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Group lending with adverse selection

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Abstract

We focus on adverse selection as a foundation of group lending. In a simple static model we show that there is no collateral effect if borrowers do not know each other. If the borrowers know each other, group lending implements efficient lending. However, it is not robust to collusive behavior, when transfers are allowed between colluding partners. Finally, we characterize the optimal collusion-proof group contract.

JEL classification: O2; G2; C7

Keywords: Group lending; Adverse selection; Development

1. Introduction

The Grameen Bank founded by Dr. Yunus in Bangladesh and similar group lending institutions are receiving growing attention as a potential innovative instrument to fight poverty. Development practitioners are very much aware that lending to the poor is a challenge that classical banking has not overcome. Studies from the World Bank have stressed the high recovery rates obtained for the loans granted by these banks (see Khandker et al., 1995), as well as the positive effects of those loans on social behavior (Pitt and Khandker, 1996).

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However, some researchers have raised doubts about their sustainability and about the efficient use of the subsidies these institutions benefit from (see Morduch, 1997).

Economic theorists have been interested by the joint-liability lending institutions since Stiglitz (1990). In a recent comprehensive survey Ghatak and Guinnane (1998) stress that such institutions can make progress on four problems facing lenders: To ascertain what kind of a risk the potential borrower is (adverse selection), to make sure the borrower will utilize the loan properly so that he will be able to repay (moral hazard), to learn how his project really did in case he declares he cannot pay (auditing), and to find methods to force the borrower to repay the loan if he is reluctant to do so (enforcement). According to these authors the two reasons why these joint liability contracts perform well is because they use the facts that members of a community may know more about one another than a bank and that poor people's neighbors may be able to impose powerful non-financial sanctions at low cost.

In this paper focused on adverse selection only as a foundation for group lending, we show that, when the investment projects of the members of the group do not know each other, there is no collateral effect of group lending, and that such an effect appears when the borrowers know each other. Contrary to the literature, we consider a monopolistic banking system suffering from adverse selection, but similar results would obtain, if we were maximizing social welfare under incentive constraints and budget balance constraints for the banking sector. Section 2 presents the model and determines the optimal individual loans. Optimal group lending is determined in Section 3 when borrowers do not know each other. Section 4 discusses the case of borrowers who know each other and Section 5 characterizes the optimal collusion-proof group lending contract.

2. The model

There is a continuum of risk neutral borrowers with no personal wealth and limited liability. A proportion Π of borrowers, the good type, have sure projects with return h and a proportion $1-\Pi$, the bad type, have (stochastically independent) projects with return h with probability $p<1$ and return 0 with probability $1-p$. All borrowers have outside opportunities valued at $u>0$ and the type of a borrower is his private (nonverifiable) information.

There is a single bank available for loans which has a refinancing rate of r. The bank offers contracts to maximize its expected profit. For simplicity, we assume that all projects which require one unit of investment are socially valuable, i.e., $ph>r+u$ or $h>(r+u)/p$.

Let us refer to the good type with the index 1 and to the bad type with the index 2. From the revelation principle, we know that any individual lending strategy is equivalent to a revelation mechanism (r_1, P_1), (r_2, P_2), where P_i is the