Bank Presence and Health

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Determinants of Poor Health in Developing Countries













This Paper

Research question

How does bank presence affect health?

Identification strategy

- Nationwide natural experiment
- Policy of the Reserve Bank of India (RBI)
- Policy incentivizes banks to set up new branches in treatment districts
- Regression discontinuity design

What Do We Already Know?

- 1. Natural experiments show that financial development stimulates business activity and increases household income
 - Bruhn and Love (2014), Breza and Kinnan (2021), Burgess and Pande (2005), Rajan and Zingales (1998)



What Do We Already Know?

- 2. RCTs providing large cash transfers suggest income alone is no silver bullet for improving health
 - Haushofer and Shapiro (2013, 2018), Egger et al., 2018 Explanations Developed countries Banks Credit Increased Income Households Businesses

What Do We Already Know?

- 3. RCTs providing savings accounts and credit products for households find no effects on health
 - Banerjee et al. (2015), Dupas et al. (2018), Karlan and Zinman (2010)



Contribution

- 1. Exogenous variation in bank presence to study impact on health Access for households, businesses, and health care providers and a large-scale long-term setting (Breza and Kinnan, 2021)
- 2. Novel evidence on two aspects of banking: health insurance for households and credit for health care providers



The Policy

Timing

Introduced in 2005, remains intact until today Historical Context

- First paper that combines this policy with household data
- Young (2020) uses same policy examining economic activity
- Burgess and Pande (2005) use similar policy from 1977 but different outcome (poverty), design (IV), and state-level data Details

Objective

Incentivize banks to open branches in underserved locations

Policy

• Banks increase **chance to obtain license** for favored location by **strengthening presence** in underbanked districts

Underbanked Districts

Definition

 $\underbrace{\frac{\text{Population}_{District}}{\# \text{ Bank Branches}_{District}}}_{\text{Underbanked/Treated}} > \frac{\text{Population}_{National}}{\# \text{ Bank Branches}_{National}}$

List of underbanked districts

- Published in 2006, not updated
- Only names, reconstruct ratio

Regression discontinuity design

- Forcing variable: District-level ratio
- Cutoff: National-level ratio
- Fuzzy

Fuzzy RDD: Strong First Stage

Reconstruction of ratio

- Numerator: 2001 Population Census
- Denominator: 2006 Branch Statistics RBI



Distribution of the District-Level Ratio



• I only consider districts just around the cutoff

Introduction

Findings

Mechanism

Geographical Distribution in 2006



593 districts (63% underbanked)

Within typical bandwidth

Introduction

Data

- Bank Branch Data from the RBI
 - Total number of branch licenses and branches

• Indian Human Development Survey (IHDS)

- $\sim 40,000$ households
- Data on health and economic outcomes
- Pre: 2004/2005 IHDS I
- Post: 2011/2012 IHDS II

• Demographic and Health Survey (DHS)

- $\sim 600,000$ households
- Allows to capture low-probability events, e.g. miscarriages
- Post: 2015/2016

• Economic Census

- All health care establishments
- Major source of financing
- Pre: 2005
- Post: 2013

• Other: Prowess and SHRUG

Maps	$^{\rm of}$	Implementation
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Introduction

Timeline



Regression Specification

$$\begin{aligned} \text{Underbanked}_{d,s} &= \alpha_0 + \alpha_1 \text{Above}_{d,s} + \alpha_2 \text{DistRatio}_{d,s} \\ &+ \alpha_3 \text{DistRatio}_{d,s} \text{Above}_{d,s} + \lambda X_{d,s} + \mu_s + v_{d,s} \end{aligned} \tag{1}$$

$$y_{h,d,s} = \beta_0 + \beta_1 \text{Underbanked}_{d,s} + \beta_2 \text{DistRatio}_{d,s} + \beta_3 \text{DistRatio}_{d,s} \text{Above}_{d,s} + \gamma X_{d,s} + \eta_s + \epsilon_{h,d,s}$$
(2)

- h = household, d = district, s = state
- $y = outcome \{ illness past month, health insurance,... \}$
- Main specification: MSE-optimal bandwidth (Calonico et al., 2014)
- Main specification: linear functions (Gelman and Imbens, 2019)
- State-level FE
- Cluster SE at the district-level

Comparison Within State



All India

Identification Assumption Holds

IA: Within the same state, districts just above and just below the cutoff are **comparable** in all relevant aspects, except their treatment status

No manipulation

IA violated if local governments manipulate ratio to become treated

- 1. Construction of the ratio makes **manipulation unlikely**
- 2. No empirical evidence of manipulation
 - (a) McCrary density test Graph 🖌
 - (b) Smoothness before the policy \checkmark

Bank presence, health status, household consumption and financial access, hospital presence, general economic activity and population characteristics



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No other potential threats Evidence

- No evidence of migration
- No evidence for other policies

Findings

1. Bank presence increases

• Banks obtain more licenses and open branches

2. Health improves

- Morbidity rate decreases
- Vaccination rate increases
- Pregnancies becomes safer

3. Mechanisms

Banks Open Branches

	$\begin{array}{c} \text{Pre-policy} \\ (2004) \end{array}$	$\operatorname{Post-policy}(2010)$	
	Branches (log no.) (1)	Branches (log no.) (2)	
Treated	0.01 (0.02)	0.17^{***} (0.06)	
Control Mean Mean Change (%) Bandwidth Efficient Obs. Observations Baseline Control	3.98 1.01 3,621 230 562 Yes	4.38 18.98 3,329 213 561 Yes	

* p <0.1, ** p <0.05, ** p <0.01. Standard errors in parentheses. Data RBI Master Office File. District level. The variable from 1997 is included as a baseline control.

• Five years after the policy, banks have **19% more branches** in treatment districts (control mean 7 branches per 100,000 people)

 Robustness
 Placebo Bank Type
 Stronger Reaction for Private Banks
 Licenses

 Introduction
 Design
 Findings
 Mechanisms
 Conclusion

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Banks Open Branches



 Different Binned Means
 2nd Degree
 Licenses

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Dynamics Correspond to Policy Timing



Findings

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Morbidity Rate Decreases

	Post-Policy $(2011/2012)$			
	Days ill	Days missed	Medical	
	(non-chronic)	due to illness	expenses	
	(log no.)	(log no.)	(log Rs.)	
	(1)	(2)	(3)	
Treated	-0.29^{**}	-0.44^{***}	-0.88^{**}	
	(0.12)	(0.13)	(0.35)	
Control Mean	0.82	$\begin{array}{c} 0.58 \\ \textbf{-35.40} \\ 2,513 \\ 12,421 \\ 33,346 \end{array}$	2.12	
Mean Change (%)	-25.21		-58.56	
Bandwidth	2,658		2,948	
Efficient Obs.	12,968		14,576	
Observations	32,280		32,983	

* p <0.1, ** p <0.05, *** p <0.01. Standard errors in parentheses. Data IHDS II (2011/2012). Household level.

• Six years after the policy, households in treatment districts have 25% fewer days they are ill with a non-chronic disease (e.g. diarrhea), miss half a day less of work or school and have lower medical expenses



Morbidity Rate Decreases



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Findings

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- Vaccination rate increases Table
- Pregnancies becomes safer Table

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Findings

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3. Mechanisms

Suggestive because no exogenous variation in specific channels

Business Activity and Household Income Increase



Households Gain Access to Savings Accounts and Health Insurance



Health Care Providers Gain Credit Access and Increase Supply



Introduction

Design

Findings

Mechanisms

Mechanism Summary



Findings

Mechanisms

RCTs Suggest That Health Insurance and Credit Access for Health Care Providers Play Larger Role



Conclusion

- Previous research has only looked at certain channels in isolation
- Nationwide natural experiment that captures access for businesses, households, and health-care providers in a large-scale long-term setting
- Bank presence improves health
- Novel evidence on two aspects of banking
 - (a) Households gain access to health insurance
 - (b) Health care providers gain access to credit

Thank You

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For any questions or comments please contact

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