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Microfinance spillovers: A model of competition in informal credit markets with an application to Indian villages

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ABSTRACT

Despite widespread interest in the development of microfinance, spillover effects on the non-using population and redistributive issues remain largely unexplored. I study a competition game between microfinance institutions (MFIs) offering joint-liability loans and moneylenders offering individual loans in presence of adverse selection. I show that one unintended consequence of the entry of a microfinance sector in local credit markets can be to trigger an increase in the equilibrium informal interest rate, because MFIs tend to attract a disproportionately-safe share of the borrower pool away from incumbent moneylenders. The existence of such composition externality depends crucially on the size of the microfinance sector and the risk composition of the borrower pool. The model predicts a non-linearly increasing relationship between informal interest rates and MFIs' capacity in relatively safe credit markets, and no relationship in risky villages. I show evidence supporting these predictions, using a first-hand panel database that records all credit transactions over 8 years for a sample of about 1000 households living in Indian villages with extensive space and time variation in the size of their microfinance sector.

1. Introduction

From the 1980s onwards, microfinance institutions (MFIs) have spread out around the world, reaching more than 200 million poor families by 2010 (Maes and Reed, 2012). An extensive theoretical literature has explained how innovative contractual structures and organizational forms—especially group lending—have enabled the delivery of small and uncollateralized loans, while mitigating the well-known adverse selection and moral hazard problems that traditionally plague informal credit markets (e.g. Stiglitz, 1990; Besley and Coate, 1995; Ghatak, 1999, 2000; Ghatak and Guinnane, 1999).

However, by mostly focusing on the problem of single lenders trying to tap excess demand, the existing literature has not yet quite explored a key issue regarding the development of microfinance, namely its general-equilibrium effects on the informal credit market and the welfare of the non-using population. As a matter of fact, MFIs do not operate in an empty space but instead enter preexisting local credit systems. Although imperfect in most cases, those informal markets are very important for many people's welfare. For instance, the last All-India Debt and Investment Survey estimated that informal finance accounted for 43% of outstanding loan amounts of Indian rural households (NSSO, 2005). Another recent survey by the Reserve Bank of India found that between 1995 and 2006, while the outreach of MFIs was booming to about 40 millions

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borrowers, the number of registered moneylenders increased by 56% and the number of unlicensed lenders was believed to have made similar gains (RBI, 2007). In other words, MFIs do not appear to simply replace incumbent lenders but rather to increasingly coexist with them in local credit markets.[1] In fact, this coexistence is largely natural and is likely to persist because of important complementary features between the two types of lenders. Intuitive reasons for the continued prevalence of moneylenders include: the existence of constraints on microfinance lending (e.g. limited funds, selection of specific borrowers or projects), confidentiality, promptness and flexibility in loan use and repayment, as well as lender-of-last-resort and double-dipping phenomena. It is therefore crucial to understand how informal lenders adapt to the presence of MFIs and what can be the general-equilibrium consequences.

MFIs are desirable if they supply credit to otherwise-constrained households, allowing them to make choices closer to their unconstrained optima. They can also help limit the market power of the incumbent moneylenders. Nevertheless, in this paper, I argue that, because group-lending MFIs are likely to attract especially the safest investment projects, they can worsen the informational problems that cause traditional lenders to charge high interest rates. This seems to be in line with the puzzling conclusion of the above-cited RBI's study: "In the [177] districts surveyed, and where the presence of MFIs/SHGs [Self-Help Groups] was significant, the incidence of money lending by traditional moneylenders has come down. However, this has not prompted moneylenders to reduce their interest rates. This could be because MFIs do not have a sufficiently large network (RBI, 2007)." Although reliable data and identification strategies on the matter are scarce, Mallick (2012), Kaboski and Townsend (2012), and Berg et al. (2013) report similar evidence for Bangladesh and Thailand, while trying to address endogeneity issues seriously. All three studies find that the average interest rates charged by informal lenders do not decrease but rather tend to *increase* following MFIs' entry, though they cannot explain the effect. Mallick (2012) hypothesizes that microfinance might have increased the demand for moneylenders' credit, either because of rigid repayment schedules imposed by MFIs or the small size of MFIs' loans with respect to indivisible investment projects, but cannot test it. Berg et al. (2013) perform a careful analysis of the demand for informal credit in Bangladesh and show that it actually goes down with the penetration of microfinance. They suggest that their findings are consistent with a model where MFIs draw away better borrowers from the moneylender and/or where fixed costs are important in informal lending. Yet, having only village-level data, they are not able to test these mechanisms. By contrast, the present paper provides new evidence from a unique Indian household panel database, and proposes a novel theoretical mechanism that appears to fit well the observed facts.

I develop a model of horizontal competition between zero-profit MFIs that lend limited funds using joint-liability contracts and traditional moneylenders who offer standard individual loans, in rural credit markets characterized by adverse selection and limited liability.[2] I show that, because MFIs' contracts generate peer screening that favors the safest borrowers, their entry can generate a negative composition externality on incumbent moneylenders and trigger an increase in the equilibrium informal interest rate.[3] In such case, the additional microfinance funds do not increase, and can even decrease, the coverage of potential borrowers. Those effects do not usually imply an overall welfare loss, but rather a redistribution from non-clients to clients of MFIs. Yet, this is not the only outcome possible, and I characterize the market conditions in which such composition externality is expected to happen. Those correspond to a realistic situation in which traditional moneylenders are serving (some) safe borrowers in the absence of MFIs, and the latter do not have enough funds to supply the entire population of borrowers. One testable prediction of my model is that we should observe a non-linearly increasing relationship between the interest rate charged by moneylenders and the coverage of the microfinance sector in not-too-risky villages, and not in very risky villages.

In the second part of the paper, I use first-hand data from a unique panel household survey to assess the relevance of the model. The database includes all credit transactions made over eight years by a random sample of Indian households, living in villages that experience substantial variation in the size of the microfinance sector over space and across time. The detailed micro panel data allow testing theoretical mechanisms, while controlling for important unobserved heterogeneity. First, I show that microfinance clients have a safer risk profile and form groups that are more homogenous than the overall village. Second, they borrow from moneylenders more than other households before the entry of MFIs, and in a largely reduced way afterwards. Third, controlling for villages' fixed characteristics, time fixed effects, and village-level income shocks, I find that moneylenders charge higher interest rates in villages where some SHGs are present than where there are none. Fourth, in line with my model, the estimated relationship is concave and significant only in less risky villages.

The theoretical contribution of this paper relates to different strands of the literature on microfinance and informal financial markets. First, I build on earlier works in microfinance contract theory, and especially the papers by Ghatak (1999), Ghatak (2000). In his seminal 1999 paper, Ghatak shows that joint-liability credit contracts typically lead to positive assortative matching at the group formation stage, which in turn implies lower implicit costs for safe borrowers and higher welfare. Ghatak (2000) shows that a joint-liability bank maximizing the utility of borrowers can improve repayment rates

[1] Other studies providing evidence about the coexistence of microfinance and informal lenders include Coleman (1999), Zeller et al. (2001), Jain and Mansuri (2003), Mallick (2012) and Berg et al. (2013). To some extent, these facts go against the rationale behind the early policy interventions in credit market and the motivation of the first proponents of microfinance, which were mostly trying to tame exploitative moneylenders.

[2] Though the model in this paper relies on joint liability, the conclusions apply to a wider set of microfinance mechanisms that imply some sort of positive borrower selection, such as peer screening, peer pressure, frequent repayments or simply the female focus (with females generally taking less risky decisions than males, see e.g. Byrnes et al., 1999 or Dohmen et al., 2011).

[3] In this paper, the 'informal credit market' refers to the traditional moneylending market.