

# Research Statement

Ashok S. Rai

Assistant Professor of Economics, Williams College\*

July 1, 2008

Many economists believe that financial market failures are a cause of underdevelopment and poverty (Aghion and Bolton, 1997; Banerjee and Newman, 1993; King and Levine, 1993; Townsend 1997). If poor households have high returns from investment but cannot obtain capital to finance their needs, then they remain poor. For instance, de Mel, McKenzie and Woodruff (forthcoming) find that the average real return to capital is 5.7 percent *per month* in an experimental study in Sri Lanka.

My research is on the sources and institutional responses to financial constraints. Information frictions are commonly thought to impede finance (Stiglitz and Weiss, 1981) and collateral is widely perceived to be the fix. The obvious difficulty with lending to the poor is that they lack collateral – and so pose a high default risk. If the poor have no collateral of their own, then perhaps alternative repayment incentives can fill the gap. One possibility is *cosigned loans* in which borrowers use the collateral of a cosigner to secure their repayment. Another, pioneered by microfinance institutions like the Grameen Bank, is *group loans*: identical loans are made to each person in a group and all are denied future credit if one does not repay. Existing microfinance schemes aim to reduce poverty and so are targeted to those financially excluded by the formal lending sector.

My research explores each of these issues in turn. I have studied specific sources of financial constraints (Klonner and Rai, 2007), the role of collateral provided by cosigners

---

\*[www.williams.edu/Economics/faculty/rai.shtml](http://www.williams.edu/Economics/faculty/rai.shtml)

(Klonner and Rai, 2008), the potential and limits of alternative repayment incentives (Bond and Rai, 2008; Bond and Rai, forthcoming; Rai and Sjöström 2004), and the effectiveness of targeting (Amin, Rai and Topa, 2003; Rai 2002).

My research is on an extremely policy-relevant subject: the role of microfinance in poverty alleviation. My papers with Sjöström and Bond take a mechanism design approach to microfinance. In my current work with Klonner, I search for evidence of the underlying financial market imperfections that could motivate interventions such as microfinance. I plan to continue to work at this intersection of theory and empirics.

In what follows I shall first discuss my completed papers, and then my work-in-progress.

## 0.1 Publications and Working Papers

My research has addressed the following related questions:

1. *Are there information frictions in credit markets?* Adverse selection is an information friction that has often been assumed in theories of credit markets but has not been demonstrated empirically. Klonner and Rai (2007) find evidence for this specific source of financial market failure. We test for adverse selection using a policy experiment in a South Indian financial institution. In particular, we find evidence that an interest rate ceiling that was imposed in 1993 made it harder for riskier borrowers to take loans – and the relaxation of the ceiling in 2002 had the opposite effect. This paper makes methodological contributions, such as an attempt to control for the bias that arises because researchers are themselves uninformed about what the lender knows about the borrower.
2. *Does collateral induce borrowers to repay?* It is widely believed, theoretically, that collateral can overcome information frictions in lending relationships. Yet there is no good evidence that collateral induces repayment. Klonner and Rai (2008) investigate how cosigners are a form of collateral. We find that an increase in the number of cosigners required on a loan reduces the probability of default.

3. *Is Grameen's lending scheme efficient?* Sjöström and Rai (2004) propose a mechanism to understand how institutions like the Grameen Bank can improve repayment incentives among informed borrowers. We show theoretically how lending schemes can create social collateral by creating incentives for borrowers to help each other in hard times. (In contrast, much of the literature bases the success of group lending on pre-existing social collateral inherent in village economies). We argue that group lending contracts are too harsh and hence inefficient, and that a more flexible lending scheme that allows loan officers to collect shared information could instead achieve efficiency. Armendariz de Aghion and Morduch (2005) relate our theoretical results to practical concerns about the limitations of group lending. They also discuss how the Grameen Bank has recently abandoned its widely-copied group lending contract for a more flexible alternative, Grameen II, in the context of our work.
4. *How should informed borrowers share their liability to repay?* Bond and Rai (2008) take seriously the idea that socially sanctioned punishments can be used as a repayment incentive. We compare the effectiveness of cosigned and group loans, both of which are widely prevalent, when sanctioning abilities are unobserved and differ across borrowers.
5. *Is microfinance inherently fragile?* In addition to social sanctions, the threat of denying future credit is often used to enforce loan repayments in the absence of collateral. Bond and Rai (forthcoming) investigate how relying on credit denial makes microlending particularly fragile. If borrowers expect that others will default, and so loans will no longer be available in the future, then they will default as well. These "borrower runs" are unlike the depositor runs studied by Diamond and Dybvig (1983).
6. *How effective is microfinance in targeting the poor and uninsured?* By using detailed monthly consumption and income data from two Bangladeshi villages before microfinance programs entered, Amin, Topa and Rai (2003) are able to test the effectiveness of microfinance in targeting not just the poor but also those who are uninsured. We

find no evidence that households who have low consumption levels and lack insurance join microfinance programs. One of the objectives of microfinance is to induce borrowers to insure each other through its loan contracts (Rai and Sjöström, 2004).

7. *How should anti-poverty programs target the poor?* In a paper based on my dissertation, Rai (2002), I study how shared information in village economies can be used by outside microlenders, aid agencies and governments to distinguish poor from rich. Such efficiently designed targeting schemes can save in administrative costs but are limited by the hard budget constraints needed to prevent collusion. This paper uses a mechanism approach to targeting, just as Sjöström and Rai (2004) use a mechanism design approach to group lending.

## 0.2 Work-in-Progress

My research with Stefan Klöner uses unusual data from bidding Roscas (Rotating Savings and Credit Associations). Roscas are financial institutions in which the accumulated savings are rotated among participants. In bidding Roscas, the interest rate is determined by competitive bidding. The bidding Roscas we study compete with both microfinance institutions and commercial banks to provide consumer credit and small enterprise finance. We view the peculiarities of their institutional structure as a means to test models of financial imperfections.<sup>1</sup>

The data, which was collected directly from the non-bank financial intermediary, includes several million loans distributed widely over time and space. The dataset is remarkable for its high frequency (monthly repayments), the geographical coverage (four large South Indian states), the variation in interest rates (which are determined through auction) and the macroeconomic backdrop (financial liberalization). Klöner and I have completed

---

<sup>1</sup>Unlike Besley, Coate and Loun (1994) and Baland and Robinson (2002) who provide economic arguments to rationalize informal Roscas, our research does not attempt to justify their existence. The Roscas we study are anonymous and do not rely on internal social enforcement. It is likely that the organized Rosca sector in South India flourishes because it is less regulated than banks.

two papers using this dataset. In ongoing work we are studying South India's financial development through the lens of bidding Roscas:

1. *Does finance flow to its highest use? If not, what prevents arbitrage?* Since Rosca interest rates are determined by local market conditions – and not set centrally as they would be in a bank with several branches – this dataset provides an ideal opportunity to investigate financial fragmentation. In preliminary work, Klonner and I find that we can reject the efficient markets predictions of equal average interest rates over space. We are exploring this evidence of impediments to financial flows. For instance, we find that institutional investors take positions in different bidding Roscas and hence arbitrage in a limited way across space. Our eventual aim is to investigate how financial fragmentation evolves over time in response to the liberalization reforms that took place in the 1990s.
2. *Are financial failures contagious?* Despite the huge academic and policy interest in financial contagion, there is little contemporary micro evidence of such contagion. One reason is that governments sometimes intervene to prevent banks from failing. Another is that financial institutions are seldom forthcoming about their internal data. Klonner and I are investigating financial contagion in the non-bank financial sector. We are compiling a list of financial failure events in South India. We plan to trace the effects of these failures over time and space by examining interest rates and defaults in nearby bidding Roscas. The nature of bidding Roscas will make it possible for us to estimate a willingness-to-pay measure of contagion, as well as to test if there are borrower runs (Bond and Rai, forthcoming).
3. *What are the financial effects of a breakdown in trust?* Klonner and I are investigating the effects of religious riots on financial outcomes in the riot-prone city of Hyderabad, India. We test if riots (both local and elsewhere) have contagious effects on the financial behavior of different religious groups. Since borrowers in our dataset must provide one or more cosigners, we hope to be able to investigate if trust between

communities is reduced in the aftermath of a riot. Specifically, is there less inter-religious cosigning of loans as a consequence of religious violence? Does this have adverse welfare effects through increased fragmentation? This research is funded by a recent grant from the Harry F. Guggenheim Foundation.

In addition, my work-in-progress includes a project with Shamika Ravi on health insurance in India. We are using internal claims data from the health care provider to investigate if women who borrow from microfinance programs are empowered in their health seeking relative to women who are spouses of borrowers. We are in the process of investigating the reasons for an intriguing preliminary finding: a man is more likely to utilize health insurance acquired through his wife's loan than a woman is through her husband's loan.

## References

### My Joint Research:

- Amin, S., A.S. Rai and G. Topa,. 2003. Does Microcredit Reach the Poor and Vulnerable? Evidence from Northern Bangladesh. *Journal of Development Economics*, 70: 59-82. .
- Bond, P. and A.S. Rai, 2008. Cosigned or Group Loans, *Journal of Development Economics*, 85: 58-80.
- Bond, P. and A.S. Rai (forthcoming). Borrower Runs. *Journal of Development Economics*.
- Klonner, S. and A.S. Rai, 2007. Adverse Selection in Credit Markets: Evidence from a Policy Experiment, working paper.
- Klonner, S. and A.S. Rai, 2008. Cosigners as Collateral, working paper.
- Rai, A.S. 2002. Targeting the Poor Using Community Information, *Journal of Development Economics*, 69: 71-84.
- Rai, A.S. and T. Sjöström, 2004. Is Grameen Lending Efficient? Repayment Incentives and Insurance in Village Economies. *Review of Economic Studies*, 71: 217-234.

### Other Cited Work:

- Aghion, P. and P. Bolton, 1997. A Theory of Trickle-Down Growth and Development. *Review of Economic Studies*, 64(2): 151–172.
- Anderson, S. and J. Baland, 2002. The Economics of Roscas and Intrahousehold Resource Allocation, *Quarterly Journal of Economics*, 117(3), 963 – 995.
- Armendariz de Aghion, B. and Morduch, J. 2005. *The Economics of Microfinance*. Cambridge, MA: MIT Press.
- Banerjee, A. and A. Newman, 1993, Occupational Choice and the Process of Development. *Journal of Political Economy*, 101: 274–298.
- Besley, T., S. Coate and G. Loury. 1994. Rotating Savings and Credit Associations, Credit Markets and Efficiency. *The Review of Economic Studies*, 61(4): 701-719
- de Mel, S., Mckenzie, D. and C. Woodruff, Returns to Capital in Microenterprises: Evidence from a Field Experiment. forthcoming, *Quarterly Journal of Economics*.
- Diamond, D. and P. Dybvig. 1983. Bank runs, deposit insurance, and liquidity. *Journal of Political Economy*, 91(3):401–19.
- King, R. G, and R. Levine, 1993. Finance and Growth: Schumpeter Might be Right. *Quarterly Journal of Economics*, 108(3): 717–737.
- Stiglitz, J. and A. Weiss, 1981. Credit Rationing in Markets with Incomplete Information. *American Economic Review* 71(3), 393-410
- Townsend, R. 1997. “Microenterprise and Macropolicy” in Kreps, D. and K. Wallis eds. *Advances in Economics and Econometrics: Theory and Applications, Seventh World Congress of the Econometric Society*, Cambridge University Press, II:160-209.