

Discussion

“Finance and Inequality: The Distributional Impacts of Bank Credit Rationing” by Ali Choudhary and Anil Jain

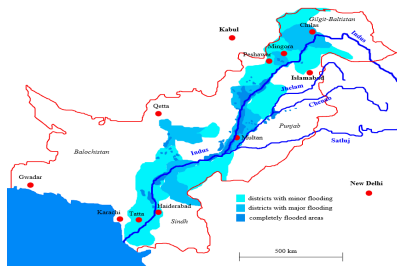
Thomas Lambert

Rotterdam School of Management, Erasmus University

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This Paper

- Exploits catastrophic floods which hit Pakistan in 2010
 - Exogenous shock to non-performing loans (capital shock) and deposits (liquidity shock)



- Questions addressed:
 - Does change in bank funding cost affect credit rationing?
 - Do these changes affect borrowers differently? Why?

Main Findings

- ① Banks reduce credit following an increase in their funding cost
- ② Borrowers with lower education level and no credit history are disproportionately adversely affected
- ③ In the aggregate, “non-shocked” banks do not compensate reduced lending by “shocked” banks

Implications for...

- Inequality
- Development economics
- Transmission of monetary policy
- Practice of “redlining”

- ① Explanation
 - Moral hazard and credit rationing
- ② Identification
 - Sampling and Differential Trends
- ③ Contribution
 - What do we learn about inequality?
- ④ Minor stuff and open questions

Explanation: Moral Hazard and Credit Rationing

- Jaffee and Russell (QJE 1976) and Stiglitz and Weiss (AER 1981)
- Rationing can be optimal (instead of raising loan rates)
- Two effects of a loan rate increase:
 - ① Relatively safe borrowers drop out of the market, such that the average quality of borrowers deteriorates → **Adverse selection**
 - ② Borrowers have an incentive to choose riskier projects → **Moral hazard**
- Examination of the adverse selection channel, BUT not moral hazard channel. Why?
- What is the dominant informational frictions caused by the rise of funding cost?
- Both have the **same empirical predictions** in terms of **default rate** and **quality of the borrower pool**

Explanation: Moral Hazard and Credit Rationing

	Overdue Rate	Overdue Rate
Originated Post Flood	-0.00674 (0.00539)	
Originated Post Flood*Bank Shock	0.0544 (0.0369)	0.0787* (0.0435)
Observations	28227	28227
Tehsil FE	Yes	N/A
Bank FE	Yes	N/A
Bank*Tehsil FE	No	Yes
Tehsil*Preloan FE	No	Yes
Placebo		

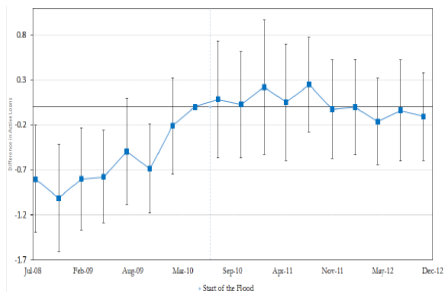
	Overdue Rate
Or. Post Flood*Illiterate	-0.000736 (0.0161)
Or. Post Flood*Below Grade 10	0.00626 (0.0129)
Or. Post Flood*Below Graduate	0.00716 (0.0152)
Or. Post Flood*graduate	0.00197 (0.0120)
Or. Post Flood*Illiterate*Shock	0.101 (0.0642)
Or. Post Flood*Below Grade 10*Shock	0.0739 (0.0725)
Or. Post Flood*Below Graduate*Shock	0.0819* (0.0447)
Or. Post Flood*graduate*Shock	0.00112 (0.123)
Or. Post Flood*Post graduate*Shock	-0.00809 (0.181)
Observations	22518
Tehsil FE	
Bank FE	
Bank*Tehsil FE	Yes
Tehsil*Preloan FE	Yes
Educ*Bank FE	Yes
Placebo	

Explanation: Moral Hazard and Credit Rationing

- Extend the theoretical framework to the moral hazard case
- Provide evidence disentangling adverse selection from moral hazard effects
- Further look at both **existing** and **new borrowers**
 - To study the effect of the funding cost shock on borrowers' incentives to default (moral hazard) look at how this change affected the default probabilities for existing (as opposed to new) borrowers
 - If default rate of existing borrower increase after shock, this would suggest a change in borrowers' risk behavior
- Strengthen the analysis on adverse selection
 - Provide further evidence that the borrower pool deteriorate (i.e., increase of new borrowers' default rate)
 - Show that there is an apparent improvement in the characteristics of new borrowers in terms of observable characteristics (i.e. education, credit history, income?)

Identification: Differential Trends

- Parallel trend assumption

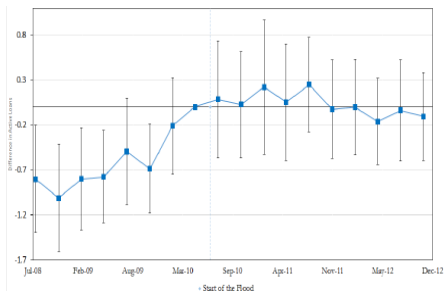


- Estimating a trend break in lending:

$$Y_{bpi} = \alpha_{bpi} + \alpha_{ct} + \beta \times \text{Pre-trend}_t \times \text{Exposure}_b \\ + \gamma \times \text{Post-trend}_t \times \text{Exposure}_b + \epsilon_{bpi}$$

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$$Y_{bpi} = \alpha_{bpi} + \alpha_{ct} + \beta \times Pre-trend_t \times Exposure_b + \gamma \times Post-trend_t \times Exposure_b + \epsilon_{bpi}$$

Identification: Sampling and Differential Trends

- Treatment and control groups very different in terms of:
 - Types of financial institutions
 - Types of loans
 - Geography
 - etc.
- Treatment and control groups may also vary differently over time:
 - Gradual governmental programs intended to help “shocked” borrowers
 - Programs intended to provide regulatory relief to financial institutions (in a series of steps) and facilitate recovery in flooded areas (e.g., easing terms for new loans or extending repayment terms)

Identification: Sampling and Differential Trends

- Where do the effects come from? Further explore cross-sectional heterogeneity
- Report the results from placebo tests, which use the exact same structure and sample, but assign banks as “shocked” randomly (and thus mostly falsely)
- It is difficult to understand the sample and especially the composition of control and treatment groups. Nb of obs changes dramatically from tables to tables. Please provide tables of summary statistics before and after the shock for all banks, for shocked banks only, for non-shocked banks only, etc.

Contribution: What Do We Learn about inequality?

- The paper shows that lenders “red-line” or restrict borrowing to less creditworthy (i.e., less educated, no credit history) customers in response to an increase in funding costs
- BUT the paper says little about its implications and, in particular, **about inequality**
- To what extent the results on education and credit history actually affect inequality?
- Test directly the impact on inequality using:
 - Information on borrowers' income
 - Inequality measures (e.g., Gini index at the teshil level)
- Clarify the contribution with the extant literature (Adams, Einav and Levin AER 2009; Agarwal, Chomsisengphet and Liu JMCB 2010; Chavaz, 2014; Cortes and Strahan, 2015)

Minor stuff and open questions

- Strictly speaking, are we really talking about *credit rationing*? It could be that after the floods many new borrowers are simply rejected because the project return is not large enough to repay the loan or they cannot provide sufficient collateral
- The paper would benefit from a background section on Pakistani banking sector
- Is aggregate effect on lending explained by the segmentation of the banking sector in Pakistan?
- Figure 6 should show the impact of floods on default rate at the *bank level* since you want to show the extent to which floods affected bank capital
- It is not clear how education level is taken into account in the case of corporate loans?

Minor stuff and open questions

- On page 18, and elsewhere, when you report magnitudes based on 1 percent (or 1 std dev) movement in a variable it is unclear how they are calculated from the tables
- Table 4: The (interacted) variable “Financing Shock” seems to be missing; are s.e. clustered at bank level?
- Table 5: Why restricting sample to new borrowers (i.e., without loans in August 2008) and not using interaction term with the entire sample? Is the variable “Flood” the same as “Financing Shock”?
- I would use the term “Proposition” instead of “Theorem”
- Table 5: How do you interpret the difference in signs of “PostTime*Financing Shock” coefficients in columns 3 and 4?

- Nice data
- Excellent experiment
- Strengthen identification/explanation of the mechanism
- Clarify the contribution
- Improve exposition and writing
- Good luck with the paper!