HOW TO RECONCILE FINANCIAL INCENTIVES AND PROSOCIAL MOTIVATION OF LOAN OFFICERS IN MICROFINANCE?

JULIE DE PRIL AND CECILE GODFROID

It has been widely recognized that the microfinance sector should pursue both social and financial objectives (double bottom line objective). However, with the growing success of microfinance, numerous microfinance institutions (MFIs) experience mission drift when they focus only on their financial mission at the expense of their social one. The mainstream incentive schemes set up by MFIs for their loan officers are one of the factors contributing to mission drift for several reasons. First, monetary rewards based on financial criteria may lead unscrupulous loan officers to push clients into overindebtedness. Second, financial incentives may have a negative effect on the prosocial motivation animating numerous microfinance loan officers. In this paper, we attempt to suggest, with a mathematical model, an optimal incentive scheme double bottom line on which MFIs could rely in order to preserve loan officers’ prosocial motivation while paying attention to their financial profit.

Keywords: microfinance, financial incentive, loan officer, financial performance, prosocial motivation.

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HOW TO RECONCILE FINANCIAL INCENTIVES AND PROSOCIAL MOTIVATION OF LOAN OFFICERS IN MICROFINANCE?

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ABSTRACT. It has been widely recognized that the microfinance sector should pursue both social and financial objectives (double bottom line objective). However, with the growing success of microfinance, numerous microfinance institutions (MFIs) experience mission drift when they focus only on their financial mission at the expense of their social one. The mainstream incentive schemes set up by MFIs for their loan officers are one of the factors contributing to mission drift for several reasons. First, monetary rewards based on financial criteria may lead unscrupulous loan officers to push clients into over-indebtedness. Second, financial incentives may have a negative effect on the prosocial motivation animating numerous microfinance loan officers. In this paper, we attempt to suggest, with a mathematical model, an optimal incentive scheme double bottom line on which MFIs could rely in order to preserve loan officers’ prosocial motivation while paying attention to their financial profit.

1. INTRODUCTION

Microfinance is the offer of financial services (credit, savings, insurance, etc.) to people who are excluded from the traditional financial system. It appeared in the mid-1970s with the aim to increase financial inclusion and alleviate poverty. To achieve this, it targets poor entrepreneurs often active in the informal economy and finances their income-generating activities. Today, it has been widely recognized that the microfinance industry should aim at a double bottom line and therefore balance social and financial objectives. At first, the financial objective was considered as a necessary condition to achieve the social mission, but it now tends to become an end in itself, at the expense of the social objective. This phenomenon, called mission drift, arises when a microfinance institution (MFI) prefers serving less poor clients (Armendáriz and Szafrz, 2011), charges excessive interest rates, or uses abusive collection practices (Serrano-Cinca and Gutiérrez-Nieto, 2014).

The mainstream incentive schemes set up by MFIs for their loan officers are a factor contributing to mission drift for several reasons. First, monetary incentives are offered on the basis of financial criteria with the aim to increase loan officers’ financial performance. This leads unscrupulous loan officers to grant many loans and to push some clients into over-indebtedness (Rahman, 1999; Schiks, 2010). Second, one may assume that a MFI with strong social concerns prefers to hire loan officers who are prosocially motivated.

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Indeed, such loan officers are more willing to make an effort to benefit others (Batson, 1987) and therefore care about the poorest clients’ welfare. However, financial incentives can have a bad effect on prosocially motivated loan officers: it has been shown by some psychologists that monetary rewards can undermine prosocial motivation (Lepper et al., 1973; Frey, 1997). This effect, called the crowding-out effect, appears, in some cases, when the reward is large (James, 2005) or, in other cases, when the reward is small (Gneezy and Rustichini, 2000).

In light of the above, one could think that a socially-oriented MFI should not offer monetary rewards to its loan officers. Nevertheless, they remain essential for two reasons. First, MFIs have to reach a certain level of growth in order to be financially sustainable, and monetary rewards seem to be useful to this end (McKim and Hughart, 2005). Second, as distributing financial incentives has become a standard in the sector, MFIs would have difficulties to attract loan officers if they did not do so. This paper thus tackles the following question by developing a mathematical model: given a MFI with real social concerns that hires prosocially motivated loan officers, which financial incentive scheme should this MFI set up to favor its growth and prevent the risk of mission drift? In other words, does the incentive have to be large or small to avoid the crowding-out effect?

Beyond its managerial utility for microfinance professionals by dealing with the ethical question of mission drift, this paper fills several gaps in the existing literature. First, it contributes to the microfinance literature on loan officers’ management that remains yet relatively poorly documented even though the role of loan officers is considered crucial in microfinance. Second, to our knowledge, this paper is one of the first to take psychological literature on incentives into account in the microfinance context.

The remainder of this paper is organized as follows. Section 2 explains the mission drift occurring in the microfinance sector. Sections 3 and 4 review the literature on the outcomes of rewards in the microfinance industry and in a more general context respectively. Section 5 presents the theoretical model we built to find how a reward can avoid the crowding-out effect. We also model the particular case of loan officers who are extrinsically motivated by their reward. Finally, Section 6 provides some concluding remarks.

2. Mission drift in microfinance

It has been widely recognized that MFIs have to reach a double bottom line objective: financial sustainability and outreach (CGAP, 2004), this last one being defined as the effort made by a MFI “to extend loans and financial services to an ever-wider audience (breadth of outreach) and especially toward the poorest of the poor (depth of outreach)” (Conning, 1999, p.52). The argument behind this comes from the institutionalists who stated that a large long-term outreach may only be feasible for financially sustainable MFIs. Particularly, those MFIs may attract market funding that will not disappear over time, which may not be the case for subsidies. In line with this idea, those MFIs would be able to reach more poor people than subsidized ones (CGAP, 1996; Morduch, 2000). Moreover, some argue that MFIs receiving subsidies will be less inclined to mobilize savings, a product that offers a strong potential for the microfinance sector. Therefore, in this view, financial performance turns out to be a way to reach the social objective rather than an end in itself (Schreiner, 1997; Rhine, 1998; CGAP, 2004). However, with the overwhelming success of the sector, numerous MFIs seem to experience mission drift, defined as “the deemphasis of the social mission in pursuit of higher financial returns” (Woller, 2002, p.15). Many
factors may explain this change of focus. Particularly, the commercialization of the sector and the transformation from NGOS to commercial banks (Woller, 2002) have pushed MFIs to increase their financial efficiency. As a consequence, outreach deteriorates: the loan size increases and the percentage of female borrowers decreases. Indeed, MFIs seem to neglect poorer segments (Amin et al., 2003) as focusing on less poor clients reduces costs (Cull et al., 2006), given that fixed costs remain on average the same for credits of different amounts.

While less widely analyzed, the mainstream incentive schemes set up by MFIs for their loan officers represent another factor contributing to mission drift.

3. Microfinance and Loan Officers’ Incentives

In order to increase their financial performance, numerous MFIs have decided to motivate their staff by including financial bonuses in their wages. This trend has grown strongly over time. The variable part of the salary can represent a large part (between 20% and 40%) of the total wage (McKim, 2004). Incentives in microfinance seem to have different benefits such as enhancing motivation, productivity and retention (Holtmann and Grammling, 2005). Monetary rewards in microfinance are most of the time granted to loan officers in particular, who appear to be fundamental in delivering services to the poor (Isua, 2005; Matsukawa, 2010) as they are the link between the institution and the clients (Canales and Greenberg, 2013; Chua, 1998). Loan officers are responsible for selecting new clients, studying loan applications (Holtmann and Grammling, 2005), monitoring clients and reducing credit default (Fisher and Sriram, 2002). According to Dixon et al. (2007), they have a direct impact on clients’ repayment. As monitoring loan officers turns out to be difficult for MFIs because they spend most of their time outside their office (Labie et al., 2015), financial incentives may also represent an advantage over direct supervision. McKim’s qualitative study (2004) showed that 40% of interviewed loan officers were more enthusiastic after having received a bonus: they reported working longer hours and organizing their work more efficiently (McKim, 2004).

Some financial incentives are granted on the basis of social criteria. In this case, as stated by Aubert et al. (2009), they may ensure that loan officers select potential clients in line with the objectives of the institution. Sagamba et al. (2013) and Shchetinin and Wollbrant (2013) demonstrated that monetary rewards aimed to target clients with particular features may lead loan officers to treat those clients better. However, most financial incentives are granted on the basis of financial criteria, such as the value of the outstanding portfolio or the portfolio at risk, in order to improve loan officers’ performance. McKim (2004) conducted a quantitative study which concluded that, after one or two months, a rise in the incentives increased the value of the portfolio and the number of clients, and reduced the delinquency rate. This evidence was not confirmed by Jiwani (2007), who did not find any statistically significant relationship between the implementation of a pay-for-performance incentive scheme and performance measures like the default rate, the portfolio value or the number of new borrowers, but provided evidence that the arrears rate was lower for loan officers who received incentives.

Besides their advantages, incentive schemes in microfinance may also present various shortcomings. First, as explained above, incentives are rarely based on social criteria as social performances are often less verifiable measures than financial ones (Aubert et al., 2005). Therefore, as they often only take financial criteria into account, they may represent a risk involving a deviation from the MFI’s initial mission. McKim (2004) showed that, in some institutions, a drift toward loans of higher size occurred. Second, if the incentive is
granted according to portfolio size, loan officers may prefer increasing the volume of the portfolio at the expense of its quality (McKim, 2004). The literature on performance-based compensation in the banking sector has shown that incentives based on the lending volume may negatively affect loan quality and loan performance (Agarwal and Ben-David, 2012). Loan officers receiving such rewards may be more inclined to attribute higher score to risky loans, their perception of credit risk being highly affected. Third, the incentive scheme is not effective if the same criteria are used for all loan officers who may not face the same difficulties depending on the geographical area where they operate (Jiwani, 2007). Finally, while double bottom line MFIs with a strong social concern tend to attract prosocially motivated loan officers who care about the poorest clients’ welfare, monetary rewards may have a negative impact on prosocial motivation, as explained in the next section.

4. MONETARY REWARDS AND THEIR NEGATIVE IMPACT ON MOTIVATION

While broadly used in organizations to increase employees’ performance (Young et al., 2012), the literature on psychology and behavioral economics suggests that monetary rewards are not always the best mechanism to motivate people (Larkin et al., 2012). Behavioral economics is based on the assumption that people are not fully rational. People may face “nonstandard preferences”, “nonstandard beliefs”, and “nonstandard decision making” (Dellavigna, 2009). These deviations from the hypotheses developed by the economic theory explain why people do not always react positively to financial incentives. Nonstandard beliefs refer to the overconfidence people may have in their own skills and capabilities (Taylor and Brown, 1988; Camerer and Lovallo, 1999). Overconfident people may receive a lower reward than what they expected, reducing therefore their effort level. Nonstandard decision making means that individuals may be affected by emotions and heuristics when they have to take decisions (Tversky and Kahneman, 1974). As an example, the anchoring heuristic suggests that people may reduce their effort when receiving a less positive evaluation than the previous one taken as reference (Backes-Gellner et al., 2008). Regarding nonstandard preferences, individuals tend to prefer immediate gratifications, and their utility function may vary according to others’ well-being. People suffering from hyperbolic discounting and probability neglect tend to undervalue deferred rewards and rewards with a high probability of occurrence (Laibson, 1997; Rieger et al., 2011; Pepper and Gore, 2014).

Some psychologists have highlighted the crowding-out hypothesis, also called the hidden cost of reward (Lepper and Greene, 1978) or the overjustification hypothesis (Lepper et al., 1973), suggesting that monetary rewards may undermine intrinsic motivation1 (Lepper et al., 1973; Frey, 1997). To illustrate their idea, they put forward theoretical arguments derived from the self-perception theory (Bem, 1967) and the cognitive evaluation theory developed by Deci and Ryan (2000). However, even if these arguments were applied to explain the crowding-out effect among employees, they do not fully reflect Deci and Ryan’s theory. Actually, according to that theory, intrinsic motivation disappears almost entirely after early childhood, and adults are therefore driven rather by extrinsic motivation which can, still according to that theory, take various forms (from the most controlled to the most autonomous): external regulation, introjection, identification, and integration (Deci and Ryan, 2000). Therefore, the authors who analyze the crowding-out effect among adults tend to consider the most autonomous forms of extrinsic motivation as intrinsic motivation.

1“One is said to be intrinsically motivated to perform an activity when he receives no apparent rewards except the activity itself” (Deci, 1971, p.105).
The self-perception theory assumes that individuals do not exactly know why they complete a task. Therefore, without incentives, an employee attributes his/her effort to the pleasure of achieving this task and will be motivated to increase his/her effort. However, when receiving rewards, he/she will assign his/her effort to the reward (Fehr and Falk, 2002) and will be less intrinsically motivated. The cognitive evaluation theory highlights two psychological processes to explain the crowding-out effect: impaired self-determination and impaired self-esteem (Frey and Jegen, 2001). The self-determination theory developed by Deci and Ryan (2000) suggests that, when rewards are perceived as controlling, intrinsic motivation may be crowded out. Impaired self-esteem is linked to the fact that with incentives, employees may acquire information about their skills and about the complexity of a task (Bowles and Polania-Reys, 2012; Bénabou and Tirole, 2003; Fehr and Rockenbach, 2003). If they perceive this information as discouraging, it may reduce their self-confidence and result in lower engagement. If, to the contrary, rewards are perceived as the outcome of a self-determined effort or as supportive, then the opposite effect may occur, known as the crowding-in effect (Fisher, 1978; Cameron and Pierce, 1994; Eiseinberger et al., 1999; Gagné and Deci, 2005; Fang and Gerhart, 2012).

The meta-analysis conducted by Deci et al. (1999) concluded that rewards have a negative impact on intrinsic motivation, while other studies indicated that this effect is restricted (Cameron and Pierce, 1994) or struggled to find any negative overall effect (Cameron et al., 2001). Later, some economists have also shown interest in determining the size the reward should have to induce a crowding-out effect. In this respect, James (2005) showed that the larger the size of the monetary incentive, the more likely this effect would be. To the contrary, Gneezy (2003) demonstrated that the “counterproductive” effect of incentives only occurred in the case of small rewards. Gneezy and Rustichini (2000) showed that even if the performance was reduced when receiving a monetary incentive, it tended to be higher for larger rewards than for smaller ones.

Monetary rewards may also reduce prosocial motivation, defined by Batson (1987) as the desire to make an effort to benefit others. Titmuss (1970) is the first author to highlight this effect by showing that monetary incentives granted for blood donations reduce blood supply. This is in line with Frey and Goette’s study (1999), which suggests that financial rewards decrease the amount of volunteering. Evidence indicates the existence of a crowding-out effect of financial incentives on prosocial motivation. As an example, Frey and Oberholzer-Gee (1997) showed that financial incentives may reduce civic duty. In another register, Bowles and Polonia-Reys (2012) reported that children are less willing to help an adult when they receive a toy than when they do not.

Some authors argued that the crowding-out effect regarding intrinsic motivation and prosocial motivation are two separate phenomena (Fehr and Falk, 2002; Bruno, 2013). Indeed, considering the continuum of motivations developed by Deci and Ryan (2000), prosocial motivation may only be considered as intrinsic motivation in case of pure altruism defined as “giving without regard to reward or the benefits of recognition and need” (Reteur et al., 2010). However, prosocial motivation may also be linked to impure altruism (Andreoni, 1990), namely when people are motivated by “a desire to win prestige, respect, friendship, and other social and psychological objectives” (Olson, 1965, p.60) or “by a desire to avoid scorn of others or to receive social claims” (Becker, 1974, p.1083). Despite these differences, some aforementioned explanations may also be used to understand the crowding-out effect for prosocial motivation. But, beyond these, other reasons have been suggested to explain this phenomenon.
Firstly, *image motivation* defined as “*the desire to be liked and respected by others and by one’s self*” (Ariely et al., 2009, p.544), an important motivation in behaving prosocially for impure altruists, may be crowded out by financial incentives, reducing prosocial motivation at the same time. Particularly, with a financial incentive, the image value accorded by others to a person acting prosocially is diluted as this person is now considered as being grasping (Bellé, 2015; Ariely et al., 2009) and will therefore be less likely to continue to adopt such altruistic behavior. Bellé (2015), by carrying out an experiment with nurses in Italy, demonstrated that unveiled financial incentives have a lower impact on motivation than concealed ones.

Secondly, according to Heyman and Ariely (2004), “*using monetary payments causes participants to invoke monetary-marketplace frames and norms*” (p.787), whereas without these monetary payments, “*effort seemed to stem from altruistic motives*” (Heyman and Ariely, 2004; p.792).

Thirdly and lastly, Weibel et al. (2010) argued that performance-based incentives are often less effective in the public than in the private sector for different reasons. Employees in the public sector are thought to show more intrinsic motivation than in private companies (Buelens and Van den Broeck, 2007; Georgellis et al., 2011) and are therefore more subject to be affected by the crowding-out effect. Moreover, monetary rewards are generally smaller in the public sector, limiting the positive impact on extrinsic motivation (Weibel et al., 2010).

5. The Model

In Section 3, we showed the importance of monetary rewards in the microfinance sector. However, as explained in Section 4, despite the advantages that financial incentives can bring, some psychologists have demonstrated that financial incentives may reduce prosocial motivation (crowding-out effect). This type of motivation may particularly animate loan officers in the microfinance sector. Therefore, it can be difficult for microfinance institutions with strong social concerns to retain prosocially motivated loan officers. In this section, we suggest different models to find the most adequate level of reward to distribute to loan officers in order to avoid the crowding-out effect. This section is divided into three subsections. The first one presents a basic theoretical model considering intrinsically motivated loan officers. In the second subsection, we develop an extension of the basic model adding imperfect information. Finally, the last subsection shows a variant of the basic model with a focus on extrinsically motivated loan officers.

5.1. Basic model. We have seen that more and more MFIs grant bonuses to their loan officers to rise their financial performance. At another level, it has been shown that monetary rewards can crowd out prosocial motivation (crowding-out effect), which would be a problem for MFIs with social objectives. Indeed, such MFIs want to take care of their clients, and this mission could thus be jeopardized if their loan officers are not willing to undertake efforts to benefit others. This section therefore tackles the following question: how can we work on the rewards to keep loan officers prosocially motivated without negatively affecting their financial performances?

We set up an agency model which studies a situation where a MFI wants to encourage its loan officers’ financial performance with rewards while keeping them prosocially motivated.

Let us consider a socially-oriented MFI that pursues a double bottom line objective, and a loan officer employed by this MFI. The loan officer is supposed to be initially prosocially motivated and risk-neutral. The game is played as follows: the MFI chooses the amount
of the basic premium, then the loan officer chooses the effort he/she makes to do his/her job. We solve the game by backward induction: we first study the loan officer’s utility, then we analyze the MFI’s profits. Several components play a role in the loan officer’s utility: his/her wage, the reward offered by the MFI, the effort that he/she makes to do his/her job, the disutility of this effort, and his/her prosocial motivation.

Since the MFI aims to keep the loan officer’s motivation to serve poor borrowers, we need to distinguish borrowers based on their wealth. We assume that a borrower is either “poor” or “wealthier”. “Poor” borrowers have no wealth, whereas “wealthier” borrowers have some. We denote by $\alpha$ the percentage of effort he/she devotes to serve “poor” borrowers ($0 < \alpha < 1$). By serving borrowers, we mean granting them a loan, advising clients and monitoring them. The value of $\alpha$ is higher than 0.5 if the loan officer undertakes more effort to serve poor borrowers than wealthier ones; or lower than 0.5 in the opposite case.

In some sense, the parameter $\alpha$ captures the intensity of the loan officer’s prosocial motivation: a loan officer with a high $\alpha$ is more prosocially motivated than one with a low $\alpha$.

The loan officer receives a fixed wage $w$ for his/her work. Moreover, we assume that the MFI has set up the following incentive scheme. If the growth rate $\rho$ of the loan officer’s portfolio and its quality $\theta$ are high enough, say above some thresholds $\rho^*$ and $\theta^*$ respectively, then the loan officer additionally receives a reward that depends on a basic premium $s$, his/her loan portfolio growth rate $\rho$ and his/her effort $e$. We think that taking the effort into account when defining the incentive could be a good alternative to traditional rewards (based on financial criteria) used in the microfinance sector, which, as explained in the literature review, are not always optimal. When the loan officer earns the bonus, he/she receives $w + s\rho e$, otherwise he/she just gets $w$. We assume that the reward cannot be negative, which is in line with the limited assumption behind the standard principal agent theory.

Now, we still have to model the loan officer’s prosocial motivation in his/her utility. To this aim, we define a dummy variable $I$ which indicates the presence ($I = 1$) or the absence ($I = 0$) of the loan officer’s prosocial motivation. This variable enables us to analyze when the crowding-out effect takes place. We assume that the object of the prosocial motivation is the effort to serve poorer borrowers, that is $\alpha e$. We also assume that the MFI expects from its loan officer to undertake some minimal effort $e^*_p$ to serve poor people. The idea is that the loan officer’s utility will increase (resp. decrease) if his/her effort $\alpha e$ to serve poorer borrowers is higher (resp. lower) than the minimal expected effort $e^*_p$. In other words, a prosocially motivated loan officer is satisfied if he/she meets at least the minimal social objective of the MFI. Table 1 sums up all notations used in the model.

By putting it all together, the loan officer’s utility $U$ is thus given by

$$
U = \begin{cases} 
    w + s\rho + I(\alpha e - e^*_p) - e^2 & \text{if } \rho > \rho^* \text{ and } \theta > \theta^* \\
    w + I(\alpha e - e^*_p) - e^2 & \text{otherwise}.
\end{cases}
$$

The term $e^2$ in the equation of $U$ represents the loan officer’s disutility of effort. Indeed exerting effort is costly to the player.

Thanks to the literature (see Section 4), we know that rewards may crowd out prosocial motivation in some cases. Therefore, we want to get a condition on the basic premium $s$ that enables to avoid the crowding-out effect. To this aim, we consider the loan officer’s

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2Note that the distinction between “poor” and “wealthier” clients could be somewhat different, but it would not change the analysis of the model.

3The utility function is inspired from the model studied by James (2005).
utility when he/she receives a reward, that is, when his/her portfolio growth rate and quality are high enough ($\rho > \rho^*$ and $\theta > \theta^*$). In order to maximize his/her utility in this case, the loan officer has to exert the following optimal effort to serve borrowers:

$$\hat{e} = \frac{s\rho + I\alpha}{2}.$$  

In particular, the higher the basic premium $s$ is, the higher the optimal effort $\hat{e}$ is, which means that the loan officer will undertake more effort to serve people.

As mentioned previously, we want to know what optimal level the basic premium should reach in order to increase the financial performance of loan officers without affecting negatively their prosocial motivation. We do not know in advance if rewards must be large or small as previous studies on the crowding-out effect obtained contradictory results. We compare the loan officer’s utility for the optimal effort $\hat{e}$ when he/she is prosocially motivated ($I = 1$) or not ($I = 0$). To make sure that the loan officer remains prosocially motivated, his/her utility should be higher when he/she is prosocially motivated than when he/she is not, for a given amount of reward. When he/she is prosocially motivated, his/her utility is given by:

$$U(\hat{e}|I = 1) = w + s\hat{e}\rho + (\alpha\hat{e} - e^*_p) - \hat{e}^2$$

where $\hat{e} = \frac{s\rho + I\alpha}{2}$.

In the absence of prosocial motivation, the loan officer’s utility is

$$U(\hat{e}|I = 0) = w + s\hat{e}\rho - \hat{e}^2$$

where $\hat{e} = \frac{2s}{\rho}$.

Then, the loan officer has greater utility when he/she is prosocially motivated if

$$U(\hat{e}|I = 1) > U(\hat{e}|I = 0),$$

that is, if

$$s > \frac{2}{\rho} \left( \frac{e^*_p}{\alpha} - \frac{\alpha}{4} \right) := s.$$  

Equation (1) is thus the condition on the basic premium to avoid the crowding-out effect. Note that $\rho > 0$ as we consider the case where $\rho > \rho^*$. The results are threefold. First, the basic premium has to be high enough ($s$ must be greater than $\bar{s}$) to maintain loan officers’

| w | loan officer’s wage ($w > 0$) |
| s | basic premium ($s \geq 0$) |
| $\rho$ | loan officer’s portfolio growth rate |
| $\rho^*$ | minimum portfolio growth rate to claim a reward ($\rho^* > 0$) |
| $\theta$ | loan officer’s portfolio quality |
| $\theta^*$ | minimum portfolio quality to claim a reward ($\theta^* > 0$) |
| $e$ | loan officer’s effort ($e \geq 0$) |
| $e^*_p$ | minimal effort the MFI expects of its loan officer to serve poor borrowers ($e^*_p \geq 0$) |
| $I$ | dummy variable that indicates the presence ($I = 1$) or the absence ($I = 0$) of the officer’s prosocial motivation |
| $\pi$ | MFI’s revenue generated per unit of the loan officer’s effort |
prosocial motivation. Otherwise, the loan officer will have greater utility when losing his/her prosocial motivation. Second, according to Equation (1), the more intensive his/her prosocial motivation is initially (the higher $\alpha$ is), the less high the basic premium has to be. In other words, if the loan officer is strongly prosocially motivated in the first place, the basic premium does not have to be that great to avoid the crowding-out effect. Third, the higher the minimal level of effort $e_p^*$ the MFI expects of its loan officers to serve poor borrowers, the higher the basic premium has to be.

So far, we have found out how the MFI can pursue its social objective and keep its loan officers prosocially motivated: by offering a basic premium that is high enough. But the MFI also pursues a financial objective. Therefore, we will look at the optimal basic premium that maximizes the MFI’s profitability.

In this regard, we examine the MFI’s profit. We assume that each unit of the loan officer’s effort generates some revenue $\pi$ to the MFI. The MFI’s payoff $\Pi$ is given by:

$$\Pi = \begin{cases} \pi e - w - spe & \text{if } \rho > \rho^* \text{ and } \theta > \theta^* \\ \pi e - w & \text{otherwise.} \end{cases}$$

We still consider the case where the loan officer gets the reward. Then, the value of the basic premium $s$ that maximizes the MFI’s profit $\Pi$, when the loan officer chooses to undertake the optimal effort $\hat{e}$, is:

$$\hat{s} = \frac{1}{2\rho} (\pi - I\alpha).$$

Now, the question is: does this optimal basic premium $\hat{s}$ that meets the MFI’s financial objective also meet its social objective? To answer this, let us see when the optimal basic premium $\hat{s}$ satisfies the condition to avoid the crowding-out effect, that is, when $\hat{s}$ satisfies Equation (1):

$$\hat{s} > \hat{s} \quad \text{iff} \quad \pi > \frac{4e_p^*}{\alpha} (1 - I)\alpha. \quad (2)$$

This means that, if the MFI wants to meet its double bottom line objective, its revenue generated per unit of the loan officer’s effort must be high enough. Moreover, the more prosocial the loan officer is initially (the higher $\alpha$ is), the less high this revenue has to be, that is, the easier it is for the MFI to meet both social and financial objectives.

If the MFI’s revenue generated per unit of the loan officer’s effort is lower than the bound given by Equation (2), meaning that the loan officer does not generate enough revenue to the MFI, then the MFI has a choice to make: either it promotes the social objective and keeps its loan officers prosocially motivated by giving them a high enough basic premium, or it prefers to favor the financial objective and offers the basic premium that generates a lower negative effect on its profit but induces a crowding-out effect.

5.2. Basic model with incomplete information. The basic model of Section 5.1 has two main drawbacks. First, we assumed that the MFI observes the loan officer’s exact effort level and the level of the loan officer’s prosocial motivation (in the model, the MFI observes the percentage of effort devoted to serve poor borrowers), but it is usually not the case in reality. To overcome these problems, we extend the basic model by introducing incomplete information.

We still consider a MFI that grants a bonus to rise financial performance and one of its loan officers who is initially prosocially motivated, and we want to know how the MFI

4To simplify the model, this revenue is considered net of all the expenditure incurred by the firm, namely financial expenses, loan loss provisions and other operating expenses.
can act on the reward to avoid the crowding-out effect. In this case, we suppose that the MFI observes some information about the loan officer’s effort level, such as the number of hours performed or the number of visits to clients per day. We denote this information by the variable \( n \) (\( n > 0 \)), whose value is chosen by the loan officer. However, the MFI cannot observe the exact level of the loan officer’s effort. In order to model the lack of information concerning the effort actually undertaken and the percentage of effort devoted to poor borrowers, we assign each loan officer a couple of characteristics, which we call his/her type. We thus assume that loan officers can differ in two dimensions: their prosocial character (\( i \)) and their hardworking character (\( j \)). They are either highly prosocial (\( i=H \)) or averagely prosocial (\( i=A \)), and either diligent (\( j=D \)) or lazy (\( j=L \)). We use opposite adjectives to amplify the character traits and facilitate the understanding, but the idea is that a loan officer can work harder or less hard. He/she is diligent with probability \( q \), and lazy with probability \( 1-q \). So, the type of a loan officer is given by a couple \( (i,j) \) where \( i \in \{H,P\} \) and \( j \in \{D,L\} \). The MFI cannot observe the type of a loan officer, but it knows the probability that he/she is of a certain type. The loan officer, in contrast, knows his/her type. Table 2 sums up these probabilities. Note that we assume that the two characteristics are independent events.

<table>
<thead>
<tr>
<th>Highly prosocial (( H ))</th>
<th>Diligent (( D ))</th>
<th>Lazy (( L ))</th>
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<tr>
<td>Highly prosocial (( H ))</td>
<td>( pq )</td>
<td>( p(1-q) )</td>
</tr>
<tr>
<td>Averagely prosocial (( A ))</td>
<td>( (1-p)q )</td>
<td>( (1-p)(1-q) )</td>
</tr>
</tbody>
</table>

Loan officers’ types and their probabilities can be interpreted as follows: the MFI has noticed that its initially prosocially motivated loan officers can be grouped according to some characteristics. On the one hand, some are much more prosocial than others (in the sense that they devote more effort to serve poor borrowers). The proportion of highly prosocial loan officers is given by \( p \). On the other hand, some of the loan officers are more diligent than the others, in the sense that, considering two loans officers who choose the same volume \( n \) of work (number of hours performed for example), the more diligent loan officer seems to work harder than the other one. The proportion of diligent loan officers is \( q \). In other words, if we randomly take a loan officer employed by this MFI, then he/she is highly prosocial and diligent with probability \( pq \), he/she is highly prosocial and lazy with probability \( p(1-q) \), etc.

We now assign each character a particularity about the loan officer’s effort. A highly prosocial loan officer undertakes more effort to serve poor borrowers than an averagely prosocial loan officer (in proportion to their own total effort). We model this as follows: if a loan officer is highly prosocial, the percentage of effort devoted to poor borrowers is \( \alpha_H \) (with \( 0 < \alpha_H < 1 \)), and if he/she is averagely prosocial, this percentage is \( \alpha_A \) (with \( 0 < \alpha_A < \alpha_H < 1 \)). If a diligent loan officer and a lazy one choose the same volume \( n \) of work, then the diligent loan officer has a higher total effort level than the lazy one. We say that the diligent loan officer’s total effort is \( n + \epsilon_D \) (with \( \epsilon_D > 0 \)), and the lazy loan officer’s total effort is \( n + \epsilon_L \) (with \( \epsilon_D > \epsilon_L > 0 \)). Basically, \( n \) is the portion of the loan officer’s effort that the MFI knows, and \( \epsilon_j \) (for \( j \in \{D,L\} \)) corresponds to the portion of his/her effort that is not observable by the MFI. Table 3 sums up these particularities according to the loan officer’s type.

The game is played, in this case, somewhat differently from the basic model in Section 5.1:
TABLE 3. Percentage of effort to serve poor borrowers and total effort depending on the loan officer’s type.

<table>
<thead>
<tr>
<th></th>
<th>Diligent (D)</th>
<th>Lazy (L)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highly prosocial (H)</td>
<td>(α_H, n + ε_D)</td>
<td>(α_H, n + ε_L)</td>
</tr>
<tr>
<td>Averagely Prosocial (A)</td>
<td>(α_A, n + ε_D)</td>
<td>(α_A, n + ε_L)</td>
</tr>
</tbody>
</table>

1. Nature determines the type of the loan officer according to the probability distribution given in Table 2. Therefore, nature somehow models the randomness in the type of the loan officer.

2. The MFI chooses the basic premium s (without knowing the loan officer’s type).

3. The loan officer chooses the volume n of work.

We keep the same notations as in Section 5.1 (see Table 1). As we suppose that the loan officer’s type is (i, j) with i ∈ {H, A} and j ∈ {D, L}, the loan officer’s utility when the bonus is granted is thus given by:

\[ U = w + s \rho (n + \epsilon_j) + I(\alpha_i(n + \epsilon_j) - e_p^*) - (n + \epsilon_j)^2, \]

and the MFI’s profit is given by:

\[ \Pi = \pi(n + \epsilon_j) - w - s \rho (n + \epsilon_j). \]

As explained before, we want to know which basic premium the MFI has to offer to avoid the crowding-out effect. To do so, we proceed in the same way as in Section 5.1: we first study the loan officer’s utility according to his/her type and find the optimal volume of work that maximizes it, and then we compare the loan officer’s utility for the optimal volume of work depending on whether he/she is prosocially motivated or not.

The results are the following. The optimal volume of work that maximizes the loan officer’s utility is:

\[ \hat{n}_{ij} = \frac{s \rho + I \alpha_i}{2} - \epsilon_j. \]

The condition on the basic premium s to avoid the crowding-out effect is:

\[ s > \frac{2}{\rho} \left( \frac{e_p^*}{\alpha_i} - \frac{\alpha_i}{4} \right) := s_{ij}. \]

Equation (5) induces the same main conclusion as for the model in Section 5.1, regardless of the loan officer’s type: the basic premium has to be high enough. Nevertheless, the condition to avoid the crowding-out effect is weaker for a highly prosocial loan officer than for an averagely prosocial one (α_H > α_A, and so, s_{ij} < s_{ij}), which is in line with what we found in Section 5.1. Also note that the hardworking character does not influence this condition.

We now examine the MFI’s profit when it offers the reward. There are some differences with the basic model in Section 5.1 as, in this case, the MFI cannot know in advance the loan officer’s type, that is, whether he/she is rather very prosocial or not, and rather hardworking or not. The MFI only knows the probability of the loan officer’s type. Therefore, we calculate its expected profit E(Π) as follows: we sum up the four possible MFI’s profits corresponding to the loan officer’s type and his/her optimal volume \( \hat{n}_{ij} \) of work (see Equations (3) and (4)) multiplied by their individual probabilities (see Table 2). The MFI’s
expected profit is:

\[ E(\Pi) = pq(\pi(n_{HD} + \epsilon_D) - w - sp(n_{HD} + \epsilon_D)) + (1-p)q(\pi(n_{AD} + \epsilon_D) - w - sp(n_{AD} + \epsilon_D)) + p(1-q)(\pi(n_{HL} + \epsilon_L) - w - sp(n_{HL} + \epsilon_L)) + (1-p)(1-q)(\pi(n_{AL} + \epsilon_L) - w - sp(n_{AL} + \epsilon_L)) \]

Then the value of the basic premium that maximizes the MFI's expected profit \( E(\Pi) \) is:

\[ \hat{s} = \frac{1}{2p}(\pi - pI\alpha_H - (1-p)I\alpha_A) \]

If the MFI wants to meet both its financial and social objectives, this optimal basic premium \( \hat{s} \) must satisfy the condition to avoid the crowding-out effect for any loan officer type (see Equation (5)). Formally, \( \hat{s} \) must be bigger than \( s_{Aj} \), and this is sufficient as \( s_{Aj} > s_{Hj} \). We have that:

\[ \hat{s} > s_{Aj} \iff \pi > \frac{4e^*}{\alpha_A} + pI\alpha_H - (1-(1-p)I)\alpha_A \]  
(6)

This means that if the MFI wants to meet its double bottom line objective, its revenue \( \pi \) generated per unit of the loan officer’s effort must be high enough, which corresponds to what we found with the basic model in Section 5.1. Note that the hardworking character does not influence this condition.

5.3. **Extrinsically motivated officers.** Some microfinance loan officers may be initially motivated rather by external drivers than by factors related to the social content of their profession. As an example, Siwale (2006) showed in her interview-based study that most microfinance loan officers have chosen this job in order to avoid any financial dependency. This result is in line with Goetz’s conclusion (2001), which brings about that meeting the subsistence needs represents a motivational driver for field workers in development NGOs. This kind of motivation is called **extrinsic motivation.** It refers to “doing something because it leads to a separable outcome” (Ryan and Deci, 2000, p.55).

Let us come back to the basic model we considered in Section 5.1: a MFI that aims at being double bottom line and offers rewards to its loan officers if their portfolio growth rate and quality are high enough. The amount of the reward depends on a basic premium, on the loan officer’s portfolio growth rate and on his/her effort to serve borrowers. Now, let us consider a loan officer who is extrinsically motivated by his/her reward. In this case, we argue that the MFI may have an interest to eliminate the loan officer’s extrinsic motivation since in extreme cases, he/she may be willing to pursue any avenue in an attempt to bring his/her remuneration up, sometimes at the expense of the institution’s social mission.

Indeed, if the loan officer is bent on raising his/her financial reward, he/she may be tempted to increase his/her portfolio growth rate and then to undertake more effort to serve wealthier clients who tend to lend, on average, a higher amount than poorer ones. In this way, his/her portfolio volume would increase, and so would its growth rate. The question that arises is thus the following: what optimal level of reward should a double bottom line institution offer to this type of loan officers in order to remove the extrinsic motivation that pushes them to prefer serving wealthier borrowers? Intuitively, the answer is not that clear. On the one hand, one could expect that loan officers’ extrinsic motivation may decrease when the financial reward has reached a certain level (because it is sufficient for them). But,
on the other hand, the answer could be a small reward because loan officers, knowing that the basic premium is low, may settle for this low amount of reward and will consequently not be encouraged to serve wealthier borrowers anymore. The following model tries to address the question expressed above.

We consider a MFI and one of its loan officers in the same context and notations as in the model in Section 5.1. The loan officer receives a fixed wage $w$ for his/her work, and if the growth rate $\rho$ and quality $\theta$ of his/her portfolio are higher than some thresholds $\rho^*$ and $\theta^*$ respectively, then he/she additionally receives a reward $s\rho e$, where $s$ is a basic premium and $e$ represents the loan officer’s total effort. We now assume that the loan officer is extrinsically motivated by his/her reward. If he/she wants to increase his/her portfolio growth rate $\rho$, we can assume that he/she is motivated by serving wealthier clients, in order to grant bigger loans and rise his/her portfolio volume.

To model the loan officer’s extrinsic motivation in his/her utility, we use a dummy variable $E$ which indicates the presence ($E = 1$) or the absence ($E = 0$) of the loan officer’s extrinsic motivation. As before, we denote by $\alpha$ the percentage of effort he/she devotes to serve poor borrowers, so that the percentage of effort devoted to serve wealthier borrowers corresponds to $1 - \alpha$. As we study a double bottom line MFI, we assume that this MFI considers acceptable that the loan officer undertakes some maximal effort $e_w^*$ to serve wealthier borrowers. The idea is that the loan officer’s utility will increase (resp. decrease) if his/her effort $(1 - \alpha)e$ to serve wealthier borrowers is higher (resp. lower) than the maximal expected effort $e_w^*$. What we mean is that a loan officer who is extrinsically motivated by his/her reward has more utility if his/her effort to serve wealthier borrowers exceeds what the MFI finds tolerable. Table 4 sums up the new notations used in this model.

<table>
<thead>
<tr>
<th>Notation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>$e_w^*$</td>
<td>maximal level of effort the MFI expects of its loan officer to serve wealthier borrowers ($e_w^* \geq 0$)</td>
</tr>
<tr>
<td>$E$</td>
<td>dummy variable that indicates the presence ($E = 1$) or the absence ($E = 0$) of the officer’s extrinsic motivation</td>
</tr>
</tbody>
</table>

Table 4. Notations.

We then consider the following loan officer’s utility $U$:

$$U = \begin{cases} 
  w + s\rho e + E((1 - \alpha)e - e_w^*) - e^2 & \text{if } \rho > \rho^* \text{ and } \theta > \theta^* \\
  w + E((1 - \alpha)e - e_w^*) - e^2 & \text{otherwise.}
\end{cases}$$

We consider the loan officer’s utility when he/she receives a reward, that is, when his/her portfolio growth rate and quality are high enough ($\rho > \rho^*$ and $\theta > \theta^*$). In order to maximize his/her utility in this case, the loan officer has to supply the following optimal effort to serve poor borrowers:

$$\hat{e} = \frac{s\rho + E(1 - \alpha)}{2}.$$ 

As we want the reward to eliminate the loan officer’s extrinsic motivation, we compare the loan officer’s utility for the optimal effort $\hat{e}$ when he/she is extrinsically motivated ($E = 1$) or not ($E = 0$). In the first case, his/her utility is

$$U(\hat{e}|E = 1) = w + s\rho \hat{e} + ((1 - \alpha)\hat{e} - e_w^*) - \hat{e}^2$$

where $\hat{e} = \frac{s\rho + (1 - \alpha)}{2}$. In the absence of extrinsic motivation, the loan officer’s utility is

$$U(\hat{e}|E = 0) = w + s\rho \hat{e} - \hat{e}^2$$
where \( \hat{e} = \frac{s\rho}{2}. \)

We show that the loan officer has greater utility when he/she is not extrinsically motivated if

\[
U(\hat{e}|E = 0) > U(\hat{e}|E = 1),
\]

that is, if

\[
s < \frac{2}{\rho} \left( \frac{e^*_w}{1 - \alpha} - \frac{1 - \alpha}{4} \right) := \bar{s}.
\]

Equation (7) first implies that the basic premium has to be low enough to avoid the loan officer being strongly motivated to serve wealthier borrowers (\( s \) must be smaller than \( \bar{s} \)).

Second, according to Equation (7), the more intensive his/her extrinsic motivation is (the higher \( 1 - \alpha \) is), the lower the basic premium has to be. In other words, if the loan officer’s extrinsic motivation is strong in the first place, the basic premium has to be very low to crowd out this motivation. Third, the higher the maximal level of effort \( e^*_w \) the MFI accepts from its loan officers to serve wealthier borrowers, the higher the basic premium can be.

6. CONCLUSION

While many microfinance institutions have nowadays adopted pay-for-performance incentive schemes for their loan officers, we argue, based on the motivation crowding-out hypothesis, that monetary rewards may jeopardize the social mission of the institution, leading to mission drift. Therefore, designing an incentive scheme to increase loan officers’ financial performances while keeping them prosocially motivated seems to be a critical challenge for managers of microfinance institutions. Our paper develops a theoretical model to address this issue.

The main results are twofold. First, we show that loan officers’ prosocial motivation can be kept intact only if the incentive is sufficiently large. This proposition is in line with the study conducted by Gneezy and Rustichini (2000). However, our result disclaims the findings obtained by James (2005) showing that the crowding-out effect is more likely to occur when the size of the reward is large. Moreover, we find that the more intensive the loan officer’s prosocial motivation is initially, the less high the basic premium has to be. Second, in order to maximize their financial profits and maintain their loan officers’ prosocial motivation, MFIs should gain a relatively high income per loan officer’s effort. Nevertheless, the more prosocial the loan officer is initially, the less high this revenue has to be, that is, the easier it is for the MFI to meet both social and financial objectives. To increase the income per loan officer’s effort, MFIs can find ways to reduce their expenses or increase their receipts, or both. But if the income derived by the MFI per loan officer’s effort is still not high enough, then the MFI will have to choose between a small reward that has no significant negative impact on the MFI’s profit but does not permit to keep loan officers’ prosocial motivation, and a large reward that maintains prosocial motivation but alters the MFI’s profit to a larger extent.

Beyond its managerial implications, this paper contributes to the microfinance literature on loan officers’ management. While different studies emphasize the fundamental role of microfinance loan officers and their impact on organizational performance, few scholars in microfinance focus on human resource management. Moreover, this paper also contributes to the literature on reward management as few or no previous studies considered the microfinance sector to analyze the crowding-out effect.

However, we acknowledge several limitations of our study. First, we only consider, in our models, loan officers who derive some utility by obtaining a monetary reward. But, as
we take the non-profit sector into account, some employees may attribute very poor value to this type of retribution or may even consider that the reward involves a cost of non-compliance. Instead of receiving financial bonuses to spend on themselves, they would prefer receiving prosocial ones such as money they would give to charity (Anik et al., 2013). In this vein, Norton et al. (2012) demonstrated that employees express more happiness when the bonuses take the form of a contribution to a charitable donation rather than when they are directly attributed to themselves. Second, beyond the crowding-out effect developed in our study, the self-selection hypothesis may also explain why there are more extrinsically motivated employees in a non-profit organization that sets up an incentive scheme. Indeed, “introducing pay-for-performance plans in non-profit organizations could be interpreted as a way of becoming more attractive for income-maximizing managers working in the for-profit sector” (Theuvsen, 2004, p. 128) as job seekers tend to choose employment opportunities that match themselves (Graves, 2011). Third, our results suggest that microfinance institutions should consider the intensity of prosocial motivation when deciding on the size of the reward. Nevertheless, prosocial motivation is not easily observable nor measurable, except by using subjective motivation scales. Fourth, we search for the amount of the reward that makes prosocial motivation disappear, but it could be interesting to analyze how the reward decreases prosocial motivation, for example which reward the MFI can offer if it accepts that prosocial motivation decreases by five percent.

There are several interesting directions for further research. Future work should be done to validate our findings through empirical tests. Moreover, other directions to extend the model may be explored. As an example, we could consider that the reward takes another form or that loan officers can also receive sanctions.

REFERENCES


