Loan Allocation within Group Lending: New Evidence from Self-Help Group Program in South India

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Poster prepared for presentation at the Agricultural & Applied Economics Association's 2010 AAEA, CAES & WAEA Joint Annual Meeting, Denver, Colorado, July 25-27, 2010.

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Introduction

Background

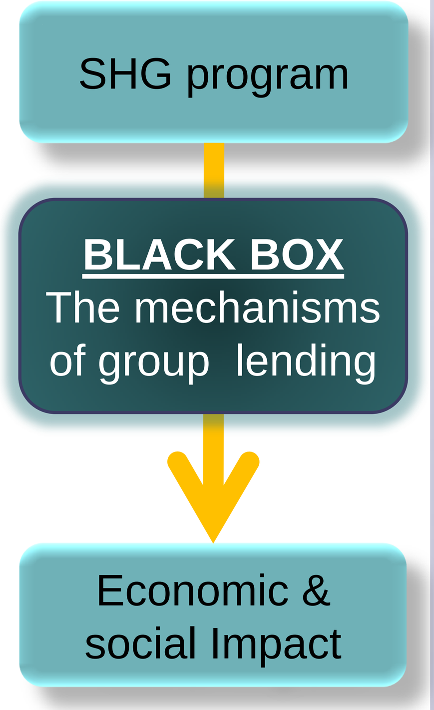
• Microfinance (MF) has attracted growing attention as a means of improving financial access. Reflecting the enthusiasm about it, Government of India has initiated the biggest MF program since 1992.

• This program adopts a group lending methodology with joint liability based on Self-Help Group (SHG) in which microloans are designed to be allocated among members by themselves.

Motivation

• Despite the proliferation of impact evaluation studies on MF, few studies shed light on loan allocation or actual credit access.

• There exists a black box which contains several questions. How do members allocate microloan within a group? Does there still exist credit rationing among participants caused by this loan allocation?



• This paper empirically explores these question. The objective is to clarify the determinants of loan allocation and credit access within group lending, using original data collected in Kerala, South India.

The Scheme of SHG program

Formation of SHGs

- One SHG is composed by 10-20 women who can be selected based on geographical proximity.
  → self selection, heterogeneity in a group

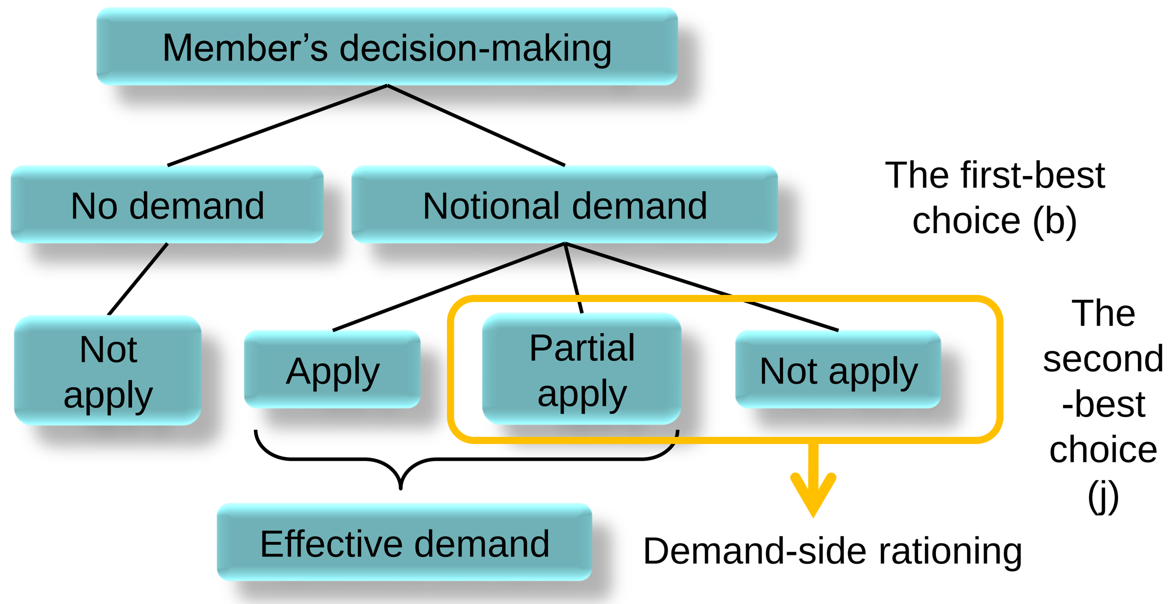
Financial Transactions

- Members are obligated to hold weekly meetings for collecting compulsory savings (10-50 Rs/meeting). And there are two types of loan: the internal loan and the external loan. The internal loan comes from their own accounts accumulated by compulsory savings, while the external loan is disbursed by the formal bank to a group.
- The interest rate, the repayment schedule, and loan allocation are determined by members.
- The external loan can't be available without repayments of previous loans. Thus only in a beginning of loan cycle can they apply and issue the external loan to members.
- Note that loans are taken from banks in the group's name but each of the members conducts her business individually.

Econometric Framework

• The interaction between a applicant and other members may be modeled as a sequential two-stage decision process (Zeller [1994]WD, Mushinski [1999]JDS).

A borrower's decision making



• Nested logit model (*apply, partial apply, not apply*)
The joint probability of choosing alternative *jb* can be written as

$$\mathrm{Prob}[second_j,\ first_b] = P_{ijb} = P_{ij|b} \times P_b$$

This probability can be written as

$$P_{ij|b}P_b = \left(\frac{\exp(\mathbf{x}'_{ij|b}\boldsymbol{\beta})}{\sum_{j=1}^{J_b}\exp(\mathbf{x}'_{ij|b}\boldsymbol{\beta})}\right)\left(\frac{\exp[\boldsymbol{\tau}_b(\mathbf{z}'_{ib}\boldsymbol{\gamma}+I_{ib})]}{\sum_{b=1}^{B}\exp[\boldsymbol{\tau}_b(\mathbf{z}'_{ib}\boldsymbol{\gamma}+I_{ib})]}\right)$$

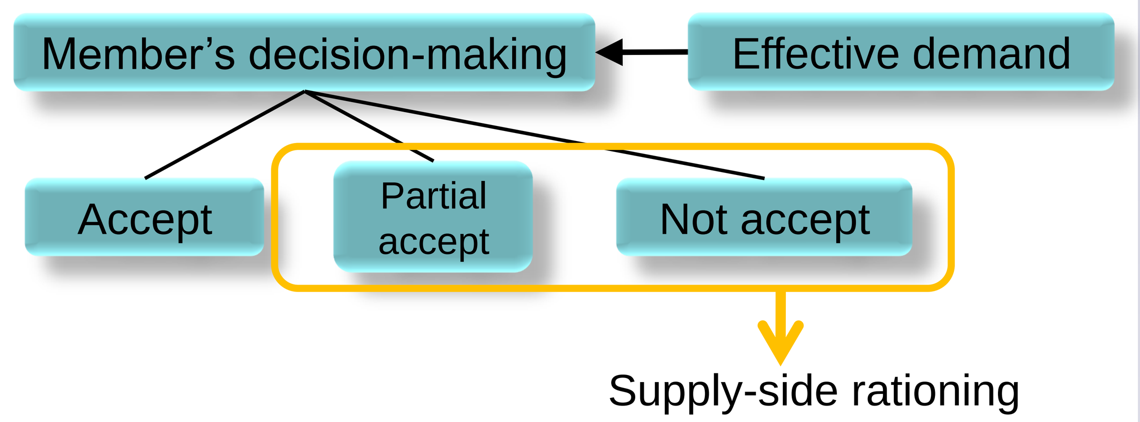
where $I_{ib} = \ln\left(\sum_{j=1}^{J_b}\exp(\mathbf{x}'_{ij|b}\boldsymbol{\beta})\right)$

This term is the inclusive value in the first-best choice.

• z is a vector of observed attributes that vary across the first-best strategies.

• x is a vector of observed attributes that vary across the second-best strategies; factors related to information asymmetries, bargaining power, characteristics of other applicants.

Lender's decision making



• Multinomial logit Model
(*accept, partial accept, not accept*)

$$\Pr(Y_i = l) = \left(\frac{\exp(\mathbf{w}'_{il}\theta)}{\sum_{l=1}^{L}\exp(\mathbf{w}'_{il}\theta)}\right)$$

Data Collection and Survey Area

The Data

- The data: 220 households (SHG members) in Sultan Battery gram panchayat, Wayanad district, Kerala, gathered between Aug and Oct 2008.
- Questionnaire: family compositions and labor market participation, landholdings, fixed assets, annual income, credit transactions, gift exchange, and social network etc.
- Note that we also collected the above information on other members who applied in a same loan cycle recorded in financial books of each SHG.

How to identify credit rationing

(almost same method with Boucher, Guirkinger, and Trivelli [2009] EDCC)

- Whether had you applied for a loan in 12 month? If no, why had you not done so? If yes, would you want to applied for another loan? (→ *apply, partial apply, not apply, no demand*)
- Whether any applications were approved? If yes, had your applications been partially accepted? (→ *accept, partial accept, not accepted*)

(A subset of) Estimation Results

Nested multinomial logit model borrower's decision making

External loan	Partial applying		Not applying	
	Coef.	Z-value	Coef.	Z-value
Constant	-1.436	-1.6928	-1.625	-1.913
Applicant				
Permanent income	-0.3505	-2.9719	-0.7371	-3.7746
Transitory income	0.0117	1.4995	0.5626	1.6775
Dummy for past default	0.3275	1.2205	0.8322	3.0409
Landholdings	0.1861	0.106	0.0857	0.9042
Fixed asset	1.7476	0.4996	2.5098	0.1959
Savings in SHG	0.0439	0.2305	0.1951	0.1305
Social position in village	0.7638	2.2634	0.2807	1.2352
Social position in SHG	0.0007	2.4388	0.0008	2.9947
Distance from formal bank	0.6388	2.0188	0.7503	2.5913
Dummy for SC/ST	0.0006	2.513	0.0007	2.5699
Average of other applicants				
Permanent income	0.006	0.9161	0.0505	0.0709
Transitory income	-0.8021	-2.8939	-0.6892	-3.0674
Dummy for past default	0.0412	0.2062	0.1601	1.0849
Landholdings	-0.04	-2.8778	-1.0691	-0.1113
Fixed asset	-1.1133	-0.2751	-1.1384	-0.4235
Savings in SHG	0.3399	2.5251	0.3379	2.4967
Social position in village	0.5297	0.5175	0.4848	0.1136
Social position in SHG	1.1038	4.0894	1.1064	3.4748
Fixed effects for SHGs				
σ	0.5767	0.2325	0.67	0.2178
τ	0.7821	0.2903	0.9378	0.2982

Multinomial logit model for lender's decision making

External loan	Partial accept		Not accept	
	Coef.	Z-value	Coef.	Z-value
Applicant				
Effective demand for loan	-0.567	-0.4537	-0.079	-2.6243
Permanent income	-0.007	-0.4201	-0.402	-3.5782
Transitory income	0.012	0.7038	-0.001	-0.923
Dummy for past default	0.228	0.117	0.221	0.601
Landholdings	0.211	2.1645	0.281	1.3213
Fixed asset	0.029	2.6789	0.019	1.1889
Savings in SHG	-0.151	-3.3414	-0.1439	-0.2305
Social position in village	0.46	2.5134	0.862	1.4093
Social position in SHG	-0.566	-3.5415	-0.623	-2.9661
Fixed effect for social caste	0.3275	-0.7038	1.0991	3.3322
Average of other applicant				
Effective demand for loan	0.3275	1.2205	0.3294	1.4018
Permanent income	1.1861	4.06	1.0991	4.045
Transitory income	1.7476	3.4996	1.661	3.3322
Dummy for past default	-0.128	-3.117	-0.424	-4.101
Landholdings	0.0007	2.4388	0.0006	2.513
Fixed asset	-0.3284	-2.0701	-0.3046	-1.732
Savings in SHG	1.231	2.41	1.163	0.2305
Social position in village	0.2013	0.4537	0.906	0.9161
Social position in SHG	1.0505	3.4201	4.8021	2.8939
Fixed effect for SHGs				

Conclusion

Conclusion

- The access to microcredit is not necessarily guaranteed for all of members in SHGs and loan is allocated in group lending with two types of credit rationing.
- This paper focuses on a bargaining process in loan allocation to clarify the determinants of both types of credit rationing.
- A potential borrower would be preliminary rationed by lack of creditworthiness, insufficient implicit collateral requirements, weak bargaining power, transaction costs and, urgent needs by others.
- There might be a selection based on creditworthiness, political distortion, and wealth bias in loan allocation.