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**Financial Inclusion: Concepts, Issues and Policies for India**

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July 4, 2017

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This paper lays out some of the basic concepts surrounding financial inclusion, including access to banking, digital payments and financial literacy, as well as markets for health insurance, crop insurance, agricultural credit, small firm finance, and microcredit/ microfinance. It goes on to discuss various empirical and institutional studies of these dimensions of financial inclusion in the context of developing countries. The paper then outlines several recent studies for India sponsored by the International Growth Centre, which pertain to these specific aspects of financial inclusion. Finally, the paper draws lessons for policy-making and future research directions. Important considerations that emerge from the overview are the significance of social and economic context, the need to consider behavioral biases connected to situations involving time and risk, the interaction of different dimensions of financial inclusion, the importance of details of policy design, and the limited understanding we still have of many of the factors underlying the functioning of financial markets.

**Keywords:** financial inclusion, saving, insurance, credit, microfinance, financial literacy, India  
**JEL Codes:** G21, G22, G38, G41, O16

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# Financial Inclusion: Concepts, Issues and Policies for India

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## Introduction

Financial development is an obvious component of overall economic development, as well as playing a role in driving growth.<sup>1</sup> Studying the role of financial development in economic growth has gone from measuring it in terms of a single number such as the ratio of bank credit to an overall measure of economic activity (typically GDP) to considering the different dimensions of the concept. A typical decomposition of the concept of financial development considers depth, access, efficiency and stability (Cihak et al., 2012).<sup>2</sup> Financial depth corresponds to the dimension captured in measures such as credit-GDP ratios. Financial access is essentially the same as financial inclusion, and the latter term has become more common (World Bank, 2014).

The 2014 World Bank conceptualization of financial inclusion parallels basic ideas of financial depth: “the proportion of individuals and firms that use financial services” (p. 1). Subsequently, the Bank has developed a more elaborate definition:

Financial inclusion means that individuals and businesses have access to useful and affordable financial products and services that meet their needs – transactions, payments, savings, credit and insurance – delivered in a responsible and sustainable way.

(<http://www.worldbank.org/en/topic/financialinclusion/overview#1>)

This definition highlights the different aspects of financial services that are ultimately what make finance an important part of the economy. As the web site notes, “Access to a transaction account is a first step toward broader financial inclusion since it allows people to store money, and send and receive payments. A transaction account can also serve as a gateway to other financial services...” There are several implicit assumptions in highlighting financial inclusion in this manner, in particular, the notion that the aforementioned financial services are not available to a set of people that is socially optimal, either in an instrumental sense of maximizing aggregate welfare (including social concerns for reducing inequality) and economic growth, or in

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<sup>1</sup> Recent contributions to the enormous literature on the connection between financial development and growth include Beck et al., (2007), Law and Singh (2014), Aizenman et al., (2015) and Arcand et al. (2015).

<sup>2</sup> Sahay et al. (2015) consider depth, access and efficiency as components of financial development, and consider financial and economic stability separately. These analyses also distinguish between financial markets and financial institutions. Cihak et al. (2012), following earlier work on constructing indices of financial development, discuss various measures of access, including bank accounts per 1,000 individuals and percentage of firms with lines of credit (institutions), as well as percentage of market capitalization outside the 10 largest companies (markets), along with several other candidate variables. Sahay et al. (2015) use similar measures.

a broader sense of promoting rights and capabilities for all human beings (Sen, 1999). The possible reasons for suboptimality are taken up later in this paper.

The World Bank web site on financial inclusion goes on to remind readers of the beneficial ripple effects of financial access, beginning with basic formal transaction accounts. These benefits include lower transaction costs for daily economic activities, the ability to plan for longer-term needs, and the opportunity to create buffers for unexpected emergencies. For the better-off in both advanced and developing countries, both financial access and its benefits are taken relatively for granted, although the limits and challenges of access are much more severe in poorer economies or regions.<sup>3</sup>

Other discussions of financial inclusion have different emphases, but with similar scope. For example, the introduction to a collection (Cull et al., 2013) of empirical analyses of financial inclusion begins by highlighting microcredit as being symbolic of growing financial inclusion, though it goes on to note savings, transfers and insurance as other important services. While many such financial services are missing or barely provided in poorer countries such as India, the challenge of providing microcredit is just one example of pervasive credit market imperfections that hamper development. These imperfections are apparent in the very limited access of most individuals in, say, India to formal credit markets, and the large disparities in borrowing costs between formal and informal credit markets.

Dilip Mookherjee<sup>4</sup> emphasizes two other important aspects of financial inclusion in the context of India. The first is the necessity of wider financial inclusion to improve the efficiency and targeting of government welfare programs. For example, transfers that can be made directly to citizen bank accounts can help to eliminate corrupt and inefficient intermediaries.<sup>5</sup> Second, financial inclusion has a much wider role as an instrument of reducing corruption and terrorism, by enabling better monitoring and regulation of financial transactions. In both these cases, innovation through the use of digital technology is a key component of implementing change.<sup>6</sup>

Cull et al. (2013) also note the importance of technological and product innovation in improving inclusion. Karmakar et al. (2011), in assessing financial inclusion in India, begin by emphasizing the need to expand the reach of formal financial institutions such as banks, as a channel for access to a range of financial services. The role of technological innovation in bringing down the costs of service provision is again highlighted, as is the need for financial counseling: indeed, the

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<sup>3</sup> The discussion of the benefits of financial inclusion ties in with the detailed micro-level account of the lives of poor people in Banerjee and Duflo (2011).

<sup>4</sup> Personal communication, February 2017.

<sup>5</sup> In particular, Muralidharan et al. (2016) evaluate the impact of biometric payments infrastructure to make social welfare payments in Andhra Pradesh. This study shows that payments through biometrically authenticated accounts led to faster, and more predictable payments with a 47% reduction in leakage of funds between the government and target beneficiaries.

<sup>6</sup> As recent developments in India illustrate, addressing better targeting of government programs and control of corruption are important parts of the government's economic strategy. These issues are discussed further in the conclusion.

behavioral and other demand side aspects of financial inclusion deserve as much attention as technological and supply side approaches.

Karlan and Morduch (2009) provided a major survey of “Access to Finance,” which while several years old now, represents the most comprehensive academic review of the topic. They pointed out that research in the area had already gone well beyond the initial focus on microcredit for investment by small entrepreneurs. The authors discuss new credit mechanisms and devices that help households manage cash flows, save, and cope with risk. In this context, they consider issues of contract design, product innovation, regulatory policy, and bottom-line economic and social impacts. The survey also relates the empirical evidence to theoretical concepts rooted in behavioral economics and to the use of randomized evaluation methods. Such randomized trials are highlighted as particularly important in the testing of potential innovations in financial products and services, and in the institutional and technological contexts in which they are delivered. Karlan and Morduch ultimately emphasize the importance of attention to detail in finding workable solutions to lack of financial access, a natural conclusion when trying to reach marginal populations that are not natural sources of profit for sellers of financial products and services.

Aggarwal and Klapper (2013) build on Karlan and Morduch’s earlier survey, and organize their discussion around various barriers to financial inclusion, as well as policies to overcome these barriers. Among the barriers they highlight are time and financial costs of opening and maintaining bank accounts, as well as the cost of meeting documentation requirements (which may be effectively infinite if the required documentation is not possible). They discuss ways of reducing these costs, which can include regulatory policy changes, acceleration of adoption of digital technology-based mechanisms, institutional innovations such as the use of bank agents, or, typically, some mix of all three of these approaches.

A still more recent, though relatively brief, survey is that of Karlan et al. (2016). Despite a title that refers to digital financial services, the scope of the paper is on financial inclusion more broadly. It provides one more set of references to research in the area, as well as its own attempt to distill lessons from existing studies. Echoing themes in the two earlier surveys, the authors emphasize the challenges of market imperfections and deviations from fully rational behavior in efforts to increase financial access. At the same time, they draw optimistic conclusions from empirical studies about the potential of digital technologies and of savings products to provide measurable benefits, while they indicate that areas such as microcredit and insurance present greater difficulties for successful innovation.

The foregoing discussion provides only a flavor of the enormous literature on financial inclusion, and the mixed results of a range of empirical studies. The current paper does not substitute for or supersede these surveys of our knowledge, but builds on them. The rest of this paper is organized as follows. The next section provides an overview of some of the research on various aspects of financial inclusion, and what we can learn from it. This review includes research from a variety of developing countries, including India, though it is far from exhaustive – an impossible task given the size of the literature on various aspects of financial inclusion. The third section considers in more detail several studies done specifically for India, and brings out the particular

lessons of these analyses. The focus of this paper is on studies conducted under the sponsorship of the International Growth Centre, although these are put in the context of the broader literature where possible. The fourth and final section concludes by summarizing what we know and perhaps do not know, with the latter being a guide to possible future research and analysis. In this concluding section, we return to the themes brought up in this introduction, including the lessons highlighted by the various surveys discussed above. A key theme of the paper, in line with those previous summaries, is that succeeding in the various goals associated with promoting financial inclusion requires careful attention to detail with respect to institutions, markets and human behavior, and this in turn requires targeted and well-designed research. However, the focus on India in the current paper allows for some potentially more targeted policy recommendations, as well as specific research directions.

## **Overview of Research**

This section reviews some of the literature on financial inclusion, with a focus on developing countries. After considering a few general analyses of financial inclusion, it turns to specific dimensions of inclusion, including access to banking, microcredit and microfinance, agricultural credit for small farmers, credit for micro, small and medium enterprises, micro-insurance for farmers, health insurance for the poor, and payments technologies. On the demand side, several papers that discuss financial literacy are considered. Finally, the behavioral aspects of demand for financial services, including possible distortions in assessing intertemporal tradeoffs, which are implicit in many of the studies of specific kinds of financial services, are discussed more explicitly.

Demirgüç-Kunt and Klapper (2013) summarize a public data set that measures the financial behavior of adults in 148 countries.<sup>7</sup> They use it to benchmark financial inclusion, and document the most important barriers to bank use, such as the cost of opening account and the need for documentation of identity, residence and so on. Sarma and Pais (2011) analyze cross section data from several dozen countries to study the factors associated with financial inclusion. They find that levels of human development and financial inclusion are positively correlated. More specifically, lower income inequality, higher literacy levels and better physical and communication infrastructure are all associated with greater financial inclusion.

Several chapters in Cull et al. (2012) provide overviews of the state of global knowledge of financial inclusion. Chapter 2 reports on a joint McKinsey-New York University project that parallels and extends data efforts by World Bank and IMF teams (see footnote 2) to estimate the number of adults in different countries and regions who are “unbanked.” This work also shows that many of the poor do use formal financial services, suggesting that there is scope for greater inclusion: poverty by itself need not be an insurmountable barrier. Chapters 3 through 5 in Cull et al. (2012) examine another data source: FinScope surveys, conducted in a dozen countries,

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<sup>7</sup> This paper is based on the Global Findex Database, which is the world’s most comprehensive database on financial inclusion. Over 100 indicators covered by this database can be accessed at the following site: <http://datatopics.worldbank.org/financialinclusion/>.

primarily in Africa. These surveys collect detailed product-level information about the use of financial services, as well as demographic information. Together, the information on usage and individual characteristics provides some insight into the possible barriers to financial inclusion along different dimensions.<sup>8</sup>

Karmakar et al. (2011) provide a comprehensive account of the challenges of financial inclusion in India. They identify institutional and resource constraints, and discuss targeting efforts that have focused on rural populations, women's groups, tribal areas, or combinations of these. They consider the different dimensions of financial services, including transactions, savings, credit and insurance, and possible institutional and technological innovations, including digital tools for identification, payments, and storage. The strengths of these authors' analysis are in providing a fairly comprehensive account of numerous past and current policy initiatives that intersect with the various dimensions of financial inclusion, both on the demand side and the supply side. The discussion conveys a broad sense of the challenges encountered in policymaking and implementation, but since there is no engagement with the empirical academic literature on financial inclusion, the normative recommendations in this analysis can be seen as lacking a firm enough basis for specific policy initiatives.

### *Banking*

Turning to analytical studies of specific dimensions of financial inclusion, we begin with banking, in keeping with the earlier observation that access to a transaction account can serve as a foundation or gateway for broader access to financial services. In thinking about banking, one can conceptualize it broadly, to include institutional variations such as post office accounts, and technology-enabled innovations such as agent banking. Two studies from India provide positive evidence that targeting bank access can have positive impacts. Burgess and Pande (2005) examine the social banking program introduced after India's bank nationalization in 1969. By 1990, roughly 30,000 rural locations with no prior formal credit and savings institutions received a bank. Using panel data for 16 states over 1961 - 2000, with information about the number of bank branches, rural credit and saving shares, and poverty and wage estimates, the authors show that branch expansion was associated with reductions in rural poverty. In a closely related analysis, Burgess, Wong and Pande (2005) found that national policy that caused banks to open relatively more branches in less financially-developed states, and to expansion into rural unbanked locations, reduced poverty across Indian states. They also argued that enforcement of directed bank lending increased bank borrowing among the poor, in particular, for low-caste and tribal groups.

The Burgess-Pande findings were tempered by a subsequent analysis of a similar period: Kochar (2011) used district-level data for India's largest state, Uttar Pradesh, and took account of potentially confounding correlations of two sources of credit expansion at that time. She found evidence of increasing inequality, with the non-poor benefiting more from bank branch

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<sup>8</sup> The surveys are tailored to individual countries, making global lessons difficult to extract, but the only non-African country in these surveys is Pakistan, possibly a useful comparator for India.

expansion than did the poor.<sup>9</sup> However, using later data, Young (2015) highlighted several positive impacts of expanding bank access on economic activity, using a well-structured causal analysis, thus providing the strongest evidence of the benefits of bank expansion in India.

In a much more micro-level study, Somville and Vandewalle (2015) conducted a field experiment in rural India to study the effect on savings of identical weekly payments on a bank account (treatment group) or in cash (control group). They found a large treatment effect, with savings increasing by over 100 percent within three months, with the effect being persistent. Villagers given cash, on the other hand, did not save more in other assets, but increased consumption, suggesting that having a bank account can have a net positive impact on total savings.

On the other hand, Prina (2015) found more limited effects of having bank accounts. In this study, female household heads in Nepal were given access to bank accounts with no fees. The impacts on income, aggregate expenditures, and assets were too imprecisely estimated to draw definite conclusions although there was evidence of a reallocation of expenditures across categories, and a higher ability of households to cope with shocks. Finally, Dupas et al. (2016) experimentally tested the impact of expanding access to basic bank accounts in three countries (Uganda, Malawi, and Chile). While the number of deposits increased, survey data showed no clearly discernible effects on savings or any downstream outcomes.

Such studies suggest that policies merely focused on expanding access to basic accounts are not guaranteed to improve outcomes, and that there are other factors that influence success and failure, and which need to be identified. On the other hand, the work of Young (2015) suggests that, even if mechanisms are not fully observed, and having bank accounts is not an automatic benefit for many of the poor, the overall impacts of bank expansion can be identified in increased economic activity.

### *Microcredit/ Microfinance*

Microfinance and microcredit have received disproportionate attention as vehicles for providing needed access to funds for the poor. Key ideas behind these efforts include pooling of funds, risk sharing and joint monitoring and liability. Target populations, even if they have bank accounts, would almost certainly not qualify for traditional bank loans. Many might use “informal” financial services of moneylenders, with the potential of being trapped in unsustainable debt situations. Of course, it is now recognized that microfinance is not a magic bullet for providing access to credit for the poor, but an enormous body of empirical research provides an understanding of how the institution works in different contexts.

By now, several meta-analyses are also available. For example, Ahlin, Lin and Maio (2011) collected data on 373 MFIs and merged it with country-level economic and institutional data to

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<sup>9</sup> In contrast, a cross-country study by Anson et al. (2013) suggests that post office savings schemes tend to be of greater benefit to the relatively poor, even though post offices may not have full bank status, as is the case in India. Post office savings accounts in India can also be used to make government welfare payments, as was discussed in the introduction.



provide evidence for complementarity between MFI performance and that of the broader economy. Van Rooyen, Stewart and De Wet (2012) systematically reviewed the evidence of the impacts of micro-credit and micro-savings on poor people in sub-Saharan Africa. They considered impacts on income, savings, expenditure, and the accumulation of assets, as well as non-financial outcomes including health, nutrition, food security, education, child labor, women's empowerment, housing, job creation, and social cohesion. Their conclusion was that microfinance has mixed impacts on the livelihoods of the poor.

Many recent studies of microfinance have used randomized controlled trials (RCTs). Banerjee, Karlan and Zinman (2015), provide an introduction and review for six randomized evaluations of microcredit and conclude that there is a "consistent pattern of modestly positive, but not transformative, effects." One of the studies in this collection (Banerjee et al., 2015) reports on an RCT conducted in Hyderabad, using random selection of areas for opening of a branch of a microfinance institution (Spandana). In the treatment areas, households were 8.8 percentage points more likely to have a microcredit loan, but there were no significant development outcomes in areas such as health, education, and women's empowerment. The households with access to credit were not more likely to start new business, but they did invest more in their existing businesses. Finally, there was no effect on average monthly expenditure per capita.

Other studies have been able to analyze large-scale government initiatives, such as the Thai Million Baht Village MFI program. Kaboski and Townsend (2011, 2012) used pre- and post-program panel data and quasi-experimental cross-village variation in credit per household. They find that the village MFI funds increased total short-term credit, consumption, agricultural investment, and income, but seemed to lead to decreased overall asset growth.

Many other evaluative studies have been done, sometimes with specialized foci. Tsai et al. (2016) examined the impact of an RCT-type microsavings intervention on reducing violence against women engaged in sex work in Mongolia. Microsavings participation did not significantly impact women's risk in this case. Cull et al. (2016) consider the financial sustainability of the microfinance business model and conclude that subsidies, while common, may not always be necessary. D'Espallier et al. (2013) used a database extracted from annual accounting statements provided by the Microfinance Information Exchange (MixMarket), to argue that MFIs that do not depend on subsidies are still successful as social ventures. The absence of subsidies is not necessarily associated with profit orientation, and unsubsidized MFIs include non-profit organizations. Fafchamps et al. (2014) performed an RCT in urban Ghana to compare how micro-entrepreneurs use cash and in-kind grants, and find that capital coming directly into the business sticks there, but not cash. Cull et al. (2011) show that profit-oriented microfinance institutions respond to regulatory supervision by maintaining profit rates but curtailing outreach to women and to customers who are more costly to reach. On the other hand, institutions with a weaker commercial focus reduce profitability but maintain outreach.

Studies have also been done to check the robustness of earlier claims. In particular, Roodman and Morduch (2009) replicate and reanalyze an influential study of microcredit impacts on poor households in Bangladesh. That study was celebrated for showing that microcredit reduces poverty, but the re-analysis shows that the original results on poverty reduction disappear after

dropping outliers, or, similarly, when using an estimation method that is robust to such outliers. One can conclude that, even in microfinance, an area of financial inclusion where significant research has been carried out, there is much more to be learned about the factors that influence the success of such efforts.

### *Small Firm Finance*

Research on microfinance overlaps with analyses of small firm finance, since the latter can include micro-entrepreneurs. Studies examine information constraints as well as credit constraints. De Mel et al. (2011) examine the role of information through an RCT in Sri Lanka. The intervention was designed to improve access to credit among high-return microenterprises by providing information about the microfinance loan product, along with a reduction in the number of personal guarantors required for these loans, but without subsidizing interest rates or requiring group lending. The outcomes suggest that information alone is unlikely to be enough to efficiently improve access. Dupas and Robinson (2013) use an RCT to identify significant barriers to savings and investment in rural Kenya. Randomly selected individuals were given free access to non-interest-bearing bank accounts among two types of self-employed individuals: female market vendors and men working as bicycle taxi drivers. Despite large withdrawal fees, a substantial share of market women used the accounts, were able to save more, and increased their productive investment and private expenditures. On the other hand, for the men there was no effect.<sup>10</sup> Karlan et al. (2015) experimented with providing consulting and financial capital to microenterprise tailors in Ghana. These infusions changed investment and business practices. However, these changes did not translate to significant changes in profit and were not sustained in the long run.

A very large literature examines financing constraints for small and medium enterprises (SMEs) more generally, particularly in developing countries. Beck (2007) surveys empirical research along these lines, showing that SMEs are more constrained by financing and other institutional obstacles than are large firms, with this situation being made worse by weaknesses in the financial systems of many developing countries. An example of such studies is that of Beck and Demirguc-Kunt (2006). Using cross-country panel data, they find that financial and institutional development affect SMEs' growth, and that SMEs are credit constrained, so that greater access to external finance can level the playing field between firms of different sizes. Another cross-country study, Love and Pería (2015), finds that greater bank competition improves firms' access to finance. An alternative hypothesis, that low competition improves access because it allows banks to internalize the investment in building firm-specific relationships, is rejected in this study.

Country-specific studies of small firm financing constraints find similar types of results. Banerjee and Duflo (2008) use data from a directed lending program in India to show that firms in that country are credit constrained. De and Singh (2014) analyze a unique dataset that combines panel data of reported financial information for a sample of SMEs in India with data from a survey of the same firms regarding the role of relationships in supply of inter-firm credit.

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<sup>10</sup> Hence, this analysis also connects with studies of banking access, discussed earlier.

They find that firms that are unsuccessful in generating internal funds or bank loans appear to have better access to relationship-based credit, but the latter is also rationed. In a similar vein, Ayyagari et al. (2010) find that Chinese private sector firms that have access to formal finance grow faster while firms that rely on informal finance do not.

### *Agricultural Credit*

Credit to farmers occupies a special place in developing countries. The importance of food production and the size of the agricultural sector in many countries make agricultural credit politically and economically more salient than credit for other kinds of products and services. India is an important illustration of these statements, with loans to farmers and forgiveness of those loans being tied to electoral considerations (e.g., Cole, 2009). On the other hand, there is also evidence that small and marginal farmers still depend on informal lenders, and this can contribute to agrarian distress in some cases (e.g., Singh, 2012; Gill, 2016).

Micro-studies of loans to farmers suggest that there are inefficiencies in the allocation and use of agricultural credit. A study of 300 farmers in Nigeria (Oboh and Ekpebu, 2011) finds delays in disbursing bank loans as well as considerable diversion of loans to non-farm purposes. Rahman (2011) finds that farm credit in Bangladesh may be inefficiently and insufficiently allocated, especially in the context of a positive correlation between the credit and output. Studies for India (e.g., Sharma and Kumawat, 2014) and Pakistan (e.g., Mehmood et al., 2012) also document similar situations: loans are made and monitored inefficiently, so even though credit is rationed, increasing its supply may not be welfare improving in the absence of institutional improvements such as better targeting and monitoring.

### *Farmers' Insurance*

Insurance for farmers has been receiving increasing attention in developing countries, representing an important new area of experiments in financial inclusion. Weather insurance and crop or livestock insurance represent potentially significant ways of protecting small and marginal farmers from distress. For example, Nair (2010) uses micro data from the Agriculture Insurance Company of India, to argue that weather insurance is market-based and financially sustainable, more so than yield-based insurance. Cole et al. (2014) examine the market for rainfall insurance purchases by rural farming households in Gujarat. Demand was highly sensitive to payouts being made in a household's village in the most recent year: a payout of Rs. 1,000 increased the probability households purchase insurance in the next year by 25-50 percent, perhaps suggesting a trust effect. The observations of Gine (2009) complement some of these results, noting the problem of correlation of rainfall and macroeconomic conditions, and the need to make rapid payouts to liquidity-constrained farmers, in order for the insurance to be effective.<sup>11</sup>

Issues of price sensitivity are explored in the context of livestock insurance in Ethiopia by Takahashi et al. (2016). They find that randomly distributed learning kits improve subjects'

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<sup>11</sup> See also Gine, Townsend and Vickery (2008) for earlier evidence of the Indian experience.

knowledge of the products but do not lead to greater insurance uptake. On the other hand, reduced price due to randomly distributed discount coupons has an immediate, positive impact on uptake, without dampening subsequent period demand. The interaction of credit and insurance is analyzed in Karlan et al. (2011), trying to address a key question for development: does risk inhibit investment? They conducted an RCT in rural Ghana, and offered the treatment groups of farmers loans that forgave 50 percent of the loan if crop prices dropped below a threshold price. A control group was offered a standard loan product at the same interest rate. Surprisingly, the indemnity component had little impact on uptake or other outcomes. Binswanger-Mkhize (2012) also expresses some pessimism about agricultural insurance based on weather indices, using both conceptual arguments and a review of the empirical experience. In particular, he points out that credit and cash constraints for poor farmers make it difficult for them to purchase insurance in advance of the harvest.

However, a second set of field experiments from Ghana (Karlan et al., 2014) provides much more positive evidence of the benefits of access to agricultural insurance. The authors conducted several experiments in which farmers were randomly assigned to receive cash grants, grants of (or opportunities to purchase) rainfall index insurance, or a combination of the two. The observed demand for this insurance was strong, and insurance led to significantly larger agricultural investment as well as riskier production choices. These results indicate that uninsured catastrophic risk can be a binding constraint to farmers' investment. There was also evidence of social network effects and overweighting recent events, suggesting that careful design of policies and financial education are both needed in implementing such innovations in financial products.<sup>12</sup> One can also see from comparing the outcomes of different studies that more detailed and specific research is needed in this dimension of financial inclusion as well.

### *Health Insurance*

Health insurance for the poor represents a dimension of financial inclusion that intersects with much larger concerns about the universal provision of health care. While many industrial countries provide universal publicly funded health care, others, most notably the United States, do not, with exclusion disproportionately affecting the less well-off. The centrality of health to people's lives also makes it an exceptionally emotive subject. The financial aspect enters health care because of its potentially high costs, and developing countries obviously face more stringent constraints. In such cases, health insurance programs for the poor are meant to increase access to health care when the public delivery system is unable to do so effectively.

One approach to inclusion is through community-based health insurance schemes: essentially a form of mutual insurance. For example, a study for Senegal (Jutting, 2003) suggests that these can extend access to health care, although the poorest of the poor are still excluded. A study of community-based insurance for China (Wang et al., 2005) finds that the benefits of the insurance are skewed toward richer participants, highlighting the difficulties and the importance of proper

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<sup>12</sup> A recent review of the evidence on microinsurance (Platteau et al., 2017) identifies price, quality, limited trust in the insurer, and liquidity constraints as factors limiting demand, along with lack of understanding of the products. See also De Bock and Gelade (2012) and Matul et al. (2013).

targeting and design. In general, qualitative case studies across countries suggest that micro-insurance for health care is a complex undertaking with significant challenges (McCord, 2001).<sup>13</sup>

India has seen significant recent efforts to develop health insurance programs for the poor, and many studies of these efforts. Palacios et al. (2011) is a collection of such studies with a great deal of institutional detail, including discussing some of the problems of implementation. A study by Nandi et al. (2013) carefully examines the determinants of enrolment in the new health insurance schemes.<sup>14</sup> Selvaraj and Karan (2012) argue that publicly funded health insurance schemes with private provision do not work. They argue against involving the private sector at all, their concerns being that private providers will cherry-pick, and that there are high administrative and other costs associated with private sector involvement. On the other hand, Ravi and Bergkvist (2015) posit a different conclusion: allowing for the length of time of operation of publicly financed health insurance schemes (PFHISs) reveals impacts that are more positive than found by Selvaraj and Karan. However, two other studies of Indian health insurance schemes (Sood et al., 2013; Karan et al., 2015) also find little or no impact of these schemes on the health expenditure of the poor. A qualification to these conclusions is that there are differences between the performance of the national health insurance scheme and various state-level schemes, with some of the latter doing better (e.g., Rao et al., 2014).

Implications of health insurance for financial inclusion are brought out significantly in a study by Banerjee et al. (2014). In an RCT, SKS the largest MFI in India bundled a health insurance component with micro-finance lending. But no one seemed to demand insurance, even people for whom there was clearly value. Strikingly, a substantial fraction of clients preferred to let go of microfinance rather than pay a moderately higher interest rate and keep their loan, highlighting that adverse selection was a moot concern in this setting. One caveat is that the study was somewhat confounded by the financial trouble SKS got into by time that the final survey was done. In a related study, Islam and Maitra (2012) highlighted the health insurance effect of general microcredit. Using a large panel data set from rural Bangladesh, they found that households that had access to microcredit do not need to sell livestock in order to insure their consumption, when confronted with health shocks that required unexpected expenditures or led to lost income.

### *Payments Technologies*

Because the poor face high transaction costs, even when using cash (e.g., when trying to save, cash may not be a convenient or safe store of value), reducing such costs through technological innovations can foster inclusion. There is robust evidence that digital payments technologies have positive impacts. Much of this evidence comes from the M-PESA scheme in Kenya (Jack, Ray and Suri, 2013; Jack and Suri, 2014): users are able to make more frequent and longer distance money transfers, and manage income variability better for smoother consumption patterns. In Kenya, the existence of a dominant telecom provider helped, although technological

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<sup>13</sup> McCord compares schemes for Cambodia, India, Tanzania and Uganda.

<sup>14</sup> Ito and Kono (2010) explain low take up of such schemes in India in terms of behavioral factors such as present bias.

limitations in interoperability reduced access for some and stifled competition (Kendall et al., 2011). In Tanzania (where M-PESA is also available), an interoperability agreement among several providers achieved widespread coverage (Bourreau and Valletti, 2015). In other countries, telecom companies have provided specific digital services: for example, Orange Money (Jordan), enables consumers to pay bills and to make point-of-sale purchases; Smart Money (Philippines) and Regalli (Dominican Republic) enable customers to make bill payments. There are complex issues of infrastructure, regulatory policies, and even details of user interface design that can affect the success of digital financial services (Mas and Morawczynski, 2009; Medhi et al., 2009).

In India, digital payments have been conceptualized as one component of a three-part strategy for financial inclusion using digital technologies: JAM, standing for Jan Dhan (banking), Aadhaar (identity) and Mobile (transactions). Biometric identity cards in India (Aadhaar) have reduced corruption in welfare programs, economized on expenditures and even had some positive impacts on outcomes (Banerjee et al., 2016; Muralidharan et al., 2016; Imbert and Papp (2015). Other examples of positive impacts from using digital technologies include Afghanistan (Callen et al., 2015) and Nigeria (Aker et al., 2014), suggesting that there are replicable opportunities for successful innovations. In India, the JAM framework for policy innovation has the potential to avoid a common problem in policymaking in that country, of broad and shallow interventions. On the other hand, Ravi and Gakhar (2015) make a case for broader scope of financial services tied to digital innovation, to take advantage of economies of scope, given the fixed costs of infrastructure and adoption.<sup>15</sup>

### *Financial Literacy*

On the demand side, financial literacy is an important factor in shaping financial inclusion. Consumers have to understand the nature of the products and services they are buying, as well as the implications of these purchases for their welfare. This may be relatively simple in the case of payments and transfers, but even bank accounts can present challenges in terms of weighing consumption and saving tradeoffs. Insurance products are inherently complicated by the difficulties of measuring uncertainty and evaluating risk. These issues are tied in with behavioral factors as well – systematic distortions in evaluation and decision-making, but those are considered next, somewhat separately.

Lusardi and Mitchell (2014) provide a theoretical and empirical survey of issues surrounding financial literacy, although their empirical evidence is from industrial countries, which also face challenges of educating consumers of financial services. In all countries, one basic problem is lack of information (Gine et al., 2014, for Mexico), but how information asymmetries are overcome can be crucial (Alan et al., 2015, for Turkey). Miller et al. (2014) surveyed evaluations of 188 financial education programs, and found weak evidence for positive impacts on financial

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<sup>15</sup> For example, digital credit is showing some promise for financial inclusion in countries such as India. Creditworthiness does not have to be dependent on scanty financial history, but instead can be based on richer mobile phone usage history. Recent research suggests that mobile phone usage can predict loan repayment (Björkegren & Grissen, 2015). Furthermore, as in the case of microfinance, dynamic incentives (larger loans at better terms) encourage repayment of digital loans. I am grateful to Eilin Francis for these points.

knowledge, let alone decision-making. However, it appears that teaching simplified guidelines for behavior as rules-of-thumb can have a positive impact (Drexler et al., 2014).

Financial literacy itself can have different dimensions and contexts, and several specific studies focus on specific aspects such as household saving or managing a business. For example, Cole et al. (2011) use large field surveys in India and Indonesia and RCTs in Indonesia, to show that prices of financial services have an effect on demand. However, even though financial literacy is an important correlate of using financial services, financial training in the experiments is not an effective or cost efficient tool for promoting the use of bank accounts. In a business context, De Mel et al. (2014) conducted an RCT among low-income women in urban Sri Lanka to measure the impact of the most commonly used business training course in developing countries. They tried two treatments – training only and training plus a cash grant – over two years. Training alone changed business practices but had no impact on business profits, sales or capital stock. The grant plus training combination increased business profitability in the first eight months but this impact also dissipated in the second year. However, there was some evidence that training might be more effective for new owners. Karlan and Valdivia (2011) conducted an RCT in Peru to measure marginal impact of adding business training to a Peruvian group lending program (MFI) for female micro-entrepreneurs. Training had no effect on business revenue, profits, or employment, but there were business knowledge improvements among the entrepreneurs, and increased client retention rates for the MFI.

### *Behavioral Factors*

Because financial services involve complexities with respect to intertemporal tradeoffs and judgments about uncertainty and risk, they are most subject to what economists characterize as behavioral factors, namely, various (mostly systematic) deviations from the ideal of economic rationality. Note that some of these factors are hard to disentangle from lack of information, and financial literacy considerations overlap with behavioral factors.

An important basic example of a behavioral bias is the difficulty that individuals have in committing to a savings strategy that they realize will be optimal for them over time. (Ashraf et al., 2006, 2010) tested commitment savings products in the Philippines. These products have lock-in periods or penalties for early withdrawal that “commit” the individual to the savings goal. Women who were offered an individually-held commitment savings account reported increased decision-making power, and durable goods purchases shifted towards “female-oriented” goods, such as kitchen appliances. Those who used the commitment devices had significantly higher savings. In Kenya, Dupas and Robinson (2013) tested a simple “Safe Box” that allowed users to save for preventive or emergency health, and this significantly increased achievement of health savings goals. In an experiment in Uganda, primary school students were offered a “softer” commitment device, (funds in the savings account were available for withdrawal but labeled as being “for education”), and combined with a parental outreach program this increased spending on school supplies and improved test scores (Karlan and Linden, 2016).

A range of other behavioral phenomena have been examined in the context of financial inclusion. For example, Duflo et al. (2011) show that many farmers in Western Kenya fail to take advantage of apparently profitable fertilizer investments, apparently due to a combination of procrastination and new consumption opportunities, but they do invest in response to small, time-limited discounts on the cost of acquiring fertilizer, such as free delivery. Studies such as Beaman et al. (2014), Dupas and Robinson (2014), and Kremer et al. (2015) show that various types of small business owners in Kenya make inefficient (profit-reducing) decisions with respect to keeping enough change, hours and days worked, and inventory management. There are a growing number of studies in this vein, and they intersect with studies examining the design and impacts of microcredit schemes.

## **Recent Studies for India**

The overview in the previous section, while examining a relatively small number of studies of financial inclusion in developing countries, still provides a sense of the multidimensionality and complexity of financial inclusion, and the challenges of promoting any aspect of financial inclusion through policy and technology innovations. Important considerations that emerge from the overview are the significance of social and economic context, the need to consider behavioral biases connected to situations involving time and risk, the interaction of different dimensions of financial inclusion, the importance of details of policy design, and the limited understanding we still have of many of the factors underlying the functioning of financial markets. This section considers several recent studies for India, all of which represent detailed research into important facets of financial inclusion.<sup>16</sup>

### *Financial Inclusion*

As noted in the previous section, detailed economy-wide data pertaining to financial inclusion tends to be studied for richer, developed countries (Lusardi and Mitchell, 2014). This situation has begun to change for India. In particular, Badarinza et al. (2017) use a major household survey to provide a cross-sectional picture of both the asset and liability sides of household balance sheets in India.<sup>17</sup> The authors document that, in India, lower proportions of younger households hold financial assets, even compared to China, let alone developed countries. Other striking features of the Indian household financial landscape are that households do not reduce real estate holdings as they cross retirement age, there is no drop off in mortgage loan participation at these ages, and unsecured debt is more significant in all age groups. Similar differences are reflected in comparisons across the wealth distribution. Savings in retirement account are nearly absent. The authors document the high reliance on gold as a form of savings, the lack of access to bank branches as a constraint to financial savings, striking regional variations, and the importance of education in supporting higher use of financial savings.

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<sup>16</sup> Almost all the studies considered in this section are IGC-sponsored projects.

<sup>17</sup> The data is from the June 2012, All India Debt and Investment Survey (AIDIS) conducted by the NSSO, with over 100,000 households sampled.



Badarinza et al. provide an important overview of India's household financial landscape. Another significant study (Campbell et al., 2012) looks in detail at India's mortgage market. As indicated from the household survey, Indians' use of mortgages for housing is quite limited. The authors focus on the impacts of regulation of the mortgage market, providing an important case study of the impacts of national-level policymaking on financial inclusion. They analyze administrative data on over one million loans originated by an Indian mortgage provider, examining loan pricing and default rates. The period they examine is one in which the availability of mortgages was increasing fairly rapidly, but so was regulation of the market. Lending to small borrowers is an important aspect of financial inclusion in the context of the housing market, and the data do indicate that regulatory changes designed to promote this goal were successful. On the other hand, there was a spike in defaults, indicating the possible costs of policies that neglect the capacity and incentives of market participants. On the positive side, however, the data suggest that mortgage lenders were able to learn from the experience of surging defaults, and price risks more accurately in subsequent years.

The lessons of this study are potentially generalizable. Policies designed to support goals of financial inclusion require careful attention to market structure, incentives of market participants, and learning and adjustment through ongoing analysis of market data. Private profit-making entities have incentives to engage in the latter, but their behavior ought not to be overly distorted by the regulatory structure: regulations have to balance risks and efficiency against equity-enhancing goals of financial inclusion. A caveat to these general observations is the obvious one that each market and each financial inclusion dimension requires separate, detailed analysis.

### *Banking*

Despite some less-than-positive studies, the evidence from research in a number of countries, including India, suggests that there are mechanisms that can bring down the cost of access to formal banking for poor households, and thereby improve their savings strategies. In India, there has been a massive, nationwide effort to achieve banking access for vast numbers of the country's poorer citizens – the Jan Dhan part of JAM (discussed in the context of digital payments). While technology is an important part of facilitating access and maintenance of bank accounts, making these accounts more useful to small account holders is important for long-run sustainability.<sup>18</sup> Bank operations and everyday practices in India have the potential for improvement (see Singh, 2015 for a brief discussion of some studies of credit risk management in Indian banks).

Cole et al. (2015) tackle the important issue of bank lending through an experiment with commercial bank loan officers in India. This was a high-stakes field experiment, providing the subjects with tangible incentives. The loan officers in the study were paid to review and assess over 14,000 actual (but previously processed) loan applications. They were provided with different kinds of exogenous incentive schemes, and, while the subjects did not know how the

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<sup>18</sup> Indeed, in India access to bank accounts is perhaps easier than in many other developing countries, because of the creation or existence of no-frills type accounts and post office accounts. Arguably, therefore, this aspect of financial inclusion in India has moved beyond access to basic accounts to access to useful services and products.

loans had performed, this information was available to the researchers. The study permits a very “clean” test of how performance compensation affects risk-assessment and lending in a banking environment. The results indicated that high-powered incentives do lead to greater screening effort, separating “good” from “bad” borrowers, and to more profitable lending decisions. However, typical features of loan officer compensation contracts such as deferred compensation and limited liability, toned down the incentive effects. The study also found that career concerns and some personality traits affected loan officer behavior. On the other hand, the impact of incentive schemes did not vary with personality traits such as risk-aversion, optimism or overconfidence. There was also evidence that incentive contracts had the potential to distort the assessment of credit risk, even among trained and experienced professionals.

Performance incentives are important across all kinds of organizations, but areas such as bank lending are particularly important in the context of India’s financial inclusion goals. Expanding banking without improving the performance of bank employees, particularly those who make lending decisions that can lead to productive investment and job creation, can be a significantly suboptimal strategy, and the Cole et al. study provides a baseline for efforts to improve the way in which loan officers in Indian banks are incentivized.

A different approach to improving the performance of conventional banks is the creation of alternative kinds of banking institutions. Rural cooperative banks do have a long history in India, but have been subject to political capture. Another alternative is the model represented by India’s Shri Mahil Self Employment Women Association Sahkari (SEWA) Bank, the oldest women’s bank in the world. Targeting women represents a vital aspect of financial inclusion since women at any income level (but especially poorer ones) are less likely to have financial autonomy and access to financial services than their male counterparts. Field et al. (2016) use data on the expansion of the SEWA Bank to examine the impact of access to microfinance on women’s labor force participation. Interestingly, this data pertains to urban settings, so the distance or scarcity aspects of constraints to financial access are not salient. The authors motivate their study by noting the much lower participation of women rather than men in the labor force, and hypothesize that “access to microfinance is key to bridge the gap and to introduce women into the labor force.” Their study is the first to provide a rigorous empirical evaluation of long run impacts of increased access to microcredit on female labor force participation.

Beginning in 1999 onward, SEWA Bank began a major expansion of the number of loan collection officers they employed. This significantly reduced the transaction cost of getting a loan in Ahmedabad, Gujarat’s capital and largest city, and thereby increased access for many women to microloans. The authors’ results do indeed indicate that access to such loans helped integrate women into the labor force over a period of several years. In addition, this effect was driven by greater participation of women in household business activity, although not necessarily a sustainable change in female empowerment, since the share of household income produced by women increased but with a diminishing effect over time. An intriguing effect in the data was a reduction in fertility associated with increasing participation in the labor force. While some of these impacts require further empirical studies, this particular analysis hints at the importance of

financial inclusion for a range of social and economic outcomes pertaining to the status and welfare of women in India.

### *Microcredit/Microfinance*

As described earlier, there is a very large literature on microfinance in developing countries, with a range of results in terms of the effectiveness and impacts of various such efforts. Clearly, the details matter. Two recent studies for India provide careful analysis of the impacts of certain contractual features in microcredit. Field et al. (2013) conducted an RCT that compared a standard microcredit contract, requiring repayment to begin immediately after the disbursement of the loan, to an alternative contractual setup that included a two-month grace period. The study found that providing a grace period increased short-run business investment as well as long-run profits but doing so also raised default rates. These results suggest that microcredit contracts that require early repayment discourage illiquid risky investment. There are costs to relaxing this constraint because of higher default rates (associated with greater adverse selection as well as moral hazard), but the authors do some initial calculations that suggest that the net welfare impacts of subsidizing microfinance institutions to be able to withstand higher default rates might be positive. These welfare gains would be realized through higher microenterprise growth and greater reductions in household poverty. This is an important finding that takes the policy discussion beyond whether microfinance works or doesn't work, to the specifics of contract design for maximizing the potential benefits of this form of financial inclusion.

Another study (Barboni, 2016) also tackles the issue of contractual design in microfinance, focusing as well on repayment flexibility. A theoretical model of adverse selection predicts that lenders can achieve higher profits by offering a menu of choices which include rigid and flexible repayment schedules, instead of just the standard rigid contract. Borrowers in this case can select from the menu. A set of in-the-field experimental games conducted with Indian micro-entrepreneurs, in which they were offered both a flexible and a rigid repayment schedule and where the price of the flexible schedule was varied, showed that more entrepreneurial borrowers were more likely to take-up the flexible contract than less entrepreneurial ones. This separation was even more pronounced when the flexible schedule was costlier relative to the rigid contract. More risk-averse borrowers, on the other hand, were more likely to choose the rigid contract when it was less costly than the flexible contract. The author's estimates also suggest that offering a menu of contracts can be more profitable than the standard, rigid microfinance contract. Hence, this analysis further extends the possibilities raised in Field et al. (2013), where attention was restricted to an either-or choice between two types of contracts, rather than the menu possibility considered by Barboni. Barboni and Agarwal (2017) are currently extending this analysis to include more detailed data on microenterprise investment decisions and performance associated with different types of contracts and borrowers, with the potential of further refining microfinance models for practical application.

### *Small Firm Finance*

In the previous section, several studies, including De and Singh (2014) for India, were discussed, illustrating the credit constraints faced by small firms. To put this issue in context for India, there

is considerable evidence that, while liberalization and economic reform beginning in 1991 led to new entry of firms, more recently, industrial dynamism has stalled (Alfaro and Chari, 2009, 2014): “[T]here is a hollowing out of the middle of the size distribution that can be characterized as the “shrinking middle” in Indian manufacturing and points to constraints that small- and medium-sized firms may continue to face in their attempts to grow” (Alfaro and Chari, 2014). There are a variety of factors constraining growth of smaller firms, but finance is certainly one of them (Allen et al., 2007; Shukla, 2015). These earlier studies have not, however, established clear causal linkages.

A study by Raj and Sen (2013) fills the gap, providing an important empirical analysis of very small family firms in India – which are the predominant type of firm in the informal sector – and the role of finance constraints in preventing them from transitioning to larger firms that employ non-family labor. The authors use a rich data-set based on unit level data drawn from the national surveys of informal manufacturing by the NSSO. They supplement their unit level analysis with panel data analysis of 364 districts estimating the effects of financial development on firm transition at the district level. Raj and Sen present strong evidence that finance constraints play an important role in firm transition from family-labor-only firms to small firms that use hired labor, but even more so for the growth of the latter beyond six workers. They find that firm capabilities matter as well, for example, firms that maintain formal accounts are more likely to make the transition than firms that do not. There are many other factors that affect transition and growth, including working as sub-contractors, having access to electricity, being located in an urban area, and being in a district with higher levels of human capital. An important result of the analysis is that government assistance, such as loans, training, and marketing, does not help firms transition and grow, suggesting that policymaking may be more effective in focusing on relaxing financing and other constraints for small, informal sector firms.

### *Agricultural Credit*

As alluded to in the previous section, farm credit in India is a contentious and politically charged policy area. Loans can be subsidized and forgiven, but small farmers may still often face substantial financial distress. Maitra et al. (2014) provide an important study exploring an alternative approach to credit for small farmers. In this study, randomly selected villages in West Bengal state in India participated in a field experiment with an innovative variant of microcredit, trader-agent intermediated lending (TRAIL). In this program, borrowers of individual liability loans in some villages (all small farmers) were selected by local trader-lender agents. These agents received incentives in the form of repayment-based commissions. In other villages, small farmers had access to a more conventional group-based lending program (GBL). In this experiment, TRAIL loans did much better than GBL loans in increasing production of the leading cash crop and farm incomes. According to the analysis, the underlying mechanism for this result included the fact that borrowers selected by TRAIL agents were more able farmers than those who self-selected into the GBL scheme, although this pattern of selection did not completely explain the observed difference in income impacts. An important implication of this work is that it points out a possibility for leveraging existing institutions or expertise, somewhat

similar to how ITC used existing commission agents to facilitate its Internet-based *e-choupal* procurement scheme (Goyal, 2010).

A study by Mitra et al. (2012) also has some indirect implications for agricultural credit policy for small farmers. In much of India, small farmers do not sell directly to large buyers, but rely on intermediaries: credit constraints are one factor in this market structure, as are asymmetries of information. This study provides a detailed analysis of how potato farmers in West Bengal sell their crop to local traders, including how prices and intermediary margins are determined. In the study, small farmers in randomly chosen villages were provided information about daily wholesale prices, either publicly or privately. The evidence of impacts of these interventions did not support the idea that risk was being shared between farmers and traders, but was consistent with small farmers having limited alternatives for selling their produce, making price information of little value. More specifically, providing farmers with access to market price information to reduce their informational asymmetry vis-à-vis traders did not have a significant average impact on farmgate prices, while raising pass-through of wholesale market prices to farmgate prices. This was a consequence of the lack of access of these West Bengal farmers to direct sale in wholesale markets. While the study does not specifically deal with credit constraints, one possibility is that easing credit constraints for small farmers, so that they have to rely less on trade credit from intermediaries, could improve their bargaining power and increase the value of price information for farmers.

#### *Farmers' Insurance*

As discussed in the previous section, agricultural insurance products for small farmers are challenging to implement. On top of being income constrained, farmers lack experience with such insurance, financial literacy, and general education. Gaurav et al. (2011) conducted a field experiment (RCT) involving different methods of marketing rainfall insurance to 600 small-scale farmers in Gujarat, India. Financial education (specifically, a customized financial literacy and insurance education module) had a positive effect on rainfall insurance adoption, but only one marketing intervention, a money-back guarantee, had a consistent and large effect on farmers' purchase decisions. This result suggests that farmers do not have the experience to be able to trust the new insurance product, and the guarantee mitigates their risk perceptions. While such guarantees are uncommon or absent for insurance in mature markets, the use of money-back guarantees for various kinds of products is widespread, especially where the product is novel or the seller is not trusted.

A major research project (Mobarak and Rosenzweig, 2013, which summarizes three other research papers) examines the interaction between informal risk sharing, index insurance and risk-taking using a large scale RCT. The authors randomized offerings of rainfall insurance contracts to cultivating and landless households in a set of Indian villages. According to the authors, census data on caste networks permitted characterization of the nature and extent of informal risk sharing before the contracts were offered. The authors uncovered several interesting phenomena: (1) informal group-level risk sharing had the potential to make up for weaknesses in weather index insurance, and increase the demand for such index insurance; (2) index insurance had the potential to do better than informal indemnification in incentivizing

farmers to invest in riskier technologies with higher average returns; and (3) offering insurance contracts to cultivators could lead to increased risk-taking, and to increased risk exposure of agricultural laborers, making the latter more likely to purchase weather insurance themselves when aware of this possible effect. This study can provide important guidance for the design of weather insurance at a regional scale, and ultimately for policymakers seeking to achieve widespread adoption of such insurance, making it more sustainable – the inclusion of landless laborers represents an important innovation in potentially enhancing both sustainability and inclusion.

### *Health Insurance*

Health care is a credence good, relying on trust concerning provider quality. In such cases, referrals through social networks can be very important. These issues are compounded when new health insurance products involve using new or untrusted providers – say a private doctor versus a government doctor. Two recent studies examine aspects of these social network effects in the context of health insurance in India. Berg et al. (2012) study how incentive pay and social distance interact in the process of disseminating information about India's RSBY public health insurance program. Using a theoretical model in which individuals have pro-social objectives, but also differential preferences with respect to dealing with different social groups the study analyzes data from a large-scale RCT conducted in South India. The experiment involved hiring local agents to disseminate information about the insurance program. These agents were paid either a flat fee or a variable rate that depended on the subsequently measured level of knowledge about the program in the eligible population. Interestingly, it was found that incentive pay improved knowledge transmission to households that were socially distant from the agent, but not to socially similar households.

Debnath and Jain (2015) directly examined the role of caste networks within villages or urban wards, in affecting utilization of Aarogyasri, Andhra Pradesh's state-level publicly financed health insurance program. The authors hypothesized that local caste networks could play a vital role in transmitting various kinds of information about the program and the available health care providers, as well as signaling that using formal healthcare through the program was socially acceptable or appropriate. Using administrative data on program claims the study estimated that a unit increase in Aarogyasri use and associated claim amounts in the same caste and village increased first-time claims in the same group by 19 percent and first-time claim amounts by 16 percent in the subsequent quarter. On the other hand, the behavior of other castes inside or outside the village, or same caste peers outside the village in the same sub-district, had no significant effect on program utilization.

Given the potentially transformative impacts of RSBY, it is important to have a clear understanding of how the national insurance program affects healthcare usage, health expenditure and health status. Conducting detailed impact evaluations of government programs has been a relatively weak spot in India, and an ongoing project by Malani et al. (2016) represents a significant research effort. These authors initially focus on survey design, another difficulty in measuring health care outcomes due to the complexity of the services and problems of recall. Preliminary results identify areas where recall may be a problem, leading to

improvements in survey design: these improvements may be useful for future government-sponsored surveys as well.

### *Financial Literacy*

The discussion in the previous section indicated the broad scope of the term “financial literacy,” and the range of approaches that might be used to increase this capability among consumers and entrepreneurs. A very basic and minimal approach is to require disclosure of certain characteristics and prices of financial products or services. Halan and Sane (2017) evaluate the effectiveness of disclosures in the context of the insurance market in India, focusing on a specific life insurance product. They presented product advertisements to customers with four different sets of disclosures: basic information, the actual rate of return on the product in addition to the first set, a benchmark return of a similar product in addition to the second set, and product features of a more cost-effective alternative life insurance product in addition to the third set. Participants in each case were asked to provide assessments of the product and hypothetical purchase decisions. The results suggest that consumers may lose focus with “too much” information, and that information is more likely to be valuable if understandable in the context of prior financial literacy, highlighting again the complexity of making financial innovation work to the benefit of inexperienced consumers.<sup>19</sup>

### *Behavioral Factors*

Behavioral factors in the demand for financial services center on how individuals perceive intertemporal tradeoffs and degrees of risk and uncertainty. However, as the overview in the previous section and discussion of other studies in this section both indicate, social factors are pervasive in India, and behavioral considerations arising from these can matter for the diffusion and adoption of new financial services. Understanding these social factors can come from other contexts. For example, Gangadharan et al. (2014) analyze the Bihar Rural Livelihoods Project (JEEViKA), a community driven poverty reduction program which aims to improve the social and economic empowerment of the rural poor. While the study is not focused on financial services, its lessons may be useful in contexts of innovating in financial inclusion products. The question in this study was whether community participatory design can allow local leaders to expropriate resources. The study examines differences in the behavior of male and female leaders in JEEViKA and non-JEEViKA villages in a field experiment. Using a measure of dishonesty as a proxy for “elite capture,” female leaders seemed to be more deceptive in JEEViKA villages as compared to non-JEEViKA villages. But participants from JEEViKA villages appeared to be more trusting, especially those targeted by the program. There are complicated implications for various aspects of trust, and the results need to be compared with those for other types of efforts such as SEWA Bank, or farmers’ insurance, for guidelines on creating efficient and durable institutions for financial inclusion.

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<sup>19</sup> An earlier study (Halan and Sane, 2016) had used an audit methodology to collect data and found evidence of “mis-selling” of tax-advantaged savings and insurance products by Indian banks. The authors also highlight the tendency of sellers not to engage in voluntary disclosure of product characteristics.

## Lessons and Conclusions

Financial inclusion is a complex and multidimensional concept. This paper has focused on decomposing financial inclusion into the provision of more specific financial services, and examining the empirical evidence for how well different components of financial inclusion can be accomplished, and the methods that might work in specific contexts. While the evidence for different countries and programs can be variable and mixed, as suggested by the overview in the second section of this paper, the discussion of recent studies for India indicates that well-designed and implemented research studies can provide clear answers for Indian contexts, for a range of aspects of financial inclusion. Hence, one of the lessons of this paper is that careful empirical research can guide policy design in India for financial inclusion. Furthermore, there are still areas where our knowledge is limited or uncertain, and further empirical research can be directly beneficial for policy design.

Turning to more specific conclusions and lessons, we begin with the previous surveys discussed in the introduction. Karlan and Morduch (2009) emphasize the shift from postulating hypothetical improvements in financial access to concrete lessons from experiments, pilots and trials in actual field settings. According to them, “The design of products (including their prices, term structure, flexibility, and marketing) affects adoption and usage—and ultimately economic and social impacts. ... Much of the new work described above involves researchers creating partnerships with existing financial providers, both commercial banks and public or non-profit institutions. The partnerships generally center on testing the effects of systematically varying delivery mechanisms or introducing new services. The lessons are thus not hypothetical but are based on actual products delivered by actual institutions.”

Aggarwal and Klepper (2013) emphasize how government policy changes can relax existing constraints to financial inclusion, especially with respect to savings, payments and financial literacy. In assessing what can or may work, they draw on a variety of sources of evidence, including field experiments, but also administrative data (including “natural experiments” from policy changes) and surveys. In fact, they list two dozen examples of policy innovations from across the world (see their Appendix A), including reforms that encourage private innovation as well as direct government actions. Echoing Karlan and Morduch, they conclude that “For financial inclusion efforts to be successful, policy-design must be tailored to the systemic failure in each setting.” As an example, they suggest remote rural populations may benefit the most from overcoming distance barriers (perhaps by allowing banking correspondents) whereas the urban poor may need relaxed documentation requirements.

Karlan et al. (2016) emphasize the positive evidence for the benefits of savings products and digital payments, and generally view digital technology as opening up new possibilities for reducing transaction costs, information asymmetries and market distortions. They suggest that microcredit and insurance present greater challenges, as do social norms that can disadvantage women, in particular. They also highlight issues of scaling up (including for digital efforts),



offering integrated or complementary services, and linking financial inclusion to end goals such as health and education.

Many of the lessons of the three surveys include examples from India, and the IGC-sponsored studies in this paper add to this India-related evidence. Much of recent Indian policy making with respect to financial inclusion can be seen to be consistent with the direction supported by current research-based knowledge. For example, this includes government-led pushes to increase access to banking, insurance and digital payments. At the same time, some of the new studies indicate the need for further research. Cole et al. (2015) and Field et al. (2016) both, in very different contexts, highlight the importance of organizational innovations that improve incentives within the banking sector. This suggests that simply expanding the number of bank accounts may not be an optimal policy (see footnote 18). At the same time, organizational changes are delicate matters and need to be context specific. Hence, this is possibly an area for further research, including pilots of innovation possibilities as well as analysis of administrative data.

In areas such as microcredit and small firm finance, the studies by Field et al. (2013), Raj and Sen (2013) and Barboni (2016) suggest that there is still much to learn in the Indian context about the specifics of relaxing financing constraints for small entrepreneurs, ranging from microenterprises to more substantial small and even medium firms. Issues of contract design, monitoring and enforcement, and training do not seem to be completely understood in the Indian context. In some cases, there is more detailed evidence for other countries, but the transferability of those lessons to India – indeed, even to specific Indian states – needs to be tested. There is also an obvious connection to issues of how the Indian banking sector functions on the side of making loans, in addition to the savings opportunities it offers. This relates back to the point about integration of different aspects of financial inclusion noted by Karlan et al. (2016).

The areas of agricultural credit and farmers' insurance are another example of the need for an integrated approach to financial inclusion initiatives. Gaurav et al. (2011) and Mobarak and Rosenzweig (2013) provide newer evidence for India on how to design agricultural insurance that is more inclusive and sustainable, including issues of promoting adoption and inclusion (such as extending it to agricultural laborers and not just farmers). However, given variations in agricultural conditions around a large country such as India, as well as differences in income levels, further studies can solidify the design of appropriate insurance products, as well as examine their integration with access to agricultural credit, market access (as highlighted in the studies by Mitra et al., 2012 and Maitra et al., 2014) and productive investment. With respect to the latter, a study such as the one conducted by Karlan et al. (2014) for Ghana, that explores the link between access to agricultural insurance and investment, could usefully be done for India. In general, more studies for India, whether based on field experiments or administrative data, that establish links between specific policies for financial inclusion and outcomes such as investment or productivity (in non-agricultural as well as agricultural settings) would provide guidance for policymakers.

Health insurance is another area where Indian policymaking has been innovative in ways that seek to promote inclusion. In this case, the potential link between financial inclusion and outcomes ought to be very direct, but the evidence is still being gathered. The ongoing study by

Malani et al. (2016) will be a significant contribution, but may need to be expanded. Earlier studies by Berg et al. (2012) and Debnath and Jain (2015) represent useful investigations of the processes that drive acceptance and adoption of such innovations as health insurance, which are obvious preconditions for achieving inclusion and positive impacts on health outcomes.

Finally, the size of India's market and the diversity of areas of possible innovations in financial products and services, are strongly indicative of the need to conduct further studies of patterns of household financial behavior. Badarinza et al. (2017), though not an IGC-sponsored project, is a good example of preliminary work on documenting these patterns, but much more needs to be done. Campbell et al. (2012) conducted a useful study of India's mortgage market, and the plan in the latest Union Budget to expand low income housing will increase the need for further such studies that emphasize financial inclusion. Complementing the understanding of specific markets for financial products and services, a much better understanding of financial literacy and effective methods for imparting financial education to consumers and small entrepreneurs is required in the Indian context. The study by Halan and Sane (2017) represents just a small slice of what policymakers and financial sector providers need to know about the potential behavior of individuals as innovations are designed and implemented. In all of these cases, collaborations and coordination between policymakers, practitioners and researchers can be vital in achieving financial inclusion in multiple dimensions, making sure that this is done efficiently, and connecting financial inclusion to positive outcomes in health, education, productivity and employment.

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