CESifo WORKING PAPERS

8893
2021

February 2021

When Pro-Poor Microcredit Institutions Favor Richer Borrowers – A Moral Hazard Story

Sara Biancini, David Ettinger, Baptiste Venet

CESifo

Impressum:

CESifo Working Papers
ISSN 2364-1428 (electronic version)
Publisher and distributor: Munich Society for the Promotion of Economic Research - CESifo GmbH
The international platform of Ludwigs-Maximilians University's Center for Economic Studies and the ifo Institute
Poschingerstr. 5, 81679 Munich, Germany
Telephone +49 (0)89 2180-2740, Telefax +49 (0)89 2180-17845, email office@cesifo.de
Editor: Clemens Fuest
https://www.cesifo.org/en/wp
An electronic version of the paper may be downloaded
· from the SSRN website: www.SSRN.com
· from the RePEc website: www.RePEc.org
· from the CESifo website: https://www.cesifo.org/en/wp

CESifo *Working Paper No. 8893*

When Pro-Poor Microcredit Institutions Favor Richer Borrowers – Moral Hazard Story

Abstract

We suggest an explanation for the existence of "mission drift", the tendency for Microfinance Institutions (MFIs) to lend money to wealthier borrowers rather than to the very poor. We focus on the relationship between MFIs and external funding institutions. We assume that both the MFIs and the funding institutions are pro-poor and agree on the optimal proportion of funds to be granted to the poorer borrower. However, asymmetric information on the effort chosen by the MFI to identify higher quality projects may increase the share of loans attributed to wealthier borrowers. This occurs because funding institutions have to build incentives for MFIs, creating a trade off between the quality of the funded projects and the attribution of loans to poorer borrowers.

JEL Codes: O120, O160, G210.

Keywords: microfinance, mission drift, moral hazard.

Sara Biancini
THEMA, CNRS
CY Cergy Paris Université / France
sara.biancini@cyu.fr

David Ettinger
PSL Research University
CNRS, IRD, LEDa
Université Paris Dauphine / France
david.ettinger@dauphine.psl.eu

Baptiste Venet
PSL Research University
CNRS, IRD, LEDa
Université Paris Dauphine / France
baptiste.venet@dauphine.psl.eu

This version: January 2021
We would like to thank Emmanuelle Auriol, François Bourguignon, Marek Hudon, Marc Labie, Ariane Szafarz, Régis Renault, Attila Tasnádi and seminar participants at Oligo Workshop, the Canadian Economic Association Conference, the European Development Network Conference, CERMi Seminar in Bruxelles, the European Microfinance Conference, the DIAL Development Conference and the THEMA Seminar in Cergy-Pontoise for helpful comments. David Ettinger would like to thank the Governance and Regulation Chair, Fondation Paris-Dauphine PSL, for its support.

1 Introduction

Over the last 30 years, the microfinance industry has been responsible for a massive growth of pro-poor financial services. The growth of the sector and the increasing financial flows into Microfinance Institutions (MFIs) have stimulated a debate on the evolution of the sector. The main recent developments are the explosion of for-profit and profit-oriented MFIs, the increasing competition between these for-profit MFIs and "socially motivated" ones and the change in the nature of some funding institutions (private vs. public). These different issues have contributed to fuel the debate on so-called "mission drift" in microfinance. Armendáriz et al. (2011) state that "mission drift arises when an MFI increases its average loan size by reaching out to wealthier clients neither for progressive lending nor for cross-subsidization reasons. Mission drift in microfinance arises when an MFI finds it profitable to reach out to unbanked wealthier individuals while at the same time crowding out poor clients". In this paper, we present a theoretical analysis aimed at increasing our understanding of the role of funding institutions in affecting mission drift tendencies in microfinance. From its origins, microfinance has been about a 'double bottom-line': a mix of commercial and social concerns. MFIs need to run their *businesses* in a way that allows for costs to be recovered while at the same time achieving social goals. But the success of a MFI has long been associated with financial performance outcomes measured by loan portfolio quality, operating efficiency and profitability. There is a widespread fear that microfinance might be drifting away from its original 'double bottom line'. The fact that funding institutions may want to encourage financial sustainability is not necessarily a sign of abandoning the pro-poor orientation of microfinance. This clearly appears in Yunus (2007), when in his well-known book "Banker to the Poor" he states, "If Grameen does not make a profit, if our employees are not motivated and do not work hard, we will be out of business. (...) In any case, it cannot be organized and run purely on the basis of greed. In Grameen we always try to make a profit so we can cover all our costs, protect ourselves from future shocks, and continue to expand. Our concerns are focused on the welfare of our shareholders, not on the immediate cash return on their investment dollar" (chapter 11, p. 204). Similarly, in the Key Principles in microfinance published by the Consultative Group to Assist the Poor (CGAP)

in 2004, financial sustainability is evoked as the 4th principle and defined as "necessary to reach significant numbers of poor people". In this spirit, observers and policymakers have increasingly put the accent on the necessity for microfinance institutions to be profitable, or "financially" sustainable, raising interest rates and going through commercialisation to be able to attract private investors (see Cull et al., 2009).

Nonetheless, a report commissioned by Deutschebank showed that, in 2007, 70% of MFIs were small "start-ups MFIs", mostly unprofitable, while only the top 150 MFIs were fully sustainable mature enterprizes (Deutschebank, 2007). More recently, focusing on MFIs' costs on a sample of 1,355 MFIs between 2005 and 2009, Cull et al. (2016) find that, while most firms earn positive accounting profits, only a minority make an economic profit (which accounts fully for the opportunity costs of inputs): 67 percent of institutions were profitable on an accounting basis, but only 36 percent were profitable. They also show that implicit grants and subsidies are widespread and persist in older institutions.

At the same time, the positive view of commercialization and profitability has been challenged in recent years by critics, following the news that the largest microfinance bank in Latin America, the Mexican Compartamos, was offering returns on equity of 53%, while charging interest rates exceeding 100% to the poor. In a famous column appearing in the New York Times on January 14, 2011, Yunus reacted to this debate denouncing a tendency towards "sacrificing microcredit for megaprofits". Moreover, because microfinance is a profitable and viable business in some places, there is an increasing competition between for-profit and "socially motivated" MFIs (McIntosh and Wydick, 2005) and this may have adverse effects especially regarding the social mission. Hossain and *al.* (2020), using 4576 MFI-year observations (1139 unique MFIs) from 59 countries over the period 2005-2014, document that competition has a negative effect on the economic sustainability of MFIs. They also find that the impact of competition on social performance is mixed: it reduces the breadth of outreach (i.e. the number of active borrowers) but it enhances the depth of outreach because competition encourages MFIs to serve unserved or undeserved borrowers with a smaller loan size.

The main difficulty when trying to assess the extent of "mission drift" is that it is a complicated matter to empirically establish whether a microfinance institution has indeed

deviated from its social mission. One widely used proxy for poverty is average loan size, but as Armendariz et al. (2011) point out, the relationship between mission drift and loan size is not easy to tackle, so that socially responsible investors should be cautious when interpreting empirical evidence on loan size. Another possible sign of mission drift could be a tendency to practice higher interest rates. However, Roberts (2013) shows that, although profit-oriented MFIs do usually charge higher interest rates, they are not significantly more profitable, because they tend to have higher costs. He concludes that his analysis finds "no obvious indication of a mission drift".

We believe that additional theoretical work is needed to understand the phenomenon and to be able to interpret the empirical facts. We propose a model in which both the funding institution and the MFI are pro-poor, although they can put different weights on the aim of providing credit to the poorest borrowers. Incentives have to be provided to the MFI to exert costly effort to identify the more valuable projects and to choose the right share of poorer borrowers (the optimal level of poor outreach). We characterize the optimal contract proposed to MFIs with the aim of balancing outreach, budget considerations and MFIs' survival.

Our main finding is that asymmetric information on the effort exerted by the MFI and may increase the share of richer borrowers financed by MFIs, thereby increasing the mission drift. The intuition lying behind this result is that, if the pro-poor orientation of the MFI is weaker than that of the donor, even though they may agree on the *optimal* fraction of loans granted to richer borrowers, then the contract with the funding institution has to provide incentives to exert costly effort. This requires increasing the share of richer borrowers, in order to ensure sufficiently high revenue to the MFI.

We believe that this issue is empirically relevant to explain mission drift issues. For instance, the report "Microfinance in Africa" produced for the United Nations by OSAA and NEPAD (2013), puts the accent on the difficulties of operating in a context of lack of transparency and weak institutions, an environment which favors hidden-action problems.

The paper proceeds as follows. Section 2 describes the related literature. Section 3 presents the basic model. Section 4 analyzes it and section 5 concludes.

2 Related literature

Although the economic issue of the relationship between MFIs and external funding institutions has gained importance in recent years, as Ghosh and Van Tassel (2013) point out, the literature on microfinance has not paid much attention to this question.[1] An indirectly related body of literature has considered the broader question of the relationship between external funding institutions and other recipients (such as NGOs). For instance, Besley and Ghatak (2001) consider the issue of the optimal contract between a government and an NGO in order to carry out a development project, showing how hold-up problems shape the optimal way to delegate responsibility to NGOs for providing social welfare and development services. Aldashev and Verdier (2009,2010) examine the effects of international competition between NGOs in raising funds. They show that if the level of outside options for NGO entrepreneurs is low enough, increased competition among NGOs can lead to higher fund diversion, despite the fact that they care about the impact of their projects.

More recently, the literature has concentrated on issues arising in contracting environments related specifically to microfinance. For instance, Aubert et al. (2009) focus on the internal organization of MFIs and highlight the importance of the incentives given to the credit agents. They analyze the optimal contract in the presence of moral hazard and investigate the issue of mission drift in this context. In their model, the credit agents are not pro-poor, and can under-report repayments, so that they have to be given the right incentives to investigate the ability and wealth of borrowers. The MFI can monitor agents. However, when monitoring is costly, a pro-poor MFI can be obliged to provide the agent with incentives based on repayments, thus generating mission drift. In another recent paper, Baland et al. (2013) concentrate instead on borrowers' incentives to repay their credits. They compare individual loans to joint liability contracts and show that wealthier borrower can pool risk more efficiently, have higher reimbursement rates and get higher benefits from group lending. While Aubert et al. (2009) concentrate on the incentives provided to agents and Baland et al.,2013 look at repayment incentives, we concentrate instead on the contractual relationship between MFIs and external funding institutions. To simplify the analysis,

[1]Most papers are dedicated to the process of contracting between MFIs and their clients: see Ghatak and Guinnane (1999), Rai and Sjöström (2004), Jeon and Menicucci (2011) or Shapiro, 2015.

we do not consider joint liability issues (thus differently from Baland et al.,2013 and as in Aubert et al.,2009). In our context, we find it reasonable to assume that both the MFI and the funding institutions are pro-poor, even though the intensity of the pro-poor motive may differ. Although we do not allow the MFI to under-report repayments, incentives in our framework need to be provided in order that the MFI will exert costly effort to discover valuable clients' investment projects[2] (while borrowers' wealth is easily observable by the MFIs, which have better knowledge of the local conditions than the funding institutions do).

The first to focus directly on the relationship between funding institutions and MFIs were Ghosh and Van Tassel (2011,2013). Contrarily to us, they concentrate on adverse selection problems that may arise when MFIs' costs are heterogeneous. In their first paper, they present a model in which *socially responsible* MFIs (their main goal is to reduce poverty) must be funded by a profit-seeking investor. They find that competition among MFIs to obtain external funds has two opposite effects: on the one hand, having to pay a high rate of return to the external funder raises the interest rates charged to borrowers; on the other hand, it is also a way to make the funding more efficient by redirecting funding from inefficient MFIs to more efficient ones. If the average increase in the quality of MFIs more than compensates for the higher interest rates, the competition for external funds is pro-poor. In Ghosh and Van Tassel (2013), they extend the previous analysis by introducing asymmetric information and socially motivated funding institutions. They compare two alternative types of contract: the first is a pure grant, the second requires paying an interest rate sufficiently high to dissuade high-cost MFIs applying for funding. Also in this case, they show that imposing high repayments to MFIs can increase efficiency by squeezing out less-efficient types. Our approach is complementary to theirs, as we concentrate exclusively on moral hazard aspects. In this context, incentives do not serve to squeeze-out the less efficient MFIs, but to promote the efficient level of project-screening effort. We allow the weights put on the poverty outreach objective to differ for the MFI and the funding institution. We concentrate on the impact of these weights on the mission drift. We also assume that the funding institution cares about the survival and long-term viability of MFIs, placing a positive weight on the MFI's profit. Our paper shows that moral hazard can be a source of

[2]This can also be interpreted as a cost of helping borrowers improve the quality of their projects.

mission drift, even when both the funding institution and the MFIs are pro-poor. Mission drift can be adversely impacted by the distortions necessary to provide the right incentives to MFIs when project-screening is costly and the population of borrowers heterogeneous.

3 The model

We consider the relationship between a funding institution (the principal, "he") and an MFI (the agent, "she"). The MFI lends a mass 1 of money to a local population of borrowers. The population of borrowers contains an infinity of borrowers, who don't have access to bank lending. Borrowers are heterogeneous: some of them are richer (they are unbanked but less poor, with a positive initial wealth level that is not pledgeable and does not allow them to access bank lending) and some of them are poorer (they have no wealth whatsoever). The MFI chooses the proportion α of the money lent to richer borrowers in her loans portfolio.

In addition, the MFI has to exert effort to screen out valuable projects, when examining the project proposed by both richer and poorer borrowers. This effort level e can be interpreted as the share of loans for which the MFI makes costly effort in order to identify the quality of the project. Without any screening effort on the MFI side, the expected reimbursement of richer borrowers, R_R, is strictly higher than the expected reimbursement of poorer borrowers, R_P. This assumption can be justified on different grounds: first, we can assume that richer borrowers have higher collaterals;[3] second, following the empirical findings of Sharma and Zeller (1997) in Bangladesh or Zeller (1998) in Madagascar, we can consider that repayment performance is an increasing function of wealth because the poorest may invest more in low-return activities, since they have a low ability to bear risk. This assumption simply aims to capture the idea that financing richer borrowers might guarantee larger revenues to the MFI, so that the latter might be tempted to abandon the mission of serving poorer borrowers to increase profitability. This might well depend on the fact that less poor borrowers have access to better education, land, and/or social capital (see also Aubert et al., 2009).

[3]These collaterals might not be easily pledgeable or may be insufficient to guarantee a standard banking loan, but MFIs can use it to put pressure on the borrowers. Alternatively, this can be interpreted as higher social collateral.

We also assume that the screening effort increases the loans return by a parameter ΔR, and for simplicity we assume that this parameter is identical for richer and poorer borrowers.

The expected reimbursement for the projects financed by the MFI is therefore equal to:

$$\theta(\alpha, e) = R_P + \alpha(R_R - R_P) + \Delta R e \tag{1}$$

with $e \in [0, 1]$ the fraction of loans for which the MFI exerts an effort. We assume that the cost associated to the effort e is linear and does not depend on the type of borrowers, so that we can denote it μe with $\mu > 0$. This effort translates into a monetary cost, because the MFI has to pay credit officers who study the quality of the projects. The effort provided by the MFI can thus be simply interpreted as an effort necessary to examine projects and screen in the good ones with higher repayment potentials. Alternatively, this can be interpreted as the effort and the cost necessary to provide additional services and support to the borrowers, thus increasing the potential of their investment projects.

The MFI has no direct access to the financial market to finance her loans, so that she has to contract with a funding institution (the principal). The funding institution proposes a contract to the MFI. The contract specifies the refund, T, that the MFI is supposed to pay to the funding institution in exchange for the funding.

The funding institution's utility is an increasing function of the refund he receives from the MFI, but the funding institution is also concerned with loan allocations going to the *right* borrowers as well as with the survival of the MFI. More precisely, we represent his preferences with the following utility function:

$$V = T - 1 + \lambda_1 \Big(1 - (\frac{\alpha - \alpha^*}{1 - \alpha^*})^2\Big) + \lambda_2(\theta(\alpha, e) - \mu e - T) \tag{2}$$

$T - 1$ is the budget balance of the lending process for the funding institution. $\lambda_1 > 0$ is the weight that the funding institution puts on the distribution of the loans to the *right* borrowers. α^* is the optimal fraction of loans granted to richer borrowers. α^* is not necessarily equal to 0. For several reasons, the funding institution may prefer that some richer borrowers may also be financed.[4]

[4]Different values for the optimal share of poorer borrowers can derive from natural welfare functions in which the funding institution cares for the welfare of the poorest borrowers, while taking into account that

We choose the formula $\left(1-(\frac{\alpha-\alpha^*}{1-\alpha^*})^2\right)$ to represent the utility that the funding institution derives from lending money to borrowers with a fraction of richer borrowers, because we wanted to make it clear that the funding institution derives a positive utility from lending this money. This element that we incorporate in the utility function is always positive. However, after some normalization, we can show that this is equivalent to considering $-(\alpha-\alpha^*)^2$ which is simpler to interpret. $(\theta(\alpha,e)-\mu e-T)$ is the amount of money left to the MFI and $\lambda_2 \geq 0$ is a parameter representing the interest of the funding institution in the survival of the MFI. The higher $\theta(\alpha,e)-\mu e-T$, the higher the net income of the MFI and her probability of surviving. We assume that $\lambda_2 < 1$, otherwise the funding institution could increase his utility by simply transferring money to the MFI.

The MFI also cares about the ratio of poorer and richer borrowers to whom she grants loans. For the sake of simplicity, we assume that the preferred fraction of richer borrowers for the MFI is the same as for the funding institution, α^*.[5] However, the weight that the MFI gives to this dimension of his utility, $\beta_1 > 0$, may differ from the λ_1 of the funding institution. Eventually, the MFI's utility function is defined as follows.

$$U = \theta(\alpha,e) - T - \mu e + \beta_1\Big(1-(\frac{\alpha-\alpha^*}{1-\alpha^*})^2\Big) \tag{3}$$

Besides this, we assume that the MFI has no other external funds at the time she accepts the contract with the funding institution so that she also faces a budget constraint:

$$\theta(\alpha,e) - T - \mu e \geq 0 \tag{4}$$

The MFI does not accept a contract such that this constraint is not satisfied (perfectly anticipating her own behavior after having accepted the contract).

richer unbanked borrowers generate higher expected income. For instance, even if the funding institution only cares about poorer households, she might take into account that lending to some richer individuals might generate a trickle-down effect, for instance creating local jobs and increasing the living condition of the poorer borrowers. On the other hand, even if richer households produce higher expected revenue, the funding institution would want to finance a certain ratio of poorer borrowers to achieve a better distribution of wealth. In addition, the unbanked wealthier are relatively more abundant than the unbanked poor in many middle-income regions. As noted in Armendáriz et al. (2011) the fact that many MFIs in these regions serve a higher share of less poor borrowers does not necessarily mean that they have all deviated from their mission.

[5]We could alternatively set different ideal levels α^*_{MFI} and an α^*_F and $\alpha^*_M \neq \alpha^*_F$. However, we choose to consider a unique α^* in order to show that our results cannot be explained by the different view about the optimal fraction of richer borrowers between the MFI and the funding institution.

We assume that the funding institution can observe neither the effort level chosen by the MFI e, nor the fraction of richer borrowers α. However, the funding institution discovers the reimbursement level, θ, obtained by the MFI (the MFI cannot hide the money). We also assume that the value of μ is common knowledge. The timing of the game is the following:

- Step 0: The funding institution makes an offer (θ^c, T^c) to the MFI. The offer may be interpreted as: I propose you a capital of 1 in order to lend money to local borrowers. If I observe that you obtain a reimbursement rate equal to θ^c, I ask for a repayment T^c. If I observe a reimbursement rate different from θ^c, I ask for a repayment $T > \theta(1,1)$ and you go bankrupt.

- Step 1: The MFI accepts the offer or refuses it. If she refuses it, the game is over without any lending or transfers. If she accepts it, the game continues.

- Step 2: The MFI chooses e and α.

- Step 3: Borrowers reimburse the loan. $\theta(e, \alpha)$ is common knowledge and the MFI makes her payment to the funding institution in accordance with the initial contract and the actual value of θ.

This game is aimed at representing, in a simple framework, a situation in which the funding institution can observe neither the actual effort made by the MFI to discover good projects (or to propose valuable services to borrower) nor the actual wealth of the borrowers. On the other hand, we may think that the funding institution can more easily observe the total revenue of the MFI and so proposes a reimbursement of the funds which is a function of the realized revenues, that, for simplicity, we assume to be perfectly observable.

4 The analysis

Before focusing on the contract and the decisions of the MFI, we first observe that it is not necessary to consider values of θ^c such that $\theta^c < R_P + \alpha^*(R_R - R_P)$ since both the funding institution and the MFI agree that $\alpha < \alpha^*$ gives a lower utility and a lower reimbursement level than choosing $\alpha = \alpha^*$.

Now, let us consider the MFI's decision. Since the contract only specifies θ^c, the reimbursement level, if she accepts this she will choose among all the pairs (e, α) such that $\theta(e, \alpha) = \theta^c$. In order to increase the size of the reimbursement rate, increasing the share of rich borrowers is a substitute for higher effort.

If $\theta^c \geq R_P + \alpha^*(R_R - R_P)$, the MFI will choose an α such that $\alpha \geq \alpha^*$, so that the marginal cost of increasing θ by raising the fraction of richer borrowers is $\frac{2\beta_1}{R_R - R_P} \frac{\alpha - \alpha^*}{(1-\alpha^*)^2}$ which is strictly increasing in α. The MFI increases α up to the point when further increasing the share of richer borrowers becomes more costly than increasing effort. The marginal cost of increasing θ by a rise in the effort level is equal to $\frac{\mu}{\Delta R}$ which is a constant. The two costs are equal when $\alpha = \alpha^* + \frac{(1-\alpha^*)^2(R_R - R_P)\mu}{2\beta_1 \Delta R} \equiv \alpha^M$. Therefore, there are 3 cases (assuming that T^c is small enough, otherwise the MFI will refuse the contract):

- If $\theta^c < R_P + \alpha^M(R_R - R_P)$, the MFI will choose an effort level 0 and an α equal to $\frac{\theta^c - R_P}{R_R - R_P}$ in order to obtain θ^c.
- If $R_P + \alpha^M(R_R - R_P) \leq \theta^c \leq R_P + \alpha^M(R_R - R_P) + \Delta R$, the MFI will choose $\alpha = \alpha^M$ and an effort level $e \in [0, 1]$ such that the reimbursement level is equal to θ^c.
- If $\theta^c > R_P + \alpha^M(R_R - R_P) + \Delta R$, the MFI will choose an effort level 1 and an α equal to $\frac{\theta^c - R_P - \Delta R}{R_R - R_P}$ in order to obtain θ^c.

This result appears in Figure 1 which represents all the pairs (α, e) chosen by the MFI depending on the θ^c proposed by the funding institution. When the graph goes northeast, this coincides with a higher θ^c chosen by the funding institution. The graph is uniquely characterized by the value of α^M.

Now, the funding institution. We first consider the funding institution's first best, the choice that he would impose on the MFI if he could choose the pair (α, e) which maximizes his utility while satisfying the MFI budget constraint, $T \leq \theta(\alpha, e) - \mu e$. This constraint will always be binding since $\lambda_2 < 1$, therefore we can assume that in this first best contract, $T = \theta(\alpha, e) - \mu e$ so that the funding institution's utility will be equal to:

$$V = R_P + \alpha(R_R - R_P) - 1 + \Delta R e - \mu e + \lambda_1 \Big(1 - (\frac{\alpha - \alpha^*}{1 - \alpha^*})^2\Big) \tag{5}$$

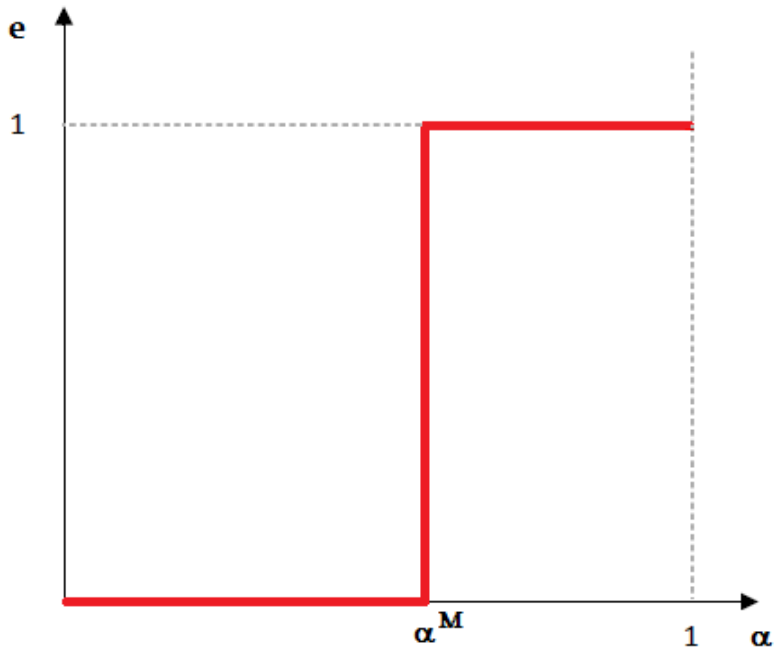

Figure 1: MFI's preferences

This is equal to the utility of the MFI given in (3), except that T (the transfer for the MFI) is replaced by 1 and the parameter β_1 is replaced by λ_1.

Looking at the formula, we observe that if $\Delta R < \mu$, the funding institution prefers $e = 0$, if $\Delta R > \mu$, the funding institution prefers $e = 1$, and if $\mu = \Delta R$, the funding institution is indifferent among effort levels. As for the optimal level of α, we can find it by maximizing $\alpha(R_R - R_P) + \lambda_1(1 - (\frac{\alpha-\alpha^*}{1-\alpha^*})^2)$. This gives an optimal α for the funding institution.

$$\alpha^F \equiv \alpha^* + \frac{(1-\alpha^*)^2(R_R - R_P)}{2\lambda_1} \tag{6}$$

Now, the funding institution cannot actually choose the pair (α, e) because he does not observe the choice of the MFI. He faces 3 different cases.

If $\Delta R \leq \mu$, the cost of effort is higher than the social benefit, the funding institution prefers $(\alpha^F, 0)$. Preferring that the MFI makes no effort, the funding institution can propose a contract which only covers the costs with no effort when the share of richer borrowers is equal to α^F, $(\theta^c, T^c) = (\theta(\alpha^F, 0), \theta(\alpha^F, 0))$. The MFI will accept the contract and choose $(\alpha, e) = (\alpha^F, 0)$ so that the funding institution will manage to impose his preferred pair on the MFI.

If $\Delta R > \mu$ and $\alpha^F \geq \alpha^M$, the cost of effort is lower than the social benefit and the optimal α for the funding institution is higher than the optimal α for the MFI. The funding institution can obtain that the MFI chooses $(\alpha, e) = (\alpha^F, 1)$ by proposing a contract $(\theta^c, T^c) = (\theta(\alpha^F, 1), \theta(\alpha^F, 1) - \mu)$. In this case, the funding institution can obtain the preferred share of richer borrowers by imposing a high reimbursement which forces the MFI to exert effort and to push the share of richer borrowers to α^F.

The richest case is when $\Delta R > \mu$ and $\alpha^F < \alpha^M$. Since $\Delta R > \mu$, the funding institution would prefer the MFI to make an effort equal to 1 (the social cost of the effort is lower than the social profit). The funding institution would also like the MFI to choose an α strictly lower than α^M since $\alpha^F < \alpha^M$. However, we already noted that whatever the contract proposed (θ^c, T^c), it is never possible to obtain that the MFI chooses an effort equal to 1 and an $\alpha < \alpha^M$ since the MFI will always reduce its effort (with a marginal cost $\frac{\mu}{\Delta R}$ for an increase in θ) and raise the ratio α of richer borrowers (with a marginal disutility for an increase in θ strictly lower than $\frac{\mu}{\Delta R}$ when $\alpha < \alpha^M$). Therefore, we obtain the following result.

Proposition 1 *The funding institution proposes a contract (θ^c, T^c) to the MFI such that:*

- *If $\Delta R \leq \mu$, the funding institution proposes a contract inducing effort $e = 0$, setting $\theta^c = \theta(\alpha^F, 0)$ and $T^c = \theta(\alpha^F, 0)$.*

- *If $\Delta R > \mu$ and $\lambda_1 > \frac{\Delta R}{\mu}\beta_1$ (equivalent to $\alpha^F \geq \alpha^M$), the funding institution proposes a contract inducing effort $e = 1$, setting $\theta^c = \theta(\alpha^F, 1)$ and $T^c = \theta(\alpha^F, 1) - \mu$.*

- *If $\mu \leq \Delta R < \mu + \frac{\lambda_1(\alpha^M - \alpha^F)(\alpha^M + \alpha^F - 2\alpha^*)}{1-\alpha^*} + (\alpha^M - \alpha^F)(R_R - R_P)$ and $\lambda_1 \leq \frac{\Delta R}{\mu}\beta_1$, the funding institution proposes a contract inducing effort $e = 0$, setting $\theta^c = \theta(\alpha^F, 0)$ and $T^c = \theta(\alpha^F, 0)$.*

- *If $\Delta R > \mu + \frac{\lambda_1(\alpha^M - \alpha^F)(\alpha^M + \alpha^F - 2\alpha^*)}{1-\alpha^*} + (\alpha^M - \alpha^F)(R_R - R_P)$ and $\lambda_1 \leq \frac{\Delta R}{\mu}\beta_1$, the funding institution proposes a contract inducing effort $e = 1$, setting $\theta^c = \theta(\alpha^M, 1)$ and $T^c = \theta(\alpha^M, 1)$.*

In all cases the MFI accepts and executes the proposed contract.

Let us first consider the case $\mu \geq \Delta R$, where the cost of effort is higher than its social benefit. Then, no effort is exerted and the funding institution can impose his preferred choice: no effort and $\alpha = \alpha^F$. Even if he does not observe θ, he can propose a reimbursement rate $\theta(\alpha^F, 0)$ and obtain his preferred choice.

Even if $\alpha^M < \alpha^F$ so that in order to obtain the reimbursement rate $\theta(\alpha^F, 0)$ which coincides with the preferred choice of the funding institution $(\alpha^F, 0)$, the MFI would rather make a strictly positive effort and choose an α strictly lower than α^F (as can been seen with point A and A' in Figure 2, the funding institution can implement $(\alpha^F, 0)$. As a matter of fact, because of her budget constraints the MFI will never make any effort if she is not compensated for it. If the funding institution wants to implement point A, although the MFI would prefer point A' (with the same θ), the funding institution can force the MFI to choose A.

The α chosen is not equal to α^*, which may be considered as mission drift. This is explained by the tradeoff between lending money to poorer borrowers and obtaining a higher reimbursement rate. Since the cost of an increase in the fraction of richer borrowers in the neighborhood of α^* is negligible and the marginal increase in reimbursement rate is constant, equal to $R_R - R_P$, the chosen α will always be higher than α^*.

Now, if the social cost of effort is lower than its social benefit, $\mu < \Delta R$, it is socially optimal to make an effort equal to 1. However, this effort will not always be implemented. If α^F is higher than α^M the situation is simple: the funding institution proposes a contract with an $\alpha = \alpha^F$, $e = 1$ and a repayment such that the MFI makes no profit. Since $(\alpha^F, 1)$ is an element of the optimal curve of the MFI, he will accept the contract and choose $(\alpha^F, 1)$. This is represented by point B in Figure 2. But if $\alpha^F < \alpha^M$ and the funding institution proposes a contract $(\theta(\alpha^F, 1), \theta(\alpha^F, 1) - \mu)$, the MFI will not choose $(\alpha^F, 1)$. He will choose a lower effort level and a higher α.

As we can see in Figure 3, if the funding institution proposes a contract $(\theta(\alpha^F, 1), \theta(\alpha^F, 1) - \mu)$ with $\alpha < \alpha^M$ (such as the one denoted by point E in Figure 3), the MFI will substitute effort for a higher proportion of richer borrowers (choosing E'). Therefore, the funding institution cannot do better than choosing between 2 solutions. He can either obtain that the

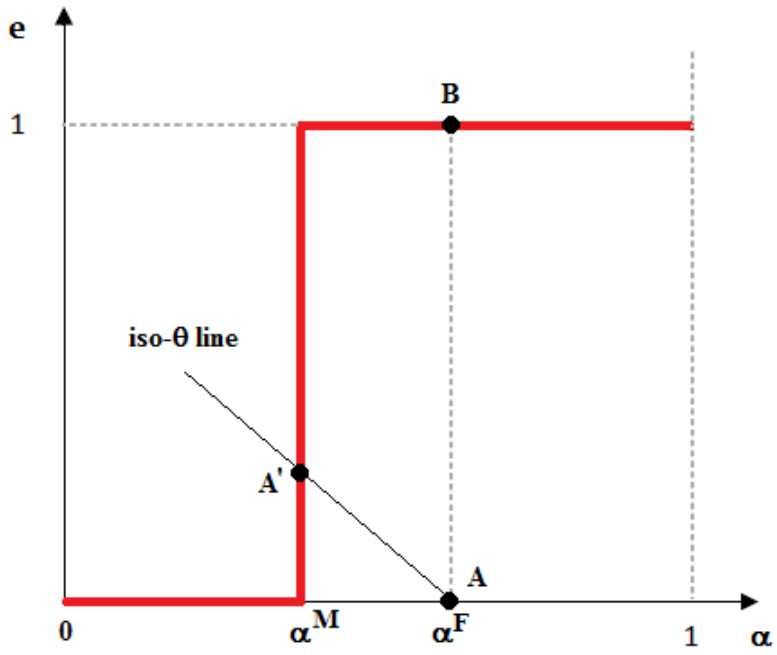

Figure 2: MFI's preferences and optimal contracts under hidden action: case $\alpha^M > \alpha^F$.

MFI chooses α^F by proposing a contract $(\theta(\alpha^F, 0), \theta(\alpha^F, 0))$ (corresponding to point F in Figure 3) but no effort will be made, or he can propose $(\theta(\alpha^M, 1), \theta(\alpha^M, 1) - \mu)$ (corresponding to point G in Figure 3) so that the effort level will be equal to 1 but the fraction of richer borrowers will be higher than the funding institution's first best. In the first case the effort level is suboptimal; in the second case the fraction of richer borrowers is too high, indicating a stronger mission drift. The funding institution will choose among these two contracts the one that minimizes his utility loss.

The model thus shows how mission drift is affected by the objectives of the funding institution and the MFI. As expected, a high share of richer borrowers can depend on the preferences of the funding institution. If the funding institution puts a low weight on the pro-poor mission, then he can decide to push the MFIs to realize his preferred share of poor borrowers by asking for a high reimbursement rate, so that effort alone is not enough for the MFI to generate the required revenue and she is pushed to serve more richer borrowers. The hidden-action problems can have an additional (adverse) impact on the mission drift as compared to the benchmark case of complete information. This happens when the MFI puts relatively low weight on the pro-poor mission while the funding institution is more pro-poor

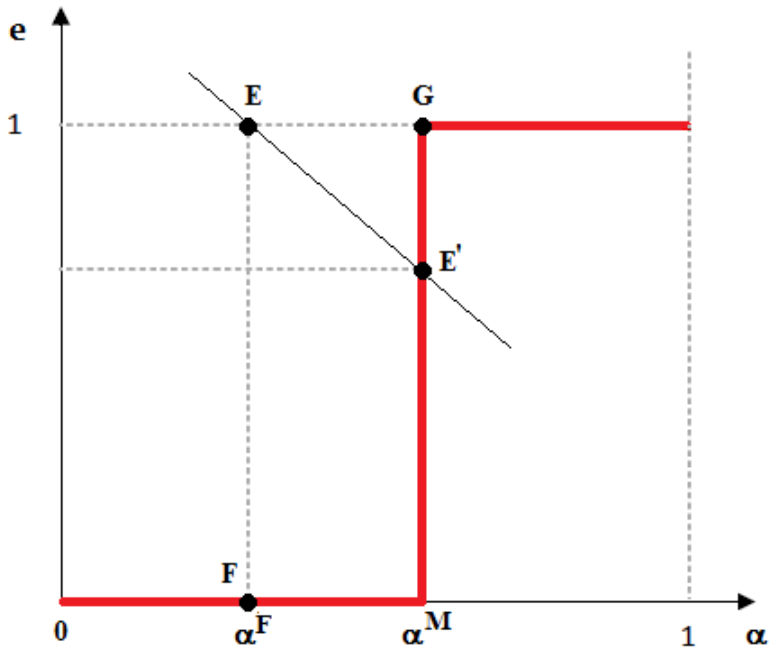

Figure 3: MFI's preferences and optimal contracts under hidden action: case $\alpha^F > \alpha^M$

(as in the case illustrated in Figure 3): in this case, the funding institution cannot induce the preferred share of poorer borrowers and mission drift increases (as in point G). Alternatively, the funding institution has to renounce inducing higher effort (as in point F). This could also be interpreted as another source of mission drift in the sense that, for a given share of richer borrowers, the quality of the services provided by the MFI has to be degraded to satisfy the contract proposed by the funding institution.

We have thus shown that hidden action is likely to have an adverse effect on mission drift when the pro-poor orientation of the MFI is weak compared to that of the funding institutions. On the contrary, if the MFI is pro-poor, the contract proposed by the funding institution can induce the desired level of effort and of the share of richer borrowers desired by the funding institution, so that asymmetric information has no particular impact on the mission drift.

To derive some implications from the model, it is first important to note that hidden action is related to the unobservability of effort. In practice, this problem is more relevant when the market is less transparent and the information on the functioning of MFIs is hard to gather. For instance the report "Microfinance in Africa" (OSAA and NEPAD,

2013) mentions that a widespread weakness of African microfinance is the prevalence of governance problems coupled with the diffusion of informal enterprises with scarce access to reliable information. In these countries, governments and development institutions should thus probably concentrate their efforts on increasing transparency, and support MFIs to improve governance. In addition, we have shown that the distortions are driven from the weak pro-poor orientation of MFIs. In a context in which many MFIs are profit-oriented, as in many Latin American countries, the presence of hidden action is more likely to worsen the mission drift. But things should be different in Asian countries like India and Pakistan which have a traditional focus on the social mission (Report on Asian Microfinance edited by Bedson, 2009). This is not to say that moral hazard cannot occur in pro-poor MFIs, but in our framework we show that in this case it is easier for the funding institutions to obtain the desired levels of effort and redistribution through second-best contracting with the MFIs.

5 Conclusion

The present paper contributes to the debate on the recent evolution of the microfinance sector, fueled by the explosion of for-profit and profit-oriented MFIs and by a change in the nature of some external funding institutions (private vs. public). The entry of new market players raises the fear for a deviation from the social mission, the so-called mission drift. We build a model in which we analyze the relationship between funding institutions and MFIs, assuming that both are pro-poor. Assuming that the effort to screen valuable investment projects is costly, incentives have to be provided to the MFI by the funding institution to exert the right effort level and to choose the desired share of poorer borrowers. We show that, in this context, asymmetric information can reduce the share of poorer borrowers reached by loans, thus increasing the mission drift.

In further research, it could be interesting to enrich the analysis to take into account the possible effects of competition among MFIs or among funding institutions. In asymmetric information contexts, competition is not necessary welfare enhancing and it could either improve or exacerbate the distortion related to moral hazard. In addition, MFIs' heterogeneity could be added to the picture, analyzing how screening among different types of MFI's could impact the provision of screening-effort and the social performance of the microcredit

industry.

References

Aldashev, G. and T. Verdier (2009). When NGO go global: Competition on international markets for development donations. *Journal of International Economics 79*(2), 198–210.

Aldashev, G. and T. Verdier (2010). Goodwill bazaar: NGO competition and giving to development. *Journal of Development Economics 91*(1), 48–63.

Armendáriz, B., A. Szafarz, et al. (2011). On mission drift in microfinance institutions. *The Handbook of Microfinance*, 341–366.

Aubert, C., A. de Janvry, and E. Sadoulet (2009). Designing credit agent incentives to prevent mission drift in pro-poor microfinance institutions. *Journal of Development Economics 90*(1), 153–162.

Baland, J.-M., R. Somanathan, and Z. Wahhaj (2013). Repayment incentives and the distribution of gains from group lending. *Journal of Development Economics 105*, 131–139.

Bedson, J. (2009). Microfinance in asia: Trends, challenges and opportunities. *The Banking with the Poor Network*.

Besley, T. and M. Ghatak (2001). Government versus private ownership of public goods. *The Quarterly Journal of Economics 116*(4), 1343–1372.

Cull, R., A. Demirgüç-Kunt, and J. Morduch (2009). Microfinance meets the market. *The Journal of Economic Perspectives*, 167–192.

Cull, R., A. Demirgüç-Kunt, and J. Morduch (2016). The microfinance business model: enduring subsidy and modest profit. *World Bank Policy Research Working Paper No. 7786*.

Dieckmann, R., B. Speyer, M. Ebling, and N. Walter (2007). Microfinance: An emerging investment opportunity. *Deutsche Bank Research. Current Issues. Frankfurt*.

Ghatak, M. and T. W. Guinnane (1999). The economics of lending with joint liability: theory and practice. *Journal of Development Economics 60*(1), 195–228.

Ghosh, S. and E. Van Tassel (2011). Microfinance and competition for external funding. *Economics Letters 112*(2), 168–170.

Ghosh, S. and E. Van Tassel (2013). Funding microfinance under asymmetric information. *Journal of Development Economics 101*, 8–15.

Hossain, S., Galbreath, J., Hasan, M., and T. Randøy (2020) Does competition enhance the double-bottom-line performance of microfinance institutions? *Journal of Banking & Finance 113*(April), 1–17.

Jeon, D.-S. and D. Menicucci (2011). When is the optimal lending contract in microfinance state non-contingent? *European Economic Review 55*(5), 720–731.

McIntosh, C. and Wydick, B. (2005). Competition and microfinance *Journal of Development Economics 78*(2), 271–298.

OSAA and NEPAD (2013). Microfinance in africa. *UN Office of Special Adviser on Africa*.

Rai, A. S. and T. Sjöström (2004). Is grameen lending efficient? repayment incentives and insurance in village economies. *The Review of Economic Studies 71*(1), 217–234.

Roberts, P. W. (2013). The profit orientation of microfinance institutions and effective interest rates. *World Development 41*, 120–131.

Shapiro, D. (2015). Microfinance and dynamic incentives. *Journal of Development Economics 115*, 73–84.

Sharma, M. and M. Zeller (1997). Repayment performance in group-based credit programs in bangladesh: An empirical analysis. *World development 25*(10), 1731–1742.

Yunus, M. (2007). *Banker to the Poor*. Penguin Books India.

Zeller, M. (1998). Determinants of repayment performance in credit groups: The role of program design, intragroup risk pooling, and social cohesion. *Economic development and cultural change 46*(3), 599–620.