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Credit Information Systems for Microfinance
A foundation for further innovation

by

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Abstract

As microfinance services expand internationally, new challenges are introduced to the sector. One set of challenges of particular importance in many countries, that has developed over the past several years, stems from the information asymmetry that exists between lenders and borrowers. Without complete information about the credit-worthiness of borrowers, lending decisions are not optimized and the performance of microfinance institutions suffers. In several countries, formal systems for sharing credit information have developed, yet all formal solutions reflect traditional models of credit bureaus. No studies are readily available on other innovative models for credit information systems. In addition to a review of theoretical and empirical literature around credit information sharing, especially within global microfinance sectors, this study is also a comparative analysis of various country case studies on their experiences with credit information systems. This global survey and in-depth case study analysis reveals interesting findings regarding current practices around credit information as well as the barriers to the development of a sharing system. These findings are the foundation for the further research into sectors with under-developed systems for sharing credit information such as India.

Contents

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Introduction

Microfinance services (predominantly the disbursement of very small loans to the poorest sectors of society who otherwise cannot access mainstream financial services) have emerged over the past few decades as important tools for economic development and the empowerment of the world's poor. With the expansion of the microfinance sector, the number of microfinance institutions (MFIs) has increased rapidly, and borrowers are offered a range of lending alternatives.

However, the sector's expansion comes with growing pains, and if the proper systems are not in place, lending institutions may not be fully informed about the credit-worthiness of potential clients. Such a situation of information asymmetry and competition between MFIs can lead to adverse selection and moral hazard. Ultimately the result is the decreased performance of MFIs and the over-indebtedness of clients. These challenges have become especially problematic in various regions of the global microfinance sector even leading to violent debtor uprisings in some cases.

A trend that has developed over the past several years in reaction to these challenges is the implementation of credit information systems (CIS) in global microfinance sectors. CIS solutions are systems for MFIs to share borrowers' profiles and credit histories. Such systems reduce the problems of information asymmetry, help optimize MFI lending decisions, and empower clients to leverage their good credit reputations to graduate to larger loans.

Current literature on this topic offers theoretical as well as empirical support for the positive impact of CIS on microfinance practices. There are also a number of in-depth case studies on particular countries' systems for sharing credit information. Additionally, some studies discuss the barriers faced by countries with underdeveloped CIS.

However, these studies that outline the barriers some countries face to developing CIS evaluate only the possibility of traditional, established models of CIS such as a national credit bureau. All studies of underdeveloped CIS assume that a traditional model is applicable to that particular sector. There is no readily available study that attempts to develop a new model for CIS catered to a microfinance sector that currently is lacking in CIS development.

India is one such country where the development of CIS is still immature. A preliminary survey of other global experiences with CIS for microfinance is important as a foundation for any deeper research into the India sector. This work creates that foundation. This paper reviews the theoretical and empirical work done on the topic of credit information systems generally and especially for microfinance. It is also a survey of the current state of development of credit

information systems within microfinance sectors globally. Finally, the experiences of several countries with CIS for microfinance are analyzed to find important trends and themes. Lessons drawn from analysis of these case studies are valuable for countries with underdeveloped CIS such as India in and when they embark on their own projects for CIS implementation.

Challenges within Global Microfinance

The global microfinance sector faces many challenges such as finding bankable funding, ensuring accountability and credibility, addressing their clients' needs, sharing best practices with other MFIs, integration with the local and national government, and training employees.

Infant sectors may struggle with issues such as safety and security for loan officers or, even more fundamentally, properly assessing the demand for microfinance services within the society. However, microfinance in other countries like Bolivia has flourished and the much more advanced sector faces advanced challenges. For example, practitioners in Bolivia focus on how to design innovative products beyond basic lending and savings services. Bolivian MFIs are also developing marketing to attract customers, and increase economies of scale and efficiency in order to lower interest rates for their microentrepreneur clients. Bolivia's sector is unique in that a handful of the MFIs that originally functioned as NGOs have now developed commercialized and regulated Private Financial Funds or Fondos Financieros Privados (FFPs) and even one completely commercialized bank (Banco Sol). This commercialization trend inevitably introduces challenges of public corporations beyond those of MFIs. Pilar Ramirez, president of FIE, revealed that the organization must now put more resources into branding and image than before. She said that especially for the savings clients, they prefer all of the buildings to be painted the same and to have marketing standardization (Ramirez interview).

Challenges in recent years in many countries center on how the proliferation of MFIs and increased competition in the sector have created problems with over-indebtedness of clients and high rates of portfolios in arrears that threaten MFIs' financial viability.

Importance of Information Sharing

It is common to seek advice and share experiences when trying to solve a problem or make a good decision. According to the Swarm Theory, experts and professionals may improve upon "dumb" decisions if given the opportunity to create relationships and connections with other experts. Only through these networks of other experts can expertise be maximized (Kelly 1998).

In examples from microfinance global practices, information sharing both at the institutional level and at the borrower level has shown to improve the performance of MFIs and help solve the challenges faced in the microfinance sector.

Institutional-level Information Sharing for Solutions to Challenges

One way that MFIs find solutions to their many challenges is by sharing experiences, opinions and information with other MFIs within their respective countries. The surge of development of MFIs in past decades has been followed closely by a trend in the development of national microfinance networks, which are umbrella organizations that offer various forms of assistance. A laundry list of services provided by microfinance networks includes: technical assistance, information exchange, funding, policy development, advocacy, consultancy, developing model frameworks, expertise, publications, innovation, internet resources, legal regulatory frameworks, monitoring and evaluation, performance measures, program and project support, and training courses. All of these services reach the MFIs in a variety of conferences, publications, training toolkits, and other projects and programs. The precise activities of any national microfinance network depend on its capabilities and the needs of the microfinance sector it serves.

One of the primary functions of national microfinance networks is to create a discussion forum for the sector and to serve as an information hub for MFIs through the sharing of institutional-level data and experiences, both financial and non-financial. With the network as a forum, MFIs may jointly discuss sector-wide challenges to the growth of microfinance affecting every MFI in the nation. Furthermore, MFIs can share information and experiences to help each other overcome internal challenges.

Information Sharing at the Individual-level

Challenges faced by many countries' microfinance sectors in recent years center on how the proliferation of MFIs and increased competition in the sector have created problems with over-indebtedness of clients and high rates of portfolios in arrears that threaten MFIs' financial viability. One example is Infocred, Bolivia's credit information bureau, a centralized database of the unique credit histories of all microfinance borrowers throughout Bolivia. Infocred is a private credit bureau that has thirteen MFI shareholders (Infocred website). Efforts to establish the bureau were spurred after a violent uprising of over-indebted microfinance clients in 2001.

The establishment of Infocred has been improving the performance of MFIs in the microfinance sector since its inception in 2003. Previously MFIs were making lending decisions without any information about borrowers' lending histories through other institutions. MFIs were not aware of the loans their clients had taken out with other institutions, which led to a crisis of over-indebtedness of clients. At the height of the crisis in 2001, the percentage of portfolio in arrears was 12% for regulated MFIs and 13% for unregulated MFIs. Now member MFIs can access clients' records stored within the bureau in order to make better lending decisions and clients have the incentive to maintain their credit reputation by avoiding default. Member MFIs financially support the bureau, and only member organizations are allowed access to client information. By

2004 and after the establishment of Infocred, the percentage of portfolio in arrears had dropped to 3% and 10% for regulated and unregulated MFIs, respectively. Whereas other factors could also contribute to this improvement, better transparency around borrowers' credit histories is cited to be an important factor (Guachalla and Gandi 2005).

Demand for Credit Information Sharing

The creation of CIS solutions is a very important and timely evolutionary trend in global microfinance. However, the magnitude of demand for CIS depends on the stage of development of the microfinance sector in a particular country.

One theory on the mechanisms increasing demand for CIS relates to information asymmetry. For countries where microfinance is less developed, few MFIs exist, and most of the information about loans clients received is transmitted through a small number of alternative lending institutions. In many regions, there is only one MFI operating in any given village or urban slum. This lack of opportunity to compare loan options across MFIs leads to information asymmetry. Empirical studies show that this market inefficiency in the form of information asymmetry allows MFIs to extract informal rents from clients. These high premiums decrease client incentives to pay back loans, and ultimately the portfolios of the lending institutions suffer (Padilla and Pagano 1997). With CIS and better information about clients' creditworthiness, MFIs could more precisely calculate the optimal loan size, interest rate and other parameters and thus avoid client default. In later sections, however, this study revisits this situation of low competition between MFIs and the subsequent demand for CIS, indicating alternatives to this theory presented by Padilla and Pagano. The following discussion elaborates on this point.

Additional research suggests increases in demand for CIS when there are too many alternatives for sources of loans. Studies using surveys of MFIs shows that growing competition in the past decade among MFIs, especially in countries such as Bolivia, Bangladesh, Mali, Uganda and Paraguay, presents clients with more alternatives on the supply side of loans than they have before encountered. If MFIs do not share information about their clients, then borrowers have the opportunity to take out loans from multiple institutions without detection. Thus a situation of moral hazard develops where there is an increase in the risk of default because the client does not suffer the full consequences of or may even benefit from the problematic behavior. Clients then lack the incentive to pay back loans, and hence over-indebtedness and recycling of loans results (Campion and Valenzuela 2001).

An additional problem that arises with a high degree of competition between MFIs is adverse selection, when bad results occur due to information asymmetries between buyers and sellers. If lending institutions do not share information about their borrowers, then lenders cannot be fully aware of clients' risk profiles. Lacking information on credit history, MFIs cannot distinguish good clients from bad ones. This situation of adverse selection increases risk and decreases the performance of MFI loan portfolios.

These forces of information asymmetry and competition result in increased rates of portfolio in arrears and generally weakened MFI performance. Clients suffer in turn as the heightened costs of lending necessitate higher interest rates on loans. High quality or low risk borrowers especially suffer from these effects as they are essentially subsidizing higher risk borrowers.

Solving Problems with Credit Information Systems

A wealth of knowledge exists supporting the use of CIS to overcome these challenges of adverse selection and moral hazard in lending markets. Most of the research to date focuses on commercial lending rather than microfinance, but the empirical support for the benefits of CIS is consistent across both sectors. Cross-country comparisons using correlations of the existence of CIS with lending volumes and default rates show that regardless of whether the CIS is a public or private system, bank lending is higher and credit risk is lower in countries that share information about borrowers (Japelli and Pagano 2000). These correlations however do not necessarily imply causation as it is likely that high lending volumes could lead to the establishment of CIS and then in turn decreased credit risk. Studies based in microeconomic theory have also been done to break down the effects of information sharing and the mechanisms that lead to improved performance.

One mechanism that contributes to improved performance with CIS is the screening effect. Lending institutions making better decisions based on having more information , resulting in an improved pool of borrowers, lowered costs of lending and lower interest rates to clients.

A second mechanism for improving performance is the reputation effect. As borrowers become aware of the reputations they build among lending institutions and how these reputations affect access to loans, they have increased incentives to repay, thus further improving the pool of borrowers and lowering lending costs (Vercammen 1995).

However, tapping into both of these effects is not inherent in any CIS model. For example, if the length of credit histories maintained by the CIS is too short or too long, the system will not create optimally strong screening or incentive effects. Credit histories that are too short lack the comprehensive information needed to avoid adverse selection, and clients lack the incentives to repay loans and maintain good records because over time their delinquencies will no longer be revealed. Additionally, when credit histories are too long and early poor credit events are not discounted in lieu of improved behavior, the incentive effect is diminished. In this case clients have little opportunity to improve their records and hence are less encouraged to pay back loans (Vercammen 1995).

The theoretical arguments for improved performance with CIS are empirically corroborated in commercial lending and microfinance sectors. A study analyzing the effects of CREDIREF, the credit bureau for microfinance in Guatemala, revealed a 25% drop in rates of portfolio in arrears over the course of the 18 month study attributed to participation in the bureau (De Janvry et al. 2003). In turn, participation in a credit bureau and reduced arrears also has the effect of lowering

interest rates for clients (Luoto, McIntosh and Wydick 2004). Both lending institutions and clients benefit from increased efficiency from reduced time for loan processing. Clients of MFIs in Peru that use the Infocorp CIS have experienced a reduction in waiting time for loan processing from one week to one day (Campion and Valenzuela 2001). CIS has also shown to be an effective combatant of microfinance borrowers' over-indebtedness by reducing the ability to recycle loans (Campion).

Theory and evidence also support the idea the CIS benefits borrowers not only through reduced interest rates and waiting time but also through a shift in power. Lending institutions having information about a client allows the client to build up reputational collateral as a high-quality or low-risk borrower (Luoto, McIntosh, Wydick 5). Power shifts to these high-quality borrowers even more with increased competition in the microfinance sector as borrowers can leverage and capitalize on their reputational collateral by proving their creditworthiness for larger loans and greater access to financial services (De Janvry et al. 2003). An in-depth study of Guatemala shows how this reputational collateral can even begin to substitute for asset collateral (Herrera 2003). However, the benefits from reputational collateral are not automatic, and elements of the CIS can hinder or encourage the building of reputational collateral. Similar to how the length of credit histories affects the impact of incentive effect on the performance of lending institutions, there is a similar effect on a client's ability to build reputational collateral.

There are also arguments that CIS for microfinance ultimately creates more access to credit among the poor. However, studies show an ambiguous effect on lending volumes (Luoto, McIntosh, Wydick 2004). Whereas some borrowers' access to credit is improved as they are able to leverage their reputation towards larger loans, reputation information can also act against borrowers with any history of default. There is even some evidence that implementation of CIS actually cuts poorer clients (who are generally riskier) out of credit markets altogether (De Janvry et al. 2003). These forces counter each other and result in an ambiguous effect on lending volumes.

Global Presence of Credit Information Systems

Recognizing these benefits of improved performance due to the sharing of credit information, microfinance sectors throughout various regions of the world have been developing their own CIS solutions.

Traditional credit information systems, primarily in the form of public and private credit bureaus for commercial lending markets, have been operating around the globe for decades. Systems are the oldest and most robust in developed countries such as the United States, the United Kingdom, Germany, Japan, Sweden and Switzerland (Japelli and Pagano 2000). CIS has thrived in these countries because of important conditions encouraging and supporting the exchange of credit information. A strong legal infrastructure, high lending volumes, advanced communication technology and borrower mobility as well as heterogeneity of credit events and economic activities all encourage a robust system (Luoto, McIntosh and Wydick 2004).

Another set of countries including Argentina, Brazil, Finland, the Netherlands and Australia has operated CIS for decades but at a smaller, less comprehensive scale. Many other countries in Latin America, Asia and Africa have non-existent or infantile systems that only share negative information mainly in the form of blacklists. (Japelli and Pagano 2000)

However, there has been growth in these less developed regions in recent years. CIS in Asia has boomed over the past five-seven years, especially in the wake of economic crises (Luoto, McIntosh and Wydick 2004). The past one or two decades have also revealed steady growth for CIS in Latin America. The Latin American region has experienced more growth in public credit registries than any other region in the world. There is also significant growth in private CIS institutions with over half of the region's countries establishing their first private registries after 1989. Latin America also has the most activity of CIS for microfinance. This is compared to countries like France that have operated credit registries since the 1930s. The trend of attention on CIS in Latin America follows the stabilization of economies like Argentina, Brazil and Chile. With more stable economies, longer-term lending becomes more possible, and therefore the need for sharing credit history information is heightened (Miller 2000).

For a list of countries with public credit registries and private credit registries, see Appendix A. This is part of the results of a survey of 92 countries conducted by the World Bank in 1999 and redistributed in 2001.

Lessons from Country Case Studies

While the vast majority of CIS solutions operating globally fall under the traditional structure of a credit bureau or credit registry, there are many variations on this traditional model. Systems may vary across several different dimensions. Jointly analyzing theoretical and empirical literature along with case studies of CIS for microfinance leads to a deeper understanding of historical experiences and existing models of systems for sharing credit information. The themes and trends that emerge from a survey of international case studies are separated into the sections below.

Institutional Aspects

1) Barriers to Formal CIS

There are significant barriers to the incorporation of MFIs into information sharing systems that exist today. In developing countries where MFIs are primarily structured as NGOs, they are often legally blocked from participating in public CIS because they are not regulated financial institutions. Furthermore, in developing countries where MFIs primarily operate, private CIS solutions for the commercial sector are often underdeveloped.

Even when commercial sector CIS is prepared to incorporate MFI clients, MFIs often do not participate. A group of 20 NGOs in Mexico did not use the CIS solution in place there because they believed they were not allowed to participate (Campion and Valenzuela 2001). MFIs also

anticipate that their clients will not be listed in the databases. For example, only three of the 19 MFIs in Cusco, Peru use Infocorp, the private CIS that is open to MFIs as well as commercial banks, because they do not expect their clients to be listed (Valdivia and Bauchet 2003). Furthermore, there are very high cost barriers for MFIs to participate in commercial CIS including integration and management of common software and the technology needed to participate, training of staff on these systems, etc.

2) Inadequacies of Informal CIS

Informal credit information systems are used in microfinance and are to some extent inherent in microfinance models. Solidarity group models and community lending are based on joint liability, where members of borrower groups are required to cover each other's delinquent loans. The process of group formation itself inherently incorporates reputation for credit-worthiness and the sharing of subjective information about group members (Campion and Valenzuela 2001).

Another form of informal CIS is the sharing of blacklists (i.e., lists of defaulters) between MFIs. Some countries have moved beyond the informal stage. For example, before building the BIC as a formal credit bureau, FINRURAL, the network of unregulated MFIs in Bolivia, developed a semi-formal exchange of client information (Campion and Valenzuela 2001).

These informal alternatives, however, are not sufficient for the efficient functioning of the microfinance sector. The performance of MFIs and subsequent benefits for clients still stand to improve with the implementation of more formal CIS for microfinance. Evidence of this claim was described earlier in the studies showing improvements in the practice of microfinance due to the implementation of formal systems to share client information. Formal CIS, when structured and implemented properly, has the ability to improve rates of arrears, lower interest rates and input more efficient loan processing for MFIs.

Given these barriers and the specific needs of MFIs that are different from the needs of regulated banks, there have been movements to develop specialized CIS for microfinance catered specifically to local MFIs and local microfinance lending models. However, there are many downsides to these specialized systems when compared to the broader non-specialized systems that exist in the commercial lending sector. It is more difficult to recruit for commercial sector participation (i.e. participation of other banks and entities such as stores or credit card companies with other credit information) in specialized CIS, and hence the databases fail to include the full range of potential candidates and the full range of credit information on clients. This limited scope in turn makes it difficult for specialized CIS solutions to reach sustainable economies of scale and cost efficiencies. Finally, data from these solutions focused on MFIs is at risk of being inaccurate or out of date because of the general lack of good communication technology among microfinance-practicing MFIs (Campion and Valenzuela 2001).

3) Structural Development

There is some debate in literature on commercial CIS as to the relationship between public and private credit bureaus as substitutes or complements; i.e., either (a) the absence of a private bureau necessitates public intervention with the creation of a public bureau as a substitute, or (b) public and private bureaus complement and encourage the establishment of one another (Miller 2000).

Although this is debated in the commercial lending sector, evidence from case studies in the microfinance sector mirrors this debate over the substitute and complement explanations. In many countries, regulations restrict MFIs from accessing public bureaus because they are non-financial institutions. This creates the need for private CIS solutions for microfinance. However, the use of private bureaus for MFIs is not necessary and an alternative strategy is to lobby for inclusion in the public bureaus as well. FINRURAL pursued both strategies to develop CIS for microfinance in Bolivia (Campion).

Informational Aspects

1) How Comprehensive Shared Client Information Should Be

Some opinions in the field and some case studies analyzed here suggest that CIS is most effective when it maximizes the flow of information through the system in terms of type, amount and source of information. Type of information exchanged refers to positive information such as amounts of assets as well as negative information such as loan delinquencies (Japelli and Pagano 2000). The amount of information refers to the level of detail in credit reports and how frequently they are updated. The source of information refers to where the credit information is generated. Some models suggest that the linkages between various sources of credit information should be maximized, incorporating, for example, payment records at stores. The reasoning is that increased quality of information and maximum transparency can only increase efficiencies in the lending market and strengthen screening and incentive effects from CIS.

However, there is theoretical reasoning with empirical backing to contradict these claims that the more information the better. Some authors maintain that some degree of informational asymmetry can actually contribute to the sustainability of lending institutions. One argument is that banks will only participate in information sharing if doing so is economically beneficial. In order to maintain profits from lending, banks must maintain a certain level of informational asymmetry. This slight market inefficiency allows banks to keep profits artificially high. This information asymmetry is especially beneficial when clients have repeated loan cycles with a single lender and a monopoly develops around this client's information (Padilla and Pagano 1997).

One area in which this theoretical debate becomes more concrete is in decisions to share just negative information or positive information as well. In a large survey of commercial institutions participating in CISs, over two thirds reported to share positive information in addition to negative

information (Miller 2000). However, whether because the additional information was either ineffectual or was not utilized in a beneficial way, there was very little benefit to the performance of loan portfolios from including additional positive information (Miller 2000).

Another concrete application is making decisions about subjective credit reporting and statistical credit scoring. Some literature emphasizes the complementary benefits that come from using both reporting and scoring methods, especially for microfinance (Schreiner 2003). However, there are opposing arguments that sharing such quantifiable scoring can have negative effects for a client and financial institutions. With quantifiable scores, the credit reputation for an individual will be uniform or at least nearly uniform across the market of lending institutions. When a lowered score is reported by one, all financial institutions will respond and adjust their scores for that individual as well, and therefore the client will have diminished access to credit across the market (Miller 2000). This can be dangerous especially in the case of microfinance where external factors such as natural disaster or death in the family can make a client less likely to repay a loan, even when they are fundamentally still credit worthy. Hence, a quantifiable credit score being adjusted across all institutions may be too much of a market swing.

Participation Aspects

1) Crisis as Stimulus

The case studies examined revealed an interesting trend regarding the initial growth of CIS in each country. Whether for the commercial lending sector or for microfinance or for both, many countries experienced an economic crisis that stimulated a surge in CIS activity. Commonly, such a crisis dealt with the over-indebtedness of borrowers and subsequent poor performance of lending institutions. Similar to the crisis in Bolivia described above, demand for CIS grew significantly in Peru due to conditions of over-indebtedness of clients and competition between MFIs. In the mid-1990's MFIs gradually became aware that clients were simultaneously indebted to other financial institutions and retail stores. Furthermore, macroeconomic crisis and natural disasters affecting farmers in the late 1990's sparked greater demand and competition between MFIs. These conditions of over-indebtedness and MFI competition were critical in the movement to extend the reach of the private credit bureau Infocorp to include MFIs in addition to banks and regulated financial institutions (Valdivia and Bauchet 2003).

2) Public Mandates vs. Private Voluntary Participation

Public CIS institutions are effective at encouraging participation and information sharing because they carry the mandate of the national government whereas private bureaus operate on a voluntary basis (Campion and Valenzuela 2001). Furthermore, public bureaus ensure sustained participation by enacting fees and sanctions for non-participation, whereas private bureaus punish free riding by excluding the delinquent lending institutions from the network (Padilla and Pagano 1997).

However, public registries' mandate for participation comes with drawbacks for microfinance. The vast majority of public credit registries do not include information on microfinance clients because MFIs are usually unregulated NGOs, and it is not cost efficient for the government to spend resources managing the records of clients whose loan transactions have such a small impact on the overall economy (Miller 2000).

3) Privacy Concerns as a Barrier to Participation

Another element of the public-private tradeoff relating to participation in CIS deals with privacy concerns. Case studies show a high level of concern for client privacy, even to the extent that these concerns discourage participation in CIS. An effective CIS must be developed to allow enough sharing of information as to be useful while ensuring enough protection to encourage participation. Public registries operate under stricter privacy standards and have less economic incentive to break these standards than private bureaus (Miller 2000).

4) Private vs. Public CIS

There are other distinctions between public and private bureaus, but those dealing with access and privacy are the most important for affecting participation in CIS. Some studies show that there is not even a statistical difference between the performances of lending sectors with public registries versus private bureaus measured by lending volumes and default rates (Japelli and Pagano 2000). However, this could be a result of each country developing the model that works best for that particular lending environment. Whether one model of CIS exists as a substitute for the other or whether both private and public bureaus exist in one sector as complements, the lack of difference could be a result of the models being suited for their respective environments rather than having the same impact on the equivalent environments.

5) Outreach and Education

Case studies of CIS for microfinance reveal various ways in which a lack of awareness about the system damages effectiveness. At one level, MFIs are sometimes not aware that they have access to CIS institutions that exist and thus do not participate at all. At another level, clients are sometimes unaware or uneducated about CIS and its effects on clients' reputations. For example, for an entire year after the introduction of the credit bureau CREDIREF into the Guatemalan microfinance sector in 2002, the clientele of one particular MFI, Genesis Empresarial, were not aware of their lender's participation in the bureau nor its implications. In interviews of 184 clients across six Genesis branches, not one client was aware of CREDIREF (De Janvry et al. 2003). This lack of awareness can eliminate the added benefits of incentive effects (Luoto, McIntosh and Wydick 2004).

6) Technology for Increased Effectiveness

The case studies analyzed also revealed the theme of high costs of information processing through the system. High costs in terms of time and money either completely hindered or partially dissuaded MFI participation in CIS on several accounts. These time and economic costs are exacerbated when the quality of the information produced by the CIS is low because it is out of

date or otherwise incomplete. Enhanced communication technology was revealed as an important mechanism to overcoming these cost barriers.

7) Centralization vs. Decentralization

Another aspect contributing to the costs and ultimate value of a CIS solution to its members is the degree of centralization.

In lending markets around the globe, once decentralized local loan boards and community lending initiatives have seen a consolidation and centralization process take place. Centralization of credit information sharing makes sense because of economies of scale and because of continuous improvements in communication technology (Japelli and Pagano 2000). Centralization is especially important in more developed countries where there is more borrower mobility (Luoto, McIntosh and Wydick 2004).

However, depending on the region, microfinance clients may not be very mobile. Furthermore, a centralized system may be more costly to implement if it requires MFIs to adhere to national standards for information technology and processes for collecting information. These tradeoffs could make a less centralized model more effective in some microfinance sectors, especially those with many smaller MFIs that are not equipped to bear such costs of implementation and re-training of staff. Decisions around centralization should be made according to a thorough cost-benefit analysis of alternative proposals including consideration for any social externalities.

This centralization versus decentralization issue relates to the debate between non-specialized and specialized CIS models for MFIs, namely whether only banks or other entities such as major stores are also monitoring the cash flow and credit worthiness of clients. The primary problems with a decentralized model for microfinance is that without the economies of scale, the system is not cost effective and that the CIS is not open to the full range of potential clients.

For a more comprehensive details on individual credit registries, see Appendix B. The tables in Appendix B display select results from the World Bank surveys conducted by Miller in 1999 and 2001 in order to illustrate comparisons across the client information collected, participants in the registry, and the use of client information. Detailed information is yet only available for public credit registries.

Expanding Efforts in Credit Information Systems

Importance of considering new models for CIS

Whereas it is important to consider the lessons and experiences of existing systems for sharing credit information, it is also essential to consider breaking traditional models and creating innovative solutions. As discussed above, the development of any microfinance sector introduces new challenges. Each country has a unique economic, legal, political, and cultural environment in which MFIs operate, and a successful solution from one country may not be effective in another. For example, records of bill payments and cash flows may be easy to access and may provide a greatly improved

information base in one country while integrating this information into a CIS solution is not cost-effective in another. While solutions developed for a particular country may draw on the experiences of other countries, it is important to cater the solution to the local environment.

However, CIS solutions should also not necessarily be constrained by the local environment. Every country and corresponding microfinance sector has an established set of institutions and bureaucratic processes. While practitioners building solutions for the sector should consider these traditional institutions, a more effective solution may be the entrepreneurial one that breaks existing models. For example, the BIC in Bolivia was structured to fit within the regulatory realm of the Superintencency of Banks and Financial Institutions. This may be the optimal structure for CIS in Bolivia, but when constructing new solutions it is important to consider breaking these traditional molds.

One example of a non-traditional model for CIS puts responsibility for managing credit information more in the hands of borrowers. In a growing number of countries, individuals are becoming more responsible for their own medical records, rather than holding the records in an informational silo in a single hospital. Patients never actually update their own medical records when new medical events occur, but they are responsible for storing that information for easy access by health care practitioners. This approach to medical records reduces errors and costs. A similar distributed solution may be applicable to CIS for microfinance in India in which borrowers are responsible for the storing and management of their own credit information. Lending institutions would actually update the credit information according to new credit events, but borrowers could carry this information with them in the form of a smart card, for example, so it is accessible by any lending institutions they visit. There are many potential problems with this model, especially related to fraud, but it is one example of an innovative solution that could be considered.

Another non-traditional approach is to encourage the development of a common technology platform while allowing MFIs to program the specific CIS applications that cater to the needs and practices of their particular organizations, rather than having one completely centralized solution. Mifos is an open source management information system for microfinance being developed out of Seattle, Washington in the United States in conjunction with the Grameen Foundation USA. Mifos operates on these principles of a common technology platform. While a centralized body may dictate lowest-common-denominator standards, participation in the CIS solution should be made easy for MFIs by allowing them to program the solution into their particular workflow.

Organizational theory supports these assertions about the need to challenge existing institutions. Research using case studies of institutional adjustment to innovation shows that bureaucracies often suffer when core tasks are altered (Derthick 1990). However, not all change must happen within existing limits. This work done on entrepreneurial forms reaffirms that whereas it is important to at least consider incorporating new core tasks into existing institutions, alternative solutions using novel structures can be created, especially by using human capital assets and social networks (Dorado-Banacloche 2001). This concept of developing novel institutional forms is especially relevant to this research on CIS for microfinance.

Lack of Literature on Under-developed CIS

There exists a wealth of literature on CIS for microfinance including: (a) in-depth case studies describing specific countries' successful experiences with CIS for microfinance, and (b) high-level country surveys explaining barriers to the development of formal CIS for microfinance. However, in-depth case studies on countries where CIS for microfinance has been less successful or has not begun to develop are extremely difficult to find and seem to not exist. Such studies would be interesting for two main reasons:

1) Such studies may lead to innovative models for CIS solutions. The current literature makes implicit assumptions about how formal CIS for microfinance should be structured. By focusing on (a) case studies where traditional CIS models are successful and (b) the barriers in underdeveloped sectors to achieving formal systems, there is an implicit assumption that formal CIS as it is traditionally structured (primarily public and private credit bureaus) is the best structure for CIS for microfinance. Exploring cases where formal CIS is underdeveloped may reveal interesting findings about alternative structures and solutions to achieve the same benefits of traditional CIS models. Almost all of Africa and the Caribbean island nations, much of Asia and parts of Latin America have underdeveloped CIS institutions, and existing models from other regions should not necessarily be imposed on those sectors.

2) Analyzing a case where formal CIS for microfinance is underdeveloped may serve practical consultative purposes for that particular country. Any findings may be useful to the country studied in designing and implementing its own CIS solution.

Study of Credit Information Systems in India

With this motivation in mind, a particularly interesting and timely case study is that of India. First, India is a prime example of a country with an under-developed CIS not only for microfinance but for the commercial sector as well. Second, India's population served by microfinance is much larger than that of other smaller countries that have under-developed CIS such as the Caribbean island nations, so any potential conclusions or suggestions from this research would have a bigger impact in the global microfinance sector.

Most importantly, very recent initiatives by India's commercial banks as well as the national government make the country a particularly interesting study. One recent development is the partnership model for funding involving MFIs and commercial banks. This funding and loan disbursement model primes India's microfinance sector for a huge influx of funds and accelerated growth. Additionally, the national government is encouraging this model with the very recent regulatory reforms issued by the Reserve Bank of India. Finally, India's first credit bureau, the Credit Information Bureau of India, Ltd. (CIBIL) in 2004, was just established in 2004. The creation of CIBIL indicates growing national attention on CIS from both the government and the private sector. This environment is ripe to explore discussions about CIS for microfinance as well.

Appendix A: Global Credit Registries

Countries with Public Credit Registries Countries with Private Credit Registries

Latin America	***Latin America***
Argentina	Argentina
Bolivia	Barbados
Brazil	Bolivia
Chile	Brazil
Colombia	Chile
Costa Rica	Colombia
Dominican Republic	Costa Rica
Ecuador	Dominican Republic
El Salvador	Ecuador
Guatemala	El Salvador
Haiti	Guatemala
Mexico	Mexico
Nicaragua	Panama
Paraguay	Peru
Peru	Uruguay
Uruguay	
Venezuela	

Europe	***Europe***
Austria	Austria
Belgium	Finland
Finland	Germany
France	Greece
Italy	Ireland
Portugal	Italy
Spain	Netherlands
	Spain
	Sweden
	UK

Eastern Europe	***Eastern Europe***
Belarus	Bulgaria
Bulgaria	Croatia
Lithuania	Czech Republic
Romania	Estonia
Slovak Republic	Latvia
	Poland
	Romania
	Russia
	Slovenia
	Ukraine

Asia	***Asia***
Indonesia	Hong Kong
Malaysia	Japan
	Malaysia
	Philippines
	Thailand

Africa and Middle East	***Africa and Middle East***
Angola	Turkey
Benin, Burkina Fasa, Cote D'Ivoire, Guinea Bissau, Mali, Niger, Senegal, Togo	South Africa
Burundi	
Madagascar	
Mozambique	
Nigeria	
Rwanda	
Bahrain	
Jordan	
Turkey	
	Other
	Australia
	USA

(Miller 2003)

Appendix B: Comparison of Public Registries

General characteristics of credit registries across countries (Miller 2003)

	Year established	Number of institutions reporting	Minimum loan size (US$)	Frequency of reporting to PCR	Positive (P) or negative (N) data or both (B)	Coverage of population aged 15-64
Angola	1998	7	0	with changes	B	
Argentina	1991	150	50	Monthly	B	21.0%
Austria	1986	1579	389,936	Monthly	P	1.1%
Bahrain	1979	19	132,661	Quarterly	P	
BCEAO	1979	90		Monthly	P	
Belarus	1996	27	10,000		B	
Belgium	1967	175	26,602	Monthly	P	3.9%
Bolivia	1989	71	0	Monthly	B	18.0%
Brazil	1997	442	25,905	Monthly	B	0.2%
Bulgaria	2000		4,647	Monthly	B	
Burundi	1964	15	610	Monthly	B	0.6%
Chile	1950	30	0	Monthly	B	32.2%
Colombia	1990	100	11,000	Quarterly	B	5.1%
Costa Rica	1995	92	0	Monthly	B	24.2%
Dominican Republic	1994	190	0	semi-annual	B	
Ecuador	1997	103	0	Monthly	B	11.5%
El Salvador	1994	38	0	Monthly	B	12.9%
France	1946	900+	81,558	monthly	P	
Germany	1934	5200	1,646,053	quarterly	N	0.2%
Guatemala	1996	55	0	semi-annual	B	
Haiti	1980	12	4,475	quarterly	B	
Indonesia	1973	168	7,326	monthly	B	
Italy	1962	1063	83,131	monthly	B	14.2%
Jordan	1966	23	42,040	monthly	N	
Lithuania	1996	24	12,500		B	0.3%
Madagascar		9	7,983	monthly	B	
Malaysia	1988			monthly	B	3.4%
Mexico	1964	119	21,424	monthly	B	0.1%
Nicaragua		94	8,830	monthly	B	
Nigeria	1991	15	0	monthly	B	
Paraguay		73	3,020	monthly	B	2.9%
Peru	1968	133	3,921	monthly	B	7.6%
Portugal	1978	242	0	monthly	B	44.4%
Romania	2000	40	6,664	monthly	B	0.0%
Rwanda	1990	9		monthly	B	
Slovak Republic	1996	26	74,122	monthly	B	
Spain	1962	435	6,450	daily	P	34.9%
Turkey	1951	84	6,371	monthly	B	0.9%
Uruguay	1982	49	18,000	quarterly	P	6.0%
Venezuela	1975	91	0	monthly	B	11.3%

Type of client data collected across countries (Miller 2003)

	Name	Address	Taxpayer ID	Reporting institution	Amount of loan	Interest rate	Maturity	Type of loan	Type of collateral	Rating of loan	Ownership of business	Personal financial data	Other personal info	Tax info
Angola	X	X	X	X	X		X	X	X	X				
Argentina	X	X		X	X				X	X				
Austria	X	X		X	X			X			X			
Bahrain	X	X		X	X			X			X			
BCEAO	X	X		X	X		X				X			
Belarus	X	X		X	X		X	X	X		X			
Belgium	X	X	X	X	X			X						
Bolivia	X		X	X	X	X	X	X	X	X			X	
Brazil		X		X	X	X	X	X	X	X				
Bulgaria	X			X	X			X		X				
Burundi	X		X	X	X		X							
Chile	X		X	X	X			X		X				
Colombia	X		X	X	X			X		X				
Costa Rica	X			X	X			X		X				
Dominican Republic	X		X	X	X			X		X				
Ecuador	X		X	X	X			X	X	X				
El Salvador	X		X	X	X	X	X	X		X				
France														
Germany	X	X		X	X			X			X		X	
Guatemala	X		X	X	X	X		X	X	X				
Haiti	X	X	X	X	X		X	X		X				
Indonesia	X	X	X	X	X	X	X	X	X	X	X			
Italy	X		X	X	X		X	X	X	X				
Jordan	X	X		X	X			X	X		X			
Lithuania	X			X	X	X	X	X	X	X				
Madagascar	X				X			X						
Malaysia	X	X		X	X		X	X	X	X	X			
Mexico	X	X	X	X	X			X		X				
Nicaragua	X	X		X	X	X	X	X	X	X	X			
Nigeria	X		X	X	X	X	X	X	X	X		X		
Paraguay	X		X	X	X					X			X	
Peru	X		X	X	X			X	X	X			X	X
Portugal	X		X	X	X			X						
Romania	X		X	X	X		X	X	X	X				
Rwanda	X			X	X	X	X	X	X	X	X	X	X	
Slovak Republic		X												
Spain	X		X	X	X		X	X	X	X				
Turkey														
Uruguay	X		X	X	X		X	X	X					
Venezuela	X		X	X	X			X	X	X				

Entities granted access to client data across countries (Miller 2003)

	Public financial institutions who provide data	Public financial institutions who don't provide data	Private financial institutions who provide data	Private financial institutions who don't provide data	Central Bank and Supervisors	Unit running the registry	Office of Tax collection	Law enforcement	Other federal government agencies	State/local or provincial government	Individuals have access to their own data	Private businesses providing loans to clients	Private credit bureaus	Marketing firms
Angola	X		X		X									
Argentina	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Austria	X	X	X	X	X	X					X			
Bahrain	X				X	X								
BCEAO	X		X		X									
Belarus			X		X			X						
Belgium											X			
Bolivia			X		X	X		X						
Brazil	X		X		X	X					X			
Bulgaria	X	X	X		X	X		X						
Burundi	X		X			X								
Chile	X		X		X	X						X		
Colombia	X		X		X			X	X			X	X	
Costa Rica	X		X			X		X						
Dominican Republic	X		X		X	X		X	X	X	X			
Ecuador	X	X	X	X	X	X						X		
El Salvador	X		X			X								
France	X	X	X		X	X					X			
Germany	X		X		X	X					X			
Guatemala														
Haiti	X		X			X								
Indonesia														
Italy	X		X		X	X		X			X			
Jordan			X			X								
Lithuania														
Madagascar			X			X								
Malaysia	X		X		X	X								
Mexico	X		X		X				X					
Nicaragua														
Nigeria	X	X		X	X	X			X	X				
Paraguay	X		X		X	X								
Peru	X		X		X								X	
Portugal	X		X			X					X			
Romania	X		X		X	X								
Rwanda	X	X	X	X	X	X								
Slovak Republic			X											
Spain	X		X		X	X		X				X		
Turkey	X		X											
Uruguay	X		X			X								
Venezuela	X		X		X	X			X	X				

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