



Funding microfinance under asymmetric information

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ABSTRACT

We consider a model where poverty minimizing donors fund microfinance lenders that are heterogeneous in cost. Under asymmetric information the donors face a choice whether to issue grants or to charge the lenders for funds. While charging for funds leads to higher interest rates, a higher rate can induce separation by squeezing the higher cost lenders. Whether separation is good for aggregate poverty reduction or not depends on the quantity of supply of funds. When the supply is small grants are best, but when the supply is large enough it is better that lenders pay for external funding.

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1. Introduction

Over the years, microfinance has continued to attract a growing amount of funds and clients. Rather recently though, the composition of the funding has begun to change. While early microfinance operations relied almost exclusively on grants, over time, an increasing number of investors in microfinance have demanded a financial return. While the returns paid on such investments are generally below market returns, this represents a sharp departure from the more traditional, and grant based approach.¹ This trend has sparked a debate about how it will impact the clients of microfinance. On the one hand, there are those who argue that the additional funds, and the fact that lenders must pay for these funds, is exactly what microfinance needs to make a true dent in global poverty. On the other hand, there is a concern among others that the presence of these new investors will change microfinance in ways that offer less benefit to the poor.²

One of the main questions in this debate is about the role of the new money in microfinance. If new investors inject additional funds into microfinance, it is fairly uncontroversial to say that microfinance can accomplish more poverty reduction. However, this misses two important details. One is that, relative to grants, the additional funds are more expensive, which can clearly impact how effective microfinance lenders are at reducing poverty. The other is that the

funds have an opportunity cost. If the new money is not allocated to microfinance, then it can go towards alleviating poverty by some other means, such as creating jobs, or subsidizing food expenditures. To address these two issues, we take the question about the role of the new money and break it into two parts. First, we look at whether it can make sense to charge lenders a financial return on external funds, and second, we study how much funding should be allocated to microfinance.

We build a partial equilibrium model to address both of these questions. The model has a population of donors, whose sole objective is to reduce poverty. Each donor can allocate his funds to microfinance, or an alternative poverty reducing activity. Microfinance lenders transform the external funding into loans for the poor borrowers. The lenders then collect loan repayments, which are used to cover any operating costs and/or external financial obligation to the donors. In this setting, we find that depending on the total quantity of microfinance funding in the market, there can indeed be a positive role for donors who charge lenders a financial return.

The difference between the interest rate a microfinance lender charges his borrower and the lender's own operating cost defines the lender's spread. This spread is what the lender can afford to pay for his external funds. Since the spread is decreasing in a lender's operating costs, in general, lenders with higher operating costs can afford to pay less for their external funds. This difference in what lenders are capable of paying for external funds allows the external donors to use the financial return charged on these funds as a kind of screening mechanism. Basically, if donors demand a high enough financial return, the high cost lender is squeezed to the point that he can no longer afford the external funding. The tradeoff is that the

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¹ See Reille and Forster (2008) for a general overview of this trend.

² This debate is discussed by Bruck (2006) and Cull et al. (2009), among others.

financial return charged by donors must ultimately be paid for by the poor borrowers.

In our model, we find that whether individual donors should charge a return to screen lenders or not, depends critically on the total quantity of microfinance funding available in the market. When funding is small, grants are best, but when the quantity of funding is sufficiently high, donors can minimize poverty by demanding that lenders pay a financial return.

We also find that the equilibrium amount of funding dedicated to microfinance may not minimize poverty, even though this is the objective of the donors. The individual decision making of the donors can in some cases, generate an equilibrium outcome in the economy that is second best. This arises in a context of multiple equilibria. For example, we find that the economy can get stuck in an equilibrium characterized by a low level of grant funding for microfinance. In this event, the donors, as well as the poor, would be better off in a different equilibrium, characterized by both a larger amount of microfinance funding and funding that requires microfinance lenders to pay a financial return.

The existing literature on microfinance has not paid much attention to the relationship between the microfinance lender and the external donor. In contrast, there is a large amount of work examining the contracting between lenders and borrowers. This includes papers such as Besley and Coate (1995), Ghatak and Guinnane (1999), Rai and Sjostrom (2004) and Stiglitz (1990). There are also a small, but growing number of papers focused on the relationship between different microfinance lenders. For example, McIntosh and Wydick (2005) find that competition between lenders can make it difficult to reduce poverty by way of cross subsidization. Additionally, De Janvry et al. (2010) and Jain and Mansuri (2005) look at the impact of sharing credit information between competing microfinance lenders.

The main focus of our paper is on the relationship between external donors and microfinance lenders.³ Both types of players are assumed to have a similar objective, in that they are poverty minimizers. However, we make two critical assumptions. First, we assume that the microfinance lenders have heterogeneous operating costs. This assumption is supported by the empirical evidence from surveys such as Cull et al. (2009), Gonzalez (2010) and Rosenberg et al. (2009), which find a wide variation in lenders' operating costs, often within the same geographical region. The implication for our model is that two different lenders, lending to the same type of client, will have a different impact on poverty. This turns out to be important because it means that there is a cost associated with subsidized funding. While the question of inefficiencies in microfinance has not received much attention in the theoretical literature, in the wider literature on charities and non-governmental organizations, this issue is a regular part of the discussion. For example, papers like Aldashev and Verdier (2010), Fruttero and Gauri (2005) and Rowat and Seabright (2006) use models that are based on the premise that institutions, although all motivated to help the poor, can vary in the quality of their poverty reducing activities.

Second, we assume that the external donors have imperfect information about the quality of the lenders. In contrast to market settings where higher costs are weeded out through competition, microfinance has traditionally relied on subsidized funding. The subsidies can allow inefficient lenders to absorb high costs using cheap funds. This problem has a parallel in the literature on aid and charitable giving, where in the absence of a hard financial return, earned in competitive markets, it can be difficult for an investor or donor to assess the performance of the aid recipient. In recent years, a few external rating agencies such as

MicroRate and Mix Market have emerged in order to improve transparency in microfinance. The significance of these kinds of ratings is evidenced by the empirical findings of Garmaise and Natividad (2010), who find that when microfinance institutions receive favorable external ratings, there is a significant reduction in their cost of financing. While these kinds of ratings certainly help to reduce the opaqueness of the industry, the coverage can be limited and in some cases, based on self-reported data. This is emphasized by Rosenberg et al. (2009), who argue that in order to measure costs and efficiency at the institution level, one often must conduct on-the-ground investigations.

We have organized the paper as follows. In Section 2, we have a model of an economy where individual donors choose between allocating their funds to microfinance and some alternative organization. The alternative organization is exogenous to the model, and can be thought of as an NGO that reduces poverty in some non-microfinance way. If the donors allocate funds to microfinance, then microfinance lenders use the funds to issue loans, while trying to maximize their borrowers' incomes. In Section 3 we then establish a benchmark outcome for the economy, by deriving equilibrium under perfect information. Section 4 introduces asymmetric information into the model. First, we focus on how microfinance can be funded using either a pooling contract or a separating contract. Second, we derive equilibrium behavior, and third, we contrast the equilibrium outcomes in terms of poverty reduction. Finally, in Section 5 we have the conclusion.

2. The model

Consider an economy with a population of \bar{F} donors, and two different markets, denoted by A and B . Each donor has \$1 in funds and must choose whether to allocate his \$1 to market A or B . The donor's objective is to minimize poverty in the economy. We describe the donor's payoff function in more detail below.

If the donor chooses market A , then his \$1 goes to an organization that reduces poverty at a constant Q per dollar. If the donor chooses market B , then his funds are used for microfinance. Microfinance acts as an intermediary between the donors, and a population of m poor agents located in market B . Each of the agents owns a production project that requires an investment of \$1. If agent $j = 1, \dots, m$ invests \$1 in his project, his project generates a certain revenue, R_j . Project revenue varies among the agents. For all $j > 1$, $R_j - R_{j-1} = b$, where $b > 0$. This implies $R_m > R_{m-1} > \dots > R_2 > R_1$, and to make the projects worthwhile, we assume that $R_1 > 1$. All the agents begin with zero wealth, and must obtain loans in order to invest in their projects.

There is a large number of microfinance lenders located in market B . Each lender can provide at most, one loan to a single agent. The lender's objective is to maximize his borrower's income.⁴ In order to issue a loan, the lender first must obtain \$1 in funding from a donor. If lender i receives funds, then the lender issues a single loan, and selects a gross interest rate r_i to charge his borrower. We assume that there are two types of lenders in the market. One type of lender has an operating cost of c per loan, and the other type of lender has zero operating cost. Let $c \in (0, 1]$. Among the population of lenders, fraction λ has zero cost, and fraction $1 - \lambda$ has cost c , where $0 < \lambda < 1$. We assume that operating costs are paid by the lender using the loan repayment from his borrower.

If agent j takes out a loan at interest rate r_i , then the agent repays $\min\{r_i, R_j\}$ to the lender, and earns an income of $R_j - \min\{r_i, R_j\}$. If the

³ In a related paper, Ghosh and Van Tassel (2011) model a relationship between investors and lenders, and find that profit maximizing investors can contribute to poverty reduction. However, unlike the current paper, their model is based on a fixed supply of funds, an exogenous interest rate, and an assumption that investors are motivated by profit, not poverty reduction.

⁴ We should emphasize that while both donor and lender are trying to minimize poverty, the two objective functions are different. The lender's objective is narrower than the donor's, in that the lender is focused on his borrower, and the donor is focused on overall poverty. If lenders focused on overall poverty rather than their own borrowers, then inefficient lenders would probably opt to exit the industry. It is our view that this is unrealistic, given the evidence that there are significant quality differences among exiting charities, NGOs, and microfinance lenders, and yet, they all choose to continue working.

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