Bank Presence and Health

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EEA

How to Improve Health?

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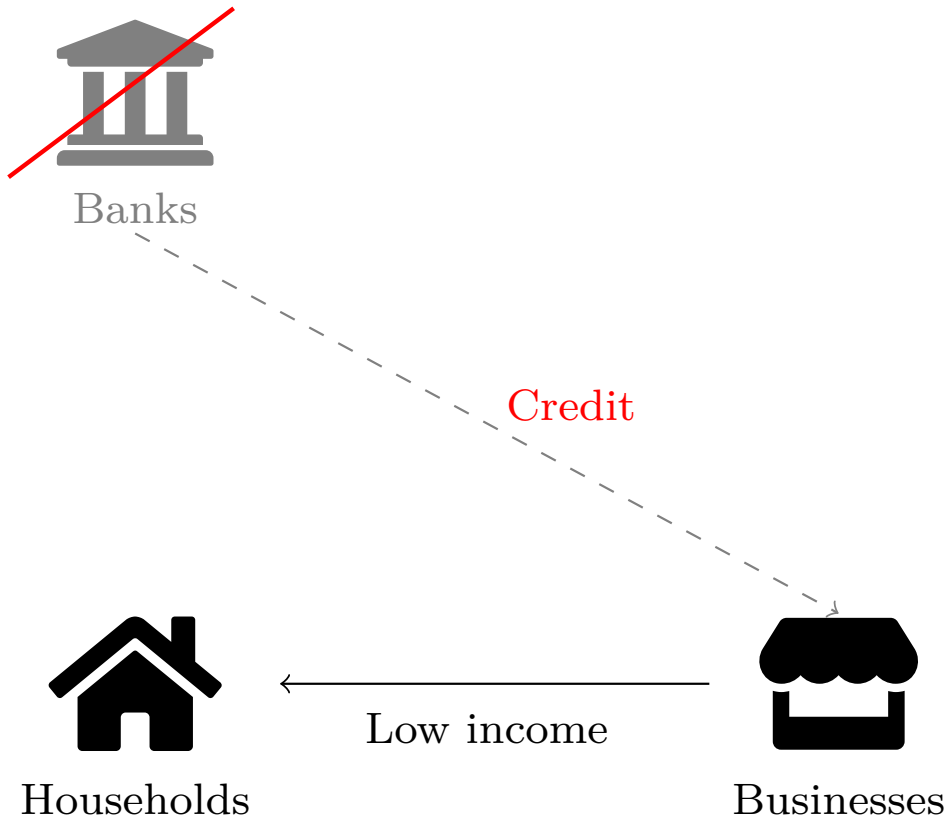
This Paper

Strengthening the **financial sector** can significantly improve health

Determinants of Poor Health in Developing Countries



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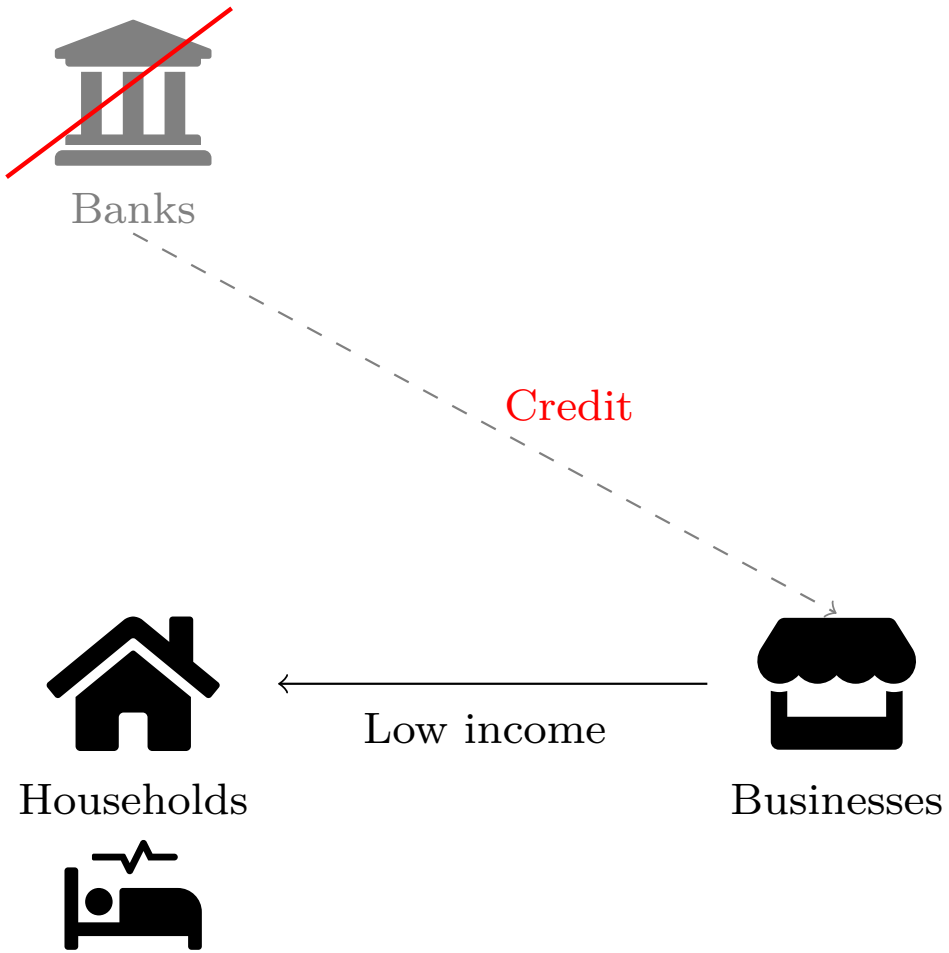

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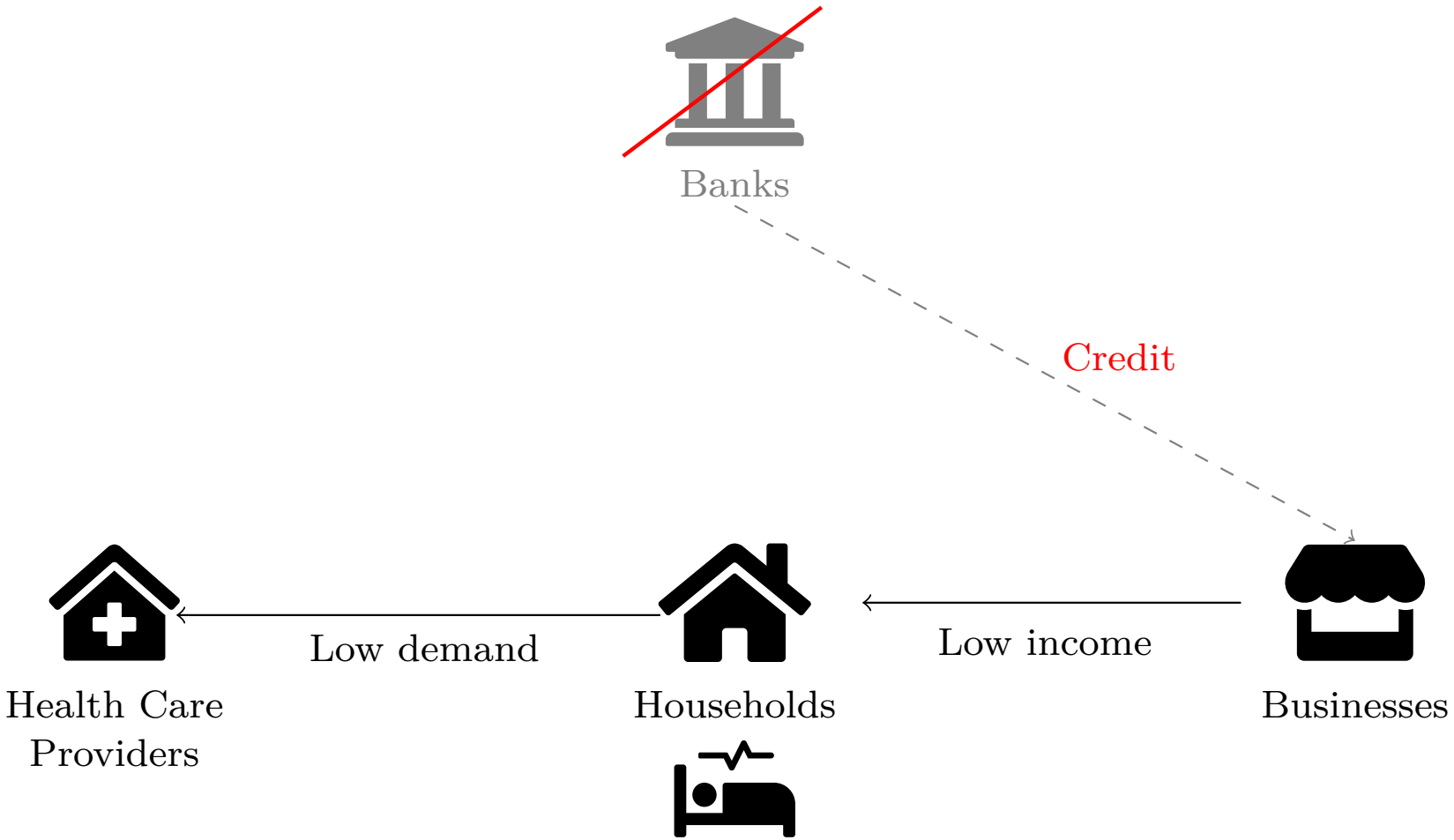

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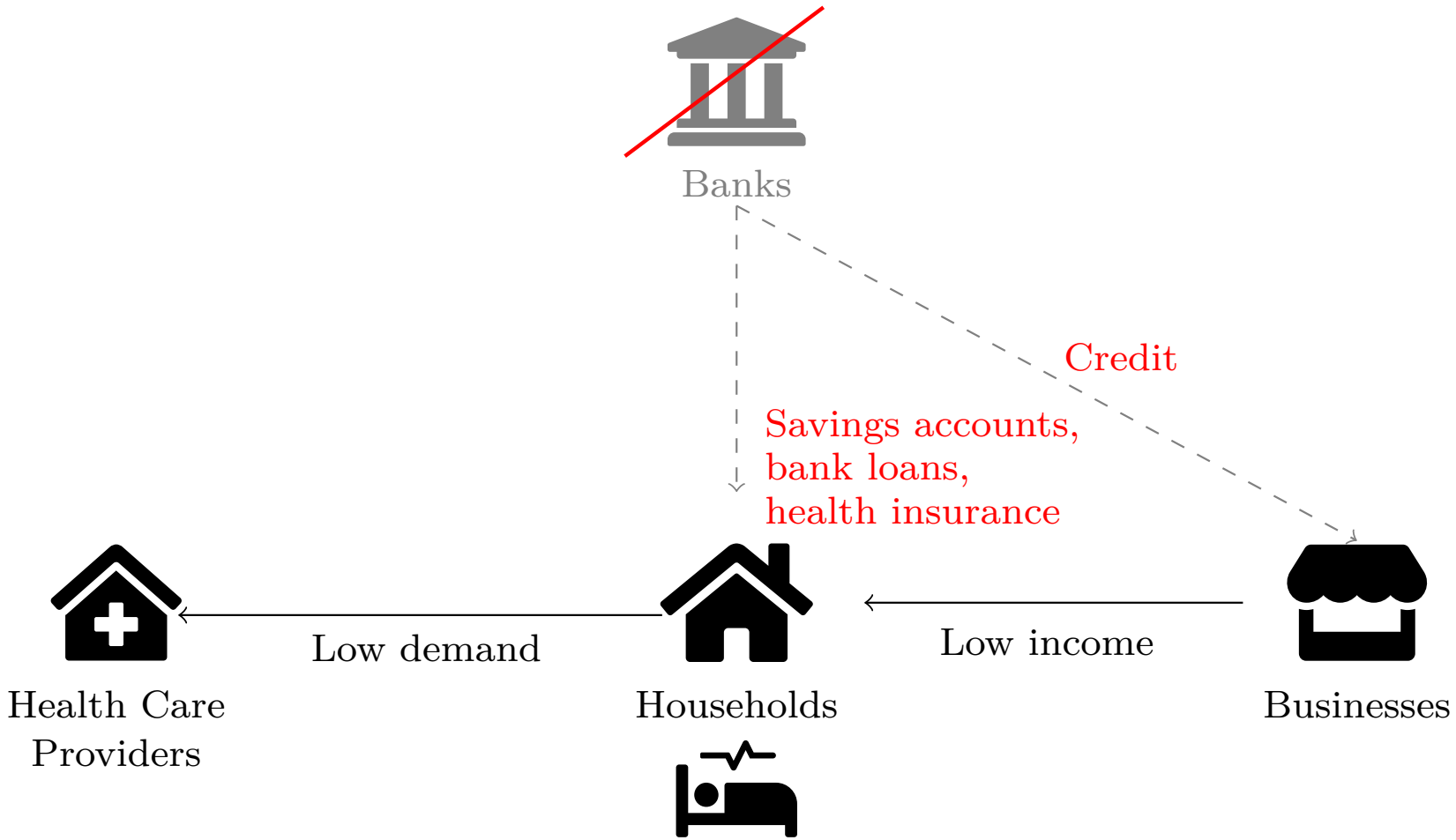

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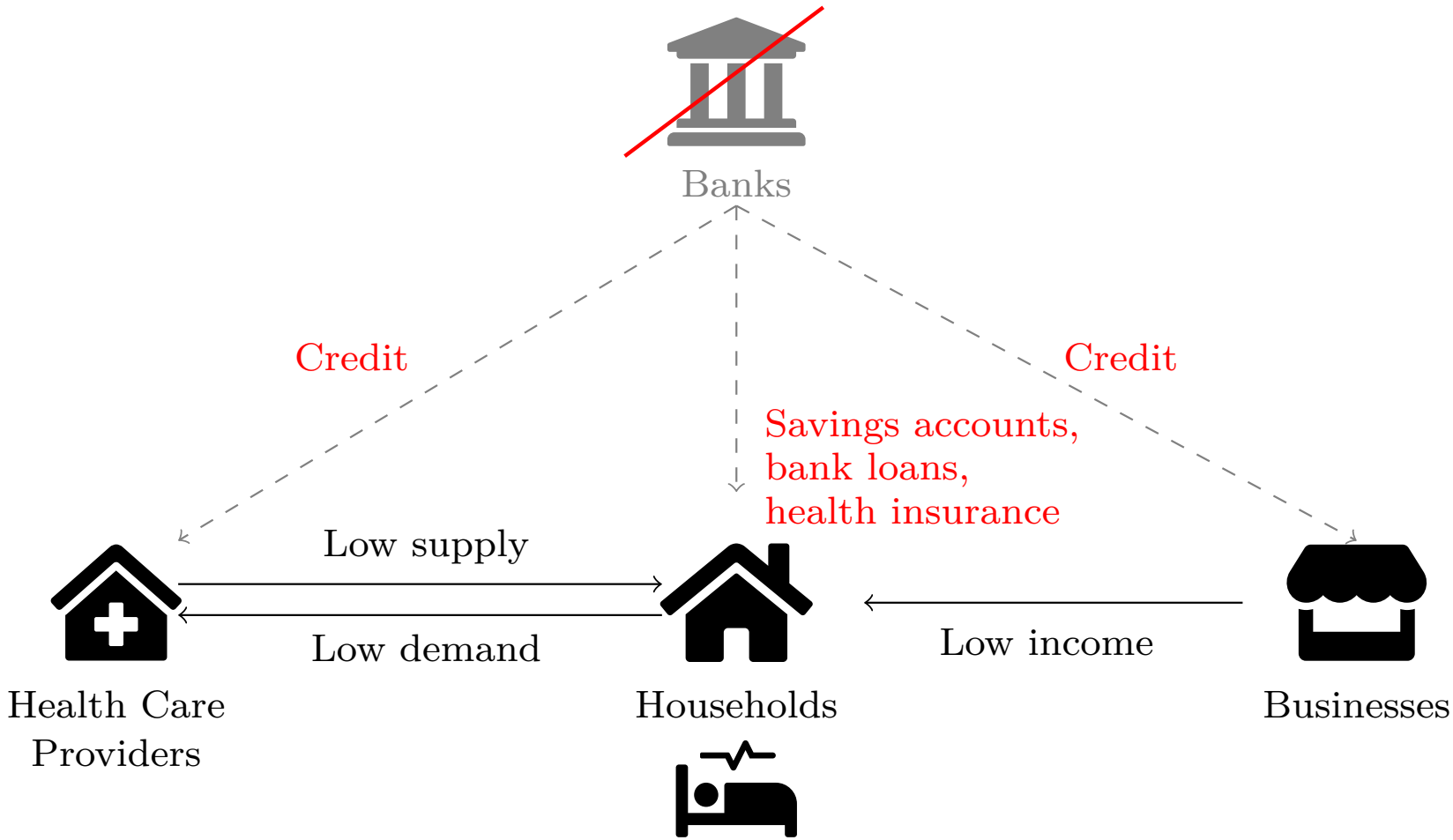
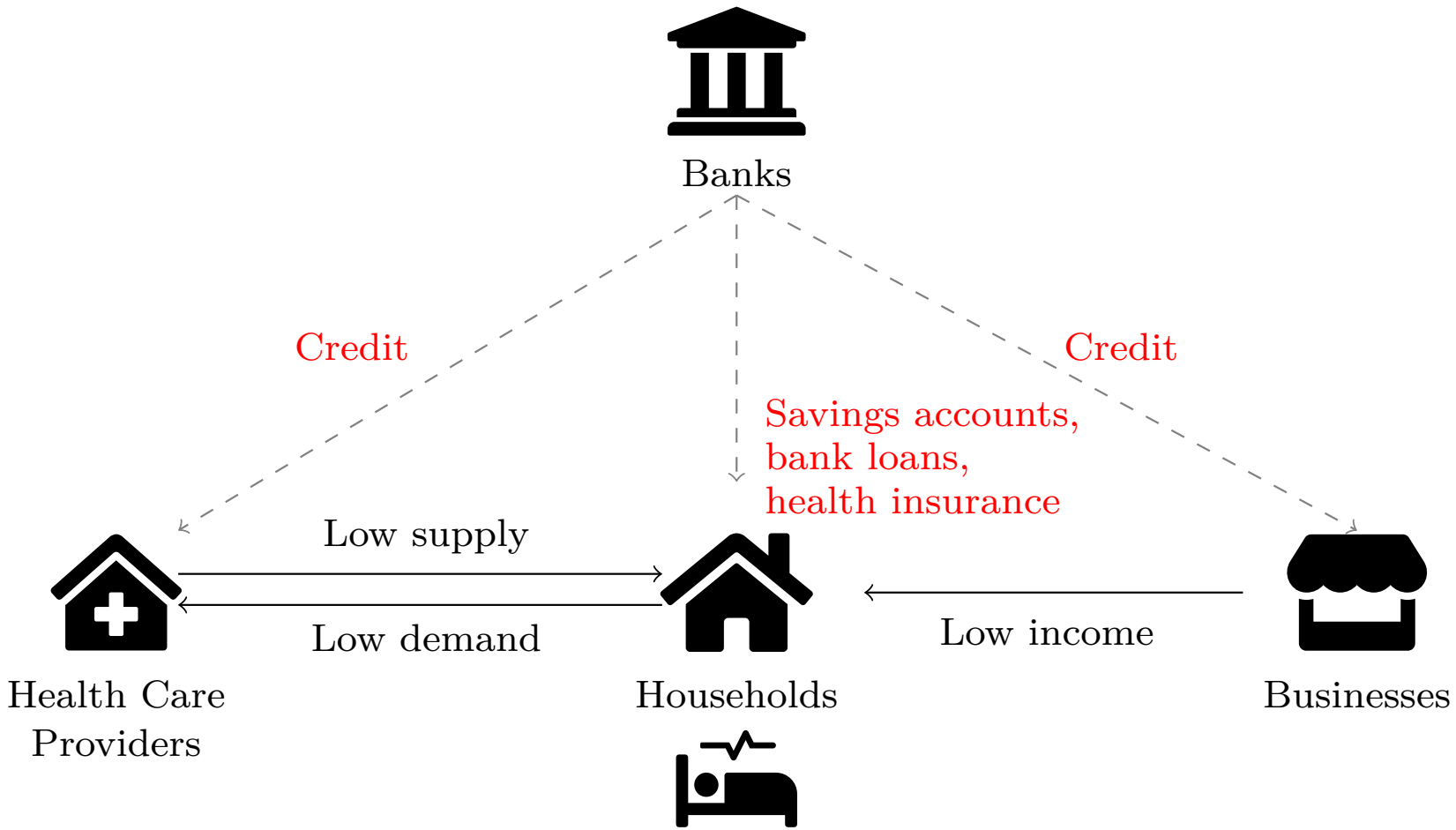


The Impact of Bank Presence on Health



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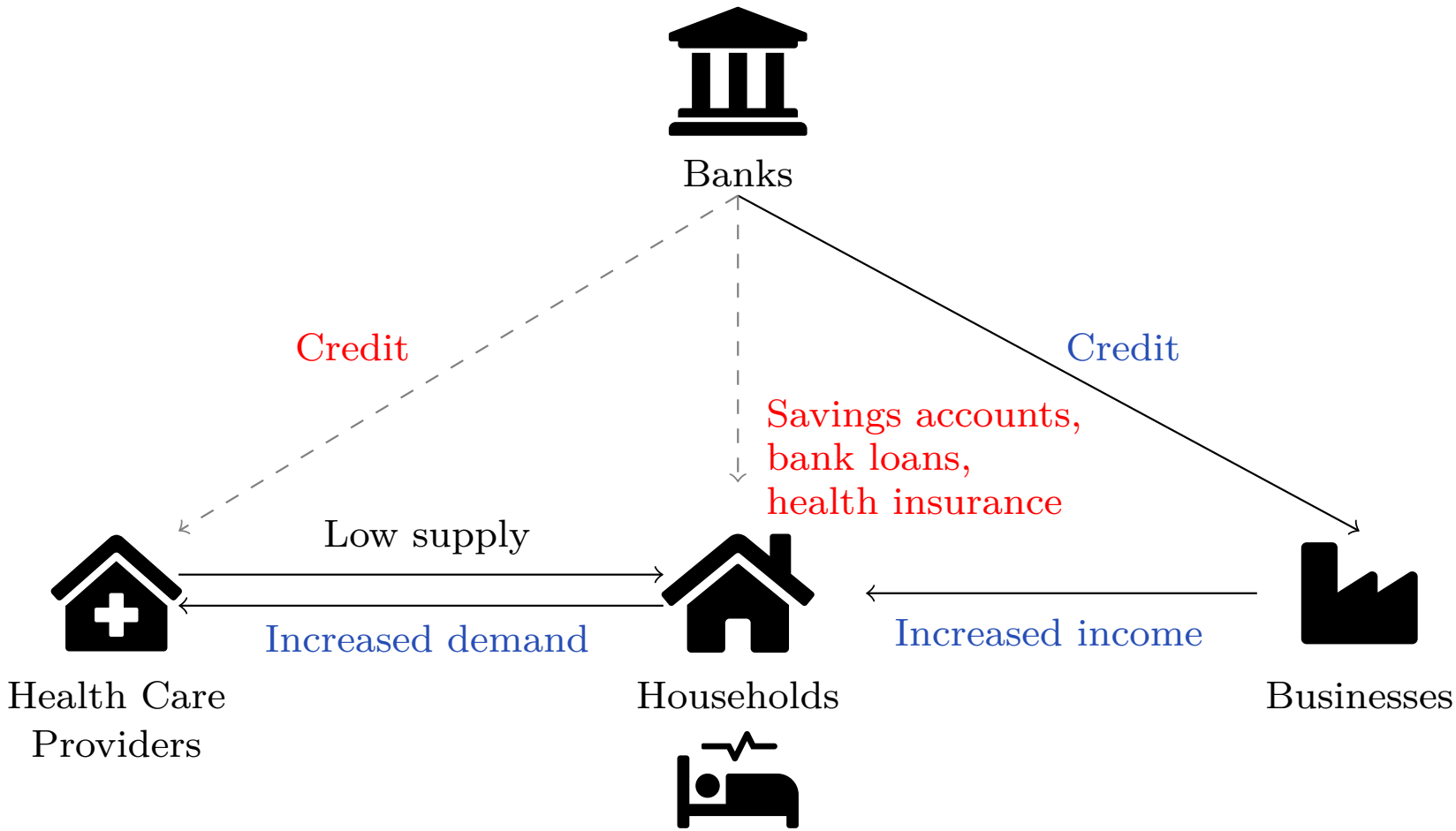

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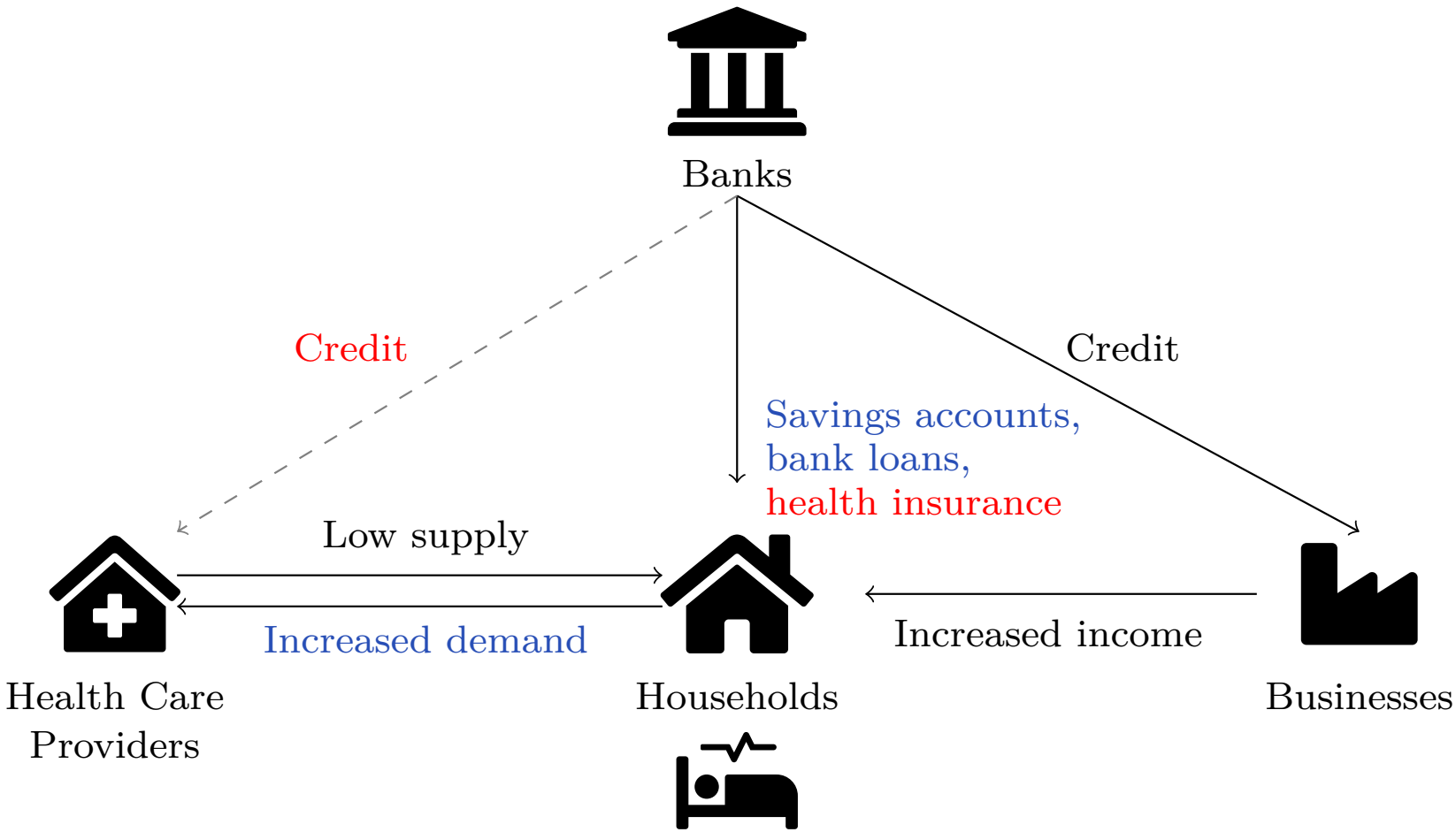

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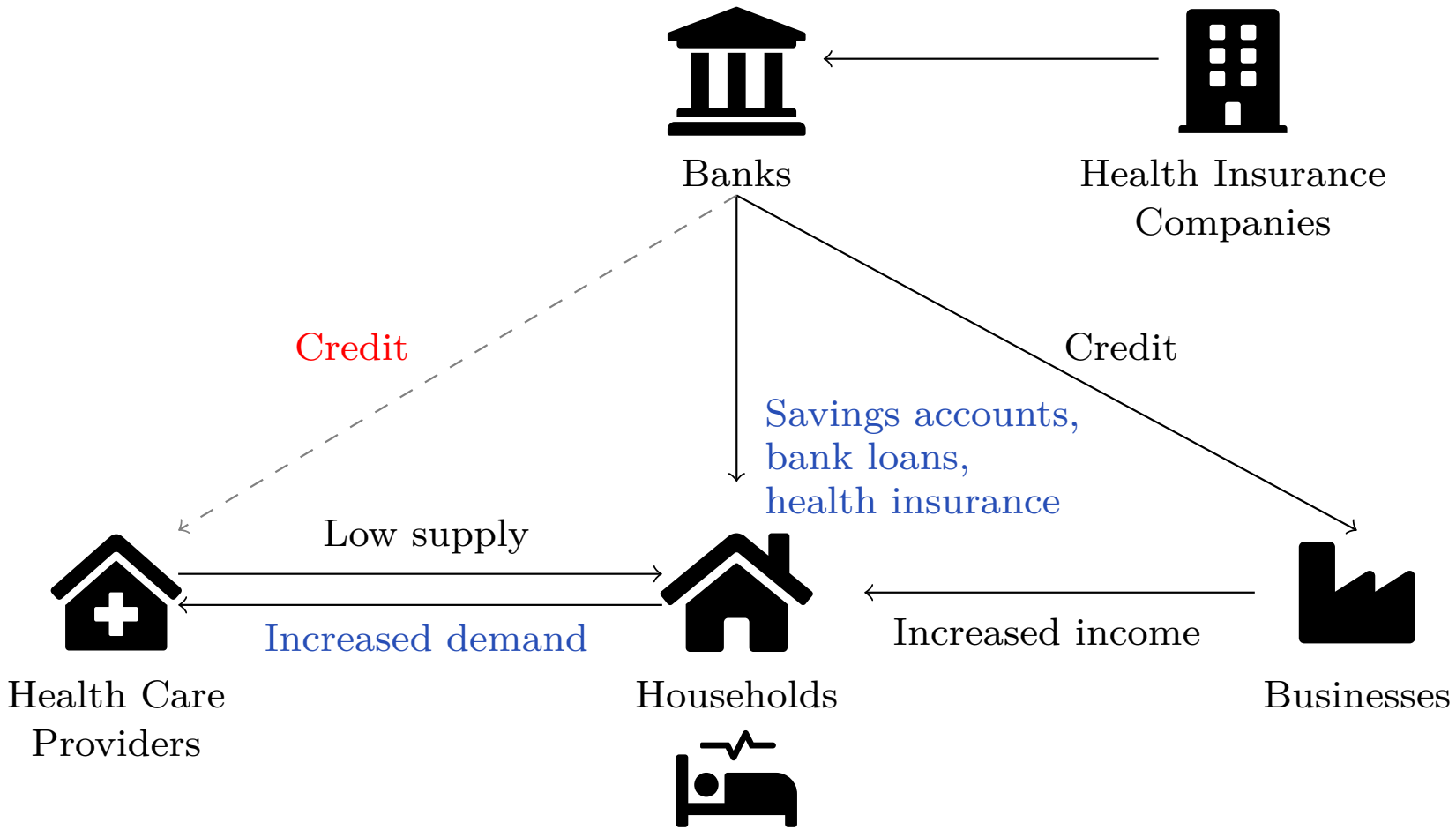

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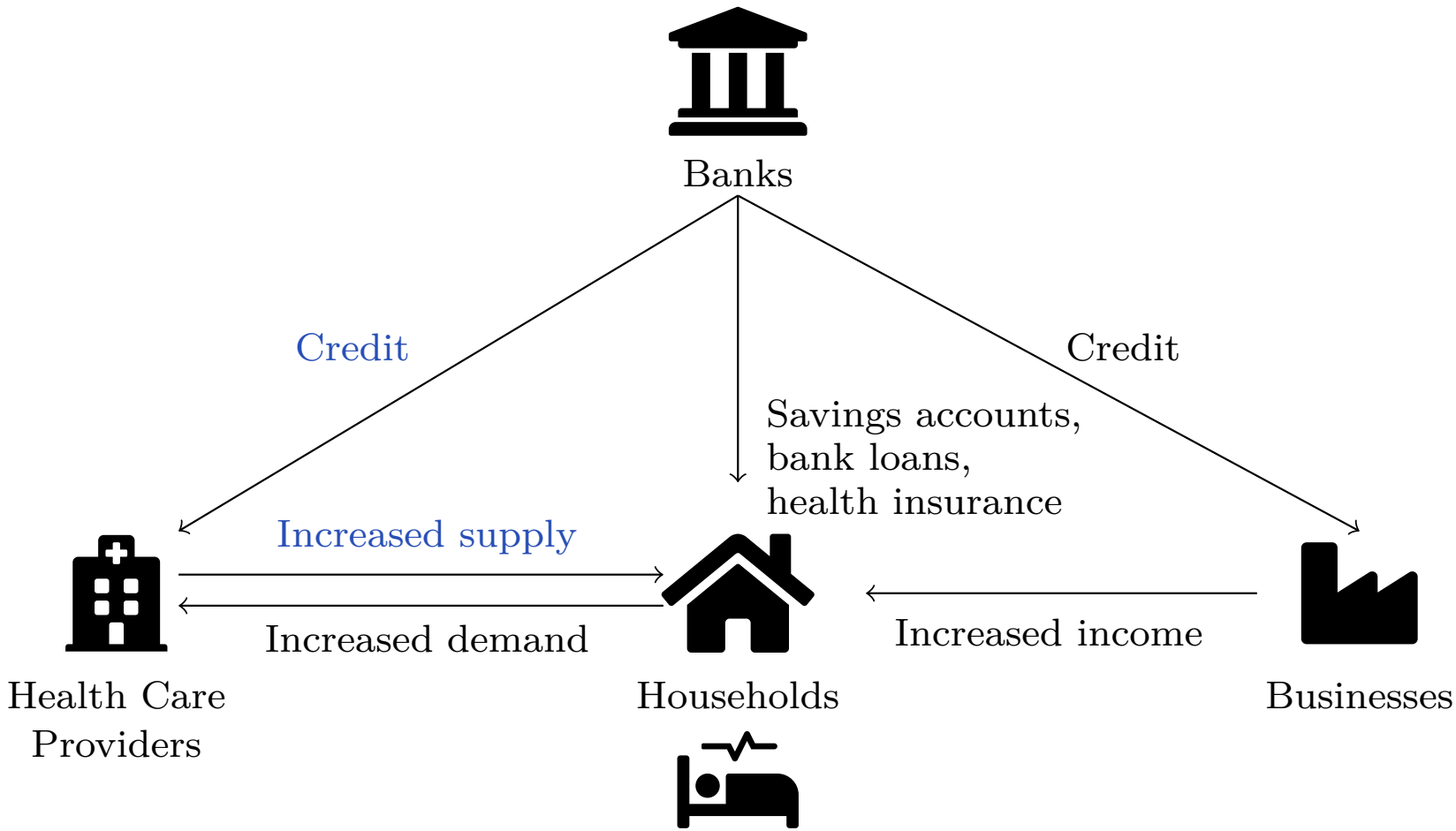

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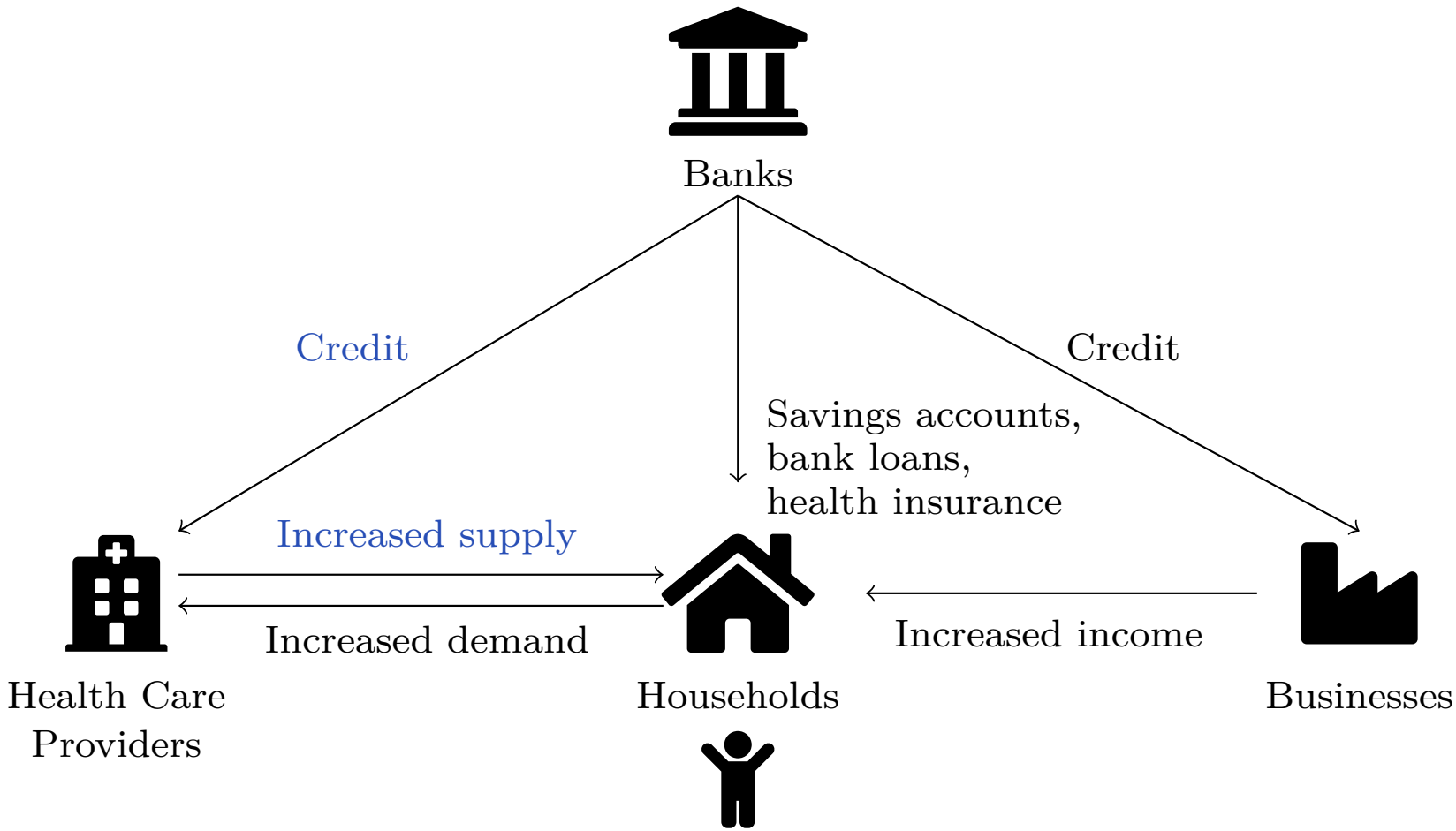

This Paper

Research question

How does **bank presence** affect **health**?

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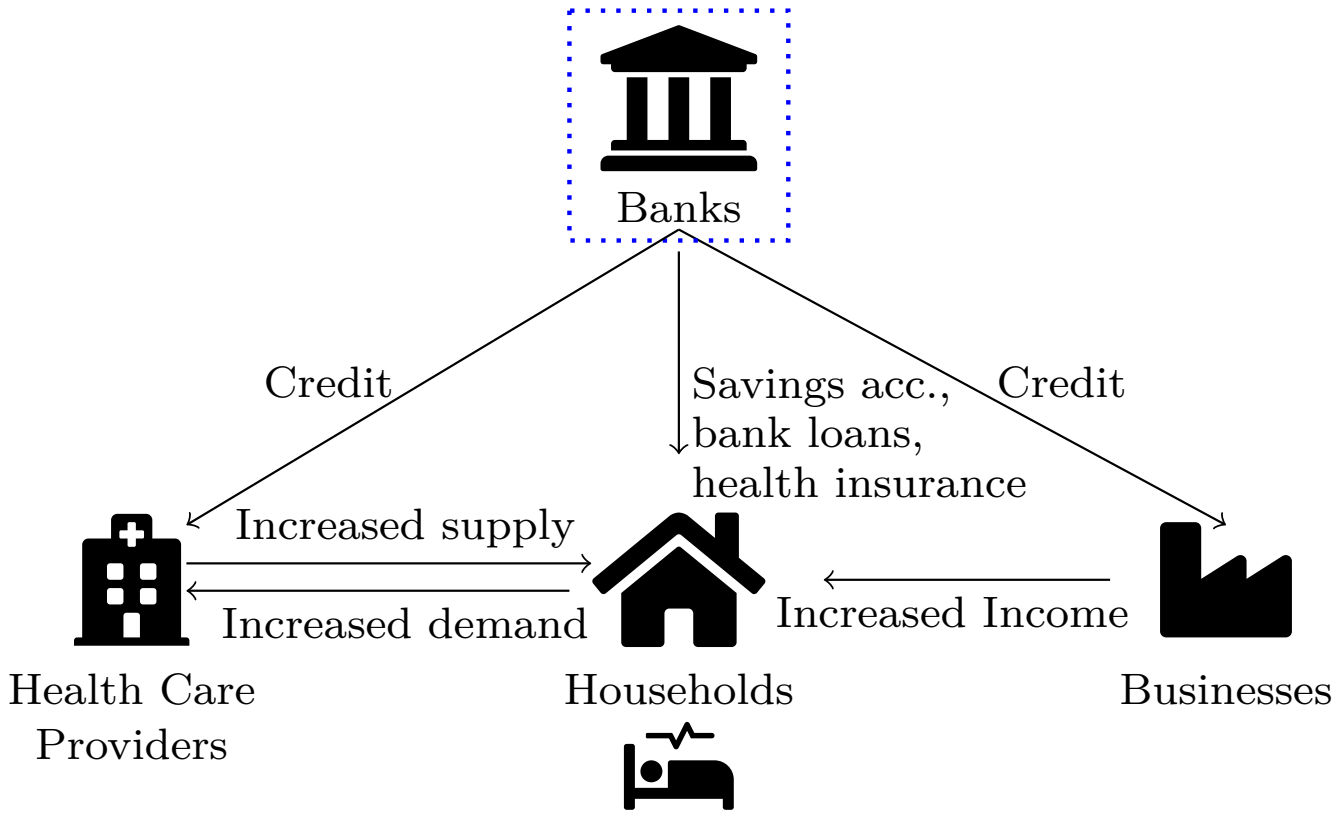
How does **bank presence** affect **health**?

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

Contributions

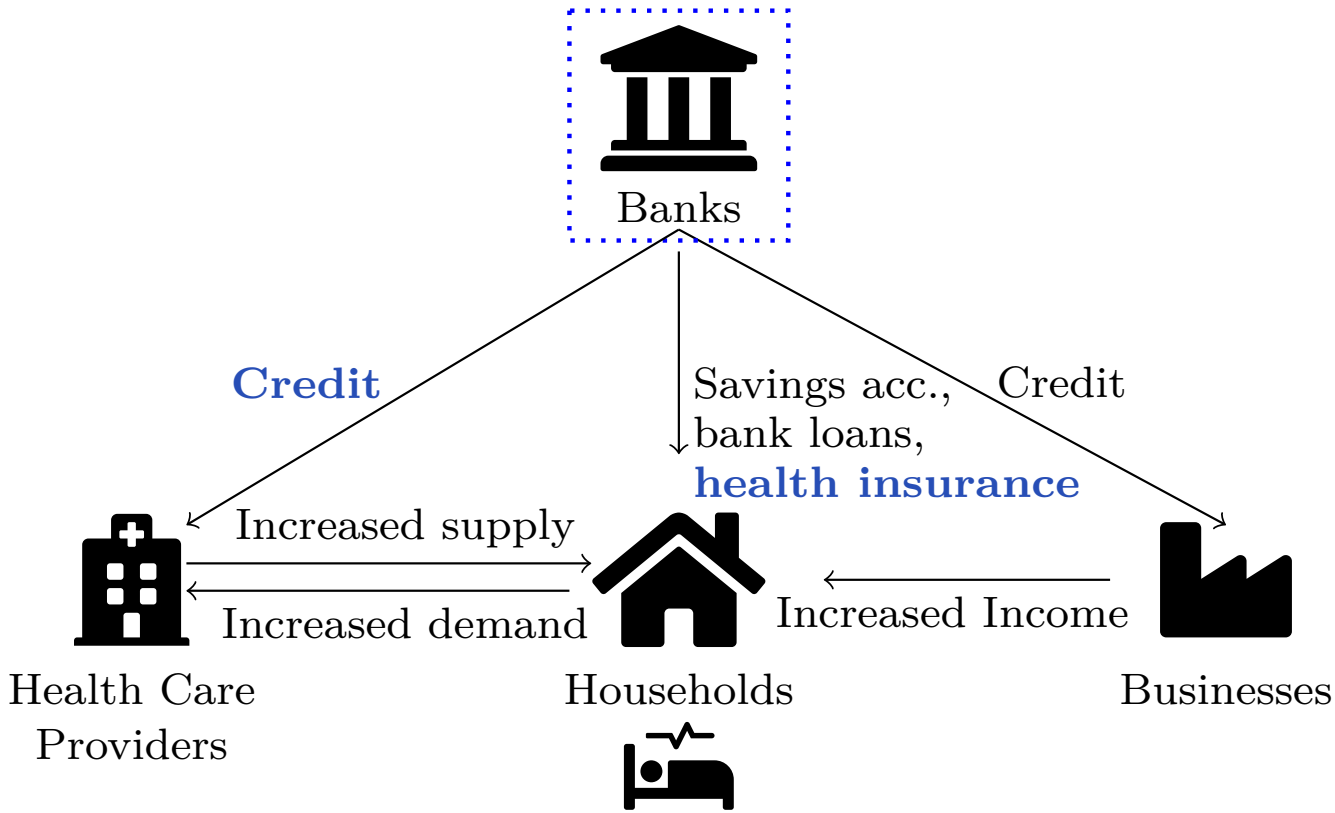
1. **First causal evidence** of bank presence on health



Contributions

1. **First causal evidence** of bank presence on health

2. **Two novel aspects of banking**: banks provide health insurance to households and credit to health care providers



Policy of the Reserve Bank of India

Timing

Introduced in 2005, remains intact until today

Historical Context | Comparison to other studies

- Young (2021): same policy, old finance-growth question
- Burgess & Pande (2005): similar policy (1977), IV: poverty decreases

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Objective

Incentivize banks to open branches in underserved locations

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Policy

- Banks increase their **chance to obtain a license** for a favored location if they **strengthen their presence** in underbanked districts

Underbanked Districts

Definition

$$\frac{\text{Population}_{District}}{\#\text{ Bank Branches}_{District}} > \frac{\text{Population}_{National}}{\#\text{ Bank Branches}_{National}}$$

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List of underbanked districts

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

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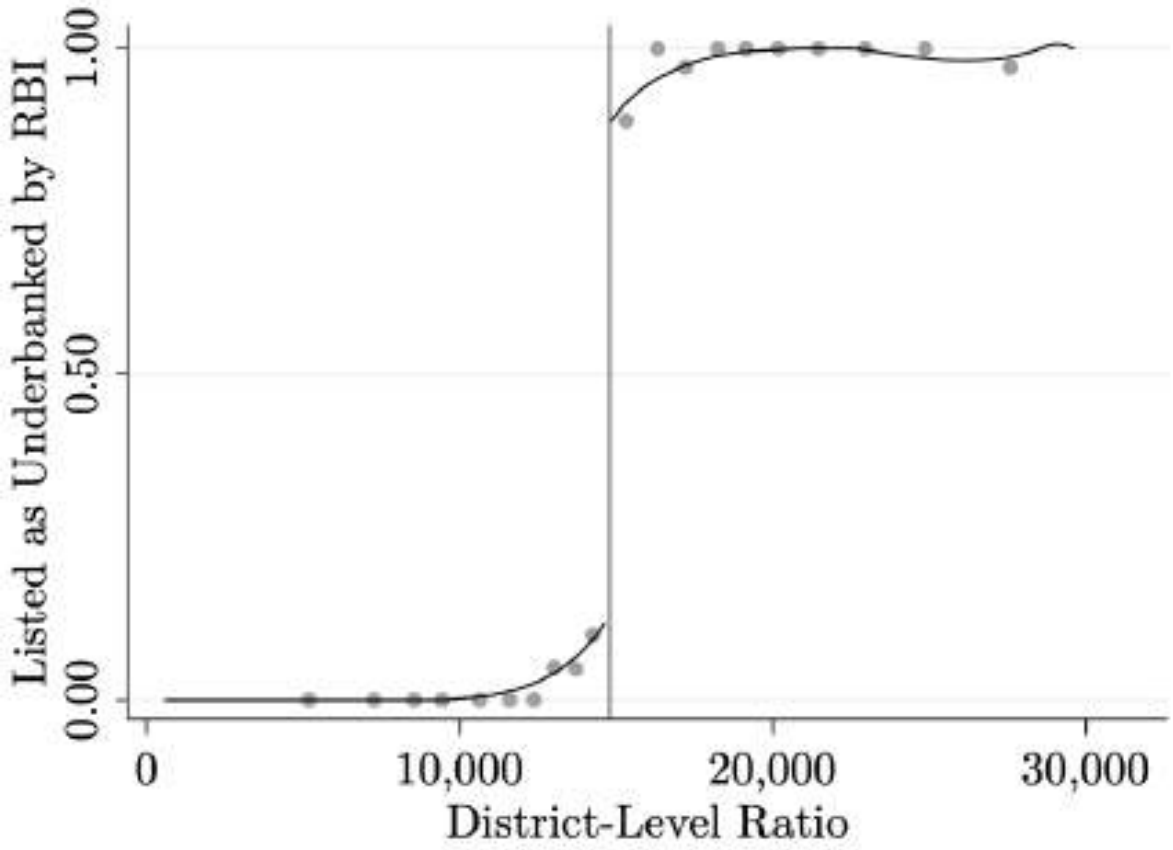
Regression discontinuity design

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

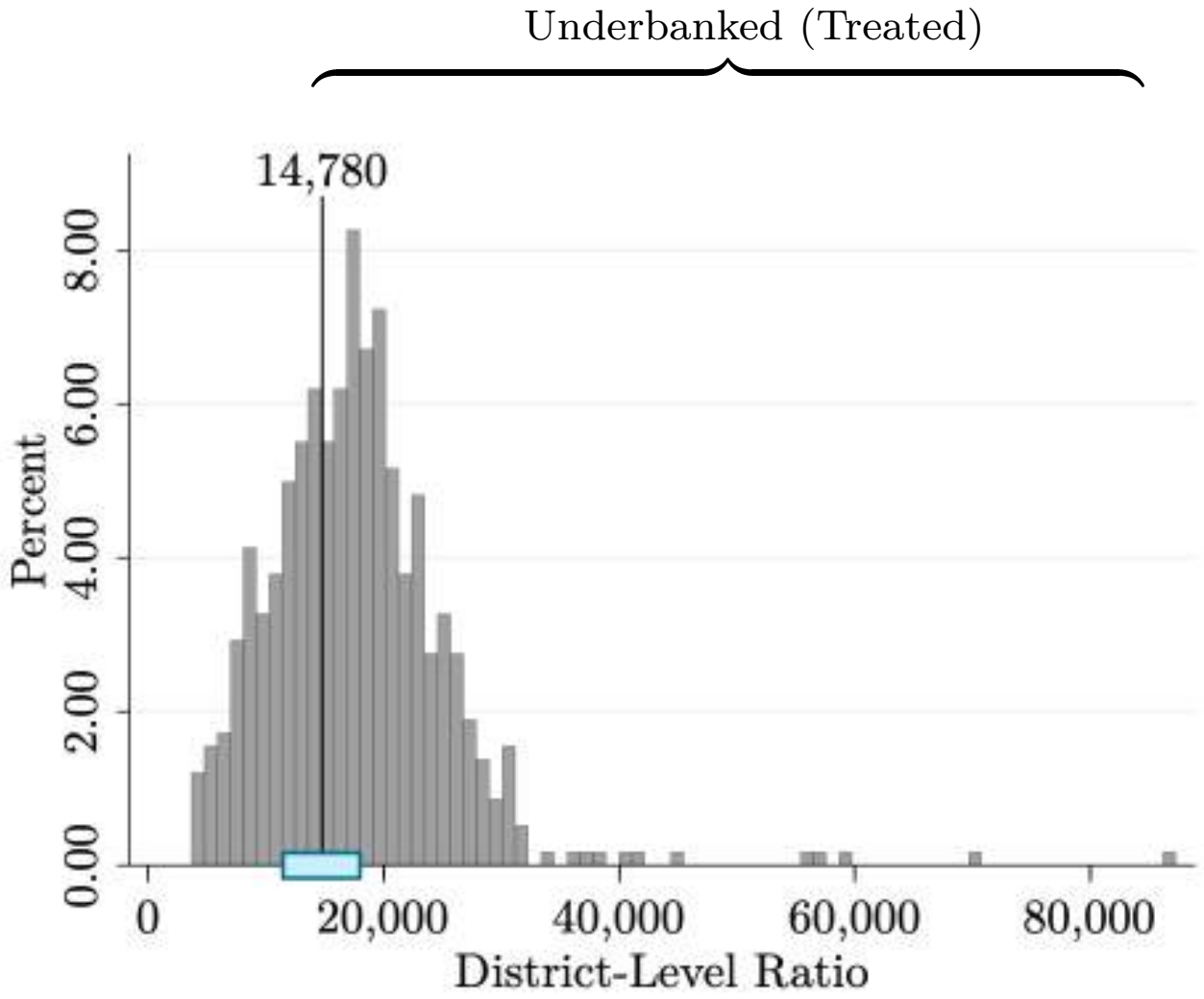
Fuzzy RDD: Strong First Stage

Reconstruction of ratio

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



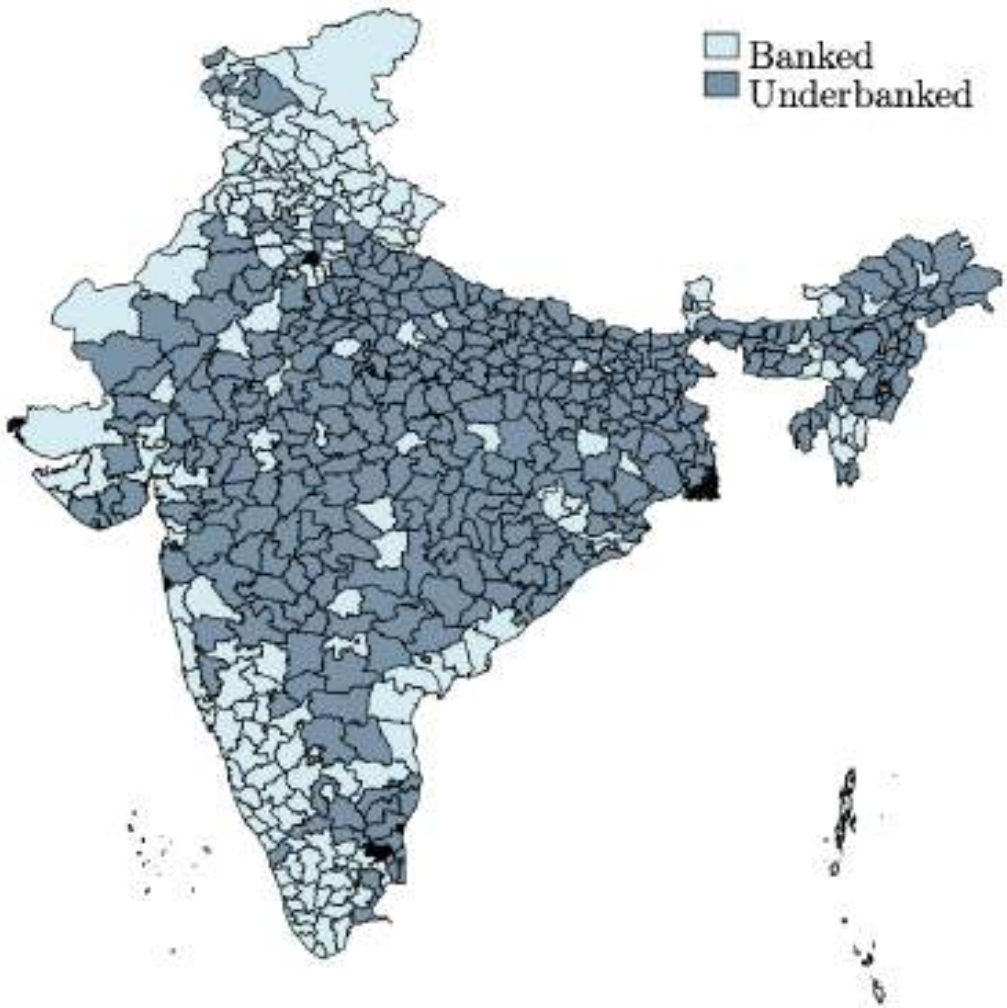
Distribution of the District-Level Ratio



- I only consider districts just around the cutoff

McCrary Test

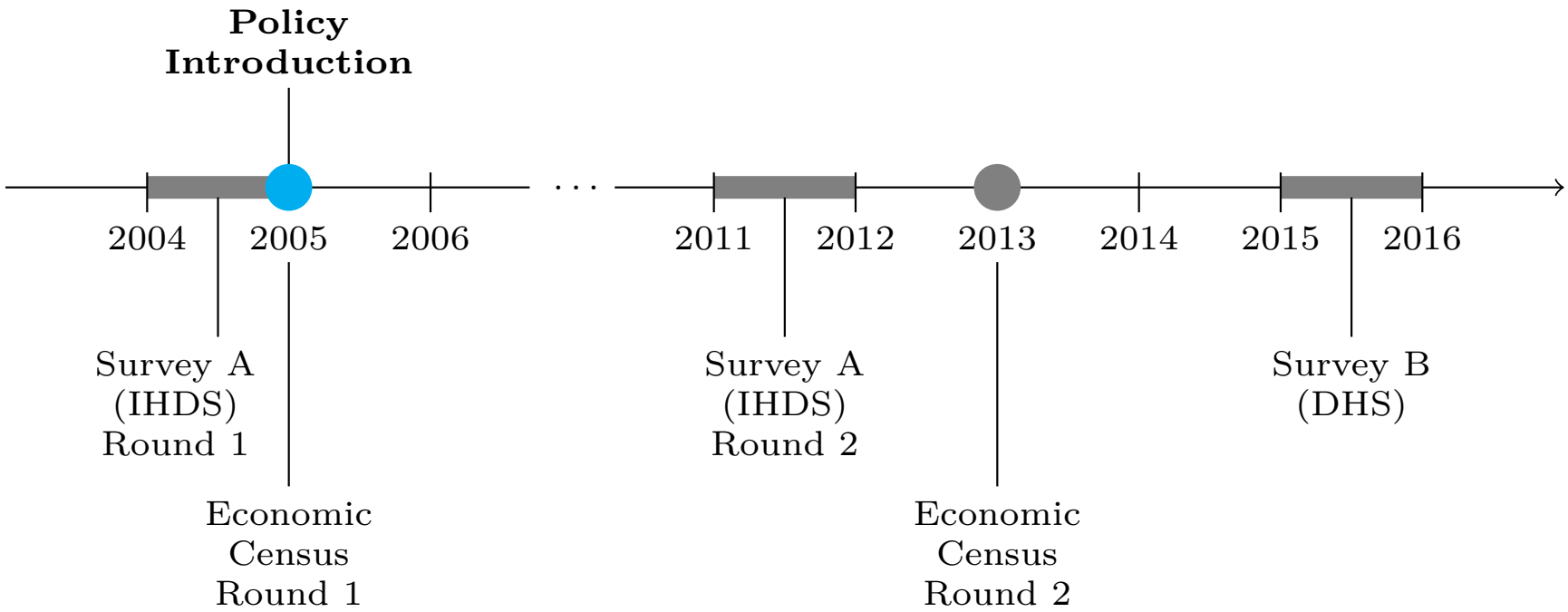
Geographical Distribution in 2006



593 districts (63% underbanked)

Within typical bandwidth

Timeline



Details Data

Regression Specification

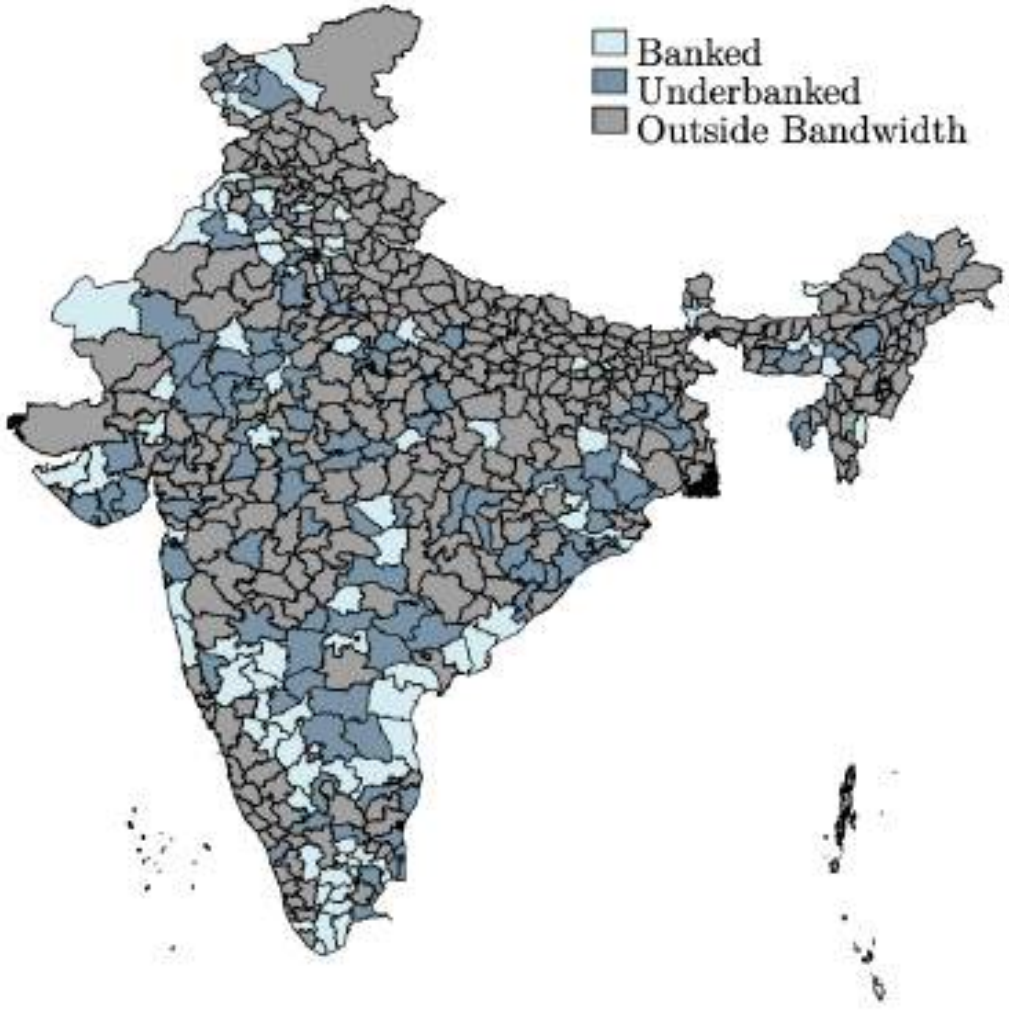
$$\begin{aligned}\text{Underbanked}_{d,s} = \alpha_0 + \alpha_1 \text{Above}_{d,s} + \alpha_2 \text{DistRatio}_{d,s} \\ + \alpha_3 \text{DistRatio}_{d,s} \text{Above}_{d,s} + \lambda X_{d,s} + \mu_s + \upsilon_{d,s}\end{aligned} \tag{1}$$

$$\begin{aligned}\text{y}_{h,d,s} = \beta_0 + \beta_1 \text{Underbanked}_{d,s} + \beta_2 \text{DistRatio}_{d,s} \\ + \beta_3 \text{DistRatio}_{d,s} \text{Above}_{d,s} + \gamma X_{d,s} + \eta_s + \epsilon_{h,d,s}\end{aligned} \tag{2}$$

- h = household, d = district, s = state
- y = outcome {days ill, 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

Alternative Specification

Geographical Distribution Within Typical Bandwidth



199 districts in typical bandwidth (±3,000) (56% underbanked)

Map without bandwidth

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

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1. Construction of the ratio makes **manipulation unlikely**

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   (a) Not more districts just above than below the cutoff Graph ✔

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   (b) Smoothness before the policy ✔

   Bank presence, health status, financial access (incl. health insurance), hospital loans, hospital presence, consumption, general economic activity, and population characteristics

   Banks | Health | Financial access | Hospitals | Consumption | General

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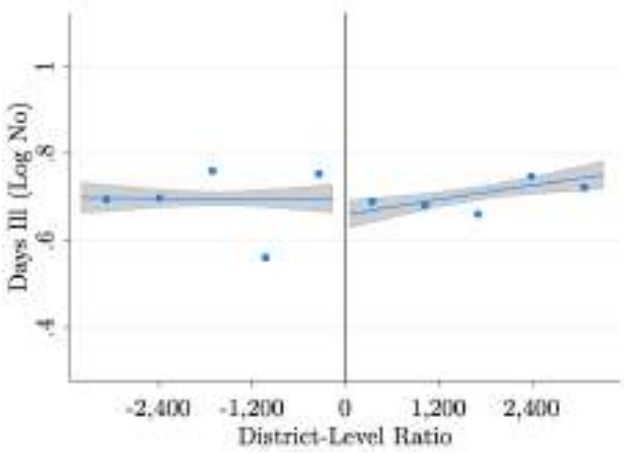
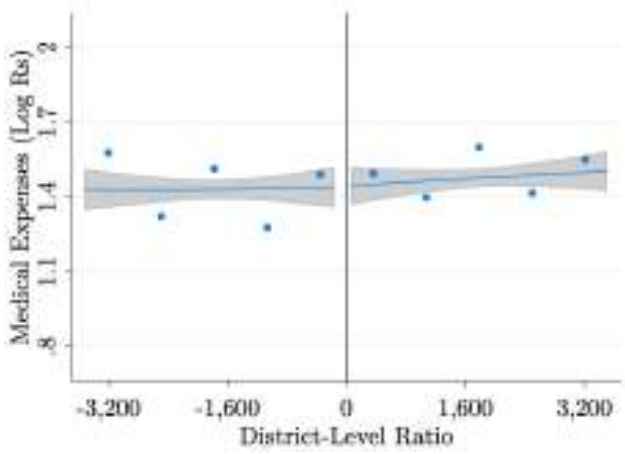
No other potential threats Evidence

- No evidence of migration ✔
- No evidence for other policies ✔

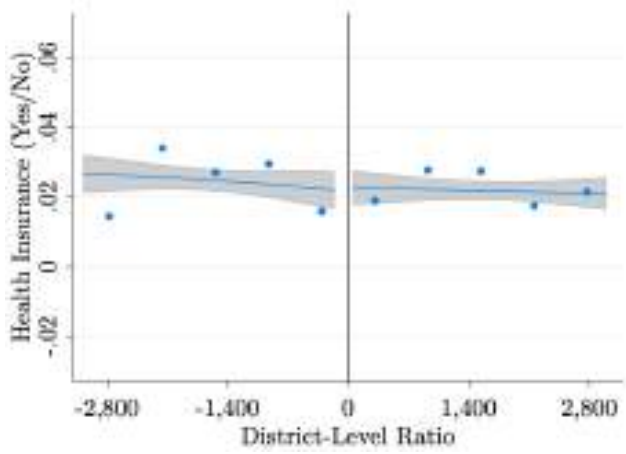
No Evidence of Discontinuities Before the Policy



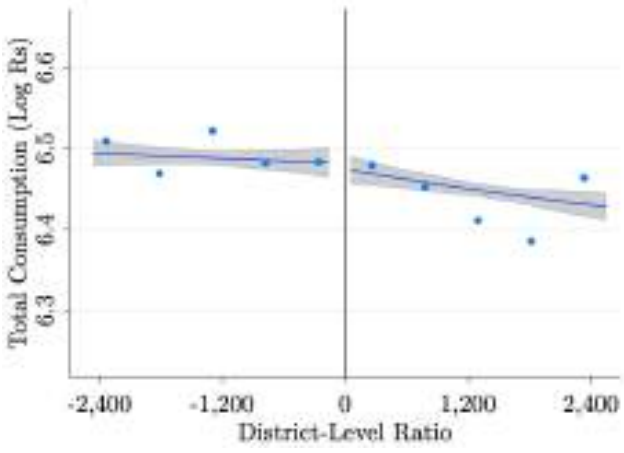
(a) Days Ill



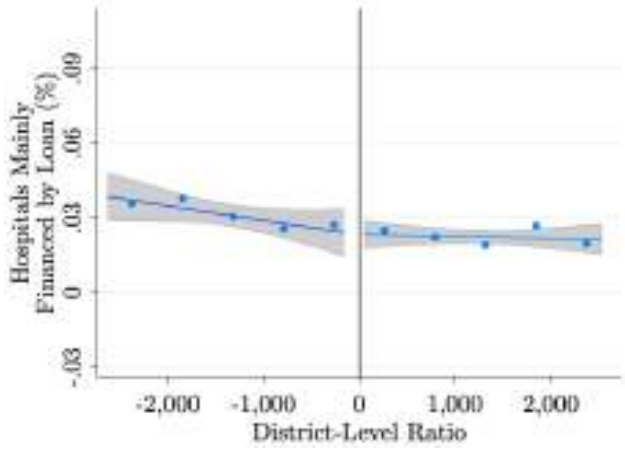
(b) Medical Expenses



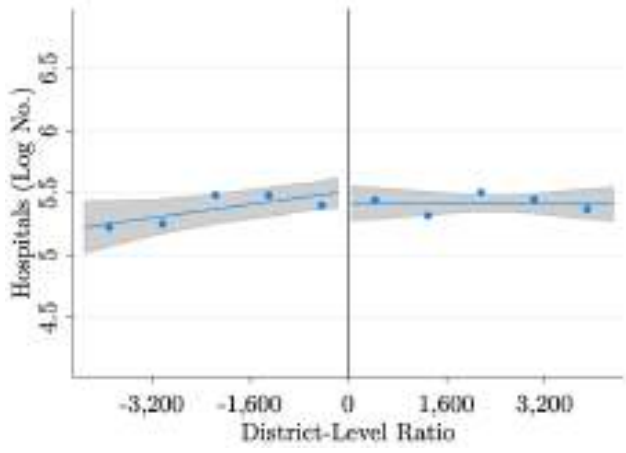
(c) Health Insurance



(d) Total Consumption

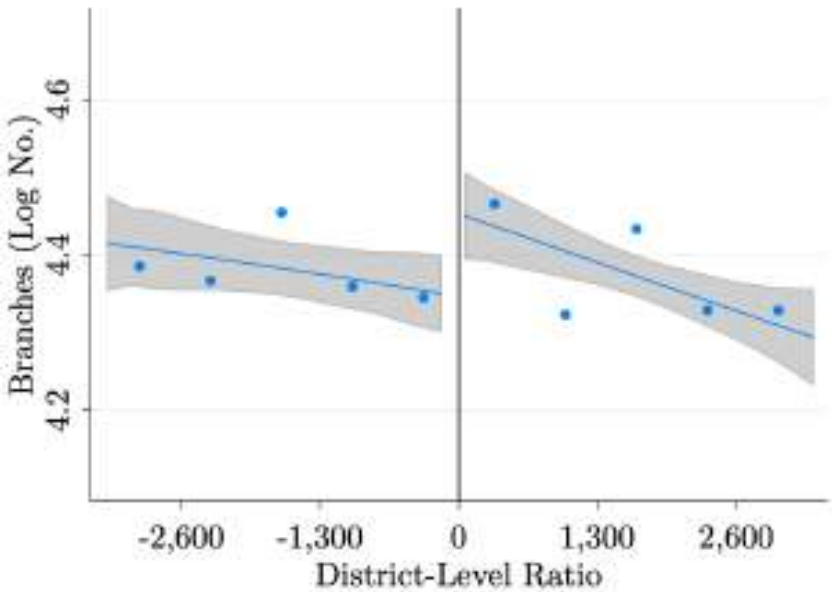


(e) Hospitals' Financing

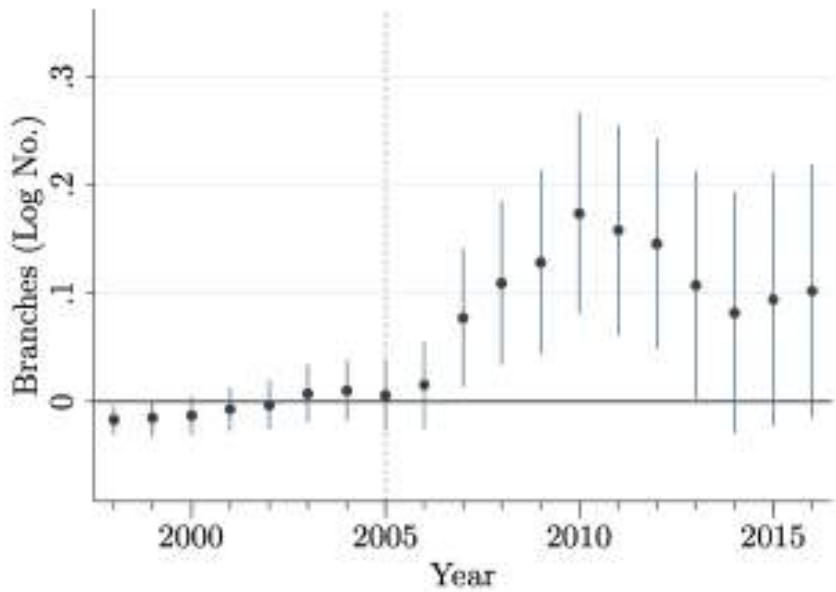


(f) Hospitals

Banks Open Branches



(a) Bank Branches (2010)



(b) Bank Branches (Dynamics)

Policy Change in 2010 | Deposits and Credit | Branch Profitability | Animation | Table | Graphs

Health Improves

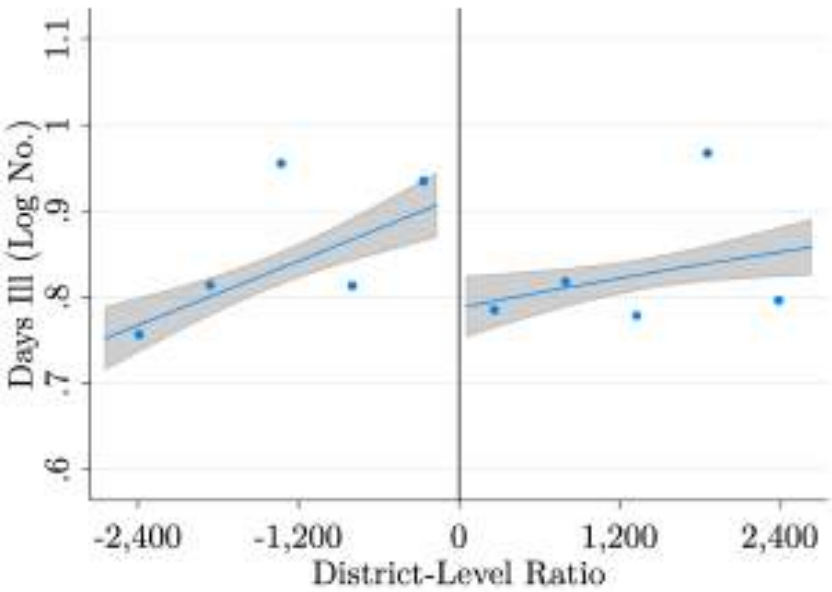
	Post-Policy (2011/2012)		
	Days ill (non-chronic) (log no.) (1)	Days missed due to illness (log no.) (2)	Medical expenses (log Rs) (3)
Treated	-0.29**	-0.44***	-0.88**
	(0.12)	(0.13)	(0.35)
Control Mean	0.82	0.58	2.12
Mean Change (%)	**-25.21**	**-35.40**	**-58.56**
Bandwidth	2,658	2,513	2,948
Within BW Obs.	12,968	12,421	14,576
Total Obs.	32,280	33,346	32,983

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

- 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 out-of-pocket medical expenses

Effect Size | Smoothness Pre-Policy | Controlling for Pre-Policy | Chronic Illnesses | Replication DHS (1) | Replication DHS (2) | Alternative RDD | Magnitude

Health Improves



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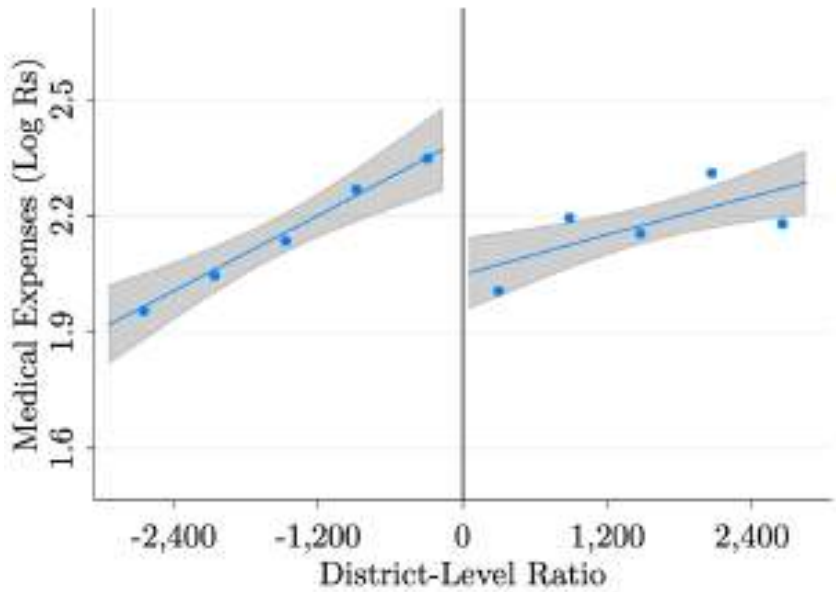

(b) Medical Expenses

Main Robustness | Robustness Bandwidths | Robustness Polynomials | Robustness SE | Placebo Cutoffs | Different Bin Choices | All Districts in BW | All Districts | Pre-Policy Smoothness

Findings

1. **Bank presence increases**
    - Banks obtain more licenses and open branches

2. **Health improves**
    - Fewer days with illnesses
    - Higher vaccination rates Table
    - Safer pregnancies Table

3. Mechanisms

Findings

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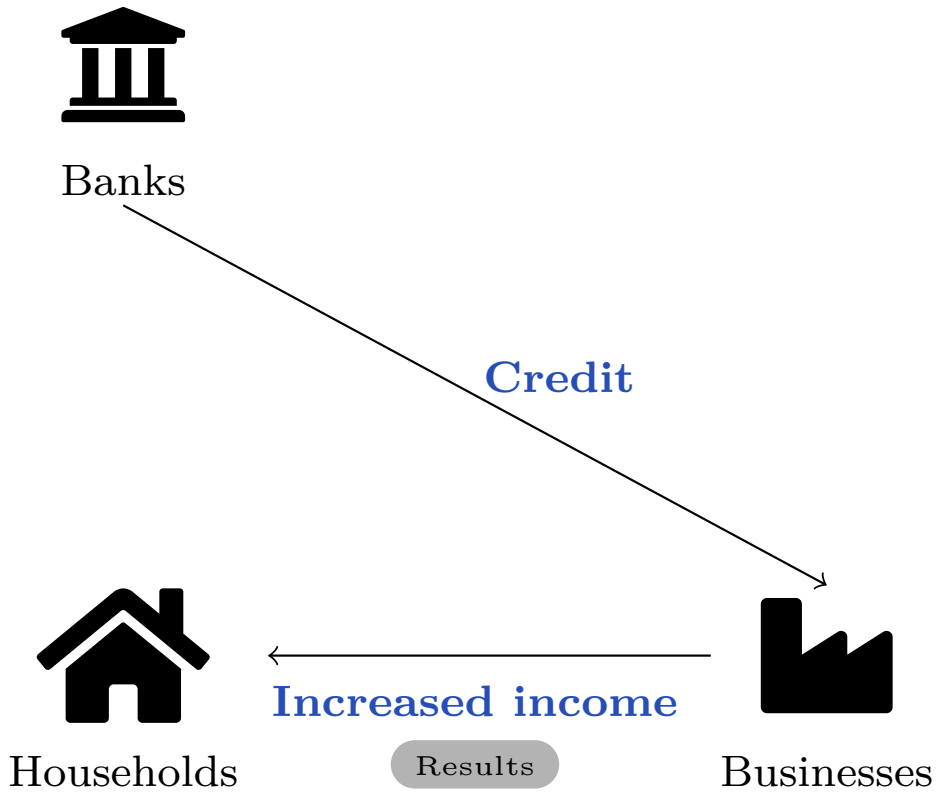
3. **Mechanisms**

A Well-Established Link: Banks ▷ Businesses ▷ Income



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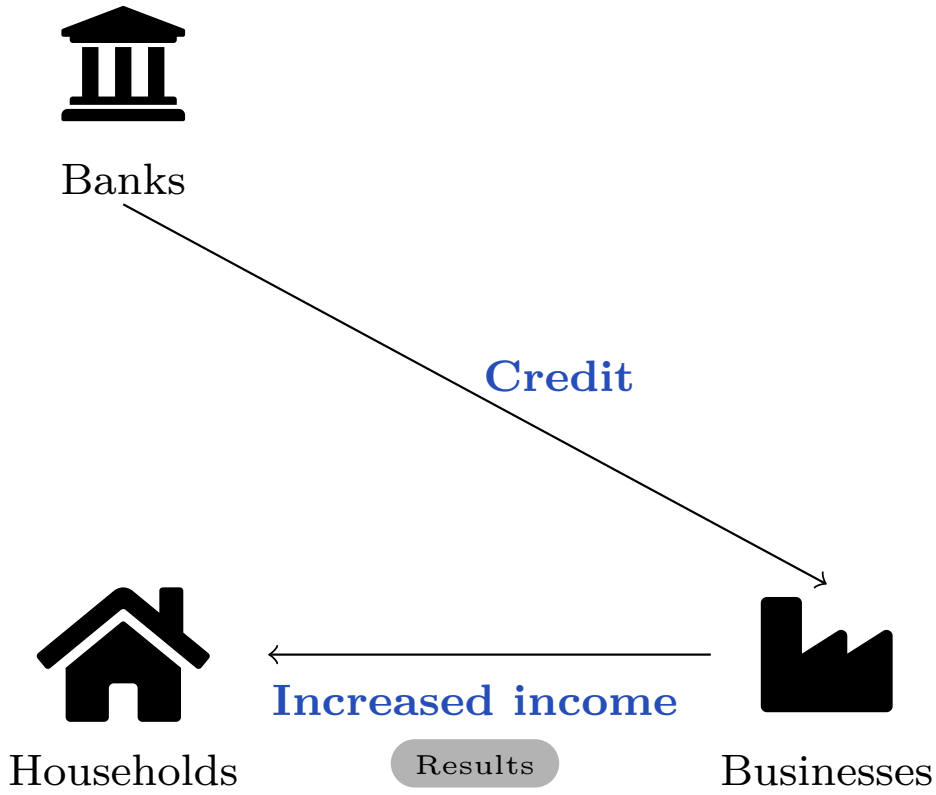
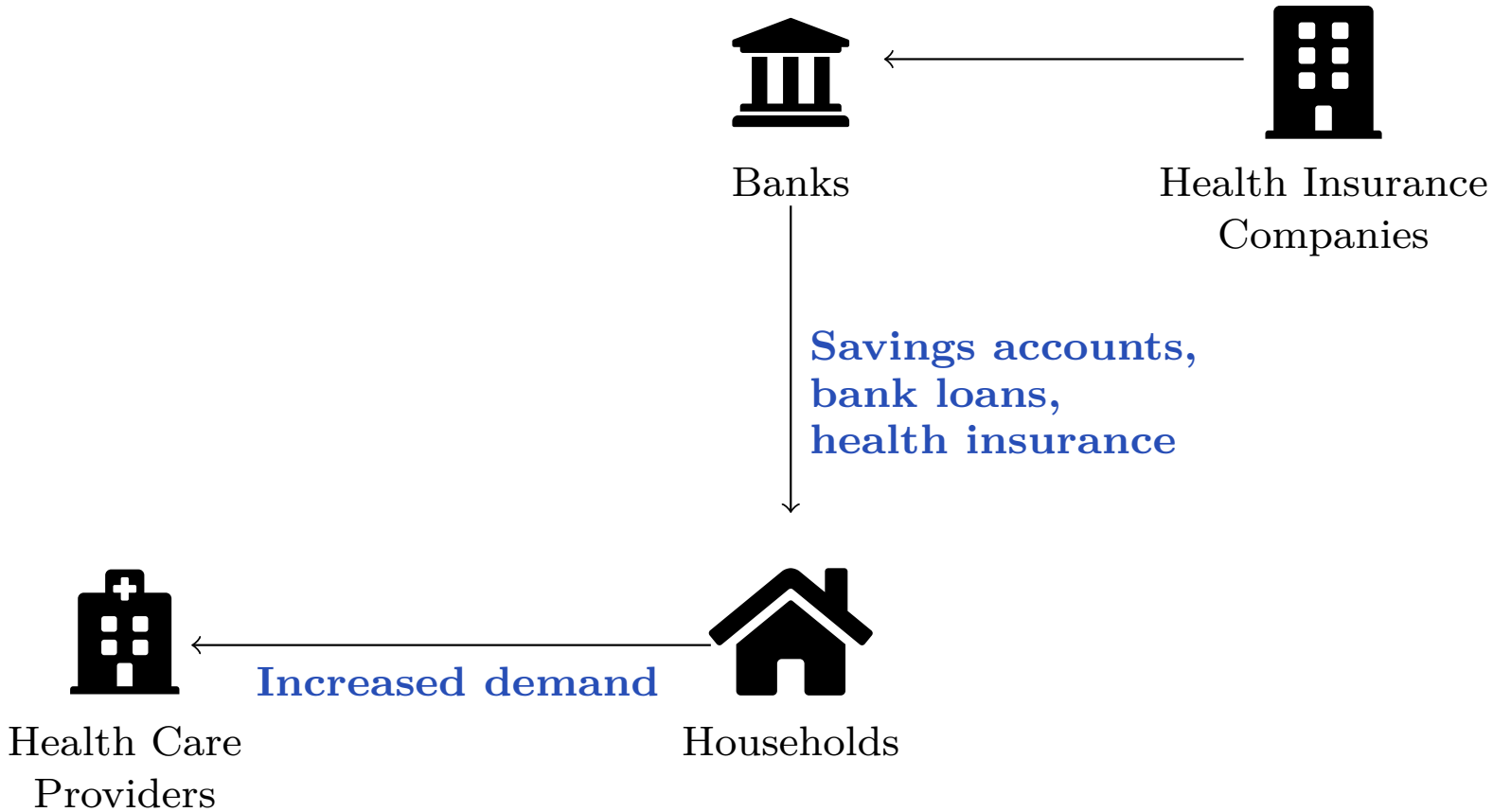


I find evidence that an income channel plays a role Link

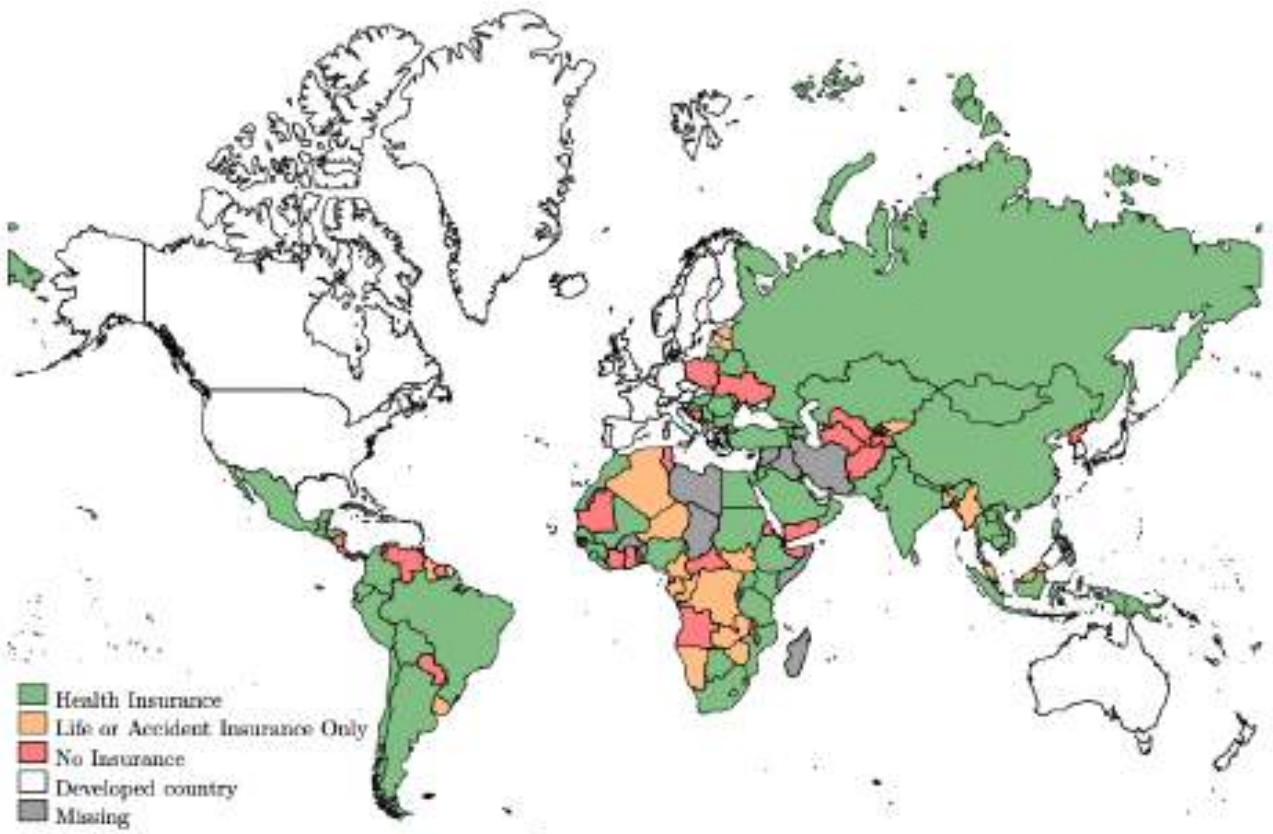
A Novel Aspect of Banking: Health Insurance



Banks Are Insurance Intermediaries in Majority of Developing Countries

Intermediaries between health insurance companies and households

- Bridge physical distance
- Mitigate information asymmetries



Households Take Up Savings Accounts and Health Insurance

	Savings account (yes/no) (1)	**Bank loan** (yes/no) (2)	**Health insurance** (yes/no) (3)
Treated	0.19*	0.04	0.17**
	(0.10)	(0.05)	(0.07)
Control Mean	0.51	0.23	0.06
Mean Change (%)	**36.48**	19.70	**272.69**
Bandwidth	3,023	2,370	1,704
Within BW Obs.	16,674	12,856	8,482
Total Obs.	36,786	36,785	34,181

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

- Six years later, households in treatment districts are **36% more likely to own a savings account** and **273% more likely to own insurance**

Graphs | Smooth Pre | Heterog. Table | Heterog. Graphs | Interactions | Competition | Horse Race | Households | Insurance | Mobile | Heterog. HH | Adv. Selection | Insurance Companies

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- **Heterogeneity tests** support findings

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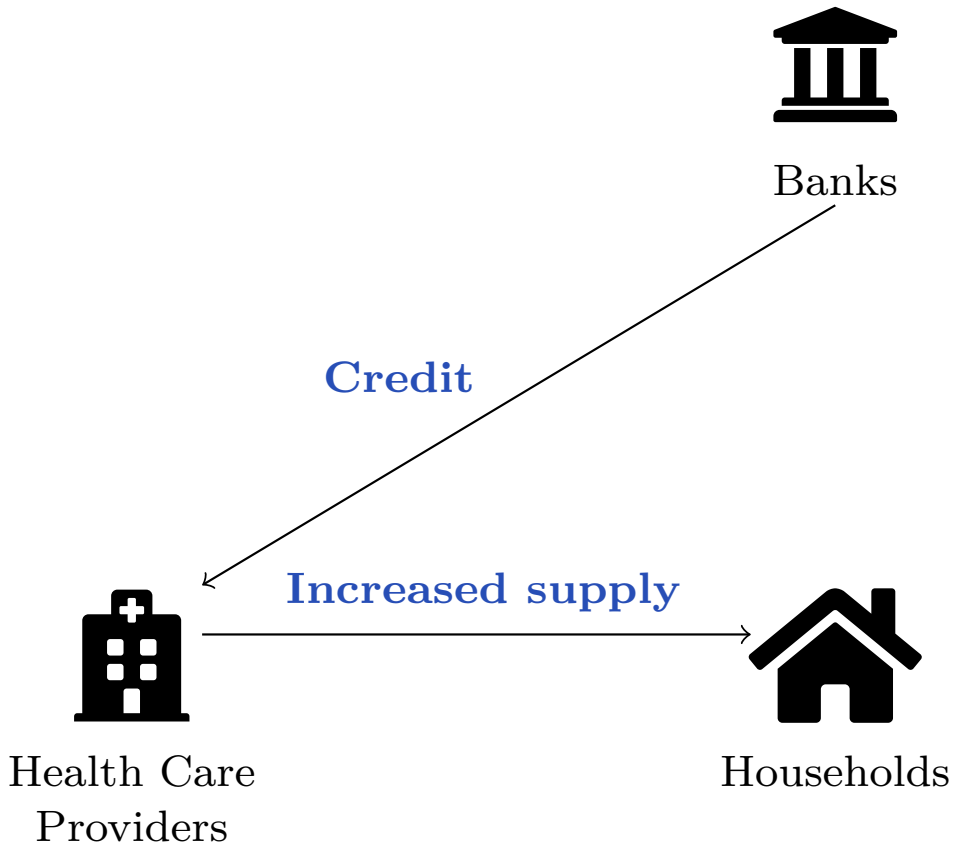
A Novel Aspect of Banking: Credit for Health Care Providers



Health Care Providers Gain Credit Access and Improve Supply

	Pre-policy (2005)		**Post-policy (2013)**	
	Hospitals mainly financed by instit. loan (%) (1)	Number of hospitals (log no.) (2)	Hospitals mainly financed by instit. loan (%) (3)	Number of hospitals (log no.) (4)
Treated	0.001	-0.15	0.010**	0.88***
	(0.012)	(0.16)	(0.004)	(0.33)
Control Mean	0.032	5.42	0.014	5.96
Mean Change (%)	4.62	-13.96	**67.77**	**140.07**
Bandwidth	2,638	4,328	2,435	3,127
Within BW Obs.	171	268	163	201
Total Obs.	538	538	538	538

* p <0.1, ** p <0.05, *** p <0.01. Standard errors in parentheses. Data Economic Census (2005 and 2013). District level.

- Eight years after the policy, treatment districts have a higher fraction of hospitals financed mainly by institutional loans and **140 percent more hospitals** (control mean 31 hospitals per 100,000 people)

Back Graphs Quality Heterogeneity Sum Stats

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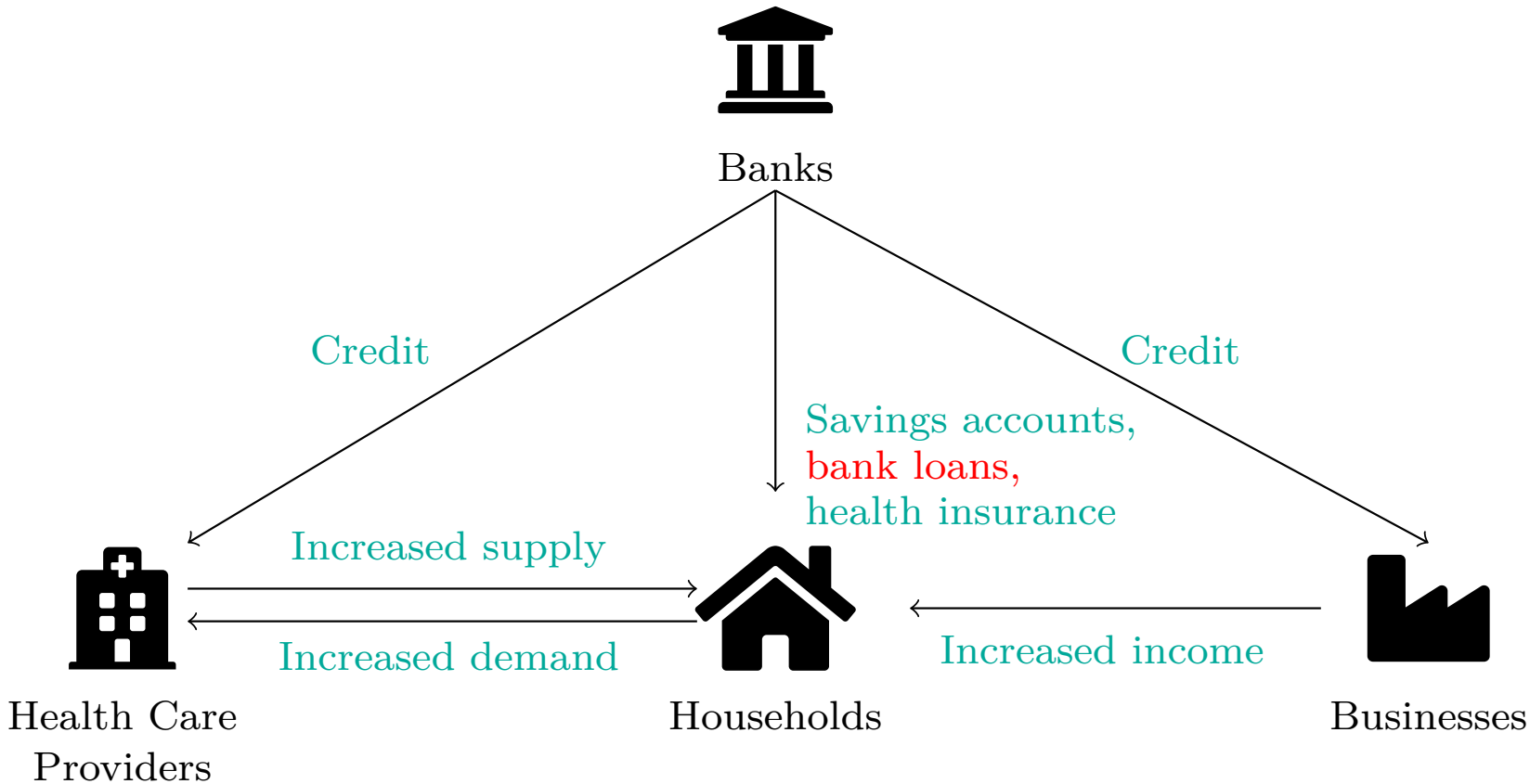
Treated	0.001	-0.15	0.010**	0.88***
	(0.012)	(0.16)	(0.004)	(0.33)
Control Mean	0.032	5.42	0.014	5.96
Mean Change (%)	4.62	-13.96	**67.77**	**140.07**
Bandwidth	2,638	4,328	2,435	3,127
Within BW Obs.	171	268	163	201
Total Obs.	538	538	538	538

* p <0.1, ** p <0.05, *** p <0.01. Standard errors in parentheses. Data Economic Census (2005 and 2013). District level.

- Eight years after the policy, treatment districts have a higher fraction of hospitals financed mainly by institutional loans and **140 percent more hospitals** (control mean 31 hospitals per 100,000 people)
- Household surveys also show improved **quality**
- **Heterogeneity tests** support findings

Back Graphs Quality Heterogeneity Sum Stats

Mechanism Summary



Conclusion

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- First causal evidence that bank presence improves health

- Two novel aspects of banking

  (a) Banks provide health insurance to households

  (b) Banks provide credit to health care providers

Thank You

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Bank Presence and Health

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