

The Economics of Information and the Empirics of Microfinance

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1. Introduction

Why capital doesn't naturally flow to the poor (de Aghion and Morduch, 2005)

Economic activity and investment

- The demand side: Many entrepreneurs are willing to pay for loans at the going rates
- The Supply side: a higher marginal return for a poorer entrepreneur
 - * lenders should be happy to lend to poorer individuals

We will develop a small model that we will use to organize our thinking

Note: We assume an entrepreneur without and wealth and no collateral.

2. Economics of Information

Studies situations in which agents attempt to overcome their ignorance about some relevant information by taking decisions designed to acquire new information or *to avoid some costs of their ignorance*. When information is asymmetrically distributed among agents, these decisions involve the designing of contracts intended to provide incentives and/or to induce the revelation of private information

Studies when such asymmetric information exists in a contractual relationship, that is to say, **when one participant knows something that the other doesn't** (Macho-Stadler and Pérez-Castrillo, 2001)

2.1 Moral Hazard (Tirole, J. 2006)

Intuition: After having been provided with funding for a 'good' project, the entrepreneur can pick an alternative project with a lower probability of success, because he enjoys 'private benefits'. Thus, the entrepreneur chooses an action that does not maximise project value.

Alternative intuition: exerting effort is costly

In the jargon: 'the entrepreneur can "behave", "work" or "misbehave", "take the private benefit", "shirk"

In our model we denote this private benefit by **B**

Our model

Setting: The entrepreneur has a project that yields cash flow X if successful and zero if it fails. The entrepreneur can exert effort resulting in a higher success probability p_h . If he does not work the probability of success is p_l . R is a repayment to the lender.

- (1) The entrepreneur must be better off behaving than when he does not behave.

$$p_h (X-R) \geq p_l (X-R) + B$$

Rearrange to get:

$$R = X - B/(p_h - p_l)$$

In the absence of moral hazard $R = X$ and there is no incentive problem as long as p_h is larger than p_l .

Our model

- (2) The expected repayment to the investor must be at least equal to the initial outlay.

$$PhR = I$$

In words: The expected repayment from the entrepreneur has to equal the initial outlay

$$Ph [X - B/(ph - pl)] = I$$

We now turn to adverse selection...

1.2 Adverse Selection

Intuition: 'The investor cannot differentiate between good and bad types of entrepreneurs. This can lead to credit rationing if the expected repayment of the 'average type' is negative'

$$PhR_{\text{Good}} \geq PhR_{\text{average}} = I \geq PhR_{\text{Bad}}$$

- Akerlofs 'Lemon's problem' : Limited liability and interest rates
- Role for monitoring and signalling?

Can outside funding be provided?

- Only if the expected return from the average type exceeds the initial outlay.
- This implies that the investor makes money on the good type and loses money on the bad type (cross-subsidization)
- However, if the average repayment to the investor from both types is negative, there is no lending and the market breaks down.

We now turn to the empirical work...

2 The empirics of microfinance: What do we know?

How does microfinance deal with moral hazard and adverse selection?

- * Hypotheses
- * Social Capital

First we look at a paper that focusses on grouplending and social capital

Second we look at a study that uses experiments to investigate factors such as trust, a measure of social capital.

Hypotheses

Most work has been preoccupied with understanding how group lending works. The main ideas are:

- More effective *monitoring and enforcement* from social capital?
 - * dealing with the moral hazard problem
- Does the *joint liability* contract discipline the group members?
 - * If someone in the group defaults, all members lose access to future credit. Members reduce the possibility of seizing B.
- Do good types *self-select* in to good groups?
 - *Assortative matching* to deal with adverse selection
 - The average of the group is higher than the average of the population.

The problem of catching Social Capital

- What is social capital?

Just as a screwdriver or a college education can increase productivity (both individual and collective), so too social contacts affect the productivity of individuals and groups" (Putnam, R., 2000)

- The problem of measuring social capital

- Defining social capital

- Endogeneity with repayment rates. What causes what?

We cannot distinguish between self-selected groups and a group with high social capital.

- Do all forms of social capital increase repayments rates?

Social capital and joint liability lending*

Karlan (2007) circumvents endogeneity by making use of a natural experiment with data from FINCA – Peru. (*quasi-random group formation*)

- He found that individuals with stronger social connections to their fellow group members (living closer, or being of a similar culture) have higher repayment and higher savings
- Also, he found that relationships deteriorate after default
- And that through successful monitoring, individuals know who to punish and who not to punish after default.

*Based on Hermes and Lensink (2007)

Social capital and joint liability lending*

Cassar et al (2007) take a novel approach by using trust and microfinance experiments. They were able to analyze several different components of social ties and their influence on group repayment

- The authors found that personal trust between group members and social homogeneity are more important to group loan repayment than general societal trust or acquaintanceship between members.

* examples of worse repayment from groups comprised of family members (poor monitoring and enforcement)

- Evidence of reciprocity: those who have been helped by other members are more likely to contribute in the future

How does the experimental design overcome the endogeneity problem?

Summary and challenges

- Researching alternative institutional mechanisms to improve repayment rates and financial reach, e.g. Microfranchising
- How do factors such as education, public health, business plans matter from a financial perspective?
- Could service provision improve financing? If so, how should it be provided?
 - * Cost benefit analysis of service provision and repayment
 - * Program evaluation

Putting our model to work...

(1) $R = X - B/(ph - pl)$: The entrepreneur

(2) $PhR = I$: The Investor, put (1) in (2)

$Ph [X - B/(ph - pl)] = I$, The idea is to make this hold more often...

Example 1: *Provide training* for the entrepreneur to increase the probability of success for both effort levels.

** A note of caution...*

ph and pl both go up so $B/(ph - pl)$ is unchanged, but PhR increases with a given X . Is the benefit from increase in expected repayment larger than the cost of training?

Same for basic healthcare provisions? Does the entrepreneur have an incentive stick with the program after getting the money and the training/healthcare?

* Role for contract design and theoretical work

Another example: A higher X?

Example 2: Can we modify the entrepreneur's project to yield a higher cash flow in both states?

Assume X increases to $2X$ and R goes up from R to $(R+r)$.

(1) $(R+r) = 2X - B/(ph - pl)$: The entrepreneur

(2) $Ph(R+r) = I$: The Investor.

(1) Inside of (2) yields:

$Ph [2X - B/(ph - pl)] = I$, which is higher than $Ph [X - B/(ph - pl)] = I$

For a given agency cost.

Important role for institutional design

References

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Suggested reading: The empirics of microfinance, special issue in *The Economic Journal*, February 2007