Introduction
0000

Experiment
000000

Results
00
00

Conclusion

Why do banks not lend: An experiment testing contractual frictions.[1]

Ali Choudhary[1]and Anil Jain[2]

[1]State Bank of Pakistan and CEP, LSE

[2]Federal Reserve Board of Governors

January 7, 2020

Motivation

► Substantial evidence that credit access can improve consumer welfare.

  ► *Increase income* (Karlan and Zinman, 2009), *reduce inequality* (Solis, 2017), *increase insurance* (Udry, 1994), *smooth consumption* (Gross and Souleles, 2002), and *increase entrepreneurship* (Banerjee et. al, 2015).

► As such, increasing lending to rural areas has attracted significant attention from academics and policymakers.

  ► India mandates the fraction of bank branches in rural areas (Burgess and Pande, 2005), development of specialized agricultural or rural banks, and subsidized credit, guarantee schemes for rural loans.

There are a number of possible reasons for why banks do not lend in rural areas

- ▶ **Information asymmetry**—high rates of adverse selection

- ▶ **Enforcement costs**—hard for the bank to force the farmer to repay

- ▶ **High fixed transactions costs**—costly for the bank to reach the farmer

- ▶ **Lack of property rights**—limiting good quality farmer collateral

- ▶ **This paper tests the relative importance of information asymmetry and enforcement costs**

Questions our paper aims to answer

1. **Who** are banks willing to lend to?
   - ▶ How does the set of borrowers that banks are willing to lend to differ from other potential lenders?
   - ▶ What are the key borrower characteristics that determine who banks are willing to lend too?
2. What are the contractual frictions that limit **repayment**?
   - ▶ **Information asymmetry.** Do banks have insufficient information to effectively screen borrowers?
   - ▶ **Enforcement power.** Do banks have insufficient enforcement power to collect repayment?
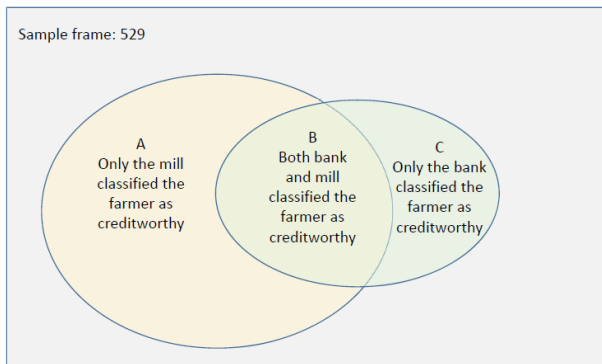
Setting

- ▶ We design a randomized control trial with sugar farmers in Pakistan.

- ▶ We found two different creditors for the farmers: a bank and a sugar mill.

- ▶ We use a similar strategy as Karlan-Zinman (2010) to identify adverse selection frictions and enforcement frictions.

- ▶ Specifically, we randomize the terms of the loan contracts a farmer receives from the mill or the bank.

Two parts to the experiment: Part I

- ▶ **Analyzing differences in who banks are willing to lend to:**
    - ▶ Collected a population of farmers who wanted a loan for growing sugarcane at an interest rate of 13 percent.
    - ▶ Requested the bank to screen the farmers for whom they are willing to lend to.
    - ▶ Requested the sugar mill to screen the set of farmers for whom they are willing to guarantee their loans.
    - ▶ Analyze the different individual characteristics selected by each lender

Introduction
○○○○

Experiment
○●○○○○

Results
○○
○○

Conclusion

Experimental Design

Experimental Design

Introduction
0000

Experiment
000●000

Results
OO
OO

Conclusion

Experimental Design

Experimental Design

Introduction
oooo

Experiment
ooo●oo

Results
oo
oo

Conclusion

Experimental Design
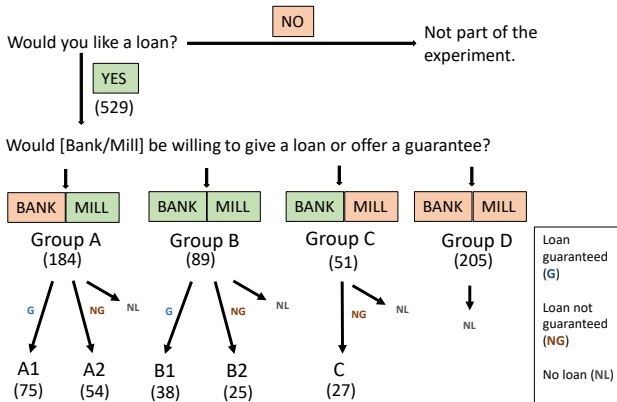
Randomization and treatment groups

- ▶ The mill was willing to guarantee all loans for farmers in groups A and B but farmers were randomized such that only some got the guarantee.
- ▶ A1: no guarantee by mill, only mill willing to give loans
- ▶ A2: guaranteed, only mill willing to give loans
- ▶ B1: no guarantee, both mill and bank willing to give loans
- ▶ B2: guaranteed by mill, both mill willing to give loans
- ▶ C: no guarantee by mill, only bank willing to give loans

Two parts to the experiment: Part II

Randomize farmers into different loan contracts—some farmers get
a loan guarantee by the mill, some farmers get a direct bank loan

- **Analyzing differences in repayment rates:**
  - *Information Asymmetry*: Compare repayment rates for farmers
    with the same contract but were selected by different lenders.
  - *Enforcement effect*: Compare repayment rates for farmers with
    different contracts but were selected by the same lender.

Introduction
0000

Experiment
00000●

Results
OO
OO

Conclusion

Experimental Design

Data

We combine three main forms of data for the experiment.

- **Baseline survey:** Data on farmer characteristics, farm size, education, equipment owned, forms of credit utilized
- **Mill:** Data on farmers' historical relationship with the mill. Past sales and any prior borrowings.
- **E-CIB.** Pakistani credit registry for data on any past formal credit.

Introduction
0000

Experiment
000000

Results
●○
○○

Conclusion

Willingness to lend: by lender type

Results

- As alluded to earlier, the set of borrowers the bank is willing to lend to is not a strict subset of the borrowers the mill is willing to guarantee.
- The mill is willing to guarantee almost double the number of farmers that the bank was willing to lend to.

Summary statistic differences between the chosen farmers

	Mill	Bank	Difference
Value of crop sales (decile)	-0.024***	0.006	-0.030***
	(0.008)	(0.007)	(0.011)
Farm size	-0.001**	0.001	-0.002**
	(0.000)	(0.001)	(0.001)
Years selling to the mill	0.002	0.029***	-0.028***
	(0.003)	(0.002)	(0.004)
Short distance from the mill	0.137***	0.052	0.085
	(0.041)	(0.032)	(0.053)
Sales to the mill (decile)	0.070***	0.003	0.067***
	(0.010)	(0.009)	(0.014)
Formal credit history	0.020	0.028	-0.008
	(0.039)	(0.035)	(0.051)
Previous bank loan overdue	0.005	-0.201***	0.205**
	(0.081)	(0.063)	(0.096)
Observations	528	528	1056

Information asymmetry: no evidence for superior mill information

▶ To examine whether the mill had superior information about the creditworthiness of the farmers, we compare repayments for farmers that were selected by different lenders but received the same loan contract.

	Overdue	Overdue	Overdue	Overdue
Creditworthy only Mill	0.027	-0.044	0.048	-0.038
	(0.037)	(0.030)	(0.12)	(0.16)
Observations	113	113	79	79
Groups	A1&B1	A1&B1	A2&B2	A2&B2
Farmer controls	No	Yes	No	Yes
Contract: Loan Guarantee	Yes	Yes	No	No
Contract: Direct bank loan	No	No	Yes	Yes

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Enforcement frictions: strong evidence that the mill has superior enforcement

▶ To examine whether the mill had superior enforcement we
   compare repayments for farmers that were selected by the
   same lender but received a differents loan contract.

	Overdue	Overdue	Overdue	Overdue
Loan Guarantee	-0.59***	-0.62***	-0.59***	-0.59***
	(0.071)	(0.070)	(0.058)	(0.057)
Creditworthy only Mill			0.036	-0.038
			(0.053)	(0.064)
Observations	129	129	192	192
Groups	A	A	A & B	A & B
Farmer controls	No	Yes	No	Yes

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Introduction
0000

Experiment
000000

Results
00
00

Conclusion

Conclusion

- ▶ The bank and the mill have contrasting methods of determining a farmers' creditworthiness.
- ▶ Results suggest that the mill does not have superior information about a farmer's creditworthiness than the bank.
- ▶ Results suggest that the costs of enforcement is the most pressing problem for banks rather than asymmetric information.
- ▶ From a policy perspective, our paper suggests supporting loan enforcement could increase rural lending.