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Why microfinance institutions exist: lending groups as a mechanism to enhance informational symmetry and enforcement activities[1]

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Abstract

In this paper, we focus on the economic motivation for the existence of microfinance institutions (MFIs). In doing so, our study contributes to the debate regarding why MFIs exist and, especially, what mechanisms are used to address the risks associated with their operation. In examining the reasons why some individuals are regarded as "non-bankable", we lay out the basic economic logic that motivates the exclusion of this population from formal credit markets. Next, we show how the lending group methodology overcomes the credit dilemma which sustains and increases the exclusion of the poorest from these formal credit sources. Through this, we point out the microfinance founding mechanisms: the increase of both informational symmetry and enforcement capacity of MFIs through the enhancement of their screening, monitoring and enforcement activities. We also highlight the importance of context and gender for the success of lending groups. Finally, we analyze these mechanisms in the Brazilian context.

Keywords: Microfinance. Screening. Monitoring. Enforcement. Lending groups.

Por que as instituições de microfinança existem: grupos de empréstimos como mecanismo para o aumento da simetria informacional e das atividades de *enforcement*

Resumo

Nesse artigo, analisa-se a motivação econômica para a existência das instituições de microfinança (MFIs). O trabalho contribui para os estudos a respeito do porquê as MFIs existem e, principalmente, de quais mecanismos são usados para lidar com os seus riscos de crédito. Ao analisar a razão pela qual há indivíduos pobres considerados "não-bancáveis", apresenta-se a lógica econômica que motiva a sua exclusão dos mercados formais de crédito. Mostra-se como

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a metodologia de grupos de empréstimo soluciona o dilema de crédito que mantém e aumenta a exclusão econômica dos mais pobres. Baseado nesse racional aponta-se os mecanismos básicos fundantes da microfinança: o aumento da simetria informacional e da capacidade de *enforcement* das MFIs por meio do aumento da eficácia das suas atividades de avaliação, monitoramento e *enforcement*. Também se ressalta a importância do contexto e do gênero para o funcionamento dessa metodologia. Por fim, esses mecanismos são analisados no contexto brasileiro.

Palavras-chave: Microfinança. Avaliação. Monitoramento. *Enforcement*. Grupos de empréstimo.

Introduction

Microfinance, briefly defined as an institutional mechanism to offer small loans and other financial services to low-income individuals normally excluded from formal systems of credit, has received increasing attention from very different populations and institutions: governmental and non-governmental development agencies, parties on both the left and the right of the political spectrum, various financial institutions, large pools of donors and social agents, the media, and research and academic institutions (MARCONATTO; CRUZ; PEDROZO, 2016). Despite the existence of ancient evidences for some of the fundamental principles underlying this type of solution (IZUMIDA, 1992), microfinance became better known with the appearance and growth of the Grameen Bank or Bank of the Poor, founded in 1974 in Bangladesh. The Grameen Bank, created by (and until quite recently led by) Nobel Peace Prize winner Prof. Muhammad Yunus, introduced the microfinance institution (MFI) as an alternative method to fight poverty. Underlying this development was the conviction that the strategies of governments and large international development agencies, together with free market attempts, have failed in recent decades to consistently reduce world poverty (BHATT; TANG, 1998; SNOW; BUSS, 2001; ROBINSON, 2001; WOLLER; WOODWORTH, 2001a, 2001b; ELAHI; DANOPOULOS, 2004; GLAUBITT; HAGEN; SCHÜTTE, 2006; CULL; DEMIRGÜÇ-KUNT; MORDUCH, 2009; BRUTON; KHAVUL; CHAVEZ, 2011).

Both the Grameen Bank and other pioneering MFIs have shown that the economic conditions of the poor can be improved through their own efforts, shattering the myth that economically disadvantaged individuals can only ascend the social pyramid with heavy external assistance (WOOLCOCK, 1999; MORDUCH, 2000; ROBINSON, 2001). In other words, the greatest contribution of these MFIs was that it ended the belief in the "non-bankable poor" (YUNUS, 2007). From that point until the present day, microfinance has diversified and spread around the world, and at present, it is considered to be a solid tool in the fight against poverty (CULL; DEMIRGÜÇ-KUNT; MORDUCH, 2009). Today, MFIs incorporate many different institutional designs, capital structures, and missions; they can be local and small or global and large, and they can serve fundamentally different target populations (MARCONATTO; CRUZ; PEDROZO, 2016).

Using institutional and social innovations, MFIs have achieved notably high loan repayment rates – approximately 95% to 98% (MORDUCH, 1999; WOOLCOCK, 1999). This result indicates that the poor, contrary to popular belief, can be "bankable[2]" if certain conditions are met (MORDUCH, 1999). Moreover, there are also other commonly cited collateral gains achieved through microfinance, including the empowerment of poor populations, especially women (MARCONATTO et al., 2013; BOEHE; CRUZ, 2013), and the improvement in their general conditions, health, and family education (WOOLCOCK, 1999; ROBINSON, 2001; RANKIN, 2002).

2 By the term "bankable" the author means the minimum capacity of an individual to contract loans from financial institutions and repay them.

Although the microfinance literature which documents the positive and negative consequences of different types of MFIs around the world keeps growing (*e.g.* TAYLOR, 2011; SINCLAIR, 2012; ROODMAN, 2012), the debate surrounding the fundamental economic reasons for creating this type of organization seems to have diminished over time. Since the number of organizational structures and aims (ranging from social, economic, and hybrid objectives – BATTILANA; DORADO, 2010) for MFIs is multiplying, it is important to re-open this discussion. Both the creation of new MFIs and the management of those that are already operating require constant attention to the economic principles that allowed their activities to begin and that continue to justify and facilitate their existence. Ignorance of the basic dynamics that support microfinance may result in the creation of less efficient management policies and strategies or may even lead to the collapse of MFIs that, *a priori*, would be capable of achieving their economic and social objectives. Thus, by presenting and discussing the economic mechanisms of microfinance, our article has a two-fold objective: to contribute to the discussion on why MFIs exist and what mechanisms are used to address the economic risks associated with their operations; and to consider such mechanisms in the Brazilian context, demonstrating how they do, and do not, work in this country.

As will emerge in the following pages, we argue that, economically, MFIs exist because they typically incorporate more efficient risk reduction mechanisms than those used by formal credit institutions. This principle is at the core of MFI lending methodologies. The so-called lending groups have played a fundamental role in this context since the beginning of the microfinance institutionalizing movement, which took place in the 1970s and 1980s. Even if these institutional arrangements are not the only tool available today for mitigating the transactional risks of the poor borrowers who are the target population for MFIs, loan methodologies involving borrower collectives remain central to most MFIs around the world (CULL, DEMIRGÜÇ-KUNT; MORDUCH, 2009). However, the success of the lending group methodology has proved to be gender and context-dependent (CHURCHILL, 1999; HUNG, 2003; YUNUS, 2007), which means that it may not function properly under some circumstances. As we will show, this explains why individual-based credit methodologies have been preferred over the collective-based credit arrangements in some regions of Brazil.

Our article begins by elucidating why the so-called "non-bankable" individuals – mainly poor people – exist and presenting the logic which motivates their systematic exclusion from formal credit markets. After that, we review the economic basis for MFIs and present a conceptual framework that indicates how lending groups allow different MFIs to control the risks connected with their operations (and, thus, offer credit to those poor individuals who have previously been rejected at moderate cost and risk); this process is based on the increasing informational symmetry and enforcement capacity of MFIs (GHATAK; GUINNANE, 1999). We then discuss how and why the lending group methodology works (or does not work) in the Brazilian context. Finally, we discuss the implications of our study for the literature and practice of microfinance in Brazil and in the world.

Why are the poor people, the "non-bankable", excluded from the formal credit markets?

Why were microfinance solutions created when there already existed robust local financial markets? In other words, even in financially robust capital markets shaped by competition, why should those poor individuals who are normally clients of microfinance institutions be considered "non-bankable" and excluded from the formal economic sphere? To answer these questions, we must first respond to a more specific and directly related question: why do formal financial institutions such as banks restrict their offers of credit even when potential clients – for example, poor entrepreneurs seeking money – offer them higher interest rates for their loans?

Until the beginning of the 1980s, the theoretical mainstream within economics did not offer an adequate answer to this conundrum. According to the economic theory of market equilibrium – "perhaps the most fundamental economic principal until then" (STIGLITZ; WEISS, 1981, p. 393) – growth in the demand for credit should cause the interest rates charged for loans to rise to the point at which the excess demand no longer exists, creating a new equilibrium that is based on an interest rate that is higher than the previous one. Excepting some extreme situations, there would be no restrictions on capital. However, this phenomenon is not what is observed in reality. Instead, it is quite the opposite: mature and competitive financial markets that have an abundance of credit available for loans do limit their availability to poor people even if they are interested in acquiring loans at rates higher than those offered by banks (STIGLITZ; WEISS, 1981).

At the beginning of the 1980s, Stiglitz and Weiss (1981) proposed an explanation for this dynamic. They showed that, generally, the interest rates associated with loans and the volume of capital made available through loans are not only a function of the capital available versus the total demand for loans but also are tools that influence and limit possible damages stemming from informational asymmetry, as explained below.

They noted that interest rate increases stemming from increases in demand for credit tend to create two possible risks. These risks, *adverse selection risk* and *moral risk*, both stem from the informational asymmetry[3] between the agents offering and seeking credit and increase the likelihood of default by the latter. "The *adverse selection risk* exists when the borrower possesses characteristics that cannot be observed by the banks but which affect his likelihood of repaying the loan that he has contracted" (GHATAK; GUINNANE, 1999, p. 200). Because the bank does not possess all of the information about the borrower (which is natural given the cost and difficulty of obtaining this information), adverse selection makes it harder to screen the "safe clients" from the "risky clients". Consequently, in turn, it becomes impossible to treat them in an individualized manner (KHAVUL, 2010). The bank thus tries to make such evaluations indirectly, requiring conditions for loans that only safe clients will likely accept. The interest rate itself partly fulfills this function: higher and lower interest rates affect the quality of the portfolio of borrowers because higher rates tend to drive off investors who are more averse to risk (those who are "safer"), thereby generating a higher concentration of borrowers with "risky" profiles and correspondingly increasing the likelihood of default.

The second type of risk mentioned (*moral risk*) involves incentives offered to clients that encourage them to take on riskier projects (STIGLITZ; WEISS, 1981). According to Ghatak and Guinnane (1999), a credit seeker will act to make the marginal benefit of his or her actions at least equal to his or her marginal cost. However, because the client's responsibility for the total credit received is limited (unless he/she offers collateral for that credit) and because he/she may accrue gains independently of the debt, increasing loan interest rates creates a higher level of indebtedness, a greater need for returns from the project, and a rational incentive for the client to take riskier actions to increase the payoff (STIGLITZ; WEISS, 1981).

Another important element to consider is the capacity for sanctions by the bank (*enforcement*). According to Ghatak and Guinnane (1999), enforcement is a product

3 Although we are approaching both risks in the context of credit markets, the fact is that any transaction may be subjected to some degree of adverse selection risk or moral risk. Two Nobel Prize winners, Akerlof and Williamson, have dealt extensively with these issues. Akerlof (1970) referred to the market of used cars to illustrate how the concept of asymmetry of information distorts the classic economic notion of perfect equilibrium. He showed that depending on the degree of the information asymmetry present between sellers and buyers, the sellers may be driven out of the market, diminishing its total size – just as it happens with the credit market. Williamson (1985, 1996, 2000) has shown how the asymmetry of information – and the two risks stemming from it – existing in the transaction costs borne by different parts engaged in an exchange, affects the design of the contract (understood as a governance device) of the transaction. In short, these two authors have further shattered the tenets of classical economics and contributed a great deal to the popularization and spread of the neoinstitutional economics, a theory that goes beyond the analysis of resource allocation to look at the various types of contracts channeling economic and social activity (WILLIAMSON, 2000).

not of information asymmetry but rather of the limited ability of the bank to apply sanctions to debtors. Thus, it depends on the legal-institutional framework in which both economic agents are embedded and on the characteristics of the transactional relationship between the two actors. A lower capacity for enforcement by the bank results in a higher risk associated with the loans offered.

Bank returns will ultimately decrease under the two aforementioned types of risks combined with a low level of enforcement, informational asymmetry, and an unfavorable legal-institutional environment. In other words, as can be seen in Figure 1, bank earnings increase to the degree that interest rates go up, but only until the point at which default*s* by clients with insufficient funds begin to negatively offset the earnings generated by clients who promptly pay their debts.

To avoid the corrosion of its earnings by the increasing defaults, the bank will stipulate a maximum limit on its interest rates (represented by *r* in Figure 1), which, considered in liquid terms (with losses due to defaults subtracted), may be lower than the rates offered to borrowers in the market. That is, a configuration including higher interest rates combined with a riskier client profile (as is common amongst poor people), less prudent projects (from the bank's perspective), and a low capacity for sanctions (enforcement) against debtors motivates a rationale for restricting credit offers even where there is no lack of capital or absence of competition (STIGLITZ, 1990).

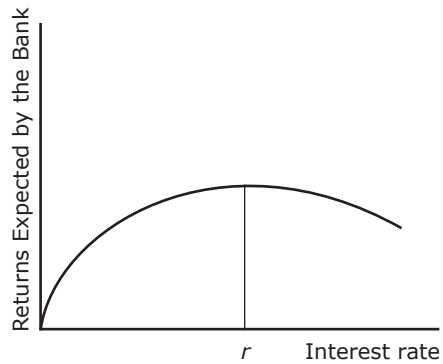

Figure 1 – Interest rate that maximizes returns expected by the bank.

Source: Stiglitz and Weiss (1981).

Inversely, if a bank had perfect information and full enforcement, there would be no moral risk and no adverse selection, and it would be possible to create perfect contracts. Financial institutions would be able to differentiate safe from risky clients with total precision, using interest rates and requiring guarantees specific to each group and thereby eliminating the risk of default or balancing possible defaults with required guarantees (Figure 2 shows this difference between informational symmetry and informational asymmetry scenarios).

This figure presents the rationale that answers the question posed at this paper's outset: why do banks restrict credit offers to poor people even when they do not lack capital? The greater the informational asymmetry on the part of the bank with respect to its poor (potential) clients and the lower its capacity for enforcement, the greater the moral and adverse selection risks will be and, consequently, the higher the interest rate applied will tend to be (up to a specific limit). The restrictions on the credit offered will also be greater in such a case. (The inverse is equally true).

In accordance with this assumption, we can expect that increasing informational symmetry (and consequently reducing moral and adverse selection risks) and increasing the capacity for enforcement on the part of banks will tend to reduce the interest rates charged for loans along with an increasing availability of capital. However, both obtaining information (GROSSMAN; STIGLITZ, 1980) and creating enforcement mechanisms involve costs (STIGLER, 1970; GHATAK; GUINNANE, 1999). As we will

see in the two following sections, it is precisely in these transaction costs[4] that we can find the answers to the two first questions asked before: Why were microfinance solutions created, and why are the target clients of these institutions considered to be "non-bankable"?

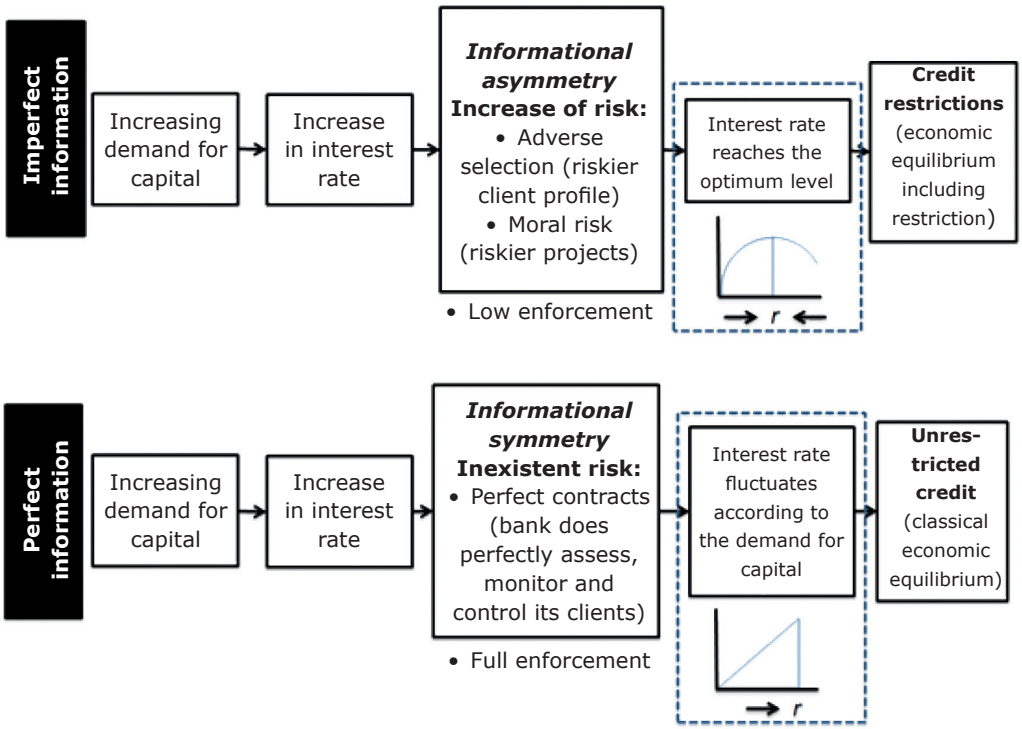

Figure 2 – Credit availability dynamics in cases of informational asymmetry and informational symmetry.

Source: Adapted from Stiglitz and Weiss (1981).

The costs of increasing informational symmetry and enforcement capacity as factors for excluding the poor individual (the "non-bankable") seeking credit

According to Von Pischke (1991), the key to efficient credit transactions that maximize earnings for banks and poor borrowers is the ability of the actors involved to reduce the loan risks – adverse selection and moral risk, as explained above. In this topic we detail how the very same mechanisms that are put into place to reduce the risk of credit end up turning the poor people into "non-bankable".

4 Transaction costs are the costs incurred in making transactions, such as economic exchanges, and are extrinsic to the price of the goods or services themselves bought/sold through the transaction (WILLIAMSON, 1985). Transaction costs generally fall into one of three broad categories: enforcement costs, information costs and bargaining costs (in a very simple example, a buyer interested in acquiring a car has to bear the transaction costs of seeking information on where to buy his/her car and must search to find out the best price available). According to Williamson (1985) transaction costs are affected by the following transaction characteristics: frequency, specificity, uncertainty, limited rationality and opportunistic behavior. The more infrequent, specific, uncertain, ambiguous and vulnerable an exchange is to opportunism, the higher its transactions costs will be.

We begin by underscoring that banks must increase their informational symmetry and enforcement capacity and, therefore, reduce the levels of adverse selection risk and the moral risk of their credit transaction. Informational symmetry is normally sought by systematizing two chief activities that have been highlighted in the economic literature (SPENCE, 1973; STIGLITZ; WEISS, 1981; STIGLITZ, 1990; BHATT; TANG, 1998): the *screening* and *monitoring* of clients. (How to increase the capacity for *enforcement* is a third question to be considered, which depends mostly on primarily legal-institutional factors external to the transaction). Both actions, *assessment* and *monitoring*, should reduce the transaction costs associated with the exchanges that take place between banks and borrowers. However, these two mechanisms create expenses for financial institutions, thus bringing back new transaction costs. This is the reason why banks are forced to increase interest rates for clients: to ensure a return on the investments that the banks made in creating and operationalizing these mechanisms. The conceptual relationships between these elements are illustrated in Figure 3.

The goal of *screening* is to reduce the possibility of adverse selection – as previously explained – stemming from informational asymmetry (SPENCE, 1973). Normally, when more information is available with respect to actual or potential poor borrowers, the risk of adverse selection becomes lower, but the transaction costs for the bank also correspondingly increase. To reduce their likelihood of extending loans to low-income clients who are too risky, banks pay what they must to obtain and process this information. Screening requires that financial institutions develop a process for collecting and systematically verifying the data regarding their actual and potential clients. When this process is more efficient (as often determined by the level of resources used for the task), the likelihood that the bank will experience adverse selection will be lower. However, as we show next, it might be complex and very expensive to screen poor borrowers.

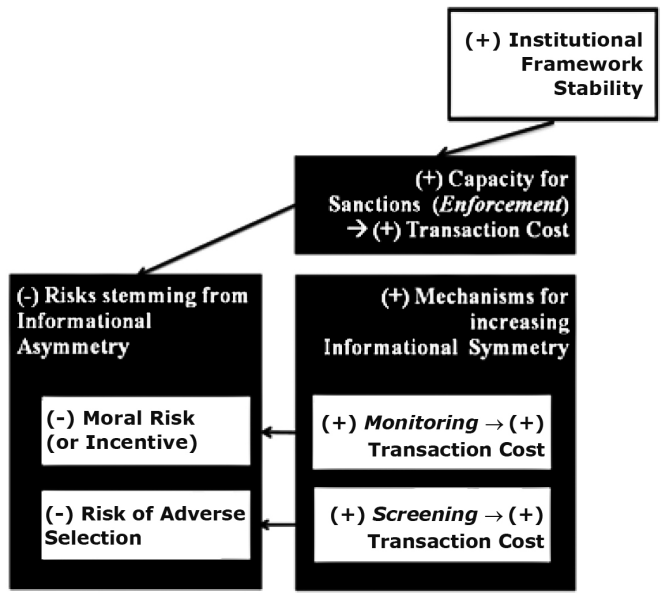

Figure 3 – Mechanisms for increasing informational symmetry and enforcement.

Source: The authors.

In addition to direct access to client information that allows their proper classification, banks use other tools to conduct screening. *Collateral* is one of the most common tools used by the bank to objectively distinguish between borrower profiles (STIGLITZ, 1990). Collateral can include various assets, normally fungible, that the

bank requires from its clients as payment for debt; in the event that the amount of the debt is not repaid, ownership of these assets is transferred to the bank. Normally, the larger the amount of collateral offered by the individual seeking credit, the lower the interest rate charged by the bank, and vice versa; concomitantly, the greater the collateral offered by the client, the greater his aversion to risk (STIGLITZ; WEISS, 1981). Clients who have less collateral to offer – such as those living under the poverty line – thus receive higher interest rates.

Assuming a constant increase in the interest rates charged by a bank, the best borrowers (safe clients), that is, those who have a higher income and are thus able to offer more guarantees to the banks, will tend not to contract loans. Thus, the banks' concentration of "risky" borrowers will increase. Briefly, this means that because better-off people have collateral to offer and thus avoid paying higher interest, a bank's client portfolio will tend to concentrate worse credit profiles – usually comprised of poor people – if its interest rates continue to go up. This reasoning shows that the interest rates charged by a bank also help to evaluate and screen different types of clients (STIGLITZ; WEISS, 1981).

The second process used to achieve greater informational symmetry is *monitoring*. By monitoring, we mean the bank's use of a set of control mechanisms to verify if the funds that its clients have received through loans are being used in a productive way, which is intended to reduce the likelihood of default (STIGLITZ, 1990). In other words, the objective of monitoring is to reduce moral risk on the part of clients. Due to asymmetry between incentives and responsibilities, clients may prefer to increase the risk of their actions to maximize their earnings, as explained above. As in the screening process, the greater the effectiveness of bank monitoring, the higher its transaction costs will be (normally). And, once more, the social and financial reality of poor borrowers may substantially increase the cost of monitoring them.

The capacity for sanctions (*enforcement*), as discussed before, does not increase informational symmetry. However, it indirectly reduces the problems of adverse selection and moral risk. In general, the objective of enforcement mechanisms is to influence behaviors on the part of the actors involved, ensuring that they conform to a particular degree with the rules governing these behaviors (STIGLER, 1970). From a bank's point of view, enforcement reflects the capacity to punish delinquent debtors. The absence (or an inappropriate level) of enforcement may result in reduced effectiveness for banks in evaluating and monitoring clients given that these activities do not work as well if no sanctions can be put in place in response to deviant behaviors. For this reason, Stigler (1970, p. 55) states that "all prescriptions for behavior require appropriate sanctions".

The effectiveness of enforcement depends directly on the level of resources assigned to the task (STIGLER, 1970) – for example, in the design and use of contracts – and on the institutional framework in which the actors in the transaction are embedded (STIGLITZ, 1989). The more intense the possible sanctions imposed by banks on their clients and the greater the likelihood that appropriate sanctions will be put in place by formal institutions (as reflected in the juridical security of the transactional environment, for example), the greater its capacity for enforcement will be. This, in turn, will diminish the risk associated with the transaction.

However, an increase in the capacity for sanctions on the part of the bank, as with evaluation and monitoring, will also increase transaction costs. Furthermore, normally, the lower the institutional stability of the transactional environment, the less it is guaranteed that formal enforcement mechanisms will work as intended and, thus, the greater the operating risks (STIGLITZ, 1990). (The inverse is equally true).

Now that we have explained *(a)* why credit restrictions exist even in capital markets with no lack of financing or competition (because informational symmetry increases the risk of adverse selection and moral risk, acting together with a low capacity for enforcement) and *(b)* what main mechanisms are used to increase the availability of capital and reduce its cost (increases in informational symmetry through potential client evaluation– screening – and actual client monitoring, with a concomitant increase in bank enforcement capacity), we can understand *(c)* why the poor clients

of microfinance institutions are considered "non-bankable" and are excluded from the formal economic sphere. Essentially, the low marginal returns obtained by banks on loans (given the high transaction costs required to manage a large number of low-income clients who each obtain small quantities of loaned capital and who possess individual characteristics that increase these costs), together with the operational risk associated with loans (stemming from informational asymmetry) and an insufficient capacity of the bank for the enforcement of borrower guidelines (considering the institutional flaws in the transactional environment and the imperfect nature of the tools that banks use to create sanctions), form the rationale for restricting the volume of capital to poor borrowers (STIGLITZ, 1990)

As was shown before, reducing risk for the loan operations targeting destitute borrowers would require a bank to engage in more intense client screening and monitoring activities. However, as was also stated above, the creation and maintenance of the operational structures used to evaluate and monitor a large number of low-income clients, each one borrowing a small amount of capital, require additional bank transaction costs. In other words, investments are necessary to operationalize these functions. It is logical to expect that the bank should seek to recoup these investments, which then will be included in the subsequently higher price of the loans granted (i.e., in the interest rate charged). Higher interest rates will then increase moral risk and the risk of adverse selection until the point at which, to avoid greater losses, the bank will restrict the volume of capital available for loans and label the poor borrowers as "non-bankable" (STIGLITZ; WEISS, 1981). Under these conditions, a credit dilemma is established in which the risks are high regardless of the choice made by the bank (whether to create protection mechanisms or not). Figure 4 illustrates this reasoning.

The third characteristic reported in the literature involves the geographical dispersion of low-income borrowers (HERMES; LENSINK; MEHRTEAB, 2006; GLAUBITT; HAGEN; SCHÜTTE, 2006; KHAVUL, 2010). Many of these borrowers are spread throughout large conflicted urban and rural regions that are distant and difficult to reach. This situation elevates the operational complexity of the bank – and, consequently, its costs for evaluation, monitoring, and enforcement – since the banks will require a distribution network to reach this poor population (KHAVUL, 2010).

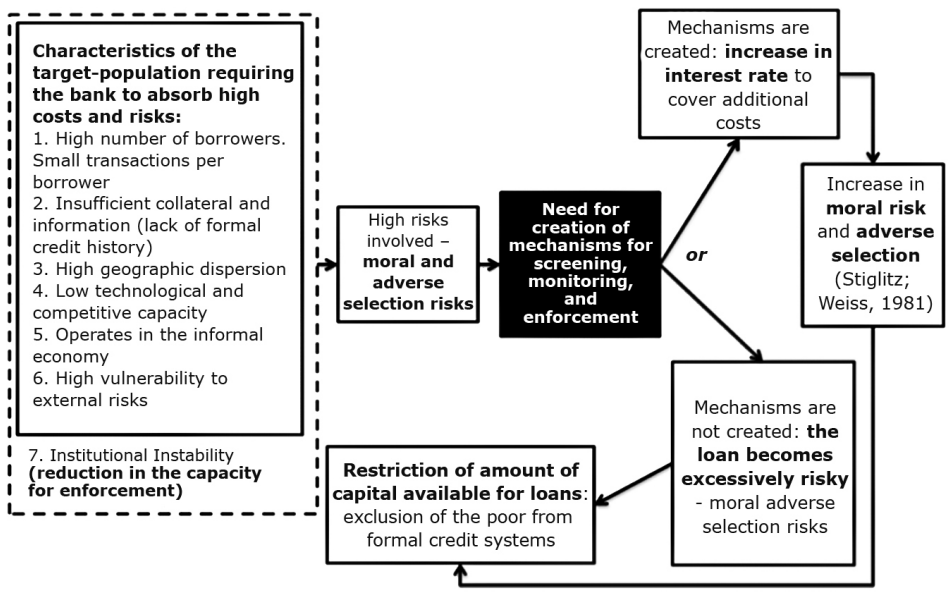

Figure 4 – The credit dilemma and the exclusion of the poor from formal financial markets.

Source: The authors.

The fourth characteristic is the competitive and technological capacity of poor populations (YUNUS, 2007). Micro-entrepreneurs, the focus of microfinance initiatives, normally lack access to formal education, are often illiterate (GHATAK, 1999; KHAVUL, 2010), and do not have access to technologies used to obtain information, communicate, and manage their business activities. Thus, their capacity for management, competition, and survival tends to be lower than that of the larger *players* with whom they often need to compete.

Another characteristic of poor borrowers is their *locus* of activity: normally, these micro-entrepreneurs works within the informal economy (MARCONATTO; CRUZ; PEDROZO, 2016; KHAVUL, 2010), where little structured and reliable information about their activities and their financial situation can be obtained through the traditional modes of collecting information used by formal banks.

The combination of these characteristics results in the sixth characteristic, which is very typical in poor communities: a high vulnerability to various types of external risk (BHATTAMISHRA; BARRETT, 2010; KHAVUL, 2010). Because their low level of financial resources makes it difficult or impossible for these individuals to access basic services such as health, education services and insurance and because the governments of most developing countries are unable to properly provide these services, the lives and economic activities of these individuals are gravely and sometimes even fatally affected by events such as disease outbreaks, weather and climate changes, and minor economic and social changes. This high degree of vulnerability to multiple risks significantly increases their risk of default.

There is also a seventh element to consider – one that, although not a direct concern for the poor borrowers in particular, affects them by reinforcing their vulnerability to external factors and their transactional risks. This element is the lack of efficiency and effectiveness of the institutional environment within which they find themselves. As Stiglitz (1990) mentions, the corruption, inefficiency, and even the possible absence of the government in the poorest countries reduces the security of economic transactions and thus increases the risk of default on loan agreements, negatively affecting the capacity of bank enforcement (STIGLITZ, 1990).

In the next section, based on this discussion, microfinance will be presented as a strategy for mitigating these difficulties and democratizing access to capital, thereby reducing poverty. In the next section, we will show how microfinance solutions make use of differentiated institutional arrangements and techniques to carry out evaluation, monitoring, and enforcement more efficiently and at a lower cost than in formal credit institutions.

Why microfinance solutions were created: reduction of transactional risks through a differentiated institutional arrangement

We started this paper by asking a central question: why are poor people, known as "non-bankable", excluded from the formal credit markets? Then we explained that their exclusion finds an explanation in the economic logic of credit rationing. The efforts made by the banks to discover the credibility of their potential customers and enforce the repayment of their loans result in higher interest rates. This dynamic is bound to degrade the quality of the banks' client portfolio. To avoid this situation, banks stop extending credit when the interest rates reach a certain threshold and poor borrowers find no loans available even if they offer to pay higher interest rates for them.

One of the greatest contributions of microfinance is precisely to break this vicious cycle (YUNUS, 2007). In other words, microfinance has been able to provide to poor populations which were *a priori* "non-bankable" (those with the characteristics indicated in Figure 4) an objective capacity for solvency. According to these authors, depending on the actual characteristics of these poor populations and of the institutional environment in which they exist, they may actually be incorporated into the credit market without creating losses for those providing capital – or even with gains for the

latter. As will be seen below, there are two principal interrelated factors that make this change in status for micro-borrowers: (1) *new institutional arrangements* supported by particular (2) *social and institutional mechanisms.*

Although there are certainly various methodologies for and modes of operationalizing microfinance, the so-called lending group, considered as the "most celebrated innovation of microfinance" (MORDUCH, 1999, p. 1.572), is almost a symbol of microfinance in itself and is today the main lending mechanism used by many MFIs around the world (STIGLITZ, 1990; VAN TASSEL, 1999; CULL; DEMIRGÜÇ-KUNT; MORDUCH, 2009). This structure makes it possible to reduce the default risk for the lender without prohibitive increases in transaction costs. The key is the opportunity the lender has to share the performance and cost of some of the evaluation, monitoring, and enforcement activities with the poor borrowers themselves (BHATT; TANG, 1998; KHAVUL, 2010). Given the earlier explanations, it is unsurprising that the institutional configurations that make this redistribution possible (and efficient) can create a lower equilibrium between costs and interest rates charged to borrowers. The expected effects of this new configuration, all other things being equal, are thus a decrease in the amount of interest charged and an increase in the volume of capital available for the loan.

Since their popularization through the example of the Grameen Bank, collective methodologies of lending groups have experienced an increasing diversification. Four internal socio-institutional mechanisms included in this model, although not universally used, are the most popular. These mechanisms comprehend the five main microfinance features cited by Morduch (1999) – peer selection, peer monitoring, dynamic incentives, regular schedule of payments, and collateral substitutes – which will be explained together.

The first mechanism is the *joint liability*. Although some loans are provided via collective arrangements without *joint liability*, this mechanism is used in the majority of collective lending strategies (GHATAK; GUINNANE, 1999). Joint liability connects the terms of repayment for each individual in a lending group to the performance of all of the other members of the same group (GHATAK, 1999). This means that the members of the group are considered to be responsible for their debts *and* for those of their colleagues: if an individual does not repay a loan, the others are responsible for this default.

Self-selection, or *peer selection*, is the second key mechanism used in the majority of lending groups (GHATAK, 1999; MORDUCH, 1999). If new individuals need to be selected to enter the group, whether to increase its size or to substitute for members who have left the group, they will be accepted only after the current members have reached a consensus, since they all will be responsible for paying his/her debts if he/she should default. When this is the case, groups are usually formed based on previously existing social ties among neighbors, friends, and others. In this way, poorer individuals can overcome their own lack of collateral, replacing it with "a sort of invisible collateral" (GHATAK, 2002, p. 2): the reputation of the borrower, a key factor in the peer evaluations that take place before one can enter better lending groups (GHATAK; GUINNANE, 1999), which offer better conditions, including lower interest rates.

The *operational dynamics* of lending groups also deserve attention. Although the operation of each microfinance program has its own peculiarities, lending groups are generally subjected to a schedule of small and frequent repayments and to subsequent meetings between their members and the microfinance institution (MORDUCH, 1999). In addition, MFIs interact in a more intense and direct way with these individuals through their credit agents, who are collaborators with a series of specific responsibilities. Although the exact definition of these responsibilities is determined by each MFI, they generally involve monitoring lending groups and providing direct assistance with their internal coordination activities. Meetings between the groups and the credit agents facilitate the joint tracking of individual enterprises, better performance evaluations, and, thus, a greater capacity for group monitoring. In addition, these meetings also create a forum for the discussion and application of

possible social sanctions (enforcement) for individuals who are in default, which tends to reduce potential moral risk (BASTELAER, 2000).

The fourth lending groups mechanism is the use of dynamic incentives (MORDUCH, 1999). In this technique, the amount of the loan is tied to objective borrower performance: individuals who are punctual in their payments have the right to continue to contract new loans, which normally become increasingly large. The possibility of obtaining larger amounts of capital functions not only as an incentive for clients to avoid defaulting but also gives them an incentive to intensify their evaluation, monitoring, and enforcement activities within their lending group. This is because if one of their peers defaults, then it will be impossible for them to obtain new and larger loans (BESLEY; COATE, 1995).

The union of these four mechanisms (joint liability, self-selection, operational dynamics, and dynamic incentives) allows a substantial part of the activities and transaction costs associated with evaluation, monitoring, and enforcement to be transferred from the MFI to its lending groups. In addition, according to various authors (BHATT; TANG, 1998; BASTELAER, 2000; GHATAK, 1999; MORDUCH, 1999; VAN TASSEL, 1999), these mechanisms allow for gains that are unlikely to be achieved by lenders on their own. Among the benefits are the elimination or attenuation of the difficulties stemming from the typical characteristics of populations interested in microfinance solutions (as presented above in Figure 4).

Ghatak (2002), Stiglitz (1990), Van Tassel (1999) and Morduch (1999), for example, show how self-selected lending groups use local knowledge to reduce informational asymmetry regarding borrowers and, simultaneously, to evaluate themselves, thus reducing both moral and adverse selection risks. Because group members have an interest in choosing the best partners to integrate into their groups (in order to reduce the possibility of default and thus increase their own chances of success), it is expected that they will be cautious in performing the selection process. Toward this end, members use previous knowledge from their social networks regarding new members and also employ pre-existing social ties of confidence and dependence. Because lending groups are usually formed locally (BASTELAER, 2000), borrowers are more likely to already know each other and to be familiar with the history, reputation, and competency of their peers. This familiarity allows them to more accurately evaluate their peers' risk of default (STIGLITZ, 1990). In addition, as Morduch (1999), Ghatak (1999), Stiglitz (1990), and others explain, the self-selection process used to form lending groups tends to bring together individuals with similar risk profiles in a process known as *sorting*, which indirectly facilitates bank evaluations.

Another advantage of making loans to self-selected groups with joint liability is that it reduces problems related to the geographic dispersion of borrowers. The literature shows that living together, on a regular basis and in close physical proximity in places that are often difficult for formal credit institutions to access, makes it easier to track the activities of each individual and his/her financial performance, reduce moral risk, and apply possible charges and sanctions to reinforce the need for payment if necessary. This is especially true when lending groups have frequent meetings. Sanctions can include not only the exclusion of the member in default from the lending group but also the exclusion of the borrower from future groups and social ostracism. These measures can reinforce the capacity of MFIs to enforce borrower requirements (BASTELAER, 2000).

In addition, joint liability encourages mutual support among borrowers because they will wish to reduce the likelihood of default by their peers (BASTELAER, 2000) for reasons intrinsic to their micro-enterprises or due to negative external impacts such as floods or droughts. This network interaction tends to increase the chances of survival of micro-enterprises created or enlarged through lending groups.

The combination of these social dynamics with the methodology of self-selected lending groups with joint liability makes it possible to create a differentiated institutional arrangement in which, as noted earlier, evaluation, monitoring, and enforcement are partially relocated from the financial micro-credit institution to its own clients – unlike formal institutions of credit, which tend to centralize these activities. Thus, as has been

previously explained, this configuration can reduce the difficulties mentioned in Figure 4 and thus increase the availability of capital for loans and reduction of the interest rates charged. Figure 5 summarizes this model, comparing it to the traditional loan method.

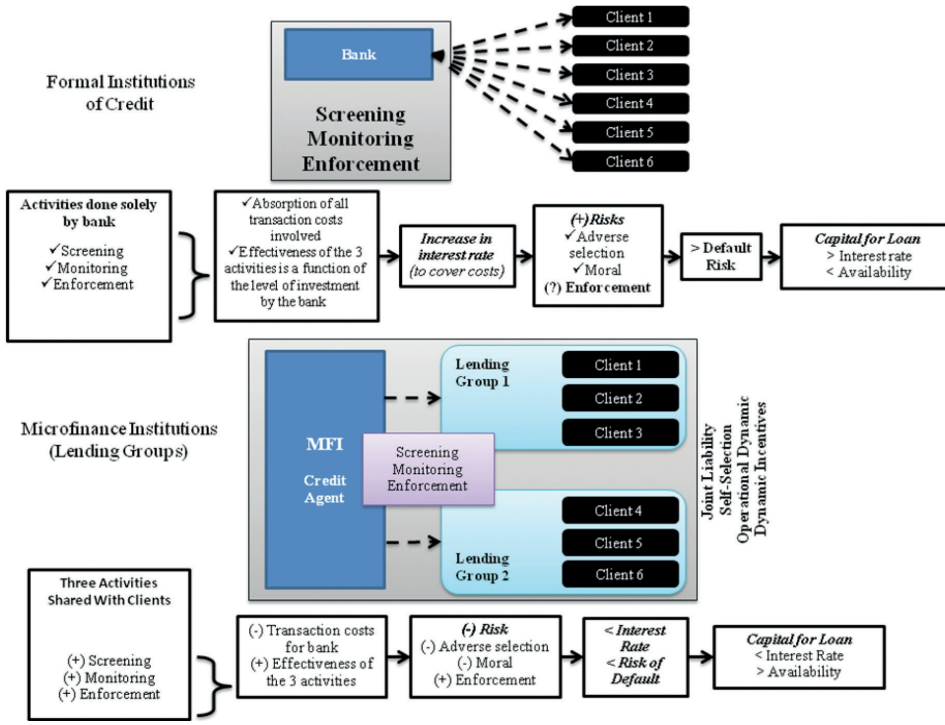

Figure 5 – Why microfinance solutions were created: traditional credit organizations *versus* MFIs' lending groups.

Source: The authors.

Beyond the internal mechanisms of lending groups, there are other factors to consider in explaining their success. One of those most discussed in the microfinance literature is gender (for instance, see SHARMA; ZELLER, 1997; HOSSAIN, 1988; KEVANE; WYDICK, 2001; JOHNSON, 2004; ARMENDÁRIZ; MORDUCH, 2007; YUNUS, 2007; D'ESPALLIER; GUÉRIN; MERSLAND, 2011). Modern microfinance began as a credit experiment carried out with a group of women (YUNUS, 2007) and worldwide today eight out of every ten microfinance clients are women (REED, 2015). The client base of Grameen Bank itself is over 95% women (GRAMEEN BANK, 2016). Indeed, evidence collected by 350 MFIs located in 70 different countries shows that women are substantially more diligent than men in the repayment of their loans (D'ESPALLIER; GUÉRIN; MERSLAND, 2011). Many reasons have been given for the superior repayment performance of women. They tend to be more conscious and conservative – less risk-taking – in their investments (ARENA, 2007; SHARMA; ZELLER, 1997; ARMENDÁRIZ; MORDUCH, 2007; AGIER; SZAFARZ, 2010); it is easier to assess and monitor female borrowers as they tend to engage in home-based economic activities (*e.g.* sewing, cooking, crafting etc.) (JOHNSON, 2004; ARMENDÁRIZ; MORDUCH, 2007; GOETZ; GUPTA, 1996; YUNUS 2007); other scholars, such as Yunus (2007), say that women are a better fit for lending groups because they are intrinsically more sociable and group-oriented than men, who are believed to be more individualistic.

Context is another element emphasized by the microfinance literature when it comes to lending groups. The success achieved by Grameen Bank was followed by an indiscriminate replication of its credit methodology throughout the world (HULME,

2000a, 2000b). After multiple failures and some wins, scholars have started to investigate why the lending groups succeeded in some regions while they were a flop in others. It has become clear that success requires an optimal fit between a MFI and its environment (BHATT; TANG, 1998).

As Woolcock (1999), Churchill (1999) and Bastelaer (1999, 2000) explain, collective arrangements of credit need social capital to function. The various forms of trust, the mutual sense of obligation, and the ability to commit and to apply social sanctions (*e.g.* peer pressure) – all components of social capital (PORTES, 1998) – are effective in decreasing the transaction costs incurred by lending groups (BHATT; TANG, 1998). Embeddedness, seen as the interpenetration of economic and non-economic (i.e. social) action (GRANOVETTER, 2005), is also a key component. According to Uzzi (1996, 1997) and Granovetter (1985, 2005), embeddedness improves the efficiency of economic interactions by, among other things, reducing the asymmetry of information that exists between exchanging partners and increasing the effectiveness of peer pressure. Granovetter (2005) explains how social networks enhance the effectiveness of economic transactions by three means: improving the flow and quality of information – which enables borrowers organized into groups to assess and monitor each other; by acting as a source of reward and punishment through peer pressure – the social sanction required for enforcement of delinquent borrowers; and by increasing the level of trust among the network's members. Thus, without the embeddedness of social capital within the financial, the internal mechanisms of lending groups (*e.g.* joint liability, self-selection and the operational dynamic) are bound to fail. This explains why this collective arrangement has experienced mixed results in Brazil.

Microfinance and lending groups in Brazil

As the legacy of laws and regulations listed in Table 1 implies, the history of microfinance in Brazil is strongly related to government initiatives and the participation of social actors and international development agencies. Microfinance was introduced to Brazil in the early 1970's by the joint initiative of Acción Internacional and public banks operating in the northeastern part of the country (BARONE et al., 2002; NERI, 2008; LIMA, 2009). Indeed, the poorest region in Brazil, the Northeast has always been the hotbed of microfinance in the country[5]. As we see in Table 2, even though this region accounts for only 28% of the national population, it holds over half of the microfinance credit portfolios in Brazil.

Table 1 – Legal landmarks of microfinance in Brazil.

Law	Issued in	Key Matters
Law 9.790	Mar 1999	• Institutes a new kind of legal organization – Civil Society Organization for Public Interest (OSCIP) – which has been adopted by many Brazilian MFIs. OSCIPs are nonprofit private organizations.
Law 10.194	Feb 2001	• Institutes the credit societies aimed at micro-entrepreneurs. • Channels governmental resources into programs and projects aimed at improving the poor populations' access to credit.
Law 10.539	Sep 2002	• Allows public workers to join the OSCIPs' boards.
Law 10.735	Sep 2003	• Regulates the channeling of part of the term deposits collected by formal financial institutions into credit operations towards the low-income population. • Institutes the Incentive Program in the Implementation of Social Interest Projects.

continued on next page

5 For instance, Crediamigo, the largest Latin American MFI, was founded in 1998 in the northeastern State of Ceará (NERI, 2008) and now serves more than two million active clients (CREDIAMIGO, 2016).

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Law	Issued in	Key Matters
Law 10.738	Sep 2003	• Creates a formal structure within Banco do Brasil (a public bank) for operation directly within microfinance.
Temporary measure 226	Nov 2004	• Institutes the National Program of Production-Oriented Microcredit (PNMPO).
Decree 5.288	Nov 2004	• Regulates the PNMPO.
Law 11.110	Apr 2005	• Converts temporary measure 226 into law. • This is called the legal landmark of microcredit in Brazil.
Central Bank resolution 3.422	Nov 2006	• Specifies the microcredit operations aimed at the low income population and micro-entrepreneurs.
Central Bank resolution 4.000	Aug 2011	• Changes the norms which regulate the channeling of term deposits held by formal financial institutions into microcredit operations.
Law 12.666	Jun 2012	• Authorizes the State to subsidize part of the costs (by an equalization calculus) of the microcredit operations run by public banks abiding by the PNMPO directives[5].

Source: The authors – based on BCB (2006, 2011) and Brasil (1999, 2001, 2002, 2003a, 2003b, 2004a, 2004b, 2005, 2012).

Table 2 – Distribution of credit portfolio and active clients in Brazil (2013).

Region	Credit portfolio	%	Active clients	%
Mid-west	R$ 235,998,927.00	4.6%	121,754	6.6%
Northeast	R$ 2,650,288,653.00	52.1%	647,792	35.0%
North	R$ 141,359,009.00	2.8%	75,146	4.1%
Southeast	R$ 1,152,605,844.00	22.6%	664,141	35.9%
South	R$ 907,931,856.00	17.8%	342,857	18.5%
Brazil (Total)	**R$ 5,089,640,970.00**	**100.0%**	**1,852,498**	**100.0%**

Source: BCB (2015).

While the lending groups are the most common credit method used by Brazilian MFIs operating in poorer regions, this methodology has failed when applied to large, wealthier cities. Now individual lending is the first, if not the only, choice of MFIs located in the richest, more urbanized states of the country. As we explained earlier, context and embeddedness explain this trend.

The social configuration of the poor communities in São Paulo, Rio de Janeiro and most of the other large cities located within the southern and southeastern regions of Brazil are quite different from the social structures prevalent in the most destitute parts of the Northeast (NERI, 2008). While the latter have larger, rural, locally-rooted populations where people hold stronger and embedded social ties, the inhabitants of poor neighborhoods in states such as São Paulo tend to be more socially detached. It is not a novelty that, under normal circumstances, it is easier to know and trust a neighbor with a common origin and background who has lived a long time in the same small community[7] and with whom one has shared multiple social ties, than to

6 This law has profoundly changed the competitive landscape of microfinance in Brazil because public banks such as Caixa Econômica Federal and Banco do Brasil are now able to offer microloans at prices that are much lower than the market-prices offered by private MFIs.

7 Depending on the geographic regions, small communities can be formed within large slums. See, for instance, the case of Banco Palmas and Conjunto Palmeiras (MARCONATTO, 2013).

trust someone who is just another stranger amongst tens of thousands (CHURCHILL, 1999). The relational culture deepens the difference between these regions. Whereas Northeastern people are known for their social openness and candid profile (*e.g.* see MARCONATTO, 2013), the Southeastern populations are more likely to have a skeptical mindset. Thus it is not surprising that southeastern MFIs choose the individualized lending model.

The credit methodology adopted by Brazilian MFIs also seems to depend on their orientation. Even though we have not found evidence of a relationship between the type of MFI and their credit methodology, direct observation shows that while small, community-based MFIs tend to take collective approaches (such as the use of lending groups), large, private (for profit) banks running microfinance operations have a clear preference for individualized methods. Two notorious examples in the country are Itaú Microcrédito (MARCONATTO; CRUZ; PEDROZO, 2015) and Santander Microcrédito. Even the public banks Banrisul and Caixa Econômica Federal decided to implement the individualized microfinance approach.

Finally, the individual methodologies, initially thought impossible for microfinance operations, have absorbed many of the features that were initially exclusive to lending groups: dynamic incentives, high frequency repayment schedule etc. This has led to significant improvements in the repayment performance of individual-contract borrowers. So much so that Churchill (1999), Armendáriz and Morduch (2000), Giné and Karlan (2010), and Attanasio et al. (2011) have been able to show that both methods basically perform the same. Thus, this is another reason for MFIs operating in the southern parts of Brazil to prefer individual over collective methodologies of credit.

Conclusions

The present article revisits the economic reasons underlying the existence of MFIs. The success of such operations in fighting poverty and their consolidation into a profitable business model has encouraged the spread of various types of MFIs (social, economic, and hybrid – BATTILANA; DORADO, 2010) around the world. The body of literature concerning MFIs has expanded as well, and the debate surrounding the consequences of the operations of these different types of organizations has attracted a large portion of the research attention on the subject.

Here, we emphasize the importance and need for focusing on the economic basis for the collective microfinance model. Understanding which activities reduce informational asymmetry (screening and monitoring) and increase capacity for enforcement allows us to understand the methodology of lending groups as a form of risk and responsibility sharing with the client community being served. This methodology makes it possible to co-manage risk independent of the type of vocation of the MFI, with greater possibilities of offering credit to individuals previously thought to be non-bankable. At the same time, we showed that the success of lending groups is highly dependent on their context as well as on the gender of the borrowers. That is why we showed that MFIs operating in large cities (such as São Paulo or Rio de Janeiro) will tend to adopt individual rather than collective lending methods.

For MFIs managers, this article provides a review of the concepts associated with the control of risks inherent in their day-to-day operations. A good understanding of screening, monitoring, and enforcement activities is essential to develop a growth strategy for MFIs and to implement shared risk mechanisms, such as in lending groups.

Our study can also be used to develop a research agenda which can unite the economic motivations and desired outcomes of microfinance organizations. Such studies could compare, for example, how different types of microfinance organizations establish ways of carrying out the screening, monitoring, and enforcement activities and which mechanisms they use for these purposes. In addition, future studies could explore if there are differences between these relationships in different institutional contexts. A comparison of the operations in developed and emerging countries and within these categories (*e.g.*, in emerging countries on different continents) would be

useful and welcome in the literature. Additionally, longitudinal studies that analyze how the screening, monitoring, and enforcement mechanisms has evolved over time would also be pertinent to advancing microfinance research.

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