayment and higher savings rates. Closer relationships also enable group members to distinguish between different reasons for default and not punish borrowers who cannot repay for reasons outside their control. Cassar and Wydick (2010) find in lab experiments across five developing countries that social trust can have a positive impact on repayment and that group lending can also have a positive impact on trust. Critically, they document important differences across different countries and cultural settings in the effect of social capital. Feigenberg, Field, and Pande (2011) work with a microfinance institution (MFI) in India that randomly assigns new clients to joint liability groups and find more frequent meetings of the groups improves risk sharing and reduces default probability. They interpret their finding as joint liability (and the social interactions that come with it), creating additional social capital. In summary, although social capital supports the effectiveness of group lending (with implications of where this lending technique should be more successful), group lending itself can create social capital.

3.9 In contrast, there are increasing doubts whether joint liability is always better. Besley and Coate (1995) model theoretically the trade-off in group lending. On one hand, group lending can encourage risk sharing. On the other hand, it can encourage strategic default if a large number of borrowers in the group defaults. This prediction is confirmed by Gine, Krishnaswamy, and Ponce (2011), who use repayment data on Muslims and Hindu microcredit clients in India to examine whether members of a joint liability group are more likely to default when the fraction of defaulters in the group rises. In 2009, the Anjuman Committee of Kolar issued a statement banning all Muslims from repaying their MFI loans, as interest is forbidden under Sharia. The authors show that this increased strategic default by

Hindu borrowers in groups dominated by Muslim borrowers. This clearly shows the limitation and downsides of group lending.

3.10 How does joint liability compare to individual lending? In empirical work, Gine and Karlan (2014) use the gradual and partial switch of an MFI in the Philippines from group to individual lending to gauge the relative effectiveness of both lending techniques. They find that default rates are the same for groups of individual borrowers and joint liability borrowers. The bank in question also saw an increase in outreach, as more customers, attracted by the individual liability option, sought loans. In a second test, the bank expanded in a randomized manner into new areas with either of the two lending techniques; the authors found that credit officers were less likely to create groups under individual liability, which might be explained by the unwillingness of the credit officer to extend credit without guarantors in particular areas.

3.11 This suggests – correct or incorrect – that loan officers see different degrees of risks with the two different lending techniques. Similarly, Attanasio et al. (2015) find no difference in default rates between groups of individual and joint liability borrowers in rural Mongolia. In their case, the bank started credit services across different villages with either of the two lending techniques. Carpena et al. (2013) study a conversion similar of an Indian MFI from individual to joint liability loans. Unfortunately, other contract features changed as well, including the interest rate and instalment amounts, so that clear attribution of the effects to the different lending techniques is not possible. However, the authors found not only a higher repayment rate under group liability, but also a selection effect with more reliable borrowers joining the same group. At the same time, borrowers under the group lending scheme were also less likely to miss their compulsory saving payments.

3.12 Gine et al. (2010) and Fischer (2011) use lab experiments with actual and potential microcredit customers and find significant differences according to the degree to which group members can observe behavior of other members and individual or joint decision taking. Compared to real-life experiments, lab experiments allow more precise manipulation of contracts, information, and investment returns and a wider test of different contract design features. However, decisions in a lab might not translate into similar behavior in real life situations.

3.13 Gine et al. (2010) found in Peru that group lending increased risk-taking, especially for risk-averse borrowers, but that this was moderated when borrowers formed their own groups. However, in spite of these effects on project choice, joint liability increases the loan repayment rate by forcing borrowers to insure each other. In India in lab experiments, Fischer (2013) finds two opposing effects of joint liability. On one hand, borrowers make riskier investments choices without compensating their group peers for this higher risk. On the other hand, the peer-monitoring mechanism leads to sharp reductions in risk-taking and profitability, the second effect ultimately being stronger than the first effect.

3.14 Independent of joint or individual liability, loan disbursement and repayments are often undertaken in group meetings, which helps reduce not only costs for loan officers, but can also provide additional repayment incentives through peer pressure. To my knowledge, the effectiveness of this tool has not been tested yet.

3.15 Another risk faced by lenders to low-income segments of the population is the limited enforceability of credit claims, given the absence of collateral and the high legal costs relative to the loan amount. A second important feature of microcredit is therefore dynamic incentives—that is, the promise of repeat and larger loans. There is evidence that this reduces default probability (Karlan and Zinman 2009) for South Africa, Peru (Gine et al. 2010, lab experiments) and Malawi (Gine et al. 2012). The promise of being able to borrow again and larger amounts thus serves as a disciplining tool for borrowers and helps reduce risks for the lending institution.

3.16 Another constraint for lending to low-income segments of the population has been behavioral constraints of borrowers, who are unable to accumulate cash over longer time periods, because of present-time biased preferences or pressure from family members (Fischer and Ghatak 2010). A third important hallmark of microcredit contracts has therefore been small and frequent repayment amounts, often weekly, which can be used as commitment device to overcome hyperbolic preferences. Bauer, Chytilova and Morduch (2012), for example, find that women with self-control issues and hyperbolic discounting have a higher demand for microloans in India, as regular repayments and peer pressure forces discipline on them.

3.17 In contrast, these repayment terms might undermine the use of microcredit loans for longer-term investment purposes. There is some evidence that more flexibility in repayment terms reduces stress and increases repayment probability, as shown by Field et al. (2012) in India and by McIntosh (2008) in Uganda. Specifically, Field et al. (2012) show that a two-month grace period reduces stress, and McIntosh shows that biweekly rather than weekly repayment reduces drop-out rates and increases repayment probability slightly.[6] However, Field et al. (2013) show in a field experiment in urban India that a two-month grace period has positive repercussions for business creation but also increases default probability, which might imply higher risk taking by these borrowers.

3.18 A final hallmark of microfinance has been the targeting of women, given that ample evidence has shown that women are less likely to access formal financial services (Demirguc-Kunt, Klapper, and Singer 2013; Aterido, Beck, and Iacovone 2013). Development research also suggests that women tend to put more of their earnings back into the home or into services for their children (health, education, and so forth) than men do, are more conservative, and are less movable. I will pick up this theme in section 6.

3.19 However, intrahousehold constraints might reduce the effectiveness of lending to women, as indirectly shown by several studies. De Mel, McKenzie, and Woodruff (2008) show large returns on capital after a grant injection for an experiment in Sri Lanka, but only for male-owned businesses; this gender gap cannot be explained by differences in ability, risk aversion, or entrepreneurial attitudes. Similarly, Fafchamps et al. (2014) show in a field experiment in Ghana that female entrepreneurs with larger businesses do not show any positive return on capital after cash grants, but do so after in-kind grants; there is no effect for either type of grant for smaller businesses. The results for men also suggest a lower impact of cash grants, but differences between cash and in-kind grants are less robust. This suggests

[6] The McIntosh study does not rely on randomization.

that female entrepreneurs are indeed held back by intrahousehold resource constraints, which reduces their freedom to use cash resources.

HIGH INTEREST RATES AS CHALLENGE

3.20 One important question has been whether the high cost of lending in microcredit is justified or might negatively affect demand. De Mel, McKenzie, and Woodruff (2008) and McKenzie and Woodruff (2008) estimate capital returns to investment in microenterprises in light manufacturing and commerce in Sri Lanka and Mexico, respectively, where the entrepreneurs were given cash or equipment, as the outcome of a lottery and this exogenous shock was used to compute the return to credit. The authors find returns of 5 to 7 percent *per month* in Sri Lanka and as high as 20 percent or more in Mexico! Although these returns might seem high, or unrealistically high in the case of Mexico, they are based on grants, not loans, and measured only over the short term and thus may not be replicable over the long term. And it does not follow that the microentrepreneurs would have pursued the same strategies with loan resources, as these estimates do not take into account the ex-ante riskiness of these investments. Nevertheless, these estimates suggest that some microentrepreneurs are indeed able to pay the high interest charged by microfinance institutions, at least if these loan resources are being invested.

3.21 There are several studies exploring interest rate elasticity of demand. Using data on a Bangladeshi MFI, Dehejia, Montgomery, and Morduch (2012) find a substantial short-term reduction in loan demand (roughly a unitary elasticity) after an increase in interest rates from 2 to 3 percent per month. Karlan and Zinman (2008), in contrast, find a much smaller effect in an experimental setting in South Africa. They measure clients' sensitivity to interest rates by mailing out more than 50,000 credit offers to customers, with the letters offering interest rates that were selected at random. Borrowers turned out to be less sensitive to changes in price than expected, which might be because of limited outside options for borrowers. However, borrowers were more sensitive to maturity, with a higher maturity (and thus lower repayment amounts) attracting higher demand.

3.22 In contrast, Karlan and Zinman (2013) find strong evidence for a long-term price elasticity of credit demand. They work with Compartamos Bank in Mexico and randomize the interest rate at the district level lowering it permanently by 20 or 10 percentage points. Over a 2.5-year horizon, they find the lower interest rate attracts new borrowers as well as very elastic demand with respect to the amount borrowed, with elasticities below -1. There is no evidence for crowding out, at least within formal finance, and they also find no reaction from competitors. They also do not find any changes in default rates, although costs went up, so overall there was no significant effect from this interest rate reduction on bank's profits. It is difficult to reconcile the findings of these different studies as they refer to different institutions, different settings and different levels of interest rates. This is certainly an area still open for further exploration.

3.23 One important constraint for expanding microfinance in Islamic countries has been the prohibition of interest rates under Sharia. El Gamal et al. (2014) propose an alternative microcredit model built on the Rotating Savings and Credit Association (ROSCA) model (which does not involve interest rate payments), but with payments of individual borrowers

guaranteed by a bank for a fee. In a laboratory experiment in rural Egypt, they find that this model attracts higher take-up than the traditional Grameen-style group lending model. There seem to be thus promising routes to expand microfinance also in Islamic countries. Islamic microfinance, while attracting donor attention is still an area open for further research.

Savings Products

3.24 As discussed in the survey by Karlan, Ratan, and Zinman (2013), low-income households and individuals face different barriers to access formal savings, some of which mirror similar barriers to other financial services, while others are specific to savings. Specifically, we can distinguish between barriers related to (i) geography, (ii) transaction cost, (iii) documentation requirements, (iv) behavioral constraints, and (v) lack of financial literacy. Unlike in microcredit, where an originally "standard" microcredit product (group lending, small and frequent repayment amounts, and dynamic lending) was later developed into an array of differentiated products, interventions to attract low-income segments of the population to formally save have comprised from the beginning an array of different approaches and techniques.

3.25 The importance of geographic barriers to formal banking outlet is shown by the analysis of a pseudonatural experiment in Mexico. Specifically, Aportela (1999) analyzes the results of the expansion of a government-owned Mexican savings institute in the early 1990s. This expansion happened only in some states and there seems no significant correlation of state characteristics with the expansion sequence. Computing savings rates of low-income households from survey responses before and after the expansion started, Aportela shows that the expansion increased the savings rate of low-income households – the ones targeted by the expansion in the first place – while there was no effect on high-income households. Further, this increased financial savings did not seem to have crowded out other informal ways of savings: there was a positive net effect on the overall savings of the typical household. Burgess and Pande (2005) find that a regulatory requirement in India, in place between 1977 and 1990 for banks to open four branches in previously unbanked areas before opening a new branch in a previously banked area, led to higher deposit mobilization, though they are able to measure this effect only on the aggregate level.

3.26 Flory (2011) gauges the effect of a bank on wheels program in Malawi, where mobile vans reduced the geographic distance between potential clients and banks and finds a very modest effect on take-up of bank accounts.[7] However, he finds that experimentally boosting use of formal savings in rural areas sharply increases interhousehold transfers during peak periods of hunger, thus documenting important spill-over effects to households ineligible for opening an account. Ashraf et al. (2006b) assess the effect of a biweekly deposit collector service with a modest fee. Twenty-eight percent of those offered the service opened an account and half of them used it on a regular basis. They were also more likely to save and less likely to borrow from the bank. The take-up increased with geographic distance from the nearest bank branch, underlining the negative effect of geographic barriers.

[7] As roll-out could not be randomized, the identification strategy relies on a randomized marketing campaign.

3.27 De Mel, McIntosh, and Woodruff (2013) report on a field experiment in Sri Lanka where weekly visits by deposit collectors were randomly replaced with lockboxes, where clients were requested to deposit their savings; the study found no significant difference in savings rates. Given the lower costs of such devices, this might be a more effective way to induce higher savings in poor and rural areas.

3.28 Second, cost barriers are important in preventing the poor from opening and maintaining bank accounts (Beck, Demirguc-Kunt, and Martinez Peria 2008). Dupas and Robinson (2013a) report from an experiment in Kenya that paying microentrepreneurs the fees to open a saving account and the minimum balance induced almost 90 percent of the treatment group to open such an account, with over 40 percent turning into active users. A similar experiment in Kenya with vouchers for subsidized bank accounts yields a take-up of only 62 percent, with less than a third of them using the account frequently (Dupas et al. 2015). In a similar experiment in Nepal, more than 80 percent of the treatment group opened an account, with almost all of them using it frequently (Prina 2014). Cole, Sampson, and Zia (2011) find with an experiment in Indonesia that increasing subsidies to open an account also induces more individuals to open one, although the effects are much smaller. However, once opened, these accounts are being used, even two years later.

3.29 Parallel to the discussion on interest rate elasticity of microcredit, Schaner (2014a) gauges the interest rate elasticity of savings behavior, offering interest rates between zero and 20 percent in a field experiment in Kenya. Higher interest rates result in higher usage of the account, even beyond the six-month introductory period during which such high interest rates were offered.

3.30 A third constraint to opening formal bank accounts is often documentation requirements, including identification documents that many households in developing countries do not have. Chin, Karkoviata, and Wilcox (2011) gauge the effect of overcoming such constraints by enabling Mexican immigrants in the United States to get a necessary identification card for free. The treatment group was 40 percent more likely to increase their savings in the following five months, but also decreased their remittances. The economic size of this effect varies with the degree to which migrants in the United States can control the use of remittances in Mexico, with stronger positive effects on take-up and saving and stronger negative effects on remittances for those household with little impact on the use of remittances in Mexico.

3.31 Fourth, behavioral constraints are important for take-up and use of formal savings vehicles. Intrahousehold differences in spending preferences and bargaining power can reduce savings substantially. This might especially affect women and, indirectly, children, if women have more child-oriented preferences. Evidence from an experimental study with 142 married couples in Kenya shows that husbands increase private spending if they receive an income shock, whereas if their wives receive the shock they do not increase their consumption (Robinson 2012). Likewise, Schaner (2015) finds that well-matched Kenyan couples (in terms of time preferences) are more likely to use joint accounts than individual ones. Ashraf (2009) finds in a field experiment in the Philippines that men or women who do not make the savings decision in their respective households are more likely to save a grant if given in private, but they commit to consumption if given the grant in public. The importance

of gender is underlined by an experiment in Kenya, where reduction of transaction costs by providing a free ATM card increases account use only for men or for accounts held jointly, but not for women (Schaner 2014b). This might be explained by the reduced control over cash the use of an ATM card implies for women.

3.32 Similar to the findings by Chin et al. (2011) on the relationship between control over remittances and savings decisions, Ashraf et al. (2015) show the importance of control over use of remittances on the willingness to provide remittances to family members in the home country. Specifically, they show that Salvadorian migrants in the United States were more likely to open savings accounts in El Salvador and accumulated higher savings in these accounts, if they were given the highest degree of monitoring and control over the use of these funds. De Arcangelis et al. (2014) find in a field experiment that remittances by Filipino migrants in Rome increased by 15 percent (both more individuals sending and larger amounts being sent) when offered a remittance product marked for education expenses.

3.33 There might also be behavioral constraints related to present-bias. Several studies have explored the effectiveness of soft and hard commitment devices, including nudges and reminders. Ashraf, Karlan, and Yin (2006a) test the effectiveness of a commitment savings account in the Philippines where customers could not withdraw savings for either a given time period or until a certain amount of savings was achieved. They find a take-up of 28 percent and an 82 percent increase in savings relative to the control group, with women with a present-bias more likely to take up the product. After the bank stopped marketing this account type, however, there was no longer a significant difference in savings between the treatment and control groups (Ashraf, Karlan, and Yin 2010).

3.34 Brune et al. (2013), in contrast, find in a field experiment among farmers in Malawi that take-up of either regular or commitment savings accounts was similar, and offering even simple savings accounts without commitment component increases savings substantially. The comparison of offering regular and commitment savings accounts is interesting in this context as it allows gauging the trade-off between behavioral constraints and loss of liquidity. The authors find that clients offered both hold most of their savings in regular accounts rather than commitment accounts. Even more striking are findings for a field experiment in Uganda (Karlan and Linden 2014), where a soft commitment account for education purposes that allowed cash withdrawal helped increase savings and education expenditures while an account without withdrawal option and full commitment to paying for educational expenses did not help increase savings. The costs of loss of liquidity are thus weighted higher than the behavioral constraints.

3.35 Atkinson et al. (2015) assess the impact of a commitment savings programs on microcredit clients in an RCT in Guatemala. Using a soft commitment device for savings (partly linked to loan repayments), they find that borrowers that are offered the option of such a commitment savings device increase their savings, pay down their debt more rapidly and are less likely to get into arrears. The combination of credit and savings products underlines that these are not necessarily substitutes but can serve complementary purposes from the viewpoint of clients and can help clients escape the risk of overindebtedness by transitioning from a debt-financed to a savings-financed investment path.

3.36 Reminders to overcome inattention to savings can also help increase savings, as shown by Karlan et al. (2012) in field experiments with banks in Bolivia, Peru, and the Philippines. Customers who were sent reminders about their goal-based savings accounts (with goals such as housing improvement or school fee) saved, on average, 6 percent more and were 6 percent more likely to reach their savings goals; these are statistically significant though economically small effects. The authors also find that different types of messages matter in different contexts.

3.37 A fifth important barrier is the lack of knowledge. There have been attempts to increase financial literacy, most of them with limited results. The outreach effort by Cole, Sampson, and Zia (2011) also involved a free two-hour financial education program. Unlike the subsidy to open an account, financial education had no effect on the likelihood to open an account. A similar study in western India finds that financial literacy courses for female microentrepreneurs had no impact on their savings behavior (Field et al. 2010). Bruhn, Ibarra, and McKenzie (2014) analyze attendance and effects of a large-scale financial education program in Mexico City and find that monetary incentives is what is most likely to convince individuals to attend. Attending training results in a 9 percentage point increase in financial knowledge and a 9 percentage point increase in some self-reported measures of saving, but in no impact on borrowing behavior. The authors conclude, however, that most individuals make the right benefit-cost choice when deciding not to attend.

3.38 On a more positive note, Berg and Zia (2013) find that including examples of responsible and irresponsible financial behavior in soap operas in South Africa can improve financial behavior of viewers, including lower incidence of overindebtedness and gambling. Bruhn et al. (2013) report the results of a comprehensive financial education program spanning 6 states, 868 schools, and approximately 20,000 high school students in Brazil through an RCT. The program increased students' financial knowledge and led to a modest increase in saving for purchases, a better likelihood of financial planning, and greater participation in household financial decisions by students. The authors also find significant "trickle-up" impacts on parents' behavior.

3.39 In summary, the studies on financial literacy show a very limited effect of attempts on financial behavior, including savings behavior. There seems more promise in fine-tuning financial literacy attempts to teachable moments, that is, trying to reach out to individuals when they are in the process of making financial decisions. Similarly, reaching out to younger population segments, who are easier to influence seems promising.

3.40 The evidence from the various experiments on access to and use of formal savings products suggest a variety of barriers. Innovative solutions to reduce the geographic distance can be useful, as can be reducing monetary cost barriers. However, behavioral constraints still loom large. Attempts at financial literacy, finally, have limited and most likely only long-term impact if persistent. One important analytical challenge going forward will be to gauge the relative importance of these different barriers to establish the most important policy lever.

Microinsurance Products

3.41 Many households and enterprises in developing countries face significantly higher risks and volatility than their peers in more developed countries (Townsend, 1995). Insurance products that can dampen the impact of income or expenditure shocks on consumption are therefore important. There is an array of informal insurance arrangements among extended families and within villages (Udry 1990), but also informal insurance providers such as of funeral insurance. Provision of formal insurance products, on the other hand, is hampered by high costs and risks, due to high ex ante screening costs and verification costs in the event of an insurance event.

3.42 Farmers face especially high risks, associated with variation in rainfall. Rainfall insurance relying on objective rainfall data taken at a geographically close gauge to the policy holders can reduce agency conflicts and costs for insurance companies. Where they are offered, however, take-up of such insurance products has often been surprisingly low. For example, Karlan et al. (2011) find no significant variation in take-up between a standard credit product and a credit cum crop price insurance product. Specifically, when maize and eggplant farmers in rural Ghana can get either a standard credit or a credit with an indemnity clause in case of very low prices, they are as likely to take up one as the other. Gine, Townsend, and Vickery (2008) show in a study in India that insurance take-up increases in the riskiness of the crops and in income while it decreases with households' credit constraints.

3.43 However, risk-averse households are less likely to buy insurance, contrary to predictions of a basic neoclassical framework. McIntosh, Sarris, and Papadopoulos (2013) show with a field experiment in Ethiopia that survey-based willingness to pay for an insurance product is not significantly correlated with actual take-up, which is strongest among farmers with low marginal productivity and those (randomly) assigned vouchers. Gaurav, Cole, and Tobacman (2011) report findings on a marketing experiment in Gujarat, India, where half of the sample in the target area was given financial literacy training. The training increased take-up significantly, as did a money-back guarantee in case of no pay-out. Other interventions, such as technical explanations on rainfall or soil quality, did not have any impact on take-up.

3.44 One of the reasons insurance take-up might be low is that farmers might expect not to have to repay if they are not able to do so. Gine and Yang (2009) find in a randomized control trial among maize and groundnut farmers in Malawi that take-up is higher among farmers that are only offered credit than among farmers that are offered a credit product that includes an insurance component. Using data from a field experiment in India, Cole et al. (2013) find that lack of trust and liquidity constraints are significant nonprice frictions that constrain demand. Cole, Stein, and Tobacman (2014) study take-up rates in India over a seven-year period and show that take-up rates are highly sensitive to payouts in a household's village, suggesting important peer effects.

3.45 Cole et al. (2012) undertake a systematic review of 13 studies assessing micro-insurance products for smallholders, 11 of which focus on take-up. Several of the studies, however, did not involve actual but hypothetical offers of insurance products. They conclude

that higher liquidity, higher income, higher income specialization, higher financial literacy, and higher trust in the agent selling the product are positively associated with take-up. They also note the surprising result already noted above that higher risk aversion is associated with lower take-up. Nonprice factors are thus very important for take-up and combining roll-out of insurance products with literacy or extension services might be useful.

3.46 There are several implications of this research for the design of insurance products. First, products need to be designed to pay fairly often to engender trust in the user population. Also, an endorsement by a well-regarded institution has been shown to increase client trust. Second, because liquidity constraints matter, rapid payouts are important. Because of these constraints, it may also be useful to bundle insurance with loans for payment of the premiums.

Digital Payment Services

3.47 Even households without any access to formal savings or credit services participate actively in monetary transactions, most prominently bill payments and receiving domestic or international remittances from family members. Typically, these payments are made in cash, which involves high costs (for example, walking to an office to pay, remit, or receive money) and high risks (for example, theft).

3.48 There have been significant innovations in payment services, most prominently digital payments via mobile phones.[8] Digital payments reduce costs for both payer and payee, reduces risks, and increases privacy. Just to give one example: evidence from the random replacement of manual pay-out by mobile pay-out of transfers after a devastating drought in Niger shows that the variable cost of paying out social transfer payment is 20 percent lower if done by mobile payment than by manual cash-out, and it reduced costs to recipients by 25 percent (Aker et al. 2013).

3.49 It also has advantages for governments, as it increases the transparency of payment flows. For example Muralidharan et al. (2014) find that moving from manual cash-out to digital payments via smart cards of social security pension in Andhra Pradesh reduces the incidence of leakage between government payments and beneficiary receipts significantly. The authors are able to establish the causal impact of the program by exploiting the random nature of the roll-out across subdistricts. Both gains from reduced leakage and time savings of recipients are significantly higher than the cost of the program.

3.50 The impact of such new providers on payment patterns can be quite stark, as the example of M-Pesa in Kenya shows. In 2006, half of the surveyed in the FinAccess survey used friends and families to send remittances, and a third used either a bus or matatu driver or the post office. In 2009, in contrast, only 24.7 percent (29.9 percent) use friends and family to send personal (business) remittances, 2.6 percent (5.9 percent) a bus or matatu driver and 3.1 percent (2.2 percent) the post office. Of surveyed users, 65.6 percent use M-Pesa for personal remittances and 51.1 percent use it for business-related remittances (Beck 2010). In

[8] For an in-depth discussion on recent research in digital payment, see *Better than Cash Alliance* (World Bank and Bill and Melinda Gates Foundatino 2014).

a more general assessment, Mbiti and Weil (2011) find that the use of M-Pesa is positively related to the frequency of sending transfers, negatively related with the use of informal saving mechanisms such as ROSCAS, and positively associated with the probability of being banked. They also find that competitive pressures from M-Pesa forces competitors such as Western Union to reduce their prices.

3.51 Mobile phone banking has become a reality in many countries, with different models being implemented, the most prominent distinction being between a model led by mobile network operators (such as M-Pesa in Kenya) and a bank-led model. Given the higher mobile phone penetration than bank account penetration in many developing countries, using mobile phones as an additional delivery channel for financial service provision has become an attractive option, given the low variable costs. One important challenge has been to expand the use of mobile phones for financial services beyond payment services, although the use of mobile phones for repayment of loan instalments or insurance premiums has been tried in several instances.[9]

Financial Literacy

3.52 In addition to financial literacy interventions related to the take-up of savings services and microinsurance products, there is also a rapidly expanding literature gauging the effect of business training. As stressed by McKenzie and Woodruff (2012) in their summary, these assessments have provided some answers, but "many of the key questions needed to justify large-scale policy interventions in this area remain unanswered." It seems the effectiveness of these interventions is very context specific, with many evaluations finding little effect or positive effects only along one dimension.[10]

3.53 Miller et al. (2014) undertake a broader review of the literature with 188 studies and a meta-analysis of a subset of them. They find that "financial education can consistently improve outcomes such as savings and record keeping, but does less well in preventing outcomes such as loan default." One important challenge, which might explain the rather low success of financial literacy interventions, can be described as an omitted variable problem. If it is not possible to measure inherent psychological traits that impact both financial behavior and financial literacy, this can explain why some interventions are more successful than others. This is a point made by Fernandes, Lynch, and Netemeyer (2014), who show that across a large sample of studies financial literacy interventions have a very small impact, especially in low-income settings, whereas studies focusing on measured financial literacy have a much larger relationship with financial behavior. Financial literacy interventions also shows a high degree of decay, with no impact left after 20 months. This might call for the teaching of more general skills or the importance of more general educational standards such as math skills.

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[9] See, for example, Tellez-Merchan and Zetterli (2014) for a discussion on the use of mobile microinsurance.

[10] Beck (2013) discusses some of these interventions in the context of a literature survey on small and medium-size enterprises for IEG. I mention some of these interventions where combined with credit in section 4.1.

3.54 There is stronger evidence however, that "just-in-time" interventions linked to specific important financial decisions can be helpful. One such example is the assessment by Agarwal et al. (2014) of an antipredatory pilot program in 2006 in Chicago. Under this program, risky borrowers and/or risky mortgage contracts triggered review sessions by housing counsellors. The pilot cut market activity in half, largely through the exit of lenders specializing in risky loans and through decline in the share of subprime borrowers.[11]

Sustainability of Low-End Financial Institutions

3.55 As discussed, traditional financial service providers, including commercial banks, shy away from catering to the low end of the market, because of high costs and risks. This has given rise to the initial wave of microfinance institutions, with a double (profit and social impact) or triple (plus environmental impact) bottom line. This first wave was mostly dominated by the NGO model and often donor driven. The entry of more commercially oriented institutions has given rise to a fierce debate between microfinance advocates that focus more on the social and outreach side and microfinance advocates that focus more on the profitability side; this is best illustrated in the argument between Mexican Compartamos, the first commercial MFI to go public, and Mohammad Yunus, who criticized Compartamos for charging too high interest rates of almost 100 percent per annum.

3.56 Exploring the trade-off between profitability and outreach has been made possible with the establishment of the Microfinance Information Exchange (MIX) and other similar data collection efforts. Important for the interpretation of any analysis based on these data, however, is the caveat that these are databases relying on self-reporting microfinance institutions. Given that the MIX focuses on both outreach and financial data, many institutions (especially smaller ones) without quality data will not report.

3.57 Using MIX data Cull, Demirguc-Kunt and Morduch (2009) show that microfinance banks are larger in asset and client base than NGOs, but have a higher average loan size, which can be interpreted a focus on wealthier clients. Compared to NGOs and government-run MFIs, microfinance banks also focus less on female borrowers but rely less on subsidies. Using stochastic frontier analysis, Hermes, Lensink and Meesters (2011) show a similar trade-off between the efficiency and outreach efforts of MFIs. Both Cull et al. (2007) and Gonzalez and Rosenberg (2006) find that more profitable MFIs are also larger in terms of client base. MFIs focusing on individual rather than group lending are more likely to be profitable. Gonzalez (2007) shows that scale economies are hard to reap beyond 2,000 customers, which might explain why many institutions look for scale economies via larger loans to existing clients, where there are clear economies of scale.

3.58 Cull, Demirguc-Kunt, and Morduch (2007) find some evidence for mission drift, possibly driven by the trade-off between profitability and outreach. Lenders focusing on individual lending perform less well in terms of outreach (as gauged by average loan size and share of female borrowers) and face higher costs than group-based lenders. The authors also find for the group of individual lenders that higher interest rates are correlated with higher

[11] Ultimately, the program was cancelled under pressure from lenders, underlining the importance of political economy in financial inclusion.

default risk and reduce profitability above a threshold of interest rates of 60 percent per annum. An important caveat is that these findings rely on cross-sectional evidence and not on evidence within institutions over time. Another important caveat, even in case of profitable institutions, is that the profitability is measured in accounting and not economic terms (that is, taking into account alternative uses with similar risk profiles).

3.59 Although MFIs have traditionally enjoyed monopoly positions in their respective markets, competition between them has increasingly become a challenge. Similarly to competition in banking, the presence of multiple uncollateralized lenders can lead to higher defaults as well as higher client overindebtedness. McIntosh and Wydick (2005) show in a theoretical model that higher competition between lenders can lead to poorer clients being dropped and more impatient clients tending toward double-dipping, that is, clients taking out loans from several institutions, with resulting higher default. Competition between microlenders can also undermine the dynamic incentives of repeat loans described above. McIntosh, de Janvry, and Sadoulet (2005) show that over 1998–2002 repayment rates declined in areas in Uganda where new entrants competed with strong incumbent MFIs, as did savings rates. As in the case of banking, these negative effects of competition in markets with high information asymmetries can be partly addressed with systems of credit information sharing, a topic I will pick up below in section 6.

3.60 There is also an important interaction effect between banks and MFIs, as shown by Cull, Demirguc-Kunt, and Morduch (2014). Using cross-country data, they document that greater bank branch penetration is associated with MFIs going more down-market and focusing more on female borrowers, especially for institutions that are commercially funded and focus on individual rather than group loans.

4. Impact of Financial Inclusion

4.1 The last decade or so has seen a rapidly expanding literature on gauging the impact of extending access to formal financial services among the poor. Many of these assessments have been undertaken in the form of randomized control trials (RCTs), which allow for a proper construction of a counterfactual. These assessments typically involve banks, consumer lenders, or (more often) microfinance institutions; methodological challenges are discussed in section 8. The following sections will also refer to non-RCT studies with satisfactory identification strategies.

4.2 Although the early literature focused mostly on credit, the more recent literature has expanded towards assessing the impact of expanding access to savings services, micro-insurance services and even payment services. As discussed in section 2, theory predicts different types of impact of different financial services. Theory has also referred to different outcome variables: including social outcome variables such as expenditures on health care or education, economic outcomes, such as consumption and income, and female empowerment, such as expenditures for family or female products.

Access to Credit

4.3 The literature on access to credit and household welfare or entrepreneurial growth and profit has shown mixed results over the past decade and a half. A lot of the interpretation can be summarized as either a glass half full or a glass half empty; that is, the overall interpretation is often in the beholder's eye. Another conclusion would be that effects are typically statistically and economically more significant for individual or household level outcomes than on the microenterprise level.

4.4 One of the first studies by Pitt and Khandker (1998) of Grameen Bank and two other MFIs in Bangladesh showed a small but significant and positive effect of the use of credit on household expenditures, household assets, labor supply, and the likelihood that children attend schools. Panel analysis by Khandker (2005) confirms many of the findings and reports even larger economic effects. Subsequent analysis by Morduch (1998), however, using alternative estimation techniques, sheds doubt on the findings by Pitt and Khandker. Though Pitt (1999) responds to these critiques, with subsequent responses by Roodman and Morduch (2009), there are substantial doubts about the identification strategy of Pitt and Khandker and, more specifically, the proper application of the restriction that loans can only be given to farmers with landholdings of less than half an acre. Similarly, Roodman and Morduch (2009) shed doubt on the panel analysis by Khandker (2005), as the findings rely on weak instruments and improbably high coefficient estimates.[12] This debate also shows the shortcomings of studies where the identification strategy is outside the control of the researcher.

[12] There are a series of other panel analyses by Khandker and several co-authors—for example, Khandker and Samad (2014)—that suffer from similar problems, including attrition bias.

4.5 Coleman (1999) gauges the effect of branch expansion of an MFI in northern Thailand and exploits the fact that six communities had been identified as *future* locations for village banks, and that there was a list of self-selected applicants for loans from the to-be-established village banks. Comparing these borrowers-in-waiting with actual borrowers of existing banks in other villages, Coleman finds no significant impact of credit on physical assets, savings, production sales, productive expenses, labor, or expenditures on health care or education. In a similar study using phased introduction of a new lending program, Cotler and Woodruff (2008) compare small-scale retailers receiving loans from a Mexican microfinance lender with retailers that have been selected to receive such loans in the future; they find a positive and significant effect of the microlending program on sales and profits only for the smallest retailers, but a negative effect on larger retailers' sales and profits. The economic effect is surprisingly large but in line with other studies looking at the impact of grants for micro-entrepreneurs (de Mel, McKenzie, and Woodruff 2008, in Sri Lanka).

4.6 Wydick (1999) uses a survey of Guatemalan microentrepreneurs with differing lengths of time with access to microfinance and thus total amount of credit to gauge the effect of credit on child labor. He finds that, on average, access to credit reduces the likelihood that children are withdrawn from school, although this does not apply to enterprises where there is a very high risk of theft by nonfamily employees (retail trade) or where families want to inherit specific skill sets. It is important to stress that this study only works with borrowers and does not have an external control group.

4.7 On a more positive note, Karlan and Zinman (2010) find that expanding consumer credit in South Africa helped beneficiaries increase income and consumption and keep jobs. Unlike other studies, their work relies on a consumer credit institution rather than an MFI. Identification is through choosing treatment and control groups randomly from a sample of applicants that were just below the credit score threshold. On the other hand, a similar exercise in Philippines (Karlan and Zinman, 2011) that expanded individual microloans to microentrepreneurs did not show any positive effect on borrowers' business, but increased their personal standing within communities and access to informal finance. More specifically, profitability of microenterprises increased as businesses shrank after they took out credit, including through shedding labor. One explanation is that increased access to credit reduces the need for trading of favors within family or community networks. There is some evidence of higher investment in education. Most of these effects apply exclusively to male but not female borrowers. There seems therefore to be some diversion of entrepreneurial finance for household purposes.

4.8 Augsburg et al. (2015) find in an RCT in Bosnia that microcredit increases self-employment and reduces wage work, while increasing profits, thus more in line with the original idea of microcredit to increase entrepreneurship. Tarozzi, Desai, and Johnson (2015) use district-level data on two microcredit expansions in Ethiopia and report an increase in overall borrowing, but mixed evidence on improvements in economic outcome variables. They find an increase in school attendance, but recognize that their randomization strategy was compromised by the two institutions in question by starting activities in the control areas and withdrawing from treatment areas.

4.9 Researchers have also explored differential impact according to whether loans are given with joint or individual liability. Specifically, Attanasio et al. (2015) report the findings of an RCT in rural Mongolia that compares outcomes among borrowers under a group lending program and an individual lending program. They find that the likelihood of owning an enterprise increases significantly as do enterprise profits under the group lending scheme, while they find no significant effect for individual loan clients. There is also a significant positive effect on food consumption for borrowers under the group lending scheme, with no effect for borrowers under the individual lending scheme. One reason for this strong differential effect across the two lending techniques seems to be the stronger mutual project screening and monitoring among borrower groups with joint liability.

4.10 Another study, however, has documented that moving away from the rather rigid microcredit lending scheme, with weekly repayments starting right after disbursement might be beneficial. Field et al. (2014) show that when borrowers are given a two-month grace period before their first loan repayment, they diversify their inventory and are more likely to buy durable assets, with the result of higher profits three years later. These findings suggest that more flexible loan terms encourage more long-term investment strategy.

4.11 Several recent studies have tried to measure effects of randomized credit allocation at neighborhood/village level rather than the individual level, as this allows incorporating spill-over effects within the community beyond the immediate effects on borrowers. Angelucci, Karlan, and Zinman (2015) use a randomized program placement by Mexican microlender Compartamos and find modest effects on socioeconomic outcome variables after two to three years. Although they find positive effects of access to credit on microenterprise growth, there is no significant effect on their profits or on entry or exit of entrepreneurs. Similarly, there are no statistically significant effects on household labor supply or income, while there seem to be modest increases in female intrahousehold decision-making power. The economic magnitude of the average effects is not very high and there does not seem to be any meaningful heterogeneity in the effects. The authors explain the lack of meaningful findings with a combination of the modest take-up differential between treatment and control areas (loans were offered in both areas, but marketing undertaken only in the treatment areas), heterogeneous treatment effects, and high variance and measurement error in outcomes.

4.12 Several studies have also explored the combination of credit and extension services. Karlan, Knight, and Udry (2014) conduct a randomized evaluation in urban Ghana, offering micro and small tailoring companies cash grants, consulting services, or both. Neither treatment was successful, ultimately leading to lower profits and entrepreneurs reverting to prior operation mode. Karlan and Valdivia (2010) use an RCT with an MFI in Peru and offer 30- to 60-minute entrepreneurship training sessions during their normal weekly or monthly banking meeting over a period of one to two years. However, they find little or no evidence of changes in business revenue, profits, or employment. On the upside, business knowledge improvements are observed and client retention rates increased for the MFI. De Mel, McKenzie, and Woodruff (2014) find for a group of female existing and prospective entrepreneurs that business training together with grant money for the business can increase profitability for existing entrepreneurs in the short but not the medium term (that is, more than eight months), whereas new entrepreneurs benefit from the training in a more sustainable manner. Gine and Mansuri (2011) find differential effects of business training

across men and women in rural Pakistan, with men benefitting more from training than women. One concern has been whether such business training programs are cost-effective for microfinance institutions, in the sense that the costs of such programs are off-set by lower default rates and higher loan sizes (and thus lower lending cost per dollar). This might not always be the case, as in the case of Pakistan.

4.13 Going even beyond training are attempts to help entrepreneurs gain access to new markets. Ashraf, Gine, and Karlan (2009) evaluate Drumnet, an organization in Kenya that provided smallholder farmers with information about how to switch to export crops, gave in-kind loans for the purchase of the agricultural inputs, and provided marketing services by facilitating the transaction with exporters. These joint services led to an increase in production of export-oriented crops and lower marketing costs, which ultimately translated into household income gains for new adopters. Unfortunately, farmers defaulted on their loans a year after the experiment, as the exporter refused to continue buying from them.

4.14 More recent evidence has shown differential effects of credit on individuals and households with different characteristics, linked with different uses of credit. Banerjee et al. (2015) undertake a long-term study considering the effect of a randomized branch expansion program of an MFI in Hyderabad to assess the impact after 18 months and three years. Eighteen months after gaining access to credit, borrowers are no more likely to be entrepreneurs, although the existing entrepreneurs invest more in their businesses. Three years later, businesses in the treatment areas are larger, although this effect is concentrated among a few successful enterprises. The authors find no effect on female empowerment or human development outcomes. A similar exercise in rural Morocco (Crépon et al. 2015, pipeline matching as in Coleman 1999) also finds differential effects, with existing entrepreneurs reducing consumption and increasing savings, while nonentrepreneurs increase consumption. No additional start-up businesses could be attributed to microcredit, which might point to other constraints beyond finance holding back potential entrepreneurs.

4.15 Finally, an attempt at computing the aggregate effects of microfinance has shown large distributional but very small aggregate effects on growth (Buera, Kaboski, and Shin 2013). On the one hand, expanding microfinance can increase total factor productivity; on the other hand, distribution of income from high savers to low savers can result in lower capital accumulation. Their analysis using a general equilibrium model calibrated with microdata from the United States and developing countries points to the important difference between partial equilibrium effects (similar in magnitude to the estimated effects from some of the RCTs mentioned above) and general equilibrium effects, where the former does not take into account aggregate capital accumulation effects.

4.16 It is important to note that their model relies explicitly on the notion of microcredit for entrepreneurial credit and not for consumption. Kaboski and Townsend (2011, 2012) use the Million Baht village banking program in Thailand, introduced in 2001–02, which involved the transfer of 1.5 percent of the Thai gross domestic product (GDP) to the nearly 80,000 villages in Thailand to start village banks. The rather surprising introduction and the constant amount per village (thus exogenous variation per capita) are used as identification condition. Although this liquidity injection into locally governed village banks initially increased consumption and incomes, both converged back to trend, and asset growth first

slowed and then reverted to trend. Overall, this is consistent with other evidence that microcredit is being used mostly for consumption purposes. The authors reach the same conclusions with reduced form regression analysis and a structural model. Comparing the credit program with a transfer program, the authors conclude that overall the microcredit program is less effective than a transfer program, though with important redistributive consequences.

4.17 Several systematic reviews have explored the impact of microcredit. Pande et al. (2012) review 12 papers across a wide range of dimensions, including microcredit, microsavings, digital payments, and rural branch expansion. They report an overall positive finding for improved access to credit, with higher incomes and reduced volatility. Duvendack et al. (2011) include a total of 58 evaluations, many of them of lower methodological standards. They do not find any positive impact of microcredit on female empowerment and warn more generally against emphasizing the positive results of evaluations with low methodological standards. Stewart et al. (2010) assess a total of 13 studies on the effect of microcredit in Sub-Saharan Africa. They find mixed evidence on microcredit, with positive impact on clients' asset accumulation and expenditures as well as health and housing, but no positive or even negative impact on educational attainment of children. The authors do not find any significant effect of microcredit on female empowerment or job creation. Critically, the authors point to differential effects across microcredit clients, with some risking to be worse off due to overindebtedness.

4.18 Stewart et al. (2012) undertake a broader review of 17 microfinance interventions across the developing world. They find mixed findings on the effect of microcredit in terms of higher income and expanded economic opportunities. Nankhuni and Paniagua (2013) survey 17 evaluations of access to credit in agribusiness. They report overall positive findings of microcredit on the adoption of innovative technology, productivity and income, though with some qualifications. Bouillon and Tejerina (2007) offer a review of several microcredit evaluations in Latin America, with mixed findings; the authors caution against drawing conclusions given the very different circumstances and settings of the programs.

4.19 Yoong et al. (2012) focus on resource transfer to women more general, but include six microcredit evaluations, several of them building on the original Pitt and Khandker study. Recognizing the methodological controversy, the authors conclude that there is no conclusive evidence for a positive impact of microcredit on female empowerment. Paniagua and Denisova (2012) offer a systematic review of the effect of different policy interventions, including twelve access to finance interventions, on job creation. It is important to note that five of them were internal to the International Finance Corporation, and they comprise a much larger range of product and policy innovations than covered in the rest of this survey. Overall, the authors conclude that most of the interventions related to access to finance had either no impact or a positive impact on job creation.

4.20 In summary, the initial expectations on microcredit being able to pull millions out of poverty by giving them access to credit has not been fulfilled. A summarized by Banerjee, Karlan, and Zinman (2015) in their introductory paper in a special issue of the *American Evaluation Journal: Applied Economics*, there is "a consistent pattern of modestly positive, but not transformative, effects." Evidence on the effects of microcredit has been mixed and

the results seem to depend very much on the characteristics and circumstances of borrowers and the purpose of the loans. There is some evidence on business creation, but this does not necessarily translate into higher consumption or income. This use of credit for different purposes is also behind the heterogeneous effects of credit use mentioned above.

4.21 Banerjee (2013) offers several reasons of why the impact of microcredit is so limited and why impact is heterogeneous. First, microentrepreneurs might not be credit constrained and/or other constraints within the business environment might be more binding, a topic we will return to below. This might also explain the limited take-up of microcredit, as also noted by Banerjee, Karlan and Zinman (2015) in their summary. Second, there might be rapidly diminishing returns, in the form of an S-shaped production. Initial returns might be high (in line with de Mel et al. 2008, quoted above), but rapidly decreasing (Banerjee and Duflo 2007). Microenterprises' capacity to grow might thus be limited. In this context, one also has to distinguish between life-style or subsistence entrepreneurs and transformational entrepreneurs. Many of the microenterprises are set up out of lack of alternative employment options for the owner in the formal sector. They rely almost exclusively on the owner, maybe with support from family members and/or friends.

4.22 There is evidence that such subsistence entrepreneurs make up the majority of microenterprises. For example, Hsie and Klenow (2009) show that 90 percent of all enterprises in India never grow. De Mel, McKenzie, and Woodruff (2010) show that only 30 percent of microenterprise owners in Sri Lanka have characteristics like large firm owners, whereas 70 percent are similar to wage workers. Bruhn (2013) finds that about 50 percent of a sample of Mexican microentrepreneurs are similar to wage workers. This indicates that a large share of microenterprise owners may be running their business to make a living while they are looking for a wage job and may not have plans for expanding the business (Emran, Morshed, and Stiglitz 2007). In this context, targeting women might also restrain microcredit from having maximum impact, as many of the female borrowers have to combine household chores with entrepreneurial activity.

4.23 Third, a large part of borrowers use credit for consumption rather than investment purposes, as documented by Johnston and Morduch (2008). Attanasio et al. (2015) also find that about 50 percent of loans given for business creation in rural Mongolia were actually used for household purposes. This is in line with evidence reported by Karlan and Zinman (2010) for the Philippines on diversion of entrepreneurial credit for household purposes.

INCLUSIONS VERSUS STABILITY

4.24 While the evidence on the impact of microcredit on households and microenterprises is ambiguous, the experience in recent years has also shown the pitfalls of too rapid expansion of microfinance. While MFI loan portfolios have typically shown better performance than bank loan portfolios from the same countries, there are several examples of banks and countries with rapid deterioration of MFI loan performance. Chen, Rasmussen, and Reille (2010) report NPL ratios in 2009 reaching 7 percent in Bosnia-Herzegovina, 10 percent in Morocco, 12 percent in Nicaragua and 13 percent in Pakistan. Most prominently, following a rapid expansion of the microcredit industry India's Andhra Pradesh saw a major crisis in the sector in 2010. Some of the characteristics resemble those of a classical banking

boom and bust cycle. The high growth and profitability of Indian MFIs in many cases led to multiple borrowing and excessive indebtedness among low-income clients. The crisis showed the inadequacy of the regulatory and institutional frameworks (including lack of a credit registry and consumer protection) but was exacerbated by political interventions. On one hand, microcredit institutions had to compete against subsidized government credit programs; on the other hand, state governments encouraged MFI clients to stop repaying their loans ahead of elections.

4.25 Schicks and Rosenberg (2011) offer a more general analysis of overindebtedness in microfinance. They explain the increasing concerns with an increase in competition and saturation in microfinance markets and uninformed or irrational behavior of borrowers (as already discussed above) that results in overborrowing. However, there might also be supply-side factors including dynamic lending with increasing loan sizes that contribute to the problem. Surveying six studies of microfinance overindebtedness, they find that it is not always easy to capture problems early on in quantitative indicators, as borrowers might feel compelled to repay even this pushes them further into poverty.

4.26 What effect does a debt relief program, often the result of such a crisis as in Andhra Pradesh, have on borrowers and the economy at large? Several papers explore the Agricultural Debt Waiver and Debt Relief Scheme (ADWDRS) for Small and Marginal Farmers, that the Indian government announced in February 2008 and which cancelled the outstanding debt of more than 40 million rural households across the country, amounting to approximately 1.7 percent of India's GDP. Proponents of debt relief argue that extreme levels of household debt are likely to distort investment and production decisions, and thus debt relief holds the promise of improving the productivity of beneficiary households.

4.27 Critics of debt relief, in contrast, worry that writing off loans also implies writing off a culture of prudent borrowing and repayment. Using household survey data, Kanz (2012) shows that although this debt relief program reduces overindebtedness substantially, the program did not manage to reintegrate the recipient households into formal lending relationships, with negative repercussions for their enterprises: beneficiary households reduce their investment in agricultural inputs (which tend to be largely credit financed) and suffer a corresponding decline in agricultural productivity. Gine and Kanz (2013) show that in the wake of the debt relief program, new credit was reallocated from districts where many farmers were being bailed out towards districts with a lower incidence of bailout. In summary, debt relief program provide short-term relief at the expense of long-term negative repercussions for access to formal finance.

4.28 In addition to the risk that overindebtedness poses for clients and financial institutions alike, financial diaries—documentation of financial transactions of the poor over longer time periods—show that poor households see credit and savings as substitutes, where the former has a large pay-out at the beginning of the contract, while the latter has the payout at the end, and focus more on the cash flow (Collins et al. 2009). Therefore, the emphasis has been recently on other financial services, including on savings.

Access to Savings

4.29 Many of the studies exploring the impact of tailored delivery channels and products on savings behavior mentioned in 3.2 also explore the effect of these innovations on socioeconomic outcome variables. Dupas and Robinson (2013a) explore the expansion of savings accounts in rural Kenya to assess the impact on microentrepreneurs and document higher investment among female, though not male entrepreneurs that gain subsidized access to savings accounts. Dupas and Robinson (2013b) also compare the effectiveness of different commitment devices, including lockboxes with and without keys, individual health savings accounts and joint health pots of existing ROSCAs. Clients using the lockbox with a key increased preventive healthcare spending, while clients using the lockbox without a key did not. Similarly, the use of the health pot led to higher preventive healthcare spending, while the use of individual health savings accounts led to an improvement in being able to meet unexpected emergency healthcare expenses.

4.30 Similarly, Brune et al. (2013) find in their study of Malawian cash crop farmers that using a commitment savings product increases investment and crop output by 21 percent, with an increase of 11 percent in consumption, whereas regular savings products have no such effect. The difference between the effect of the two savings products stems from the commitment savings account allowing households to not have to share savings with social networks. Ashraf, Karlan, and Ying (2010) show that the introduction of a commitment savings product in the Philippines led to a shift towards female-oriented durable good consumption. Prina (2013) finds in her experimental study of Nepal that access to savings accounts appears to help households manage their resources better, prioritizing expenditure categories, such as education and food consumption, and feel more in control of their financial situation. But she does not find any effect on wealth. Karlan and Linden (2014), however, show the trade-off that savers face on commitment savings accounts – overcoming hyperbolic preferences versus loss of flexibility; in their setting, there is a stronger effect of a soft commitment savings account on savings and on education expenditures than of a hard commitments savings account.

4.31 There are several systematic reviews on micro-savings studies. Pande et al. (2012) undertake a review on 12 studies in low- and middle-income countries. They conclude that "innovative design of new savings products that increase the supply of savings and increase demand for savings by helping people address behavioral challenges were found to increase income at least in the short run… and can increase income by allowing households to accumulate assets." Stewart et al. (2010) include four studies on Sub-Saharan Africa and report mixed results, ranging from no effects on income, mixed impact on education, and positive effects on housing. Overall, their conclusion is more positive on the impact of microsavings than on microcredit (given the risks involved with the latter). Similarly, Stewart et al. (2012) find in their broader review of microfinance interventions mixed impact of microsavings interventions on income and economic opportunities.

4.32 In summary, these studies confirm that access to formal savings can result in a better protection of resources from other household members, especially if the alternative is saving within the household rather than other informal means of saving outside the household (Beck, Pumak, and Uras 2014). Compared to the impact studies on microcredit, the studies

assessing the impact of providing access to savings products are, on average, more positive than the literature on the impact of microcredit. However, they also show the need for very specific products and techniques to overcome constraints of low-income households and microentrepreneurs.

Access to Microinsurance Services

4.33 As discussed, microinsurance products such as rainfall insurance can help overcome asymmetric information and agency problems in agricultural insurance. Does the use of such insurance products change investment behavior of farmers? So far, only few studies have addressed this.[13]

4.34 Cole, Gine, and Vickery (2013) find mixed results from the introduction of weather insurance in India, where farmer shift toward more rain-sensitive crops that are riskier but also more profitable. However, farmers with insurance do not increase their input use. Karlan et al. (2013) conduct several experiments in northern Ghana to gauge the relative importance of credit and risk constraints, where farmers are randomly assigned to receive cash grants, grants of or opportunities to buy rainfall insurance. They find not only high demand for rainfall insurance, but also larger effects of insurance take-up on agricultural investment than of the cash grants, implying that in this context, risk cost constraints are more binding than resource and liquidity constraints. In contrast, in the case of crop price insurance in rural Ghana, Karlan et al. (2011) find few differences in behavior between farmers who take up a standard credit product and those who take up a credit with a price crop insurance component. Janzen and Carter (2013) find positive effects of an index-based drought insurance product in rural Kenya, using randomly assigned discount vouchers as identification strategy. Specifically, they show that insured households are on average 36 percentage points less likely to anticipate drawing down assets, and 25 percentage points less likely to anticipate reducing meals upon receipt of a payout.

4.35 Overall, the evidence suggests microinsurance can have positive effects on farmers and entrepreneurs, though the limited take-up might limit the benefit of offering such services.

Access to Digital Payment Services

4.36 As discussed above, digital payment services helps include more low-income individuals and microentrepreneurs integrate into the broader market economy, which can also have important impact on outcome variables. Aker et al. (2013) find that randomly switching to mobile delivery of cash grants in Niger leads to a change in consumption patterns, toward a more diversified diet, possibly because of changes in intrahousehold decision making induced by mobile delivery of grants. Using panel data for 2008 and 2010 in Kenya, Jack and Suri (2014) examine the impact of reduced transaction costs after the introduction of M-Pesa on risk sharing and find that M-Pesa users are more likely to absorb negative income shocks, especially among lower-income households. The channels for this

[13] The systematic review by Cole et al. (2012) mentioned included only the study by Gine and Yang in terms of impact of real insurance take-up.

seem to be both a higher quantity of remittances received in the case of negative income shocks and a higher variety of remittance senders. Blumenstock, Eagle, and Fafchamps (2013) use mobile phone transfers over four years in Rwanda and show that these transfers are used to help people affected by natural disasters, such as an earthquake near Lake Kivu. Unlike other documented forms of risk sharing, the mobile phone-based transfers are sent over larger geographic distances and are more likely to be sent between pairs of individuals with a strong history of reciprocal exchange.

4.37 Overall, these initial results are quite positive. They show that the use of more effective payment methods cannot only reduce costs and connect more people to national and international payment systems, but also allow more effective interpersonal exchange and risk sharing across space and over time. However, research on the impact of expanding digital payment services is still in the early days, as this is a relatively recent product. Several research evaluations are currently ongoing, with results to be expected in the near future. One important aspect will be to gauge whether access to digital payment services increases individuals' likelihood to participate in the formal economy and increases microenterprises' investment and profitability.

5. Regulatory Issues

5.1 As institutions reaching out to the low end of the market expand both in outreach and in volume, the question on how to regulate them properly arises. Analysts have early on agreed on an important distinction between institutions that require prudential regulation, as they use deposit funding to lend to borrowers, and institutions that require "only" conduct regulation as they either do not on-lend their deposits or use nondeposit resources for lending.[14] Prudential regulation is aimed at the solvency and liquidity of the individual financial institution (and the overall financial system), partly with the aim of protecting small depositors and thus addressing the agency problem between depositors and financial institution.

5.2 Regulation is more concerned about problems between clients and the institutions and focuses on consumer protection. In reality, there is a wider range of options on regulating low-end-market financial institutions, ranging from (i) registering with a government authority, to (ii) publishing regular reports on operations and financial rep5orts, to (iii) being subject to non-prudential conduct regulation and supervision, to (iv) being subject to prudential regulation.[15] Even where low-end-market financial institutions are subject to prudential regulation, there is often a special regulatory regime for these institutions ("window"), which might involve lower documentation and reporting requirements, higher capital and liquidity requirements though lower minimum capital requirements, more stringent provisioning requirements and certain activity restrictions such as on foreign exchange.

5.3 An important challenge to consider is avoiding regulatory arbitrage, that is, financial institutions choosing a lighter regulatory regime if they can, with potential fragility risks. A functional approach to regulation—that is, regulating according to the services provided by an institution rather than according to its name—is therefore critical, combined with a risk-based approach, where institutions whose potential failure constitutes a bigger fragility risk for the economy and society face more rigorous regulation and supervision, is critical in this context.

5.4 A related question is who should supervise low-end institutions. In many low- and even middle-income countries, the supervisor of commercial banks (in many cases the central bank) is the only reputable, competent, and politically independent institution and would therefore be the natural host as regulator and supervisor of MFIs. However, regulating and supervising these institutions might require a different approach and skill set that might not easy to integrate into a central bank or bank supervisory culture. One compromise might be to have a specialized department within the bank supervisory authority or central bank. In either case, supervisory capacity is often an important constraint. Another challenge is the number of institutions to supervise. Where this number is very large, delegated supervision has been suggested, for example, forcooperatives or credit unions, where an apex institution

[14] Another exception is MFIs that partly rely on forced savings of their borrowers for funding. CGAP (2011) argues that they can basically go without prudential supervision.
[15] For a more in-depth discussion, see World Bank and IMF (2005).

undertakes supervision of individual institutions and is in turn regulated and supervised by the bank or MFI supervisory entity.

5.5 The regulatory framework, however, also implies compliance costs for the regulated entities, estimated by Christen, Lyman, and Rosenberg (2003) to amount to 5 percent of total assets during the first year and 1 percent thereafter. Cull, Demirguc-Kunt, and Morduch (2011) document some possible consequences of these compliance costs on outreach by MFIs. Using cross-sectional data they show that institutions subject to onsite supervision and regular reporting requirements achieve the same profitability as other MFIs, but at the expense of reduced outreach, as measured by average loan size and the share of female borrowers. It is important to note that the nature of the data prohibits causal inference for this relationship, as recognized by the authors.

5.6 Cull et al. (2013) use a global index on (i) the regulatory framework and practices for MFIs and (ii) the supporting institutional framework for microfinance across 47 countries and link it and its subcomponents to different outreach and financial performance measures of MFIs in these countries. The supporting institutional framework, including accounting transparency, pricing transparency, client protection, credit information sharing and possibility to use agents, is positively associated with higher outreach of MFIs, while the strength of the regulatory framework is related to financial performance and the share of female borrowers on the MFI level. As the authors caution, these findings are purely cross-sectional and although robust to the use of instrumental variables it is hard to infer any causal relationships. Future work using panel work and exploiting changes in countries' regulatory and institutional framework might be able to address this challenge.

5.7 In the context of conduct regulation, consumer protection has taken on an increasingly important role. Consumer protection seems to be especially important for institutions catering to the low end of the market, given the limited financial literacy of the client base. This protection seems important across the different services, but especially when it comes to credit, with the possible risk of overindebtedness.

5.8 There is a large policy literature on effective consumer protection.[16] Effective consumer protection in financial services focuses on four key areas: (i) disclosure of interest rates and fees, which is clear, simple, easy to understand, and comparable; (ii) prohibitions of business practices that are unfair, abusive, or deceptive; (iii) recourse mechanisms that are efficient and easy to use; and (iv) financial education that gives consumers the knowledge, skills, and confidence to understand and evaluate the financial information they receive (Rutledge 2010). There are different instruments of consumer protection corresponding to these different objectives. Disclosure requirements are one of the most basic and important tools.

5.9 For example, providing customers with a clear indication of the monthly costs of credit, including interest, principal, and fee payments, over the complete lifetime of the credit should be a minimum requirement. A step up from minimum consumer disclosure rules (which can be enforced by bank supervisors or on a self-regulatory industrywide basis by the

[16] For the following, see, for example, Beck et al. (2011) and the references therein.

banking association) are government regulations that prohibit financial institutions from selling specific products to all but sophisticated clients (such as corporate clients or high-wealth individuals) and government regulations that impose affordability tests on financial institutions before credit may be extended. However, there is a trade-off between too onerous regulation that prevents the financial system from expanding access and protection of consumers.

5.10 A final set of rules imposes certain minima or maxima on the costs of financial services, including usury interest rates. Such interest rate ceilings (in the case of credit) or floors (in the case of savings products) can, however, easily turn into a restrictive tool that reduces access to services by riskier customers and customers with need smaller transactions and who are thus costlier for financial institutions.[17] Though a case might be made to reduce abusive levels of interest and avoid overindebtedness, often such caps are set at an unrealistically low level. One important concern in this context is that lenders can try to get around such caps by imposing fees and reducing transparency.

5.11 As discussed above, competition among microlenders can have negative repercussions for repayment incentives, especially in the absence of credit information sharing between lenders. An extensive literature has theoretically and empirically explored the benefits of credit information sharing among banks and the establishment of public credit registries and/or private credit bureaus has become standard element of reform agendas in the financial sector. Although one of the "best practice" elements is that such information-sharing systems are open to as many institutions as possible, in most countries MFIs do not participate in bank credit registries, partly because of cost issues on both sides: processing large numbers of microloans is very costly and the cost of inquiries on credit application is too high for MFIs relative to the loan size. Some countries have developed stand-alone microfinance credit registries. This can address some of the cost issues, but it also fortifies a segmentation in the financial system and reduces the likelihood that MFI client can use the positive information they have built up to access the banking system.

5.12 There are a few studies assessing the impact of credit information sharing in microfinance. Luoto, McIntosh, and Wydick (2007) show that the introduction of a credit registry for MFIs in Guatemala helped reduce missed payments and delinquency by 2 to 3 percentage points in one large MFI. De Janvry, McIntosh, and Sadoulet (2010) use the staggered education of borrowers who were organized in joint liability groups, after introduction of the credit registry, to gauge different effects of credit information sharing on their behavior. Specifically, the initial effect on repayment of the announcement of the existence of the credit bureau reduced delinquency by 18 percent, which is a result of improved repayment incentives, as group composition is constant in the short run. Subsequent changes in group composition and the effect of those changes on repayment, i.e. replacement of high-risk with low-risk group members, as measured over several loan cycles where groups can adjust their composition, are weaker, but still present.

5.13 As more and more countries move toward regulating institutions focusing on the low end of the market, we can expect an increase in data collection in this area and issues of

[17] For a recent discussion on this issue, see Maimbo and Henriquez Gallegos (2014).

competition, regulatory and supervisory framework and even deposit insurance to become more relevant.

5.14 Very different regulatory challenges arise in the area of digital payments, related to network externalities in payment services.[18] Given that new payment networks require large investments but can only be successful if accepted by users on both sides of transactions, there can be fierce competition to dominate a market (and thus recover the fixed investment), although there might be less competition once a dominant player emerges. Competition will therefore be more about new and disruptive technologies rather than within existing markets and products. Critical for the regulator will be to decide on the extent to which to allow new players into the market (for example, mobile network operators (MNO) offering payment services) and the degree of regulation to be imposed on them. It is not clear-cut whether an MNO-led model, such as in Kenya, where the client holds the account with the MNO and has interaction only with the MNO and its agents, or a bank-led model, as exists in most countries, where a bank account is necessary, is better or whether it is rather the country-specific circumstances that determine which model is best.

5.15 As pointed out by Bourreau and Verdier (2010), however, there are more than two forms of cooperation between MNOs and banks, which might have very different interests in terms of revenue generation and cost generation; these different interests are complementary in some circumstances and conflicting in others. Another important issue is whether to impose via regulation interoperability between networks or have the market "work it out."[19]

5.16 Another critical question for regulators is the ID requirements to be imposed on such transaction accounts and payments, with the standard recommendation being a risk-based approach, with accounts and transactions below a threshold size being excluded from the more rigorous banking documentation requirements related to Anti-Money Laundering and Countering Financing of Terrorism rules (Hernandez-Coss et al. 2005).

[18] See Bourreau and Verdier (2010) for more details.

[19] A working group financed by the Bill and Melinda Gates Foundation and headed by Liliana Rojas Suarez (Center for Global Development) and Stijn Claessens (IMF) is currently developing a policy framework on how to regulate digital payments, with a paper expected in the second half of 2015.

6. Gender Dimension

6.1 As pointed out throughout the paper, the gender dimensions is critical in the discussion on financial inclusion, both in terms of access to financial services across male and females and in terms of female empowerment being an important outcome variable. This section summarizes some of the cross-cutting issues in this respect.

6.2 First, females are, on average, less likely to have access to formal financial services than males. At the same time, a large share of self-employed in developing countries is female and thus in need of financing. Demirguc-Kunt, Klapper, and Singer (2013) document a significant gender gap in individual account holdings, though with significant variation across countries.

6.3 Aterido, Beck, and Iacovone (2013), however, show for several Sub-Saharan African countries that this unconditional gender gap turns insignificant once one controls for other characteristics, a finding that holds both for individual account holding and entrepreneurial access to credit. In the case of enterprises, they explain this finding with a selection bias and for individuals with gender gaps in other dimensions related to the use of financial services, such income, education, and household and employment status.

6.4 The findings for access to entrepreneurial credit are matched by Bruhn (2009) for Latin America. However, gender gaps in critical factors that determine access to formal financial services—including employment and income status, legal restrictions (such as in asset ownership and holding in some countries), and education—provide an important justification to focus efforts in financial inclusion on female individuals and entrepreneurs and look beyond traditional banking techniques focused on salaried, formally employed, and educated individuals.

6.5 Beyond the lack of access to formal financial services by women, there are several other reasons the microfinance movement has focused on women. It has often been argued that credit to female borrowers has more direct impact on household welfare than credit to male borrowers, as women care more about children and family. However, there is a trade-off, as documented by Kevane and Wydick (2011); women of childbearing age face higher time constraints because of family commitments and are less likely to expand employment in their microenterprise with credit than male microentrepreneurs or older women are. Another reason is that women are often restricted from access to formal financial services because of intrahousehold restrictions, though this might also imply tailored solutions that protect women against having to share credit or savings proceed freely within the household. A supplier-focused argument is that female borrowers constitute less of a credit risk, as they are less mobile than men and often more conservative in their investment decisions.[20] Repayment rates are typically higher for women than for men.[21]

[20] For a more in-depth discussion, see chapter 7 in Aghion de Armendariz and Morduch (2007).
[21] See, for example, Beck, Behr, and Güttler (2013) with evidence from two MFIs in Albania and Bolivia that lend to both men and women.

6.6 As discussed in section 4, there is some evidence of differential effects across gender in terms of microfinance interventions, as discussed throughout this paper. On one hand, interventions to increase savings are often more successful for women than for men. On the other hand, some interventions are less successful for women than for men, given intrahousehold and other constraints holding back women. This implies that such interventions have to take into account these specific constraints faced by women to be successful.

6.7 Finally, financial inclusion can have a positive impact on female empowerment. However, the evidence so far has been rather mixed, which might have to do with products and services not being appropriate to address intrahousehold conflicts. As already discussed, Yoong et al. (2012) conclude that there is no conclusive evidence for a positive impact of microcredit on female empowerment.

7. Policy Implications

7.1 The evidence reviewed so far shows that innovative delivery channels and tailored products can make outreach to low-income and rural population segments commercially viable. It is important to note, however, that the take-up of these products is often below expectations.

7.2 It is important to differentiate between different financial services. For credit, there seems no clear-cut case for access to credit having long-term, transformational positive repercussions, at least on average. In this context it is important to reiterate that a large share of these loans is for consumption and not entrepreneurial purposes – and although there is nothing wrong with this, it has different repercussions for both expected micro and macroeffects than suggested by the underlying theories discussed in section 2. However, there seems some evidence that a certain share of the targeted microentrepreneurial population can benefit quite a lot. There is thus more of a need for more tailored and context-specific approaches that takes into account other constraints. In addition, it is important to move up the firm ladder toward small enterprises, which might have more potential to be transformative and create jobs. Different groups of borrowers have to be targeted with different techniques (group versus individual lending) and different products, and it is to be expected that different types of institutions will be targeting different sectors and segments of the enterprise population. Obviously, a greater flexibility of loan terms is only consistent with individual and not necessarily with group loans.

7.3 Facilitating access to savings products on a broad scale seems more sensible, which can also have important repercussions for entrepreneurial behavior. Where access to external finance is limited, internal finance becomes more important, and constraints to the effective use of internal finance have to be addressed. It is important in this context to take into account behavioral and intra-household constraints. Offering formal financial services can help individuals (especially those with weaker decision power in the household) shift consumption patterns and even invest more in their microbusinesses.

7.4 Providing access to micro-insurance is also promising but tricky. Given contingent payments, it is much harder to convince potential beneficiaries to purchase such policies, as the reviewed evidence has shown. However, when purchased, it can have important repercussions for investment patterns.

7.5 As the examples of M-Pesa in Kenya and similar programs in other countries have shown, the best way to start the entry into the formal financial system may be with payment services, as that helps to establish trust immediately. In many contexts it also often is the most immediate financial service needed by many low-income individuals and households. In contrast, analysts have been struggling with the question of how to move beyond payment to other financial services. Ongoing innovation in Kenya and other countries might be helpful to study in this context. It is important to note that this innovation is driven by both commercial banks and MNOs rather than by NGOs or the donor community, which are behind much of the microfinance movement.

7.6 One critical issue is to link impact on the micro level with impact on the macro level. Can the provision of activity-tied credit and insurance services hold back transformational changes by tying households to their current activity? Or is it better to provide activity-neutral services, including savings, payments, and consumer credit? This is still an open question.

7.7 This paper has focused on access to and use of financial services by individuals, households, and microenterprises; I would like to make a short remark on the broader literature of finance and poverty alleviation. In addition to direct benefits of access to financial services, there might also be important indirect effects from financial deepening. If financial deepening reduces the cost of credit and improves allocation of scarce capital across the economy, this can have an impact on the structure of economy.

7.8 Although there is no firm evidence that direct access to credit always improves recipients' welfare, there is some tentative evidence that financial deepening can reduce income inequality and poverty alleviation indirectly. On the aggregate cross-country level, Beck et al. (2012) find that that the negative relationship between financial depth and changes in income inequality goes through enterprise and not household credit. Assuming that access to formal credit by microenterprises is more likely to be captured by household credit, this suggests that the pro-poor nature of financial deepening is primarily linked through indirect effects. However, this study is subject to the important caveats on cross-country comparisons. In addition, other recent evidence also suggests that financial deepening can contribute to employment growth, especially in developing countries (Pagano and Pica 2011), consistent with the studies for Thailand and the United States.

7.9 Gine and Townsend (2004) compare the evolution of growth and inequality in a dynamic general equilibrium model with the actual development in the Thai economy and show that financial liberalization and the consequent increase in access to credit services can explain the fast GDP per capita growth, rapid poverty reduction, and initially increasing but then decreasing income inequality. Underlying these developments are occupational shifts from the subsistence sector into the intermediated sector and accompanying changes in wages. Net welfare benefits of increased access are found to be substantial, and, though they are concentrated disproportionately on a small group of talented, low wealth individuals who without credit could not become entrepreneurs, there are also benefits to a wider class of workers, because eventually wage rates increase as a result of the enhanced access to credit by potential entrepreneurs.

7.10 Beck, Levine, and Levkov (2010) find similar evidence for the United States, where branch deregulation in the 1970s and 1980s resulted in lower income inequality. Credit expansion following deregulation led to an increase in labor demand, which fell disproportionately on unskilled, lower-income households whose wage rates and working hours increased. These labor market reactions to financial liberalization can thus explain the tightening in income inequality. Ayyagari, Beck, and Hoseini (2013) find a strong negative relationship between financial deepening, rather than financial inclusion, and rural poverty, following financial liberalization in 1991 in India. They also find that financial deepening reduced poverty rates among the self-employed and supported an interstate migration from rural areas into the tertiary sector in urban areas.

7.11 Taken together, the empirical evidence so far suggests an important difference between two concepts – finance and poverty alleviation and finance for the poor. By changing the structure of the economy and allowing more entry into the labor market for previously unemployed or underemployed segments of the population, financial deepening (more efficient financial institutions and markets) helps reduce income inequality and poverty, as discussed above. Thus, financial deepening can help achieve more inclusive growth and also help overcome spatial inequality in growth benefits. It is important to understand that the effects of financial deepening on employment and poverty alleviation do not necessarily come through the "democratization of credit" but rather a more effective credit allocation. This also implies that microcredit is not necessarily the most important policy area to reap the benefits of financial deepening for poverty alleviation.

7.12 For the poor to benefit directly from financial sector deepening and broadening (finance for the poor concept), it is important to look beyond credit to other financial services that the poor need, such as simple transaction or savings services. Although it should be a goal to achieve access to basic transaction and savings services for as large a share of the population as possible to enable them to participate in the modern market economy, the agenda in boosting access to credit should focus on improving the efficiency of this process, replacing access through political connection and wealth, as still happens in many developing countries with access through competition. By channeling society's resources to the most credit-worthy enterprises and project, the financial system can enhance inclusive growth.

7.13 The evidence so far also suggests that even when talking about outreach to the poor (finance for the poor concept), we should look beyond microfinance institutions to a broader set of financial institutions, including banks. Technology has revolutionized the economics of retail banking, which suggests looking beyond traditional financial institutions to new delivery channels for financial services.

8. Comments on Methodology

8.1 The empirical literature in economics in general and development more specifically has grappled with identification, that is, identifying the direction of causality. The literature has made significant progress on this front, mainly due to the use of randomized control trials, by now often described as the methodological gold standard. However, this methodology has also been criticized as falling short on several dimensions.

8.2 Comparing an individual, household or microenterprise before and after gaining access to financial services does not control for other changes. Comparing individuals with and without access does not control for selection bias. By randomly assigning people to the treatment (access) and control (no access) groups and comparing outcome variables before and after the treatment, randomized experiments can control for such observable and unobservable effects. RCTs have been extensively used to link access to finance to welfare results on the micro-level and many of the findings described above are based on such RCTs. Compared to observational data, even with very rigorous identification strategies, RCTs have the advantage that the intervention and the data collection is under the control of researchers.

8.3 RCTs have several short-comings, as pointed out by many observers (for example, Ravallion 2011) that are not limited to studies of microcredit. First, there is the issue of external validity: what works in India might not work in Pakistan, and what works in rural areas might not work in urban areas. There is also a selection bias regarding where such interventions and their assessment take place and when results are reported. In addition, RCTs are being undertaken in small areas; rolling the treatment out to larger areas or even a whole country might trigger second- and third-round effects whose direction is not clear (Buera et al. 2011).

8.4 Second, RCTs measure mostly short-term immediate effects, partly explained by the fact that participating MFIs do not want to leave the control group unserved for too long, sometimes including for ethical concerns. In addition, longer-term studies are more costly. Another reason it is difficult to explore long-term effects is that it is harder to control for other developments (for example, other institutions entering the market, as in the Banerjee et al. 2015 study) in treatment and control areas, thus increasing the noise in the estimation and reducing attributability. However, long-term effects are important for, among other things, gauging the effect of microcredit expansion on household overindebtedness and fragility. Third, most of the controlled experiments, as undertaken up to now, do not consider any spill-over effects of access to credit by the treated individuals or enterprises to other individuals or enterprises in the economy. Although there are some general equilibrium studies, they are often very specific to certain policy interventions and cannot be easily if at all replicated in other contexts.

8.5 In addition to these methodological concerns, there are also practical challenges, as vividly described in Campos et al. (2012) for the case of several attempted RCTs for matching grants in Africa, including the challenges that "…in some cases governments were unwilling to randomly select recipients of the grants, in others the application rates to the programs were too low to enable the planned selection of a random sample of eligible

applicants, and in others continued implementation delays prevented us from starting." Similar challenges can be found in microfinance RCTs.

8.6 Though RCTs are often considered the "gold standard," they are very costly and their use therefore faces budgetary limitations. In addition, and as pointed out by Ravallion (2009), the projects that can be evaluated with RCTs do not make up not a random set of possible development interventions. Randomization of treatment and control groups has also become trickier over time, so that "second-degree" treatment has become more popular, that is, not randomizing actual access but rather marketing and/or encouragement to do so.

8.7 As alternative quasi-experimental set-ups, exploiting certain restrictions on lending programs, staggered introductions, or changes in a program might provide the necessary exogenous variation and allow proper identification of the effects. However, such studies are often subject to intense discussion on the identification assumption as the Pitt and Khandker study has shown. As discussed, replication of this study with alternative econometric methods by Roodman and Morduch (2009) did not confirm the findings. Duvendack et al. (2011) report on other papers also trying to replicate the original Pitt and Khandker findings, with similar failure. The combination of poor data quality, poorly defined or inappropriate counterfactual and control groups, and possible selection bias makes the claims of Pitt and Khandker not credible. The credibility of such studies rises and falls with the identification strategy and as in the case of RCTs, the share of intervention that offer such an acceptable identification is not random.

8.8 RCTs will continue to play a critical role for microfinance, especially when it comes to introduction of new products and new delivery channels or reaching out to new clienteles. They can jointly address the needs of low-end-market institutions in piloting new products or delivery channels and the interests of researchers in gauging the effectiveness of such interventions. However, extending the methodological tool box toward other methodologies including matching estimators and quasi-natural randomization can be important to also reduce the selection bias in policies and interventions that are being assessed. In addition, it is important to move beyond microevaluations to a broader evaluation on general equilibrium effects. As discussed, several studies considering general equilibrium effects of microcredit expansion have found relatively small aggregate effects, which might explain why several developing countries with relatively large (in terms of outreach) microfinance sectors have not seen a substantial aggregate income effect from their microfinance industry.

8.9 One important challenge is how to move from short-term assessment of financial inclusion efforts to longer-term assessment. Some of the theories underpinning efforts to increase financial inclusion refer to longer-term effects, such as education. As discussed, RCTs might not be the right method to test for such impact. Studies with long-term observational data collections might fill this gap, though biases from attrition and omitted variables become more important.

9. Conclusions

9.1 There have been two revolutions in financial inclusion over the past decade. First, access to and use of formal financial services has increased rapidly across the developing world thanks to innovation and technology. Second, evaluation of policies and interventions to increase inclusion and evaluation of the impact of financial inclusion has been made possible by new methodologies, cooperation between researchers and financial service providers, and the financial support and encouragement of donors. Both revolutions are still unfolding. First, new technologies and innovations are still being tried and rolled out across the world, partly but not only related to mobile technology. Second, the evaluation of financial inclusion has moved beyond simple good-bad-ugly comparisons to more nuanced assessments.

9.2 This paper has offered a critical literature survey on financial inclusion efforts over the past decade. The verdict is mixed, and only tentative conclusions can be drawn. The effect of microcredit seems limited, with efforts to increase take-up of savings products somewhat more promising. Micro-insurance service seem also helpful, with take-up being the main challenge. Digital payment services seem to have the largest immediate success, but research in this area is just starting. As the microfinance industry keeps expanding in institutions, outreach, and products, questions on how to regulate and supervise it properly will become more and more important.

9.3 My reading of the literature is that tailored credit and insurance interventions for specific groups with well-identified needs and opportunities on one hand and broader outreach efforts in payment and savings services on the other might be a promising way forward. In any case, tailored interventions and approaches should not side-track any attempts at broader policy reforms to deepen financial systems in developing countries.

9.4 In conclusion, there are some important research questions going forward. The challenge on assessing the impact of financial inclusion will be to reconcile micro-interventions and macro-impact. First, macro-level assessments of microfinance expansion have been undertaken. This “upward trend” in microfinance evaluation mirrors a “downward trend” in the finance-growth literature, which started out with aggregate regressions, toward country-level, industry-level, and ultimately firm-level studies, with identification strategies getting more refined. The micro- and macroliterature on finance and development have developed relatively separate (also seen by separate chapters in the 2004 *Handbook Economic of Growth* and with papers in either literature only quoting one of them); bringing them closer together will be a challenge for the future.

9.5 Another important area is that of government’s role. Microfinance addresses very specific market failures; to what extent can we rely exclusively on NGOs and donors to overcome it? There has been a trend toward the visible hand of government, market-friendly interventions (De la Torre, Gozzi, and Schmukler 2007) that try to address market failure without creating government failures resulting from rent seeking and inefficiencies, including providing infrastructure platforms and covering fixed costs to avoid first-mover and coordination problems.

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