Bank Presence and Health

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NSE – NYU Conference

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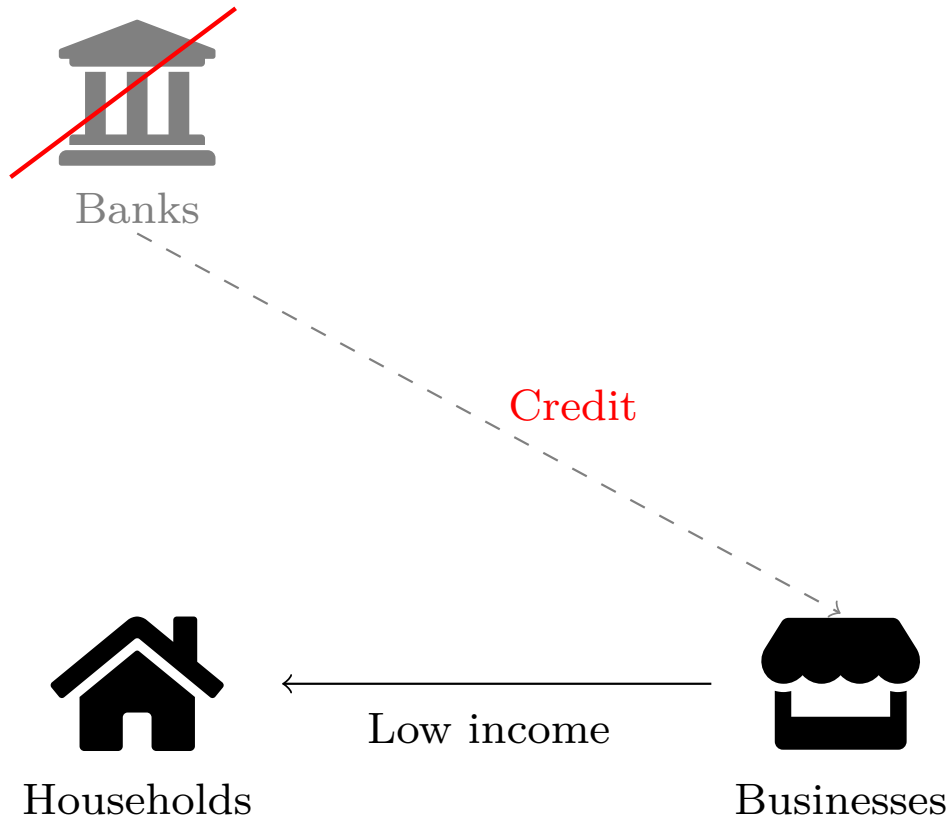
Determinants of Poor Health in Developing Countries



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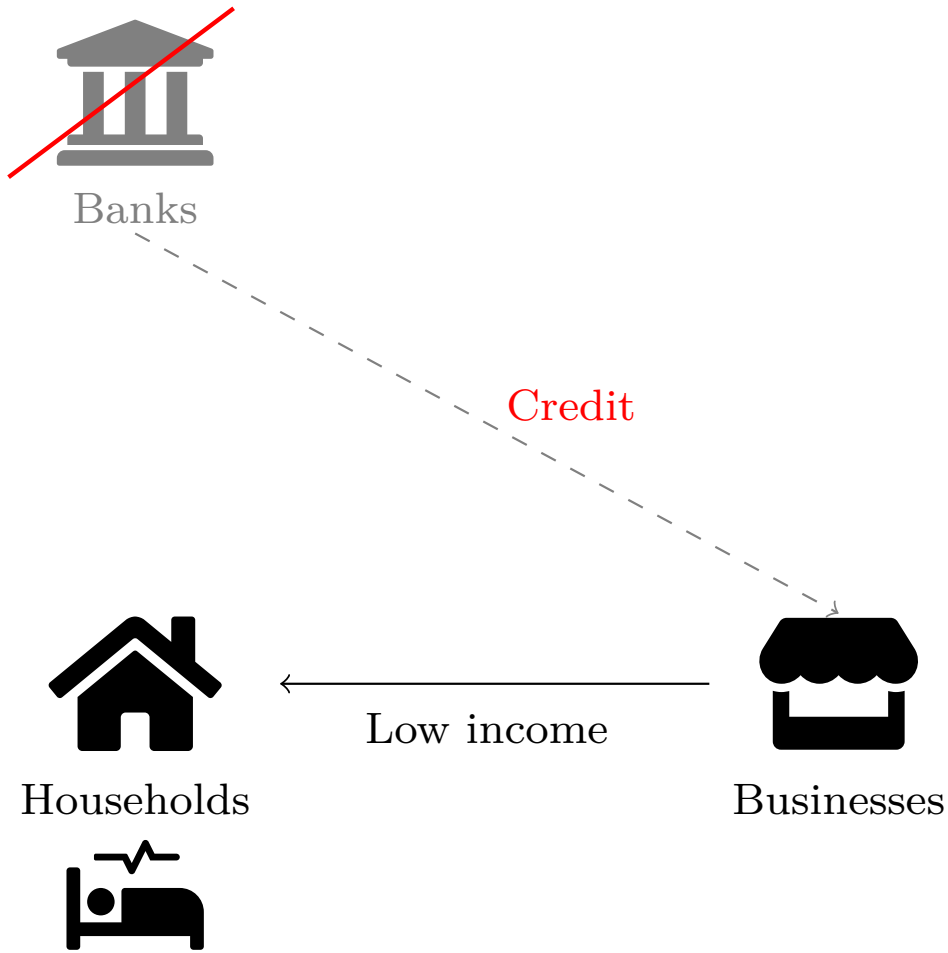

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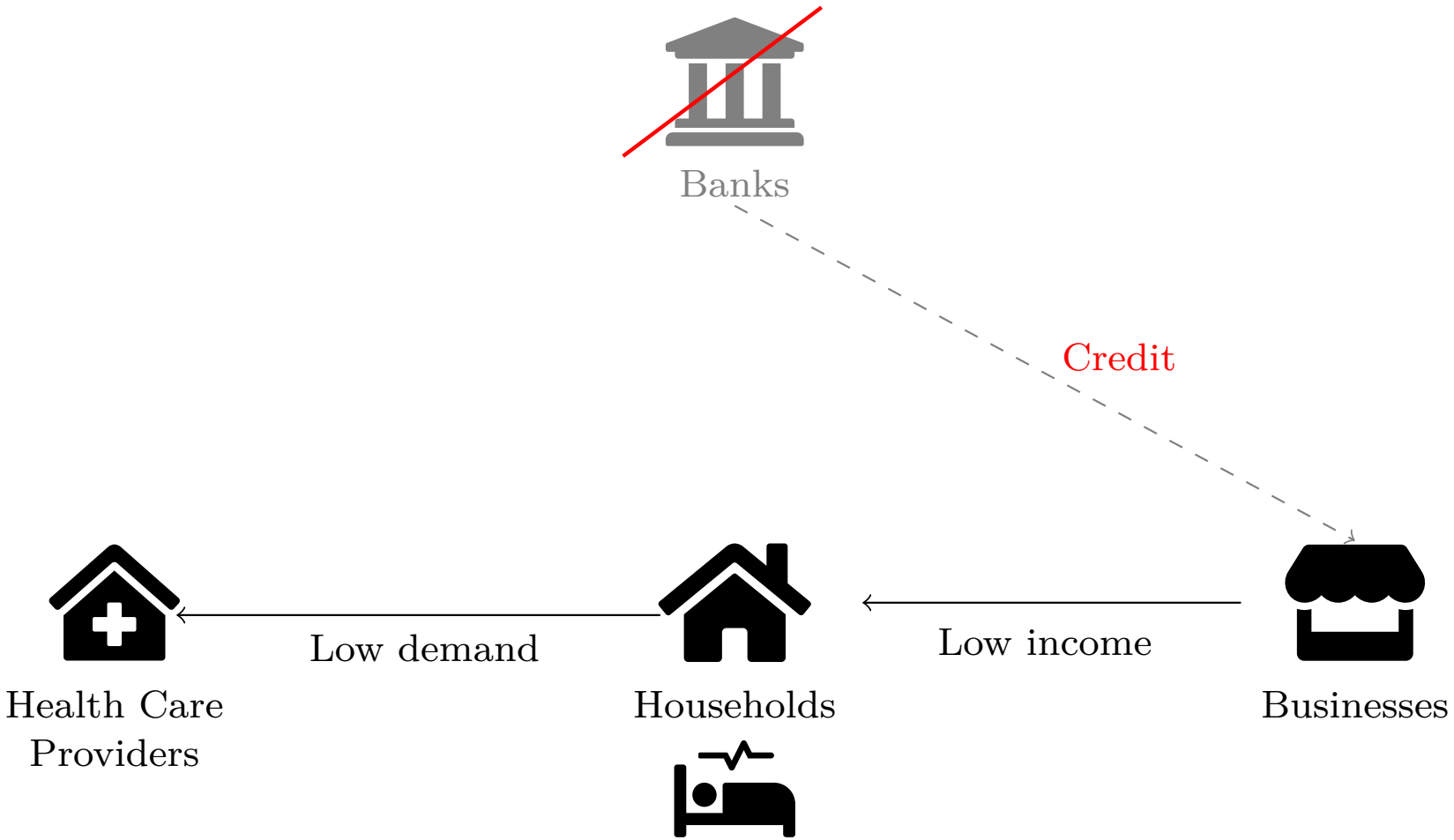

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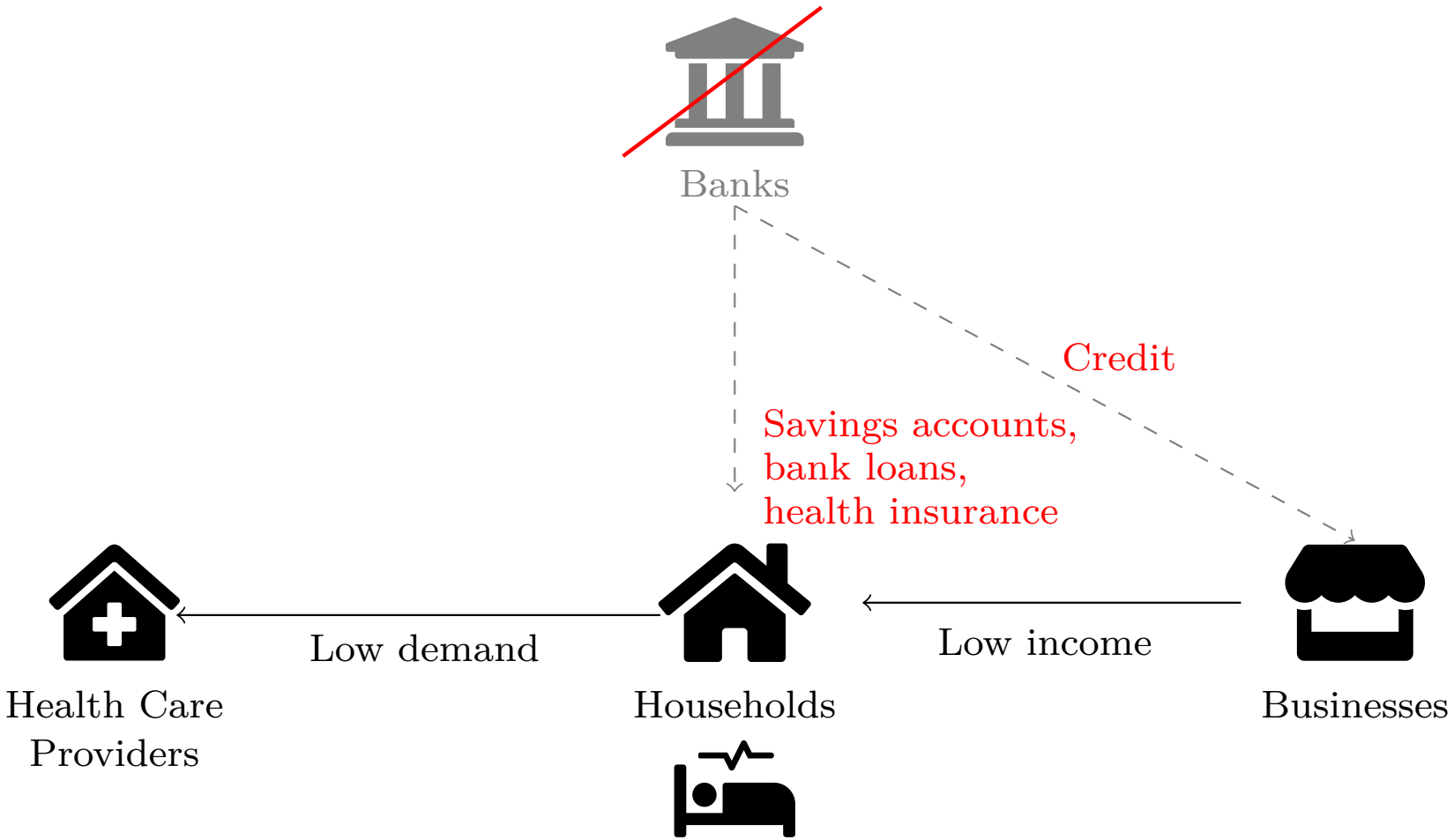

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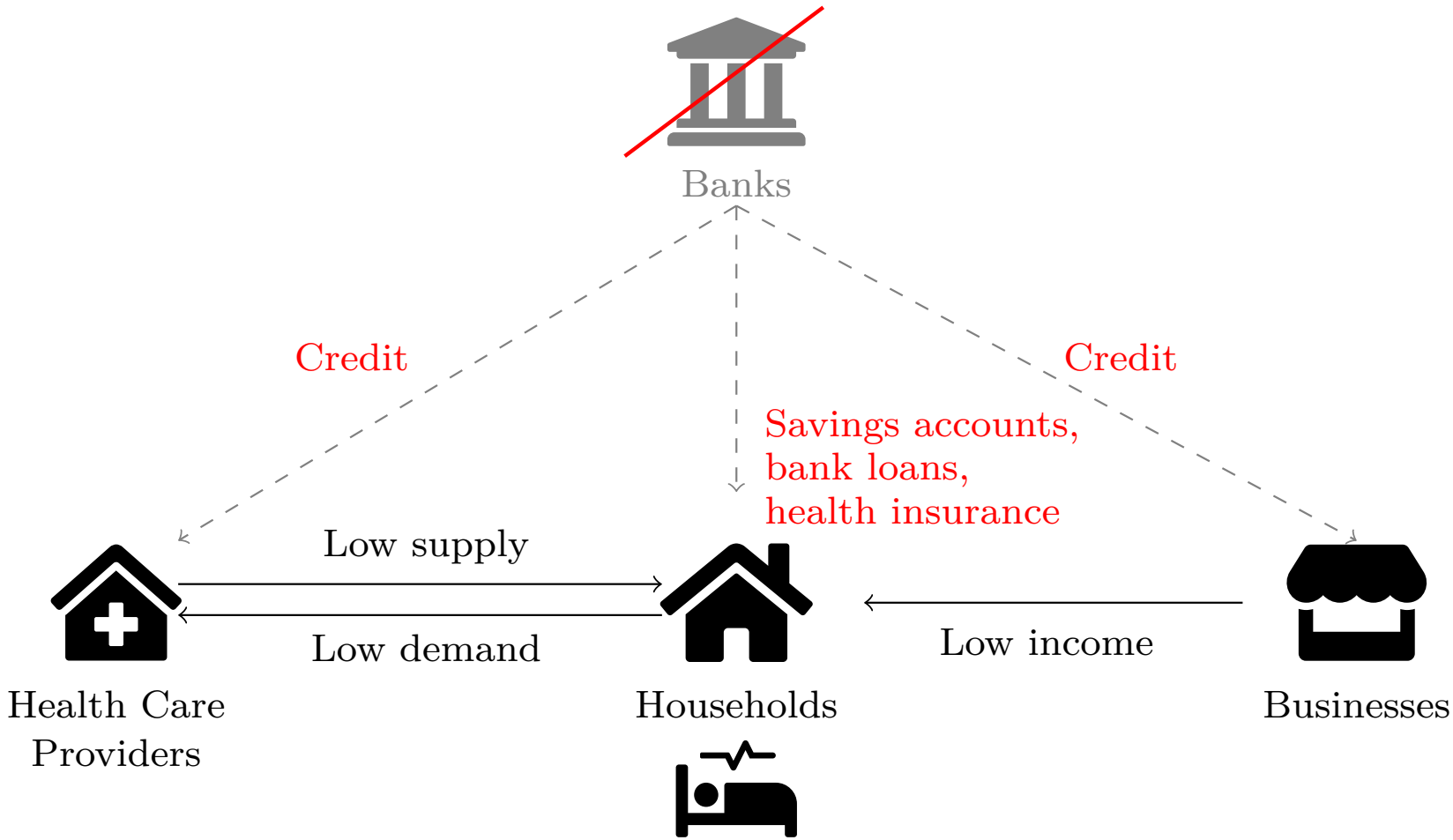
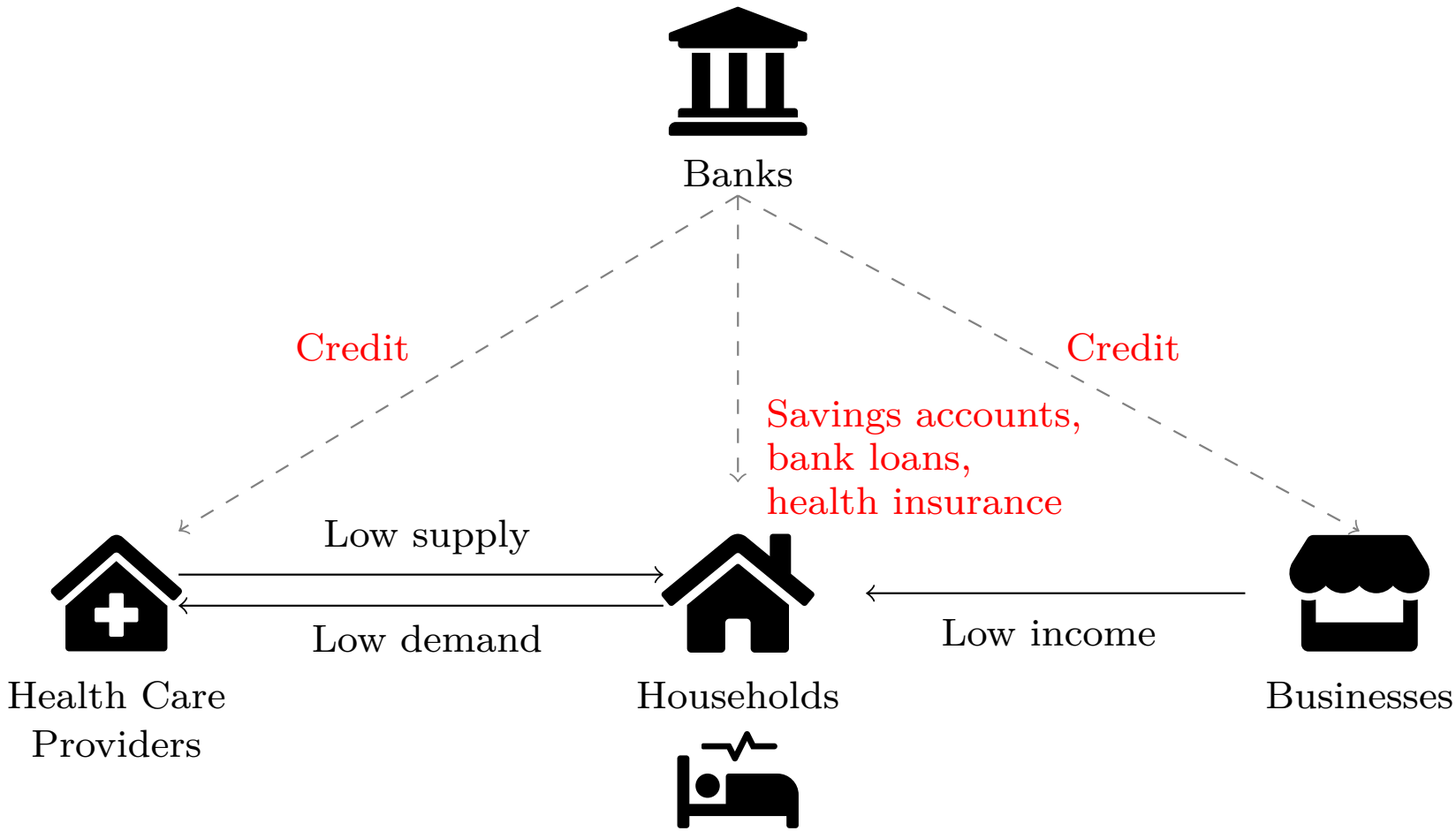


The Impact of Bank Presence on Health



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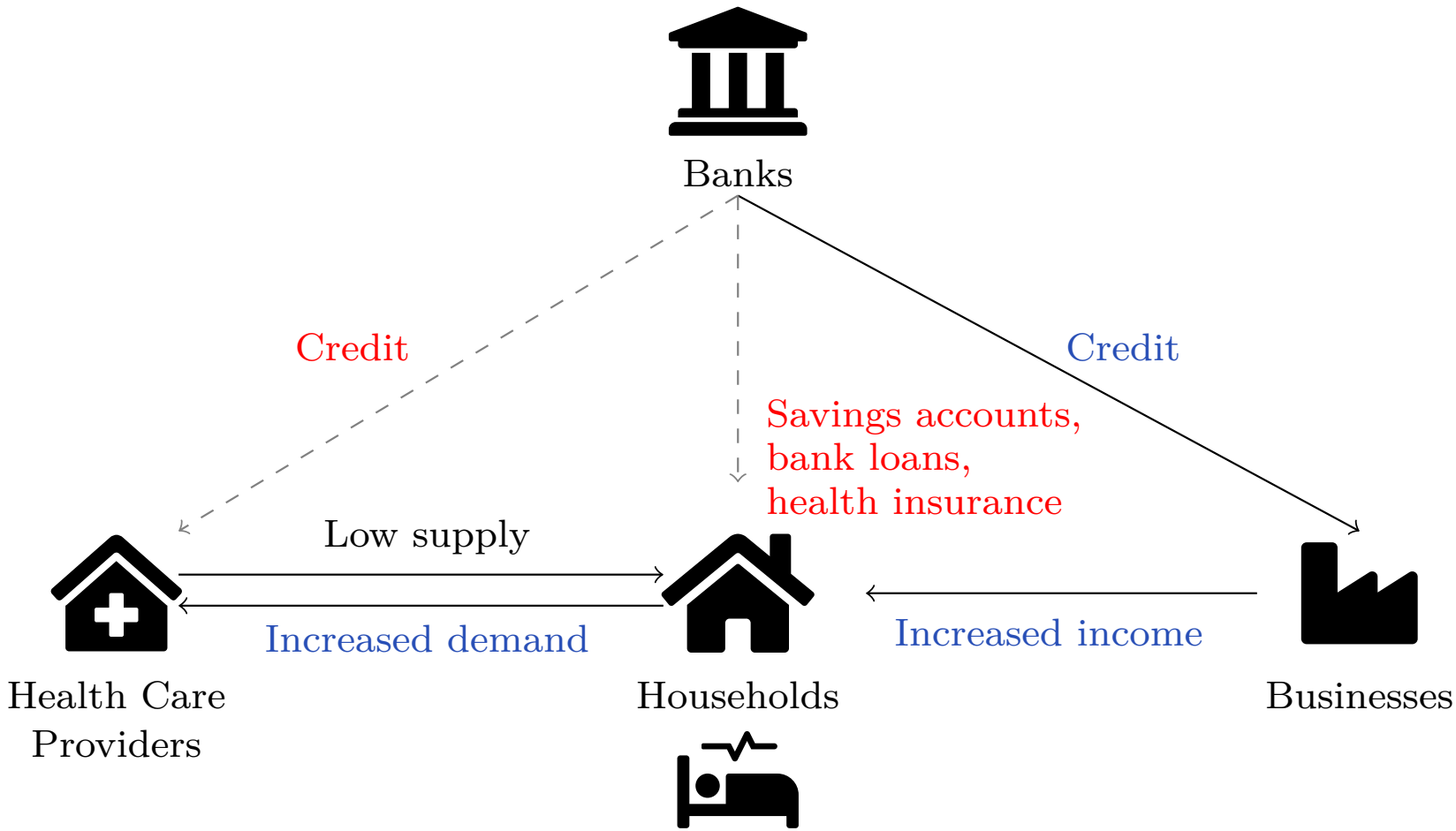

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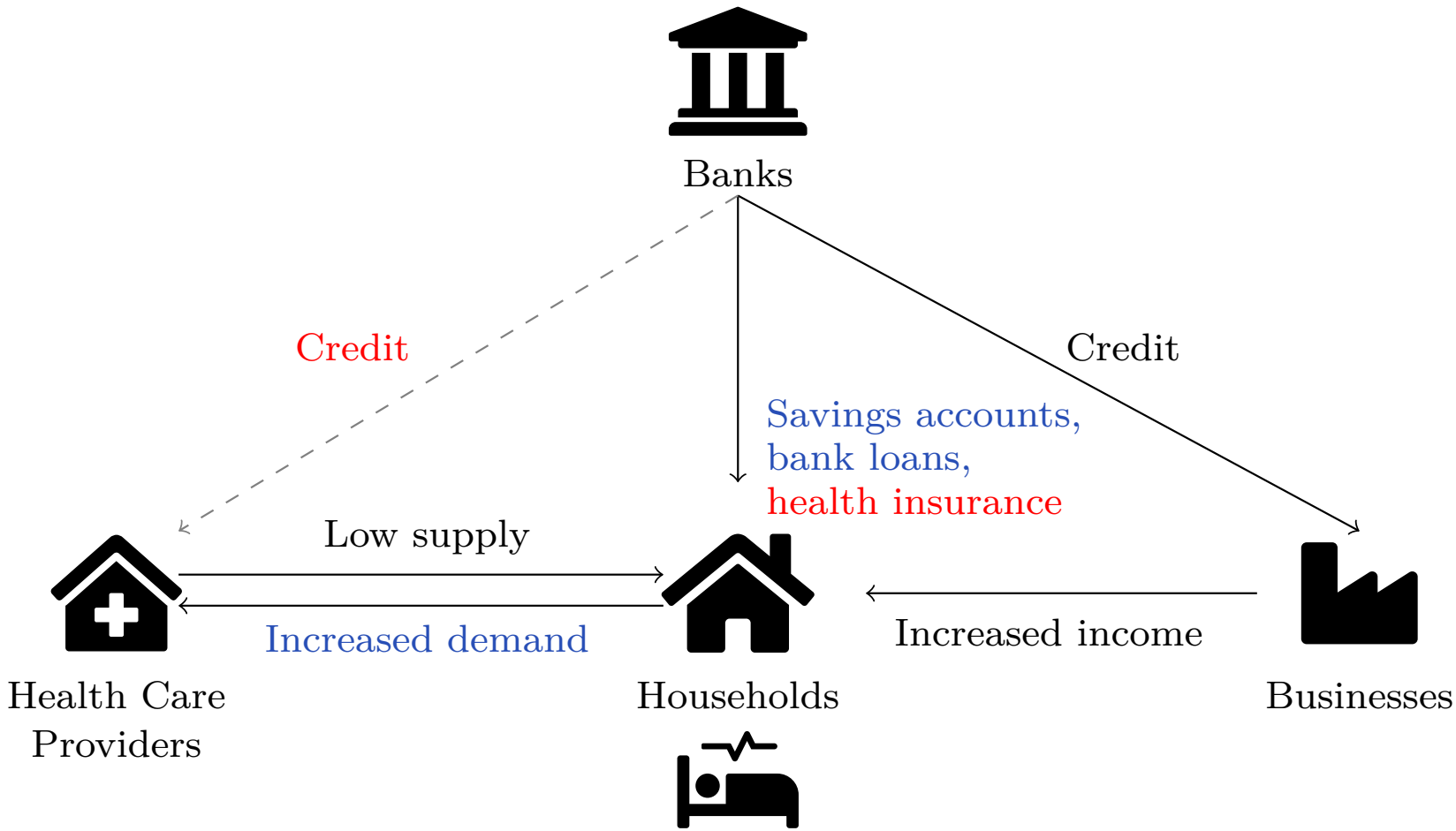

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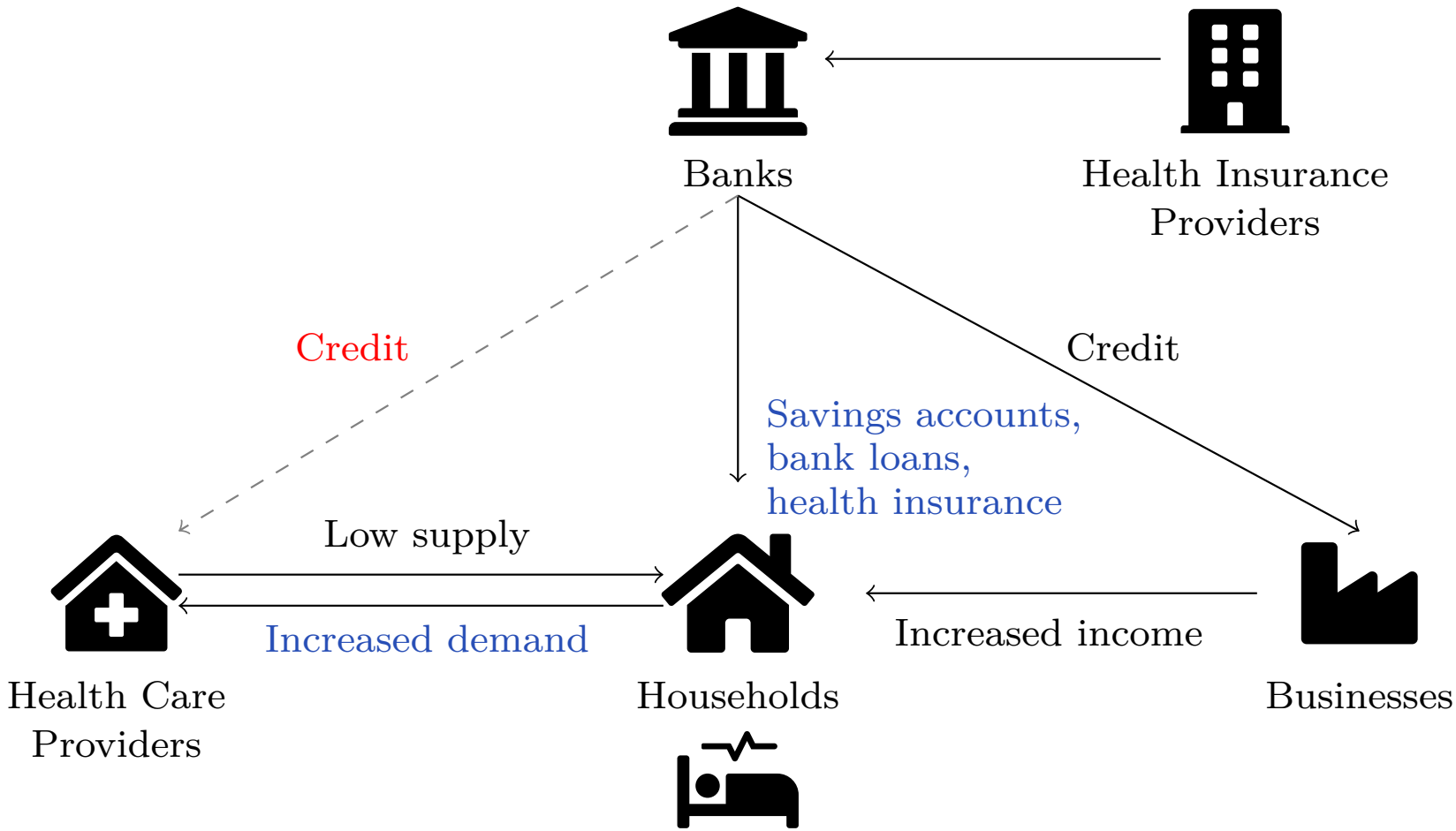

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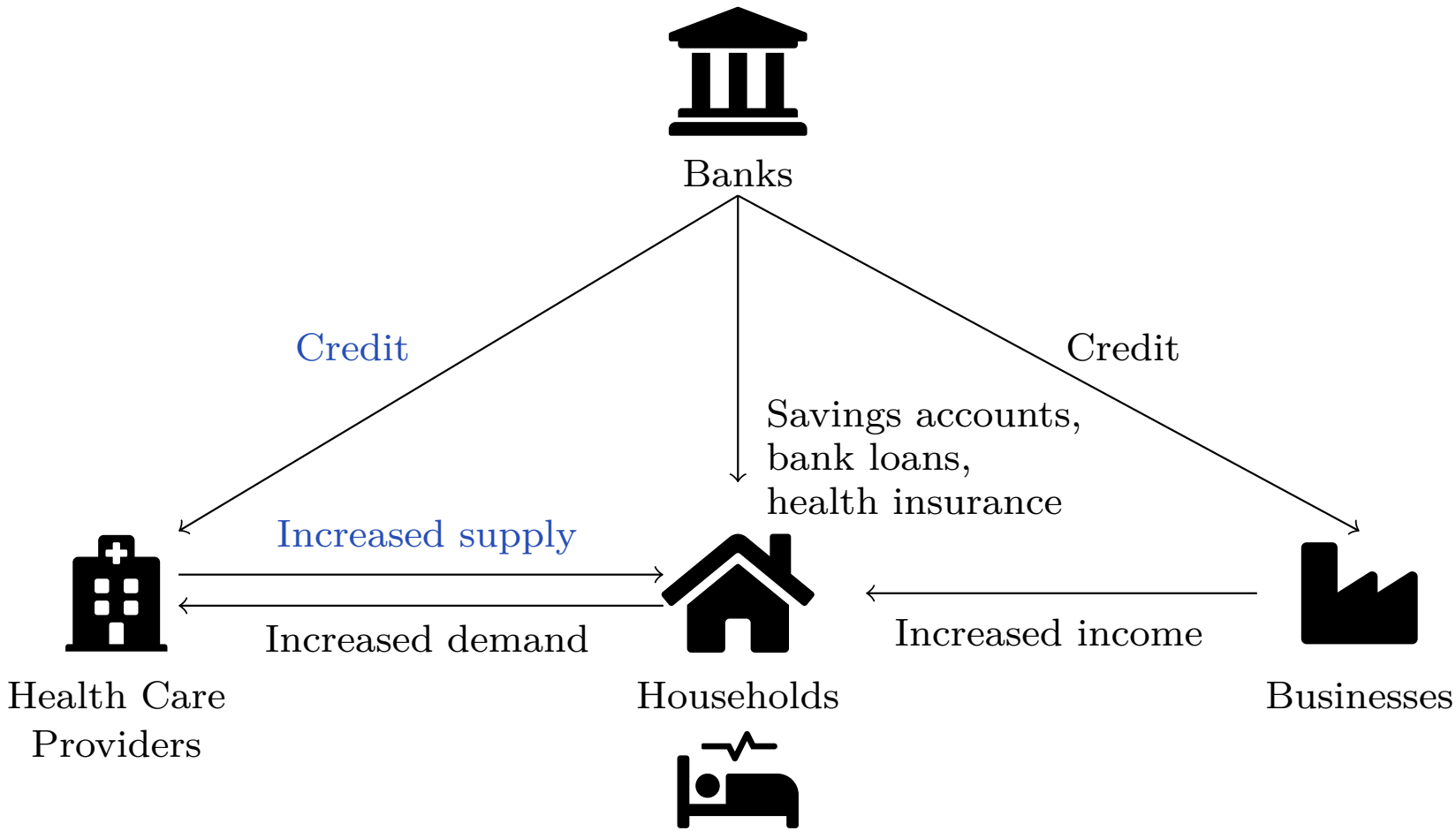

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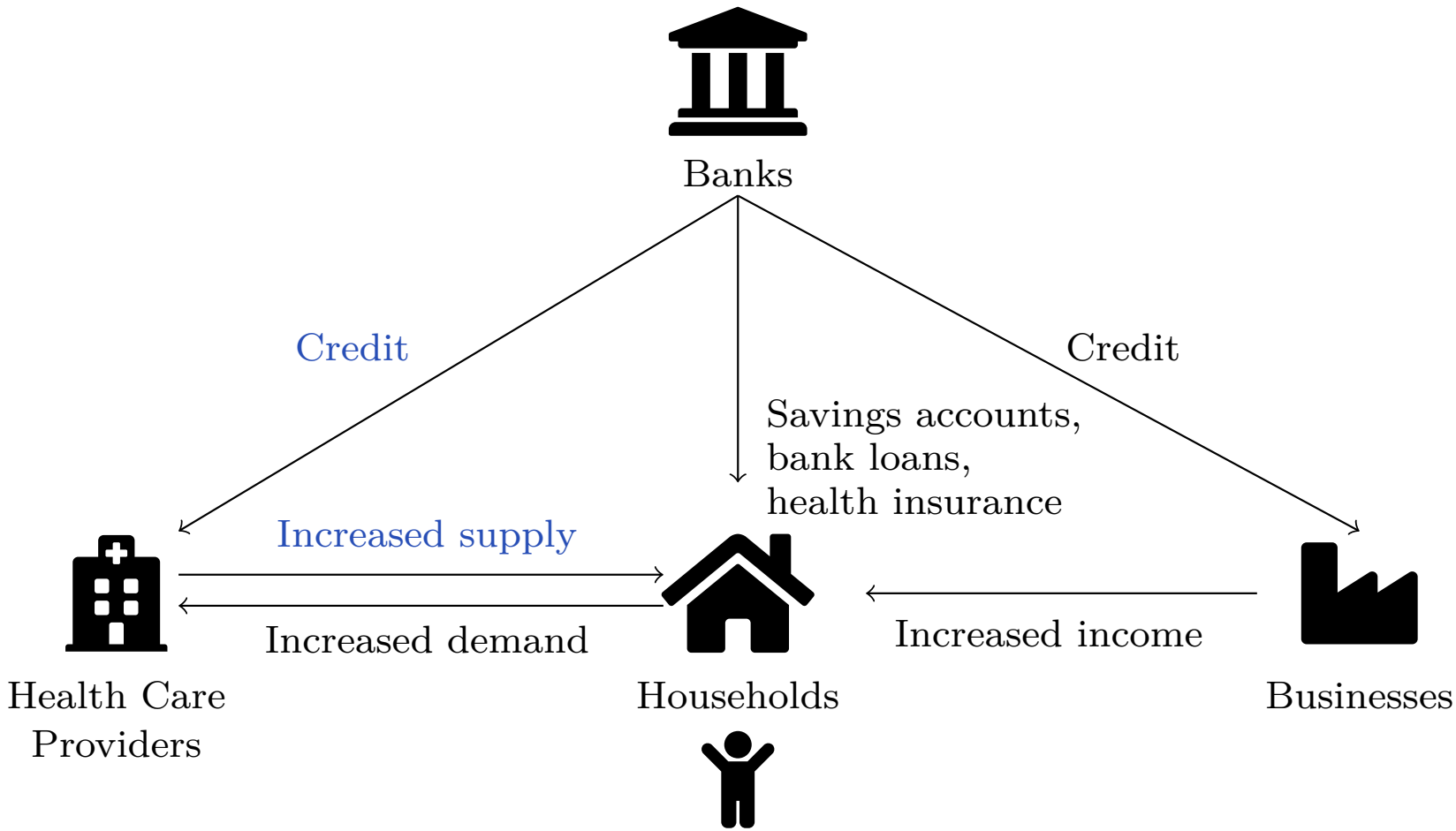

This Paper

Research question

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

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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)

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   Explanations | Developed countries

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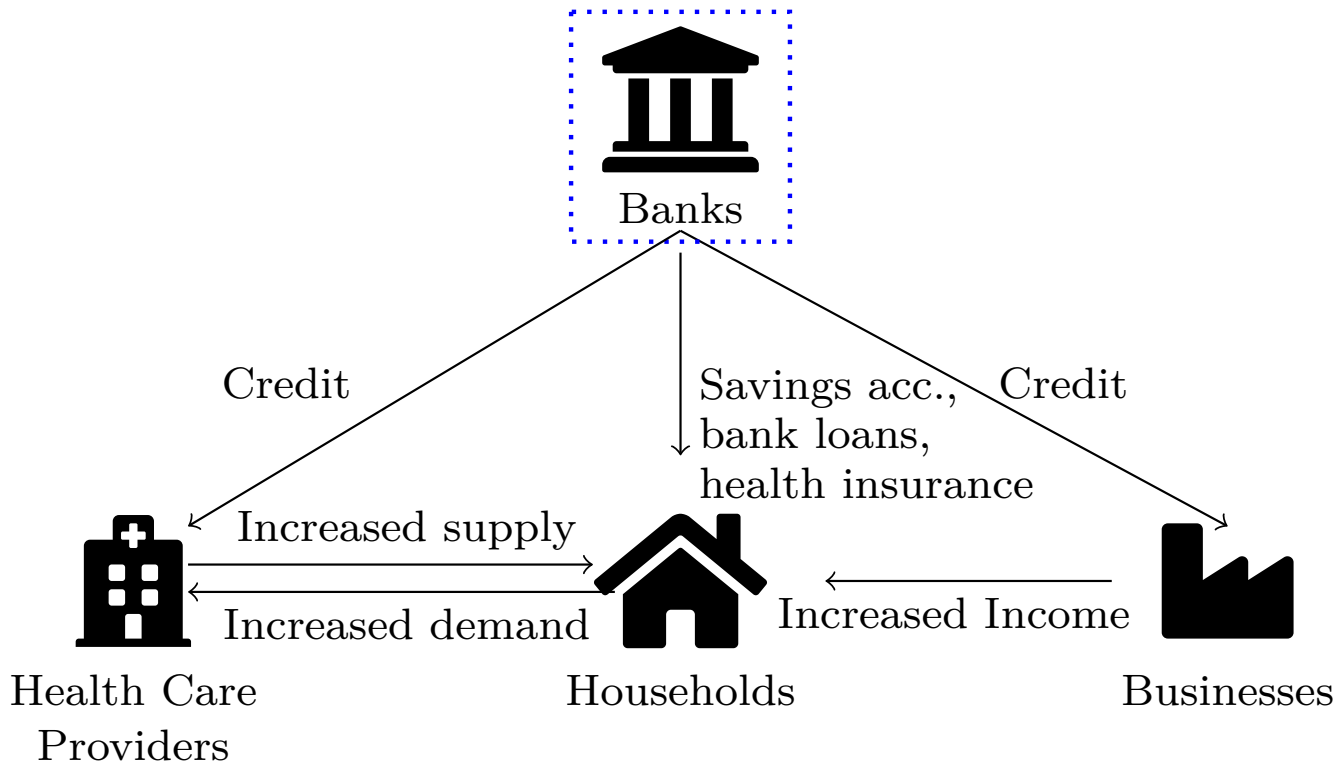
   Explanations Developed countries

2. 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

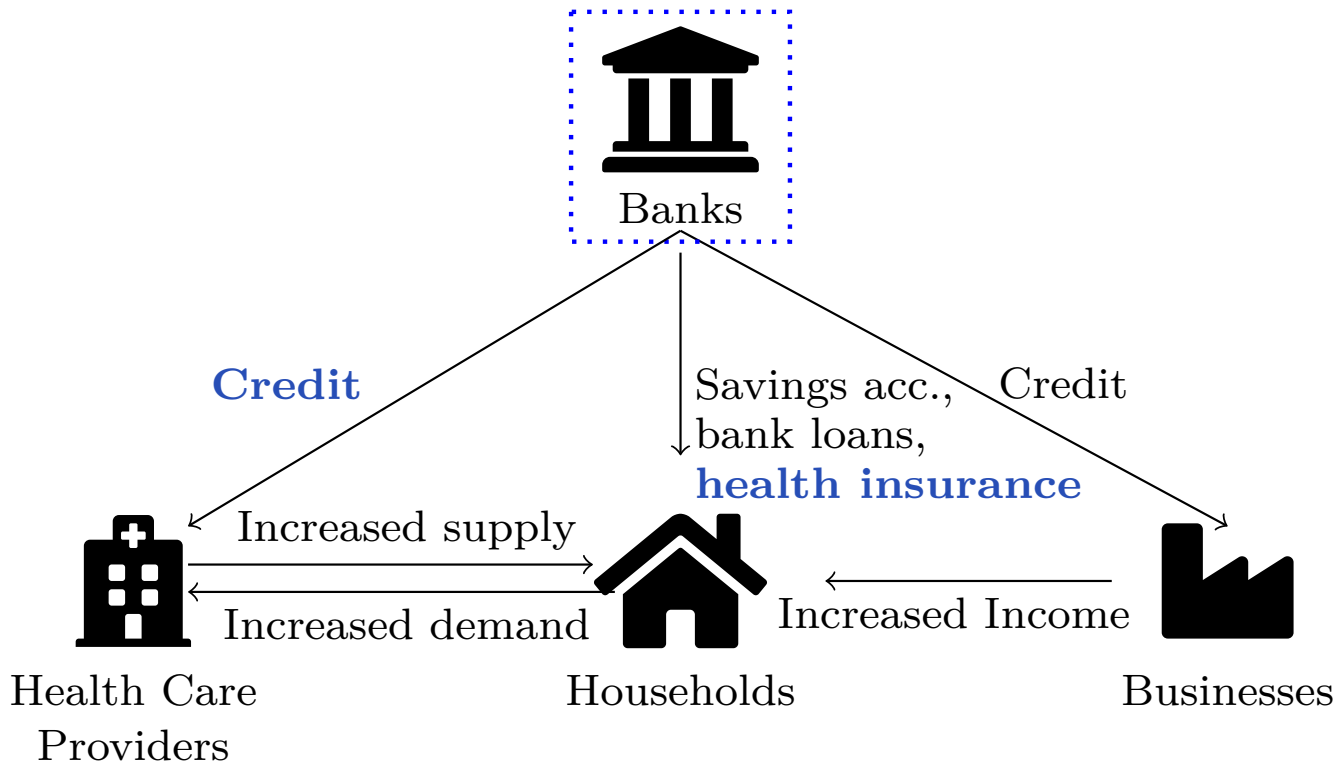
1. Exogenous variation in bank presence to study impact on health
   In contrast to RCTs: Access for households, businesses, and health care providers and a large-scale long-term setting (Breza and Kinnan, 2021)



Contribution

1. Exogenous variation in bank presence to study impact on health
   In contrast to RCTs: 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 | Papers Using Same or Similar Policy

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Incentivize banks to open branches in underserved locations

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Policy

- Banks increase **chance to obtain license** for favored location by **strengthening 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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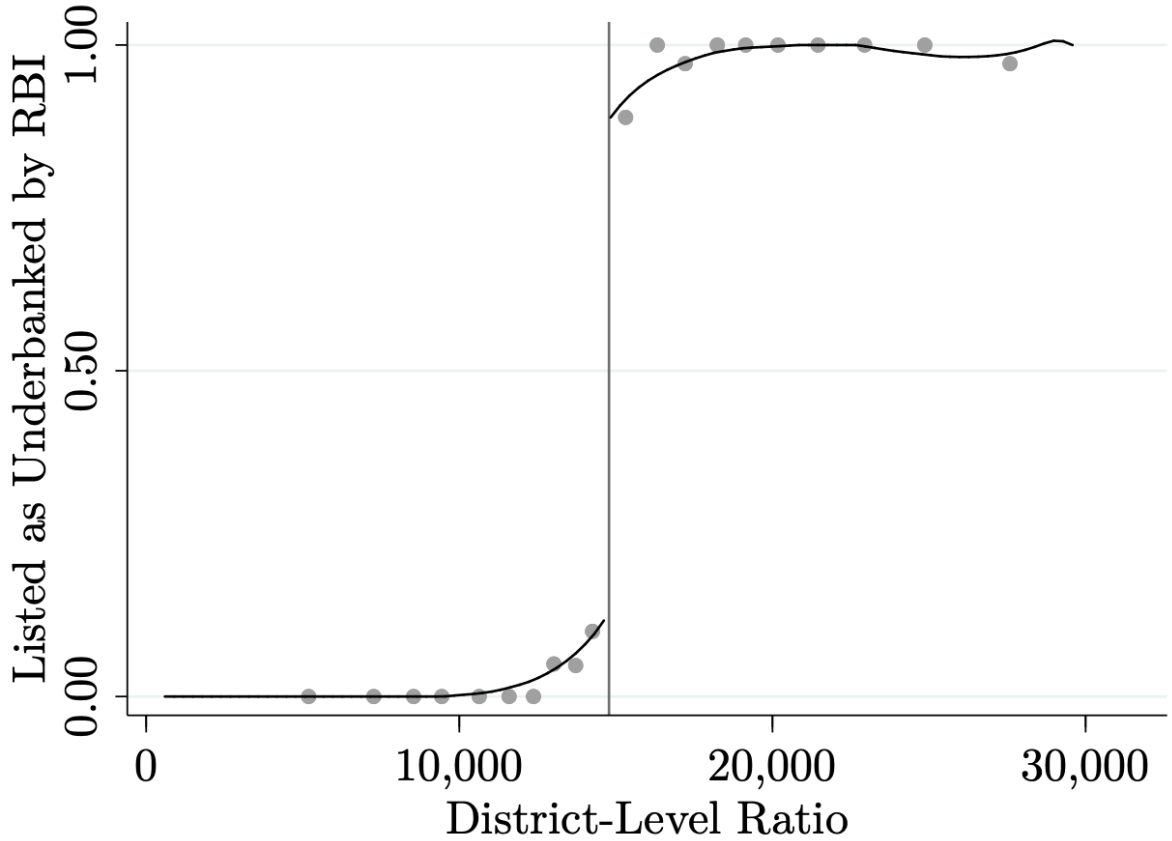
Regression discontinuity design

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

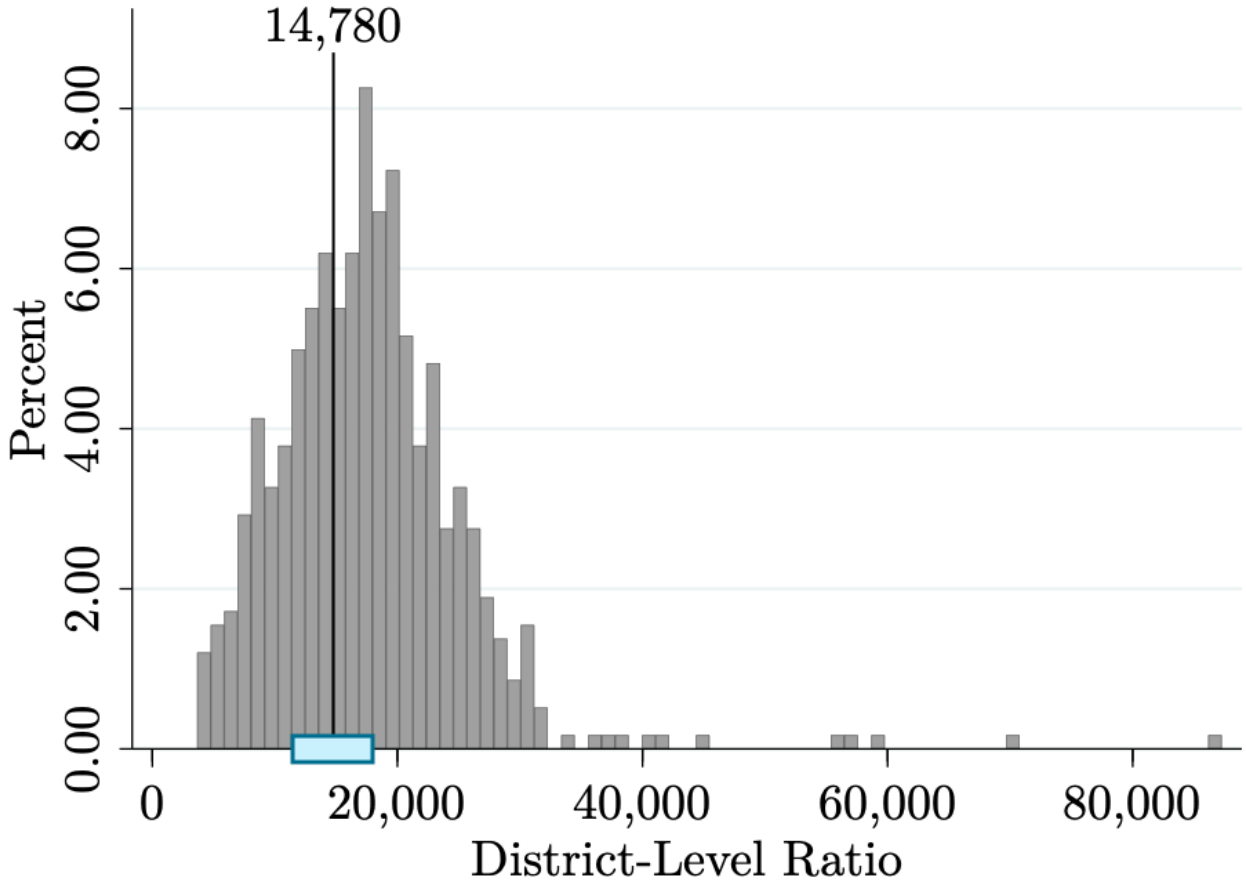
Fuzzy RDD: Strong First Stage

Reconstruction of ratio

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

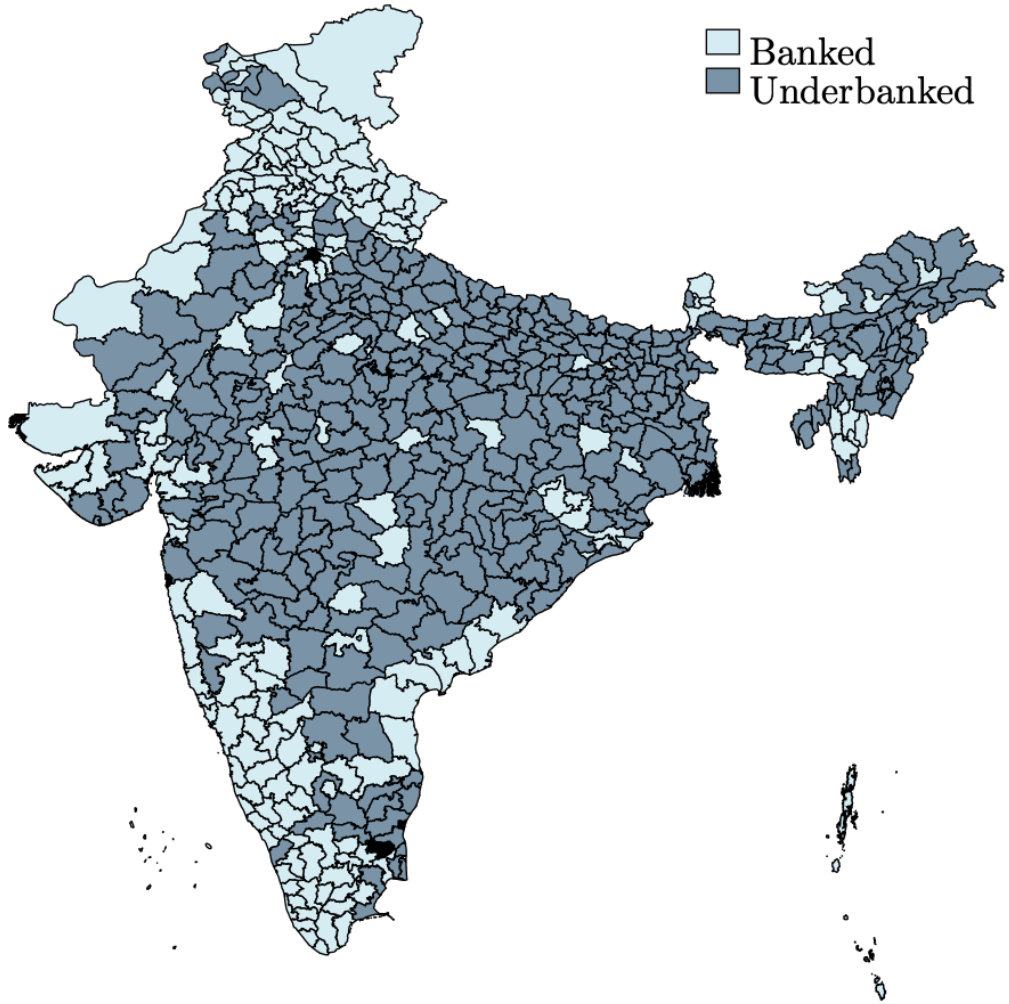


Distribution of the District-Level Ratio



- I only consider districts just around the cutoff

Geographical Distribution in 2006



593 districts (63% underbanked)

Within typical bandwidth

Data

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  - ∼40,000 households
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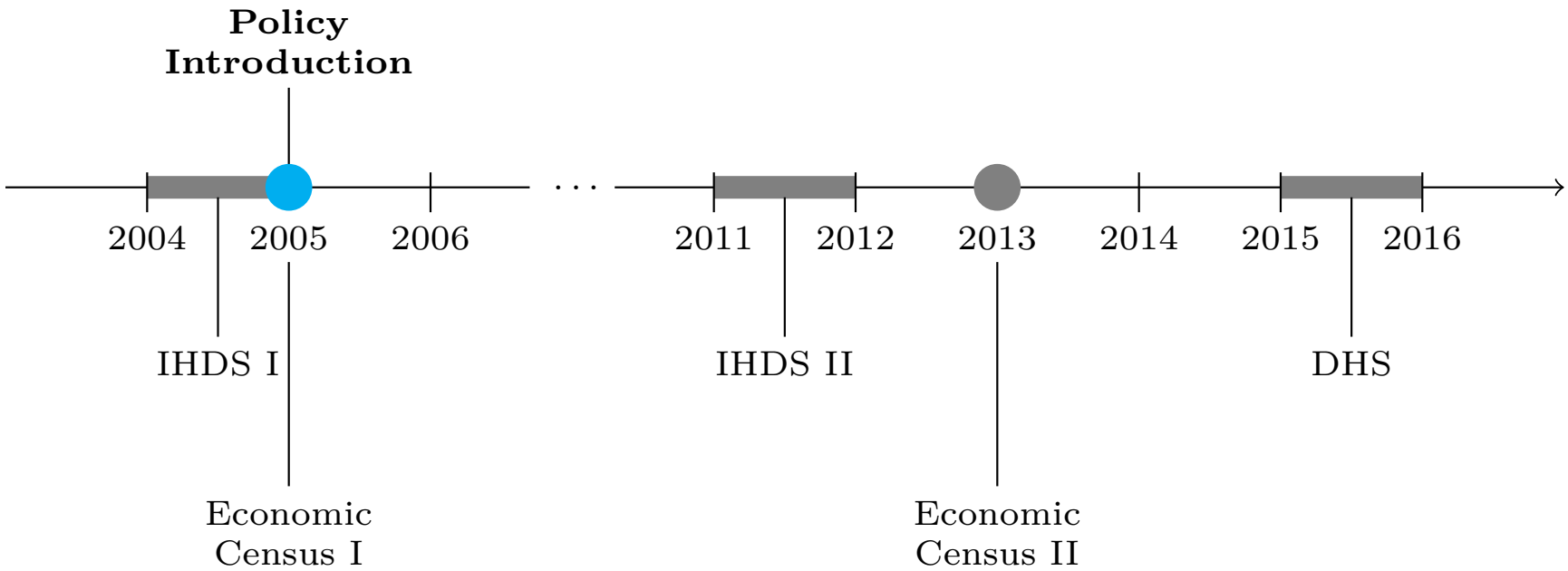
- **Other: Prowess and SHRUG**

Maps of Implementation

Timeline


Policy
Introduction
2004
2005
2006
2011
2012
2013
2014
2015
2016
IHDS I
IHDS II
DHS
Economic
Census I
Economic
Census II

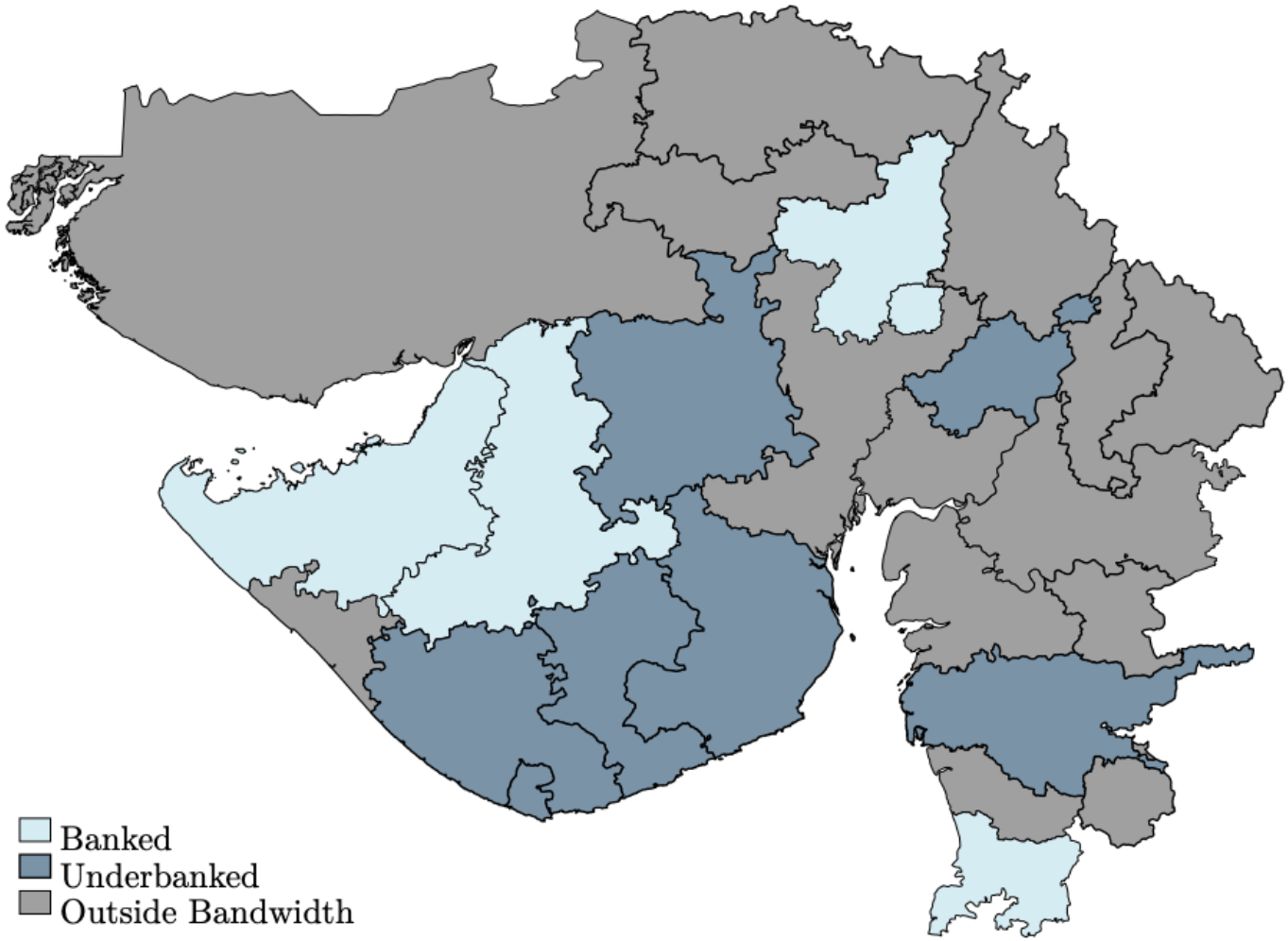
Regression Specification

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

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

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

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   (a) McCrary density test Graph ✔
   (b) Smoothness before the policy ✔

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

   Banks | Health | Consumption and financial access | Hospitals | General

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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

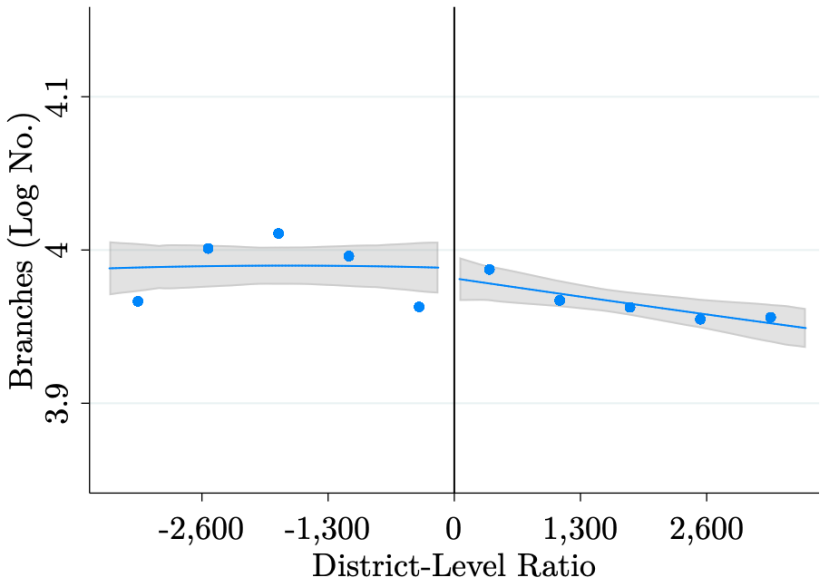
	Pre-policy (2004)	**Post-policy (2010)**
	Branches (log no.) (1)	Branches (log no.) (2)
Treated	0.01	0.17***
	(0.02)	(0.06)
Control Mean	3.98	4.38
Mean Change (%)	1.01	**18.98**
Bandwidth	3,621	3,329
Efficient Obs.	230	213
Observations	562	561
Baseline Control	Yes	Yes

* 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.

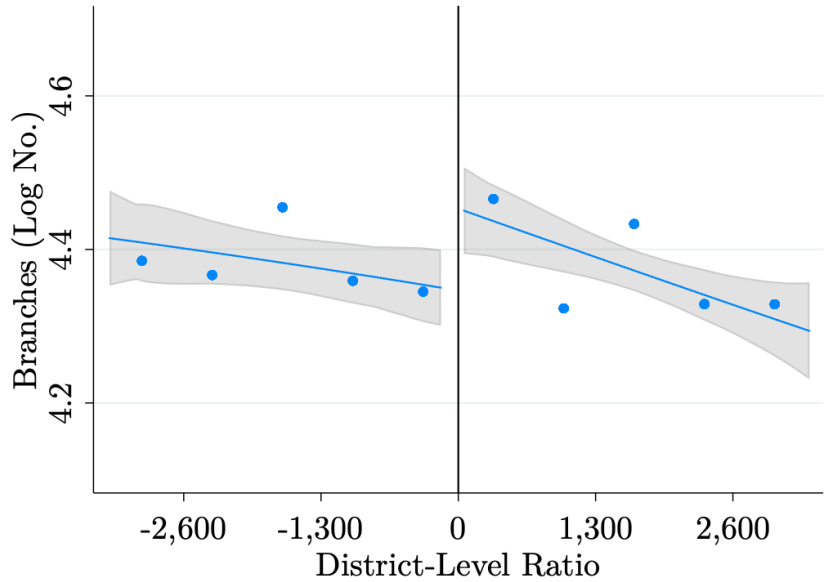
- Five years after the policy, banks have **19% more branches** in treatment districts (control mean 7 branches per 100,000 people)

Robustness | Placebo Bank Type | Stronger Reaction for Private Banks | Licenses | IA

Banks Open Branches



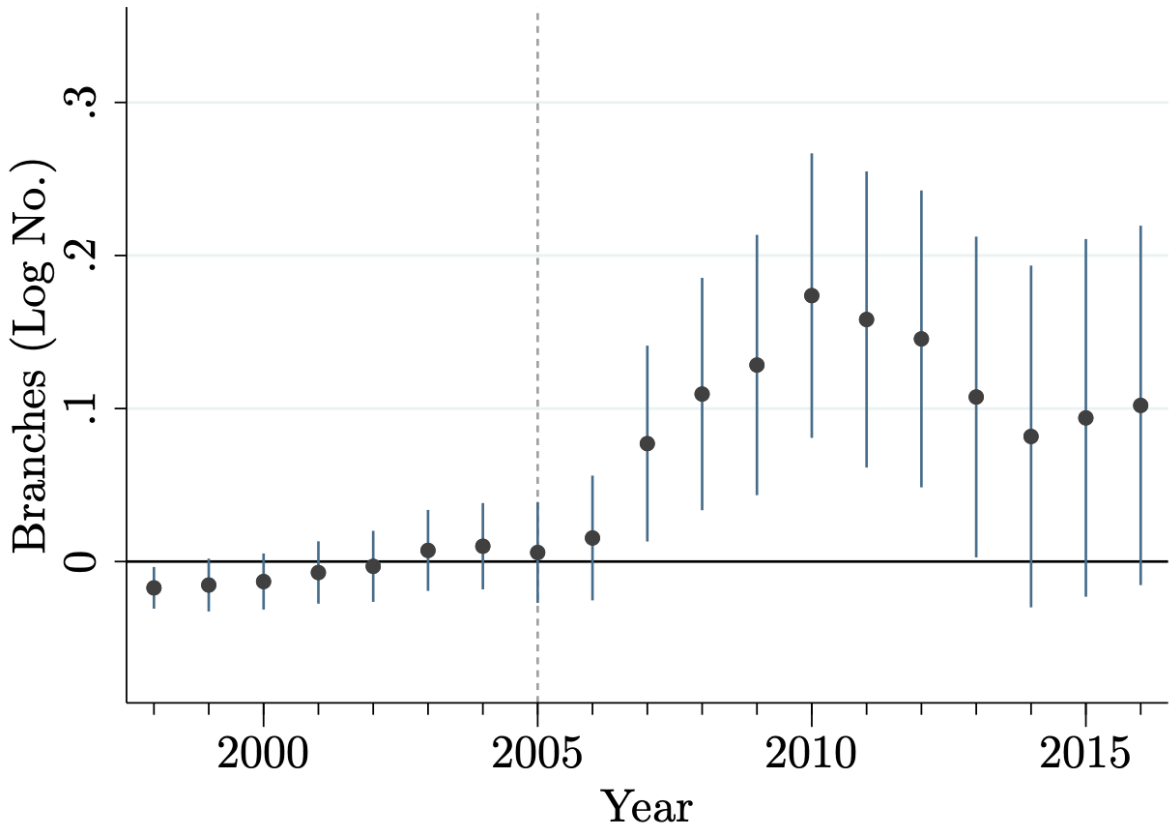
(a) **Pre:** Branches (2004)



(b) **Post:** Branches (2010)

Different Binned Means | 2nd Degree | Licenses

Dynamics Correspond to Policy Timing



Policy Change in 2010 | Deposits and Credit | Branch Profitability | Back to Identification Assumption | Control Districts | Animation | Licenses

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Morbidity Rate Decreases

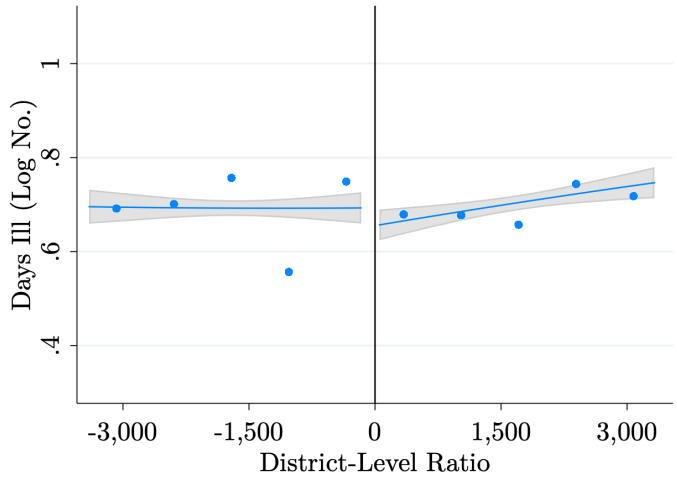
	Post-Policy (2011/2012)		
	Days ill (non-chronic) (log no.) (1)	Days missed due to illness (log no.) (2)	Medical expenses (log Rs.) (3)
Treated	-0.29**	-0.44***	-0.88**
	(0.12)	(0.13)	(0.35)
Control Mean	0.82	0.58	2.12
Mean Change (%)	**-25.21**	**-35.40**	**-58.56**
Bandwidth	2,658	2,513	2,948
Efficient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

- 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

Robustness | Effect Size Comparison | Smoothness Pre-Policy

Morbidity Rate Decreases



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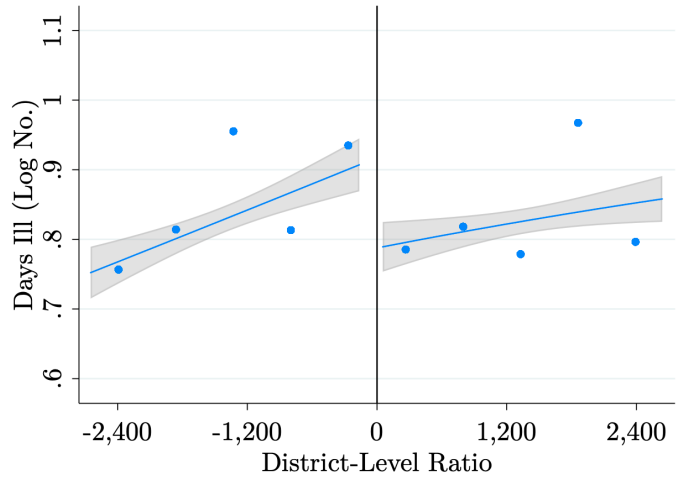
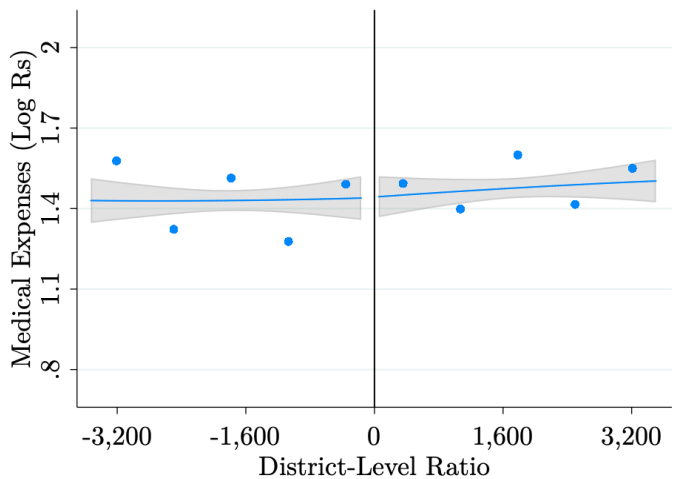
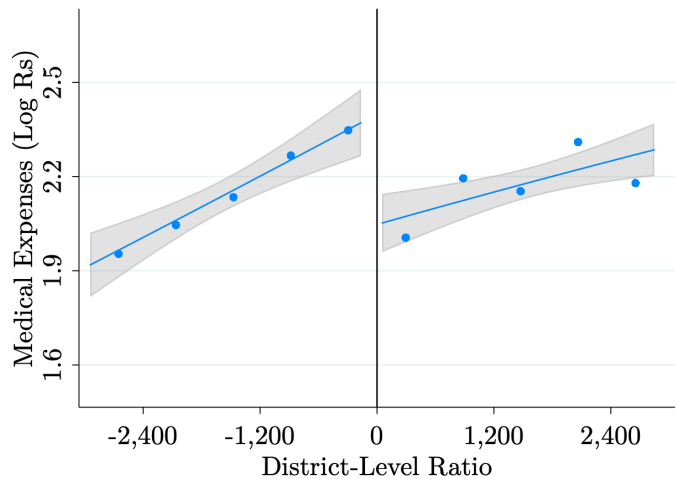


(b) **Post:** Days Ill



(c) **Pre:** Medical Expenses



(d) **Post:** Medical Expenses

Different Binned Means | Second Degree

Introduction | Design | Findings | Mechanisms | Conclusion

Findings

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    - Pregnancies becomes safer Table

3. Mechanisms

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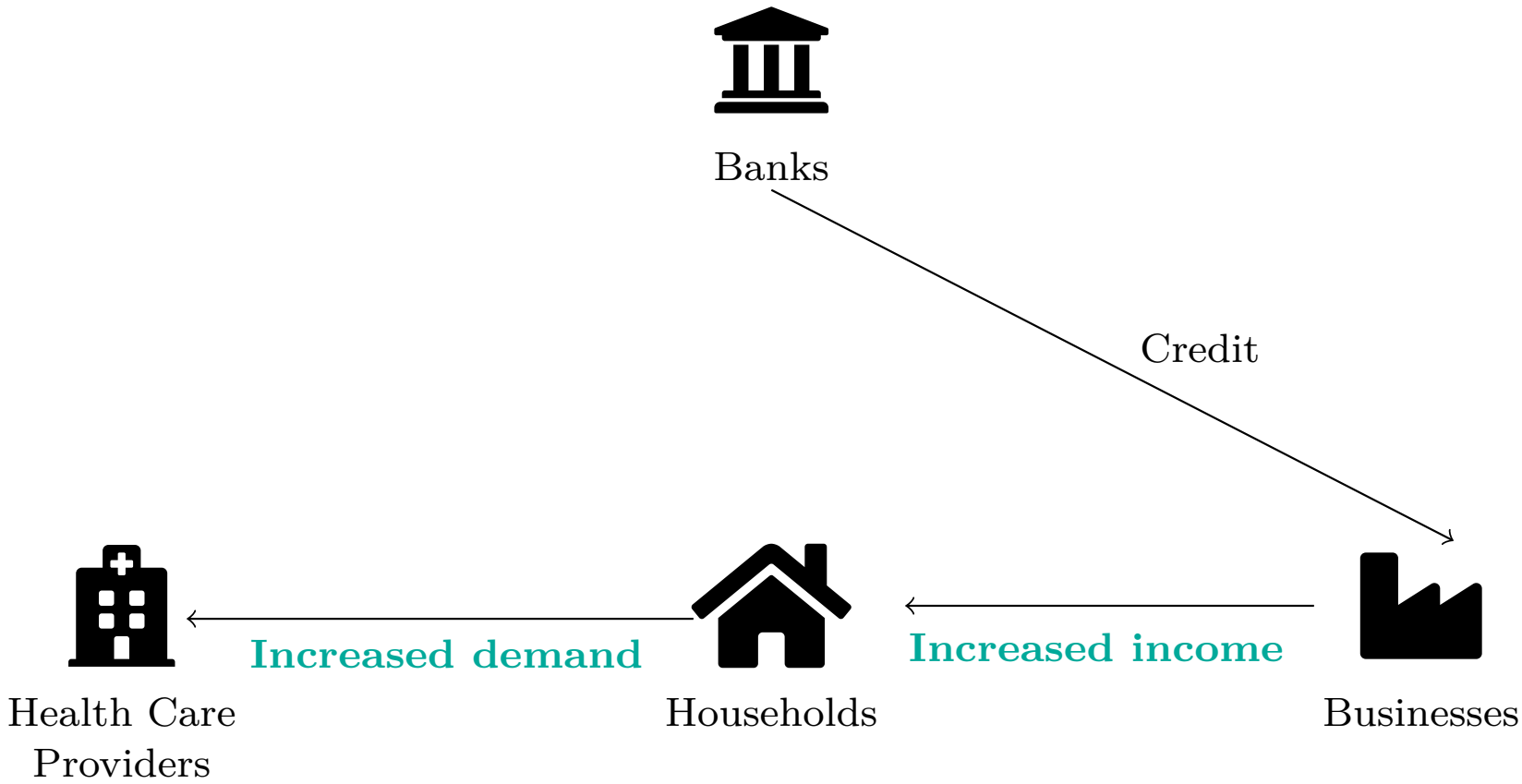
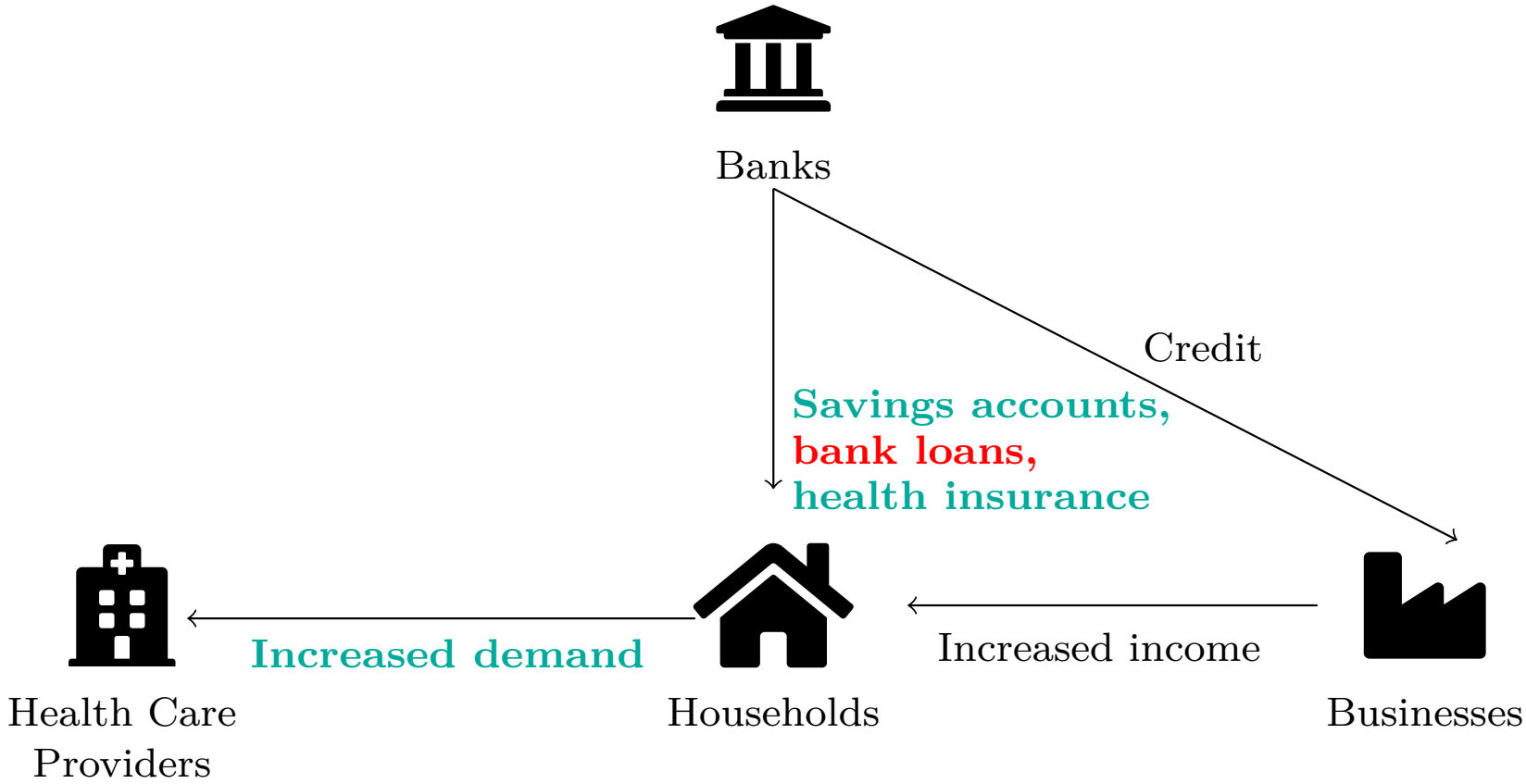
3. **Mechanisms**

Business Activity and Household Income Increase



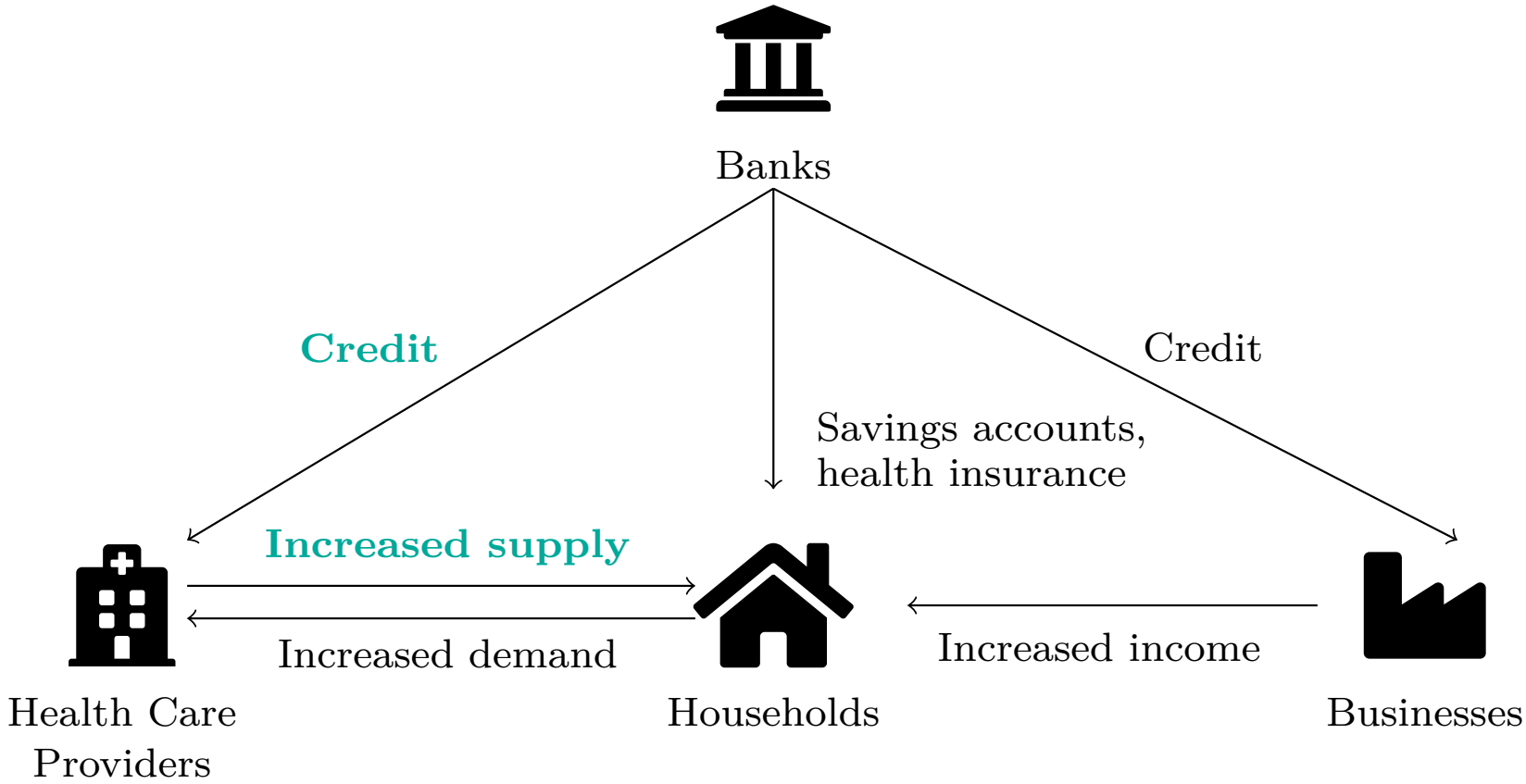
Income Demand

Households Gain Access to Savings Accounts and Health Insurance



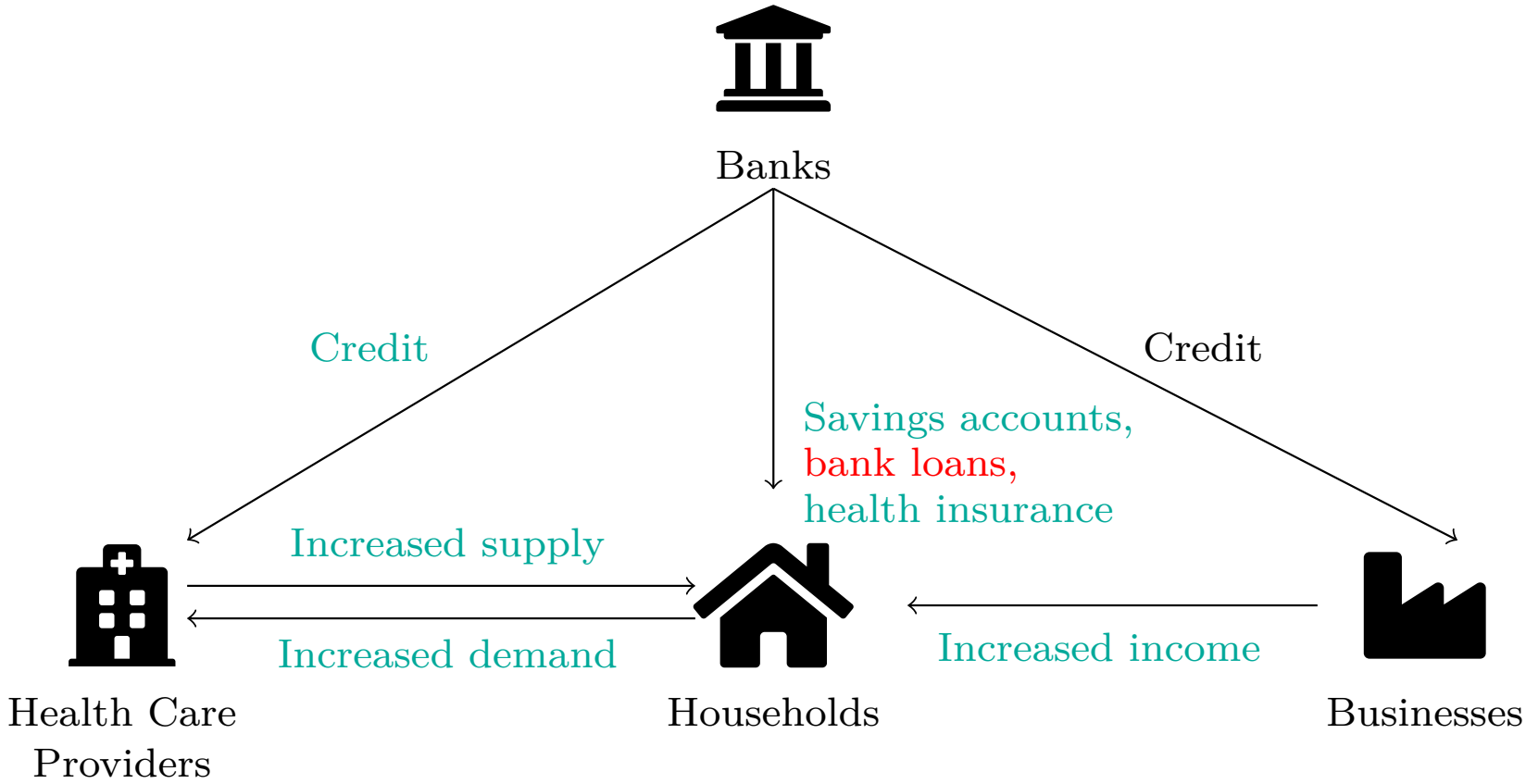
World Map Insurance | More on insurance | Table | Graphs | Demand

Health Care Providers Gain Credit Access and Increase Supply

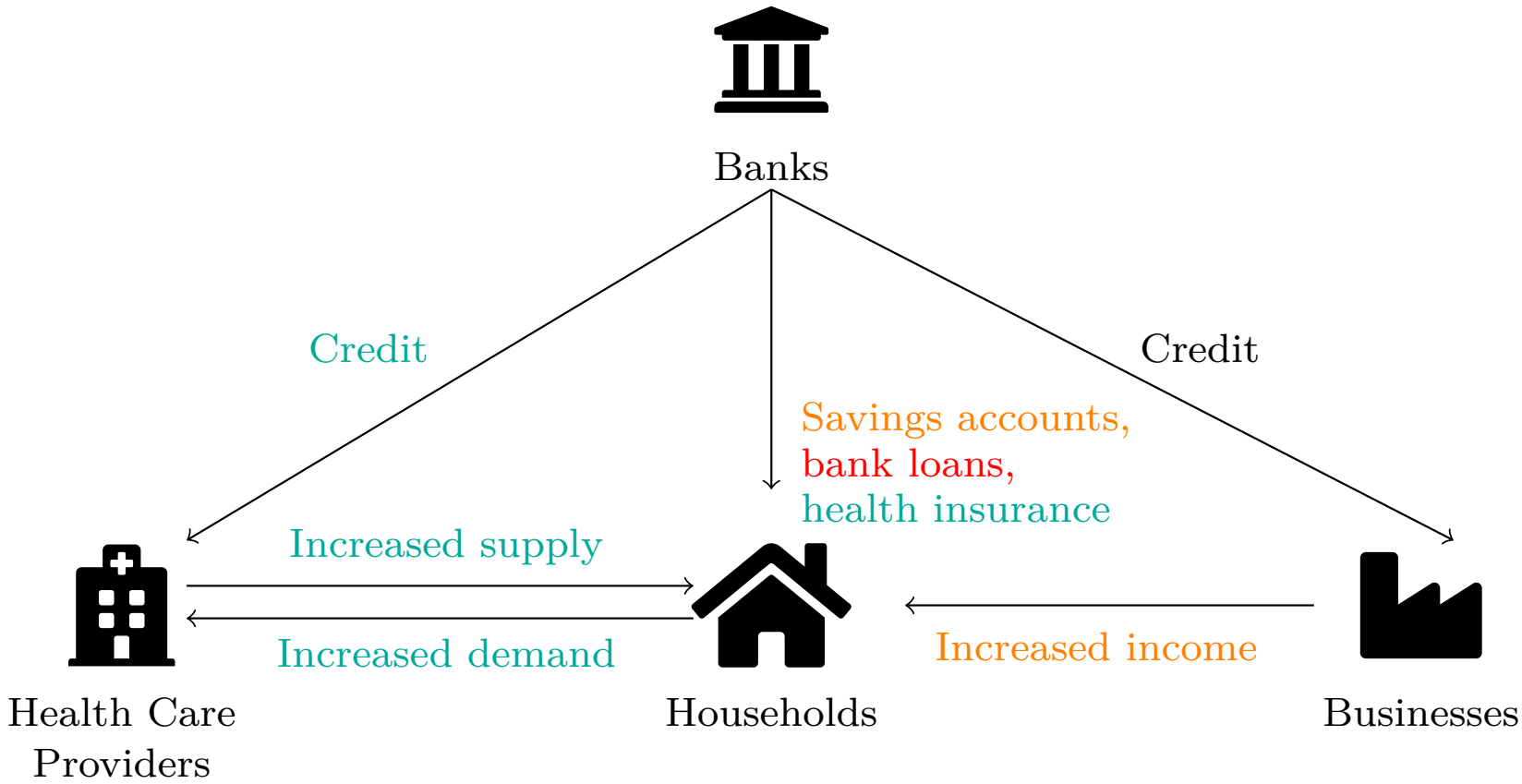


Quote Table Graphs

Mechanism Summary



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



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- Nationwide natural experiment that captures access for households, businesses, 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

Kim Fe Cramer
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For any questions or comments please contact

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Historical Context

- 1969, 1980: Nationalization of banks
- 1979-today: Priority sectors
- 1977-1990: 1:4 Branch licensing policy (Burgess and Pande, 2005)
- 1991-2004: No branch licensing policy
- 2005-today: Branch licensing policy (Young, 2020)

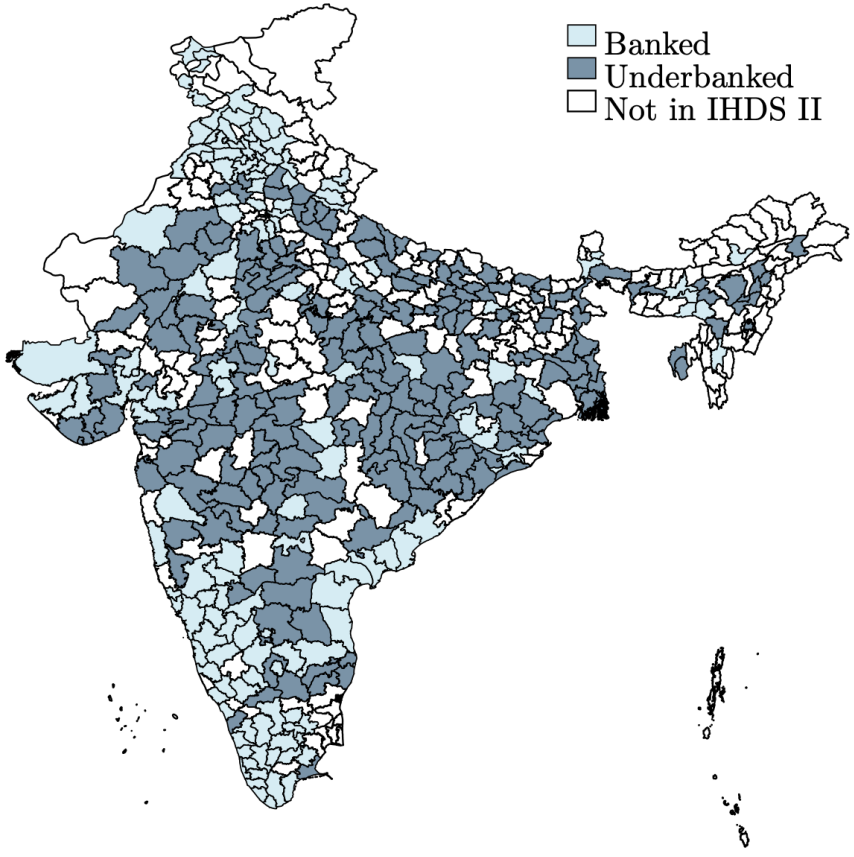
Back

Burgess and Pande (2005)

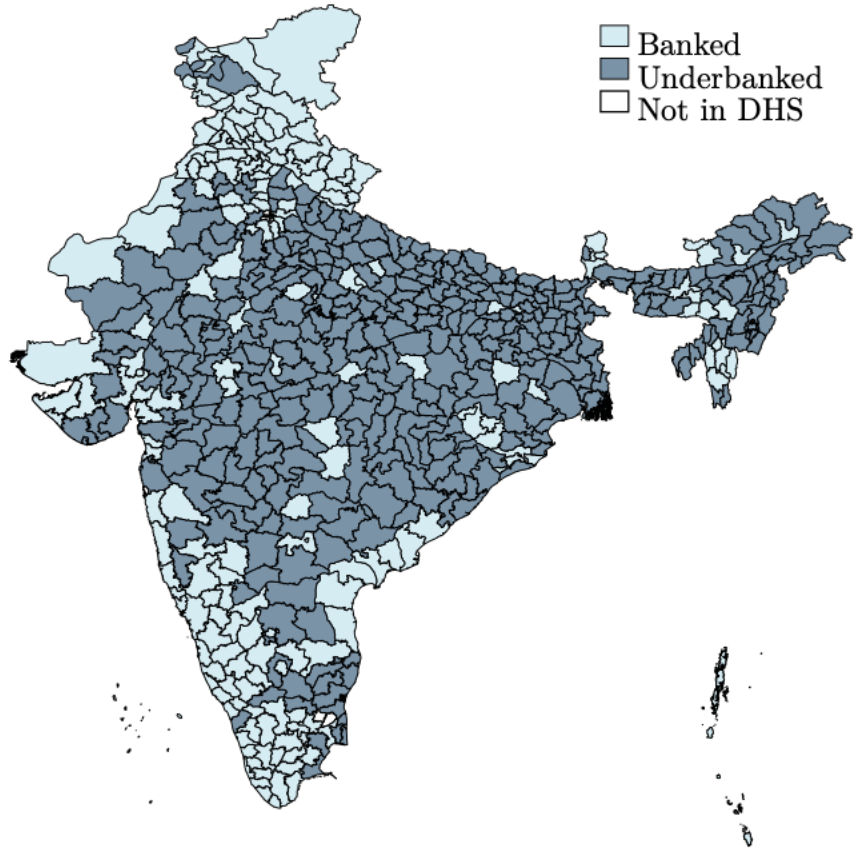
- Utilize RBI branch licensing policy in place from 1977 to 1990
- To obtain a license for a branch in a location with one or more branches ("banked"), the bank must open branches in four eligible unbanked locations (1:4)
- Instruments: deviations between 1977-1990 and post-1990 from pre-program linear trend relationship between state's initial financial development and rural branch expansion
- Identification assumption: other state-specific variables did not exhibit similarly timed trend reversals
- Mechanisms: deposit mobilization and credit disbursement (later paper: increased bank borrowing among the poor)
- Outcomes: state-level headcount poverty ratio and agricultural wage

Back

Survey Implementation Nationwide and Balanced Around Cutoff



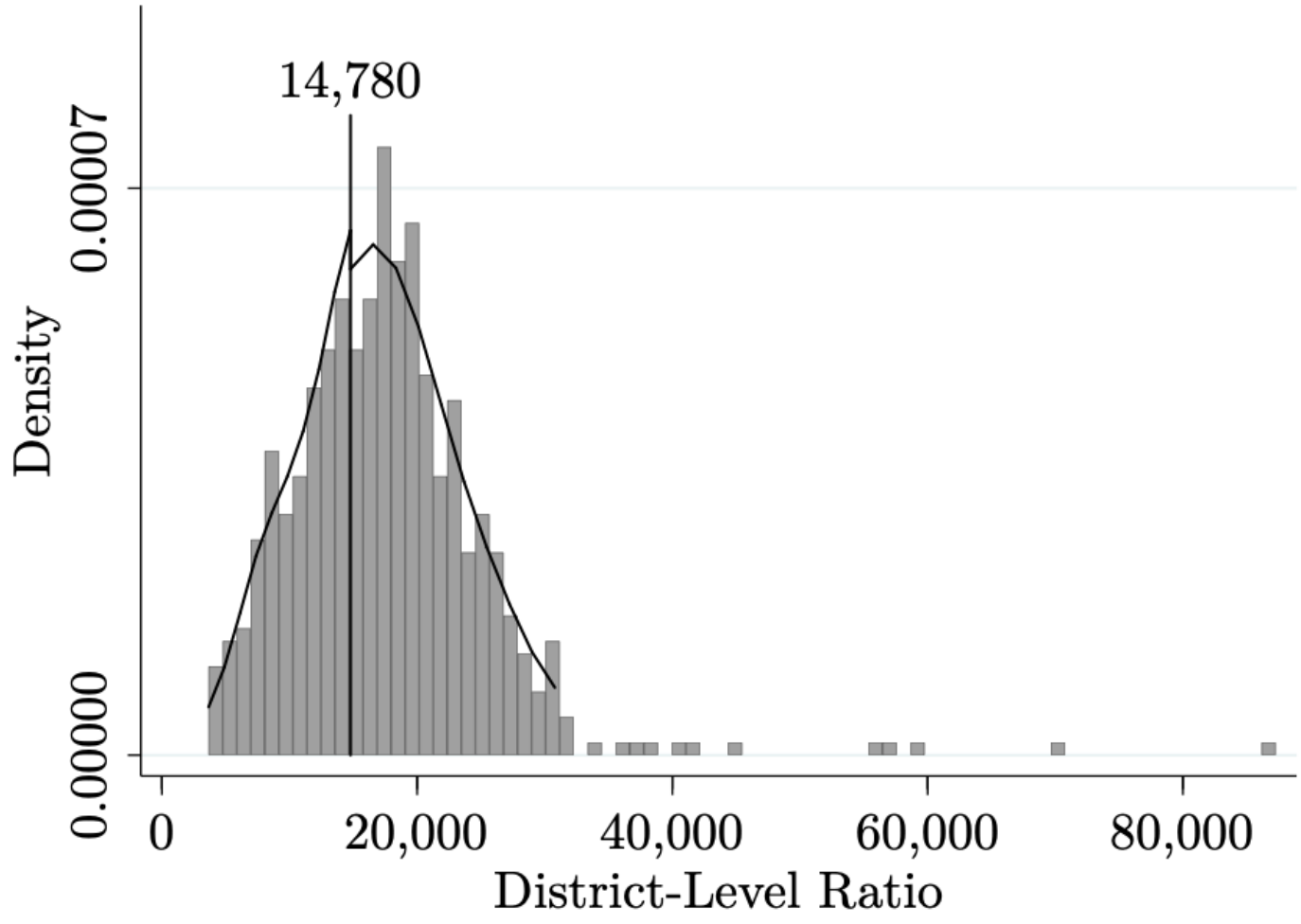
(a) **IHDS II** (2011/2012). Implemented in 63% of districts, balanced coef. 0.07(0.20)



(b) **DHS** (2015/2016). Implemented in 100% of districts

Back

No Manipulation of Ratio Around the Cutoff



McCrary (2008) Test: Do not reject smoothness, p-value 0.84

Back

No Discontinuities Before the Policy

	All observations		Within bandwidth		RDD
	Treated (1)	Not treated (2)	Treated (3)	Not treated (4)	Coefficient (5)
Consumption					
Total consumption (log Rs)	6.38	6.57	6.42	6.51	-0.01
	(0.42)	(0.42)	(0.43)	(0.42)	(0.05)
Food consumption (log Rs)	5.81	5.95	5.84	5.90	-0.03
	(0.32)	(0.32)	(0.33)	(0.32)	(0.03)
Financial Access					
Any loan (yes/no)	0.50	0.42	0.50	0.45	0.00
	(0.50)	(0.49)	(0.50)	(0.50)	(0.10)
Largest loan from bank (yes/no)	0.11	0.12	0.12	0.12	0.00
	(0.31)	(0.32)	(0.33)	(0.32)	(0.03)
Largest loan amt (log Rs)	3.87	2.38	3.65	3.03	0.12
	(4.46)	(4.08)	(4.47)	(4.35)	(0.86)
Health insurance (yes/no)	0.02	0.04	0.02	0.02	0.01
	(0.14)	(0.18)	(0.15)	(0.15)	(0.01)
Health					
Illness past month (yes/no)	0.53	0.40	0.48	0.41	-0.06
	(0.50)	(0.49)	(0.50)	(0.49)	(0.06)
Illness past month (log no. of days)	0.86	0.61	0.75	0.64	-0.11
	(0.97)	(0.89)	(0.94)	(0.90)	(0.13)
Days missed (yes/no)	0.41	0.30	0.33	0.34	-0.11
	(0.49)	(0.46)	(0.47)	(0.48)	(0.08)
Days missed (log no.)	0.58	0.42	0.45	0.48	-0.19
	(0.84)	(0.74)	(0.77)	(0.78)	(0.14)
Medical expenses (yes/no)	0.51	0.39	0.46	0.40	-0.08
	(0.50)	(0.49)	(0.50)	(0.49)	(0.06)
Medical expenses (log Rs)	1.68	1.25	1.57	1.32	-0.14
	(2.26)	(2.11)	(2.22)	(2.15)	(0.27)

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

Back

No Discontinuities Before the Policy

	1990	1991	1998	2001	2003	2004	2005
Nightlights							
Total light (log)			-0.03	0.05	-0.00	-0.13	-0.06
			(0.28)	(0.31)	(0.30)	(0.29)	(0.29)
Economic Census							
Empl. (log no.)	-0.16		-0.04				0.07
	(0.25)		(0.15)				(0.13)
Empl. manuf. (log no.)	-0.05		-0.04				0.02
	(0.19)		(0.14)				(0.16)
Empl. services (log no.)	-0.16		0.03				0.06
	(0.24)		(0.11)				(0.13)
Population Census							
Pop. (log no.)		0.01		-0.00			
		(0.11)		(0.10)			
Pop. rural (log no.)		0.01		0.00			
		(0.10)		(0.10)			
Pop. urban (log no.)		-0.11		-0.06			
		(0.08)		(0.08)			
Pop. literate (log no.)		-0.05		-0.07			
		(0.14)		(0.11)			
Tar road (yes/no)		-0.08		0.04			
		(0.07)		(0.06)			

* p <0.1, ** p <0.05, *** p <0.01. Standard errors in parentheses. Data SHRUG.

Back

Negligible Migration Due to Treatment

- Concern: Households move in response to policy to treatment districts. These households are healthier and as a result we measure improved health in treatment districts

	Moved from other district to current one in past 5 years (yes/no) (1)
Treated	0.01
	(0.00)
Control Mean	0.00
Change (%)	284.06
First Stage	0.54
Bandwidth	1,633
Efficient Obs.	8,104
Observations	34,415
Baseline Control	No

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

- Only 0.5 percent of households have moved from another district to their current district in the past five years
- They are not significantly more likely to have done so in treatment districts

Back

Other Policies Do Not Confound Results

	Priority districts				
	NHM (yes/no) (1)	ICDS (yes/no) (2)	ISSNIP (yes/no) (3)	NREGA (1st wave) (yes/no) (4)	NREGA (2nd wave) (yes/no) (5)
Treated	0.21	-0.14	-0.23	-0.25	-0.02
	(0.20)	(0.19)	(0.19)	(0.23)	(0.25)
Control Mean	0.18	0.25	0.15	0.16	0.24
Change (%)	118.66	-57.84	-152.46	-151.04	-8.59
First Stage	0.70	0.77	0.78	0.70	0.67
Bandwidth	2,671	4,160	4,595	2,706	2,290
Efficient Obs.	176	260	290	181	151
Observations	581	581	581	581	581
Baseline Control	No	No	No	No	No

* p <0.1, ** p <0.05, *** p <0.01. Standard errors in parentheses. Data Ministry of Health and Family Welfare, Ministry of Women and Child Development, Ministry of Rural Development.

- Other policies are not significantly more likely to be implemented in treatment districts

Back

Placebo Type of Banks Shows No Reaction to the Policy

	Post-policy (2010)	
	Branch licenses (log no.) (1)	Branches (log no.) (2)
Treated	-0.54	-0.08
	(0.48)	(0.48)
Control Mean	1.39	1.05
Mean Change (%)	-41.94	-7.63
Bandwidth	2,812	2,959
Efficient Obs.	187	195
Observations	561	561
Baseline Control	Yes	Yes

* p <0.1, ** p <0.05, *** p <0.01. Standard errors in parentheses. Data RBI Master Office File. District-level analysis. The variable from 1997 is included as a baseline control. Only regional rural banks are analyzed.

Back

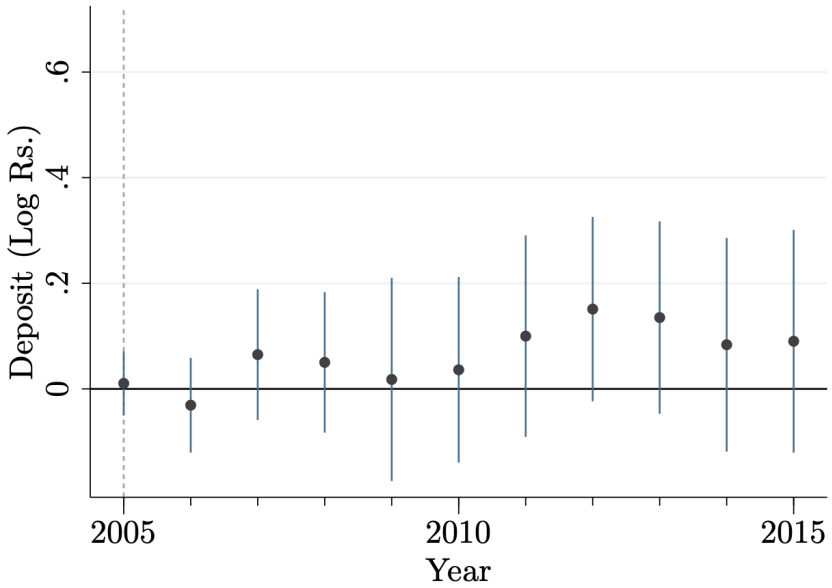
Private Banks Who Experienced Strong Growth React More Strongly

	Post-Policy (2010)	
	Branch Licenses (log no.) (1)	Branches (log no.) (2)
Treated	0.54***	0.47***
	(0.16)	(0.17)
Control Mean	2.44	2.52
Mean Change (%)	72.30	59.95
Bandwidth	2,957	2,963
Efficient Obs.	193	195
Observations	561	561
Baseline Control	Yes	Yes

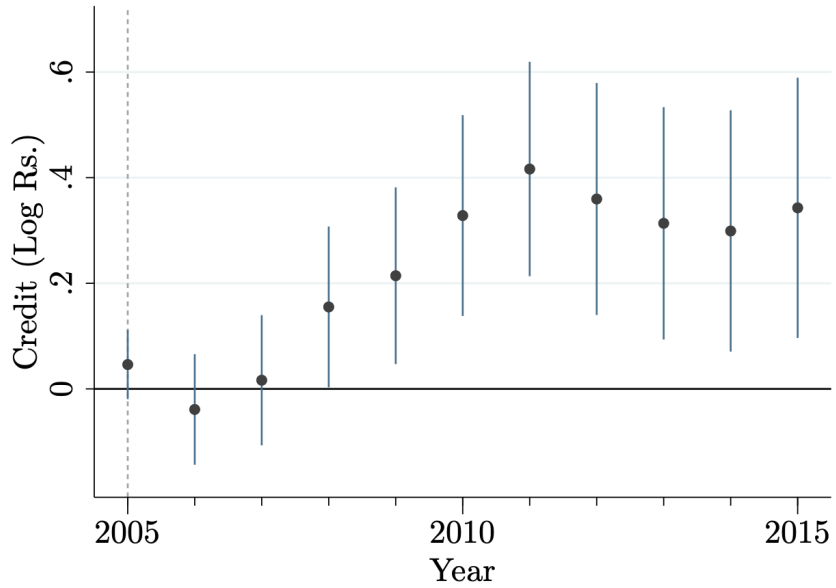
* p <0.1, ** p <0.05, *** p <0.01. Standard errors in parentheses. Data RBI Master Office File. District-level analysis. The variable from 1997 is included as a baseline control. Only private banks are analyzed.

Back

Private Banks Report More Credit



(a) Private Bank Deposit (Dynamics)



(b) Private Banks Credit (Dynamics)

Back

Are Banks Opened in Treatment Districts Profitable?

- I will show you that bank presence improves household welfare
- Banks are concerned with their profitability
- Data on branch profitability in India not publicly available
- Banks indeed react to the policy, suggesting that opening branches in treatment districts plus obtaining an additional license is profitable
- What are the costs of the policy remains an open question

Back

Policy Change in 2010

- In 2010, the RBI allowed branch openings without licenses in *underbanked states*, which have a population-to-branch ratio larger than the national average
- This attenuated the difference between underbanked and banked districts in underbanked states
- We thus see that the difference in number of branches overall decreases
- Importantly, underbanked districts have been exposed historically to more branches

Back

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Treated	0.01
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First Stage	0.54
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Observations	34,415
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* p <0.1, ** p <0.05, *** p <0.01. Standard errors in parentheses. Data IHDS II (2011/2012).

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Other Policies Do Not Confound Results

Concern: I mistake discontinuities in health outcomes around the cutoff for the effect of the RBI policy, while they actually stem from other policies

- No other policy that uses the same assignment rule

Other Policies Do Not Confound Results

Concern: I mistake discontinuities in health outcomes around the cutoff for the effect of the RBI policy, while they actually stem from other policies

- No other policy that uses the same assignment rule
- There could be other polices that by incidence are significantly more likely to be implemented in treatment districts
- Discontinuity in implementation is key, otherwise the impact of the policy would be smooth around the cutoff

Who Implements Policies That Could Impact Health?

1. **Ministry of Health and Family Welfare**
    - National Health Mission (NHM) (2013)
        - Multiple activities, e.g. a safe motherhood program
        - 184 priority districts by composite health index

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        - 200 priority districts by undernutrition measures

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   - ICDS Improvement Program (ISSNIP) (2012)
     - Shift focus of ICDS to younger children
     - 162 priority districts by undernutrition measures

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     - Shift focus of ICDS to younger children
     - 162 priority districts by undernutrition measures

3. **Ministry of Rural Development**
   - National Rural Employment Guarantee Act (NREGA) (2005)
     - Guaranteed employment for 100 days
     - 200 priority districts in wave 1 and 2 respectively by development index

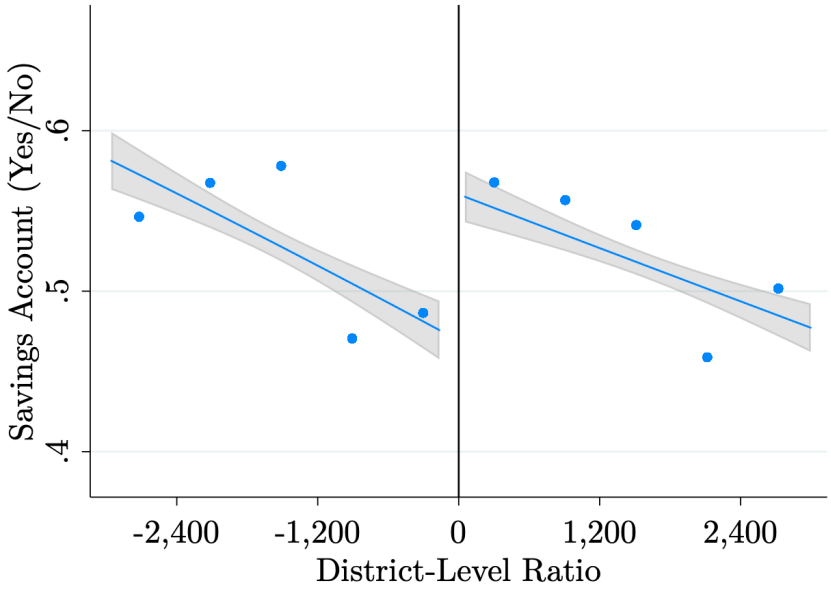
Smoothness in Financial Access Pre-Policy

	Any loan (yes/no) (1)	**Largest loan amount** (log Rs) (2)	**Largest loan from bank** (yes/no) (3)	**Health insurance** (yes/no) (4)
Treated	0.00	0.12	-0.00	0.01
	(0.10)	(0.86)	(0.03)	(0.01)
Control Mean	0.45	3.03	0.11	0.02
Change (%)	0.24	13.22	-2.81	55.55
First Stage	0.69	0.69	0.71	0.68
Bandwidth	2,950	2,947	4,322	3,086
Efficient Obs.	16,402	14,893	21,224	16,057
Observations	36,913	33,825	37,052	35,204
Baseline Control	No	No	No	No

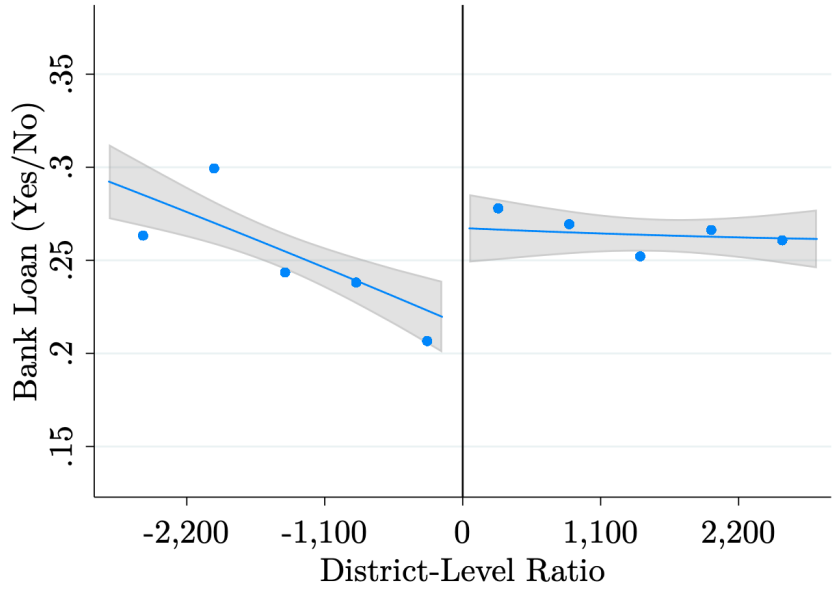
* p <0.1, ** p <0.05, *** p <0.01. Standard errors in parentheses. Data IHDS I (2005/2011). Household-level. Data IHDS I (2004/2005). Variable in Rs is transformed to log and trimmed at the 10th and 90th percentile.

Back

Households Use More Banking Services



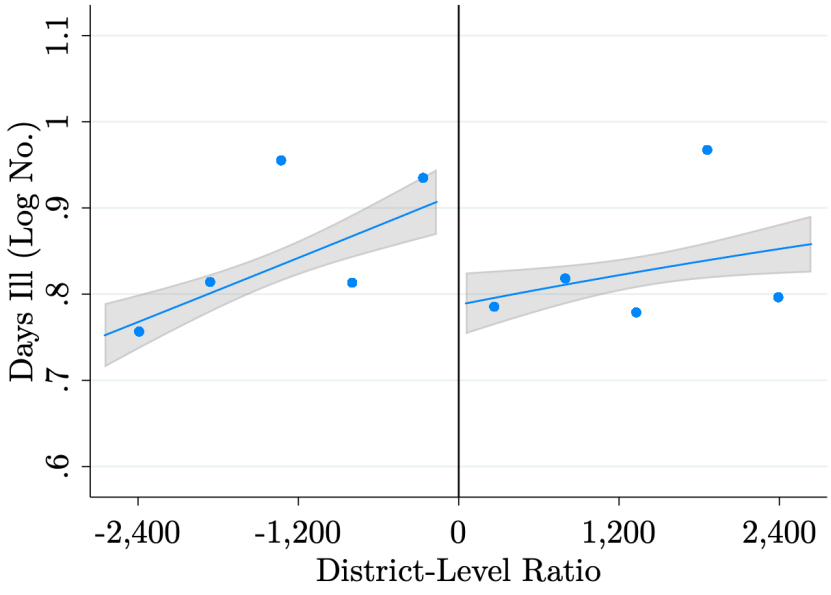
(a) Savings Account (Yes/No)



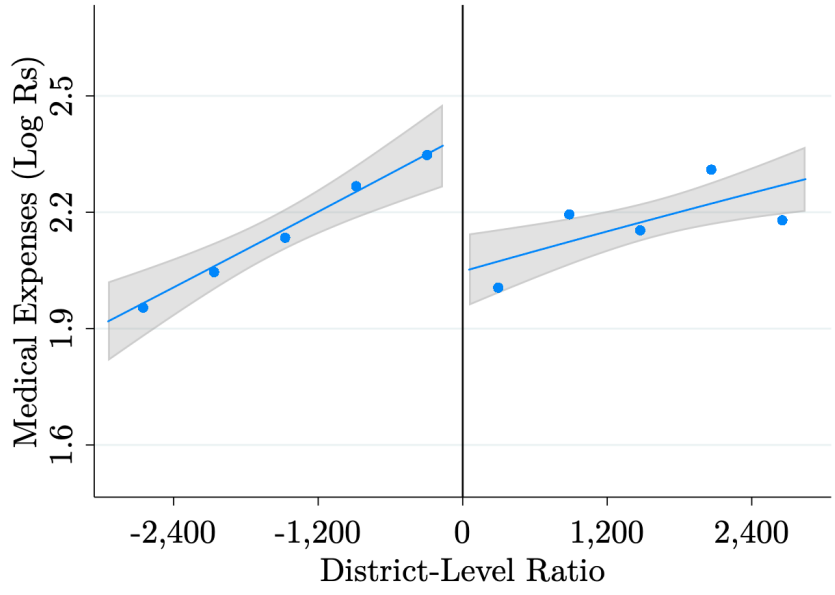
(b) Bank Loan (Yes/No)

Back

Morbidity Rate Decreases



(a) Days Ill (Log No.)



(b) Medical Expenses (Log Rs)

Back

Vaccination Rate Increases

	Vaccination	**Morbidity**	**Health care visits**	
	Vaccinated child (yes/no) (1)	Sick child (yes/no) (2)	Any reason (yes/no) (3)	Children's treatment (yes/no) (4)
Treated	0.07*	-0.06*	-0.08**	-0.02*
	(0.04)	(0.03)	(0.03)	(0.01)
Control Mean	0.86	0.27	0.29	0.11
Mean Change (%)	**8.34**	**-23.12**	-26.84	-22.99
Bandwidth	2,898	3,539	3,287	3,383
Efficient Obs.	26,117	66,658	166,756	187,208
Observations	86,079	171,471	431,148	471,985
Baseline Control	No	No	No	No

* p <0.1, ** p <0.05, *** p <0.01. Standard errors in parentheses. Data DHS (2015/2016). Household-level. Data on health status is directly obtain from children-level data, missing for households without children below five. Data on health care visits is obtained from women-level data, missing for all households that do not have an eligible woman interviewed.

- Ten years after the policy, households are **8**% more likely to have a **vaccinated child**

Back (Findings) Back (Morbidity)

Pregnancies Become Safer

	Pregnancies			Visits
	Health care facility delivery (yes/no) (2)	Experienced miscarriage (yes/no) (2)	Experienced stillbirth (yes/no) (3)	Women's treatment (yes/no) (4)
Treated	0.005***	-0.010*	-0.002*	-0.051*
	(0.002)	(0.006)	(0.001)	(0.027)
Control Mean	0.016	0.038	0.004	0.170
Mean Change (%)	**33.52**	**-26.30**	**-45.92**	**-29.84**
Bandwidth	3,023	3,430	3,386	3,277
Efficient Obs.	172,892	188,571	187,208	182,318
Observations	471,985	471,985	471,985	471,985
Baseline Control	No	No	No	No

* p <0.1, ** p <0.05, *** p <0.01. Standard errors in parentheses. Data DHS (2015/2016). Household-level. Data on health status and health care visits is obtained from women-level data, missing for all households that do not have an eligible woman interviewed.

- Ten years after the policy, the probability of **institutional deliveries** is higher and the probability of **miscarriage or stillbirth** lower in treatment districts

Back (Findings) Back (Morbidity)

As Expected No Effect on Long-Term Diseases

	Morbidity	**Economic consequences**			
	Illness past month	Days missed		Medical expenses	
	(yes/no) (1)	(yes/no) (2)	(log no.) (3)	(yes/no) (4)	(log Rs) (5)
Treated	-0.00	-0.05	-0.02	0.00	-0.20
	(0.05)	(0.05)	(0.15)	(0.05)	(0.37)
Control Mean	0.39	0.30	0.59	0.37	1.67
Mean Change (%)	-0.96	-15.55	-1.57	0.02	-17.98
Bandwidth	2,189	2,038	1,934	2,107	1,920
Efficient Obs.	11,716	9,962	8,697	10,981	8,700
Observations	35,103	34,883	31,426	35,103	31,621
Baseline Control	No	No	No	No	No

* p <0.1, ** p <0.05, *** p <0.01. Standard errors in parentheses. Data IHDS II (2011/2012). All illnesses refer to a variety of long-term diseases including cancer, diabetes, or heart disease. Any day missed measures the number of days that the household was not able to do usual activities and had to miss work or school. All questions refer to the past 365 days.

- As expected, no effects for diseases such as cancer or diabetes

Back

Other Policies Do Not Confound Results

	Priority districts				
	NHM (yes/no) (1)	ICDS (yes/no) (2)	ISSNIP (yes/no) (3)	NREGA (1st wave) (yes/no) (4)	NREGA (2nd wave) (yes/no) (5)
Treated	0.21	-0.14	-0.23	-0.25	-0.02
	(0.20)	(0.19)	(0.19)	(0.23)	(0.25)
Control Mean	0.18	0.25	0.15	0.16	0.24
Change (%)	118.66	-57.84	-152.46	-151.04	-8.59
First Stage	0.70	0.77	0.78	0.70	0.67
Bandwidth	2,671	4,160	4,595	2,706	2,290
Efficient Obs.	176	260	290	181	151
Observations	581	581	581	581	581
Baseline Control	No	No	No	No	No

* p <0.1, ** p <0.05, *** p <0.01. Standard errors in parentheses. Data Ministry of Health and Family Welfare, Ministry of Women and Child Development, Ministry of Rural Development.

- Other policies are not significantly more likely to be implemented in treatment districts

Households Report Fewer Problems With Providers

	Big problem with health care providers				
	Quantity		Quality		
	Distance to facility (yes/no) (1)	Taking transport to facility (yes/no) (2)	No personnel at facility (yes/no) (3)	No female personnel at facility (yes/no) (4)	No drugs at facility (yes/no) (5)
Treated	-0.12***	-0.11***	-0.14**	-0.20**	-0.15**
	(0.04)	(0.04)	(0.06)	(0.08)	(0.07)
Control Mean	0.20	0.17	0.44	0.37	0.45
Mean Change (%)	**-57.66**	**-65.35**	**-32.39**	**-54.27**	**-32.35**
Bandwidth	2,053	1,922	2,216	2,258	2,015
Efficient Obs.	34,937	34,395	41,751	42,131	34,829
Observations	128,525	128,525	129,568	129,568	128,525
Baseline	No	No	No	No	No

* p <0.1, ** p <0.05, *** p <0.01. Standard errors in parentheses. Data DHS (2015/2016). Urban sample.

- Ten years after the policy, urban households are less likely to state that quantity and quality concerns are big problems

Back

Stronger Reaction for Private Hospitals

	(log no.) (1)	(log no.) (2)	(yes/no) (3)	(yes/no) (4)
Treated	0.02**	0.84**	0.00	0.64*
	(0.01)	(0.36)	(.)	(0.33)
Control Mean	0.02	5.27	0.00	4.41
Change (%)	87.52	16.02		14.63
First Stage	0.79	0.81	0.89	0.81
Bandwidth	2,357	3,382	72,104	3,633
Efficient Obs.	156	211	555	226
Observations	528	538	556	539
Baseline Control	No	No		No

* p <0.1, ** p <0.05, *** p <0.01. Standard errors in parentheses. Data Economic Census (2005 and 2013). District-level. All variables measured in numbers of establishments are measured in logs and winsorized at the 1st and 99th percentile. Institutional loans likely refer to bank loans. Column 2 and 4 refer to the major source of financing.

- Stronger reactions for private hospitals that are more likely to rely on bank loans

Back

Stronger Effects for Households with High Probability to Take Up Instruments

	Savings account		**Bank loan**		**Health insurance**	
	High	Low	High	Low	High	Low
	Days ill (yes/no) (1)	Days ill (yes/no) (2)	Days ill (yes/no) (3)	Days ill (yes/no) (4)	Days ill (yes/no) (5)	Days ill (yes/no) (6)
Treated	-0.29**	-0.10*	-0.24**	-0.12**	-0.33***	-0.07
	(0.12)	(0.06)	(0.11)	(0.06)	(0.12)	(0.08)
Control Mean	0.53	0.53	0.53	0.53	0.53	0.56
Change (%)	**-55.10**	-19.27	**-45.52**	-23.61	**-62.55**	-13.31
First Stage	0.57	0.75	0.59	0.73	0.55	0.82
Bandwidth	2,222	2,953	2,226	2,916	2,336	1,718
Efficient Obs.	7,656	5,976	7,608	5,934	7,838	3,506
Observations	23,061	13,739	23,249	13,555	22,687	13,731
Baseline Control	No	No	No	No	No	No

* p <0.1, ** p <0.05, *** p <0.01. Standard errors in parentheses. Data IHDS I and II (2004/2005 and 2011/2012). Household-level. Days ill refers to whether any member was ill in the past month with fever, diarrhea, or cough.

Back

Eight Percent Increase in Consumption for Treatment Households

	Total consumption (log Rs) (1)	**Food consumption** (log Rs) (2)	**Meals per day** (no.) (3)	**Hygiene expenses** (log Rs) (4)	**Outpatient expenses** (log Rs) (5)	**Inpatient expenses** (log Rs) (6)
Treated	0.07**	0.06*	0.24**	0.06	-0.45*	-0.14
	(0.04)	(0.03)	(0.10)	(0.06)	(0.23)	(0.30)
Control Mean	7.48	6.71	2.75	4.02	2.73	1.33
Change (%)	**7.68**	5.73	8.64	5.82	-36.06	-13.46
First Stage	0.75	0.71	0.68	0.66	0.70	0.56
Bandwidth	4,120	2,755	3,004	2,246	3,793	1,902
Efficient Obs.	14,903	11,415	16,611	9,896	17,418	8,537
Observations	21,410	21,345	34,773	23,010	29,182	27,312
Baseline Control	Yes	Yes	Yes	Yes	Yes	Yes

* p <0.1, ** p <0.05, *** p <0.01. Standard errors in parentheses. Data IHDS II (2011/2012). Household-level. Variables in rupees measured in log and trimmed at the 10th and 90th percentiles, expressed per capita in the past month.

- Downward pressures on medical expenses: a) people become healthier, b) people gain access to insurance, and c) prices adjust downward

Back

Effect Size Discussion and Supplementary Evidence

- **Similar effect sizes** as other successful health interventions
  - Conditional cash transfers: child's probability of illness -39% (Gertler, 2004)
  - Improved water quality: child's probability of diarrhea -25% (Kremer et al., 2011)
  - Trained informal providers: child mortality -25% (Bjorkman-Nykvist et al., 2014)
  - Monitoring providers: child mortality -33% (Bjorkman & Svensson, 2009)
  - ▶ Diseases such as diarrhea often have **highly effective treatments**
- **Replicable** in other data set Table 1 Table 2
- As expected no effect for diseases such as cancer Table

Back

Results are Robust to Different Bandwidths

	Branch licenses 2010 (log no.) Bandwidth multiplier						
	0.50	0.75	1.00	1.25	1.50	1.75	2.00
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Treated	0.18**	0.23***	0.19***	0.17***	0.15***	0.13***	0.13***
	(0.07)	(0.06)	(0.05)	(0.05)	(0.05)	(0.05)	(0.04)
Control Mean	4.32	4.30	4.38	4.31	4.29	4.28	4.28
Change (%)	19.87	25.59	21.32	19.05	15.96	14.43	13.39
First Stage	0.74	0.79	0.80	0.80	0.81	0.81	0.82
Bandwidth	1,486	2,229	2,972	3,715	4,458	5,201	5,945
Efficient Obs.	96	146	196	237	283	320	356
Observations	536	553	561	562	564	564	576
Baseline Control	Yes	Yes	Yes	Yes	Yes	Yes	Yes

* p <0.1, ** p <0.05, *** p <0.01. Standard errors in parentheses. Data RBI. District-level

Back

Results are Robust to Different Bandwidths

	0.50	0.75	1.00	1.25	1.50	1.75	2.00
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Treated	0.15*	0.19***	0.17***	0.14**	0.13**	0.12**	0.14***
	(0.08)	(0.06)	(0.06)	(0.06)	(0.05)	(0.05)	(0.05)
Control Mean	4.42	4.36	4.38	4.33	4.29	4.27	4.27
Change (%)	16.65	21.26	18.98	15.06	13.56	13.30	14.84
First Stage	0.72	0.79	0.80	0.81	0.82	0.82	0.83
Bandwidth	1,665	2,497	3,329	4,161	4,994	5,826	6,658
Efficient Obs.	151	185	213	240	275	299	321
Observations	548	561	561	561	563	575	575
Baseline Control	Yes	Yes	Yes	Yes	Yes	Yes	Yes

* p <0.1, ** p <0.05, *** p <0.01. Standard errors in parentheses. Data RBI. District-level.

Back

Results are Robust to Different Bandwidths

	(max) health_min_ill_d_in30_y	(max) health_min_ill_d_in30_y	(m
Conventional	-0.19**	-0.13*	
	(0.09)	(0.08)	
Bias-corrected	-0.21**	-0.16**	
	(0.09)	(0.08)	
Robust	-0.21**	-0.16	
	(0.11)	(0.10)	
Control Mean	-0.19	-0.13	
Change (%)	0.09	0.08	
First Stage	-0.21	-0.16	
Bandwidth	0	0	
Efficient Obs.			
Observations			

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

Back

Results are Robust to Different Bandwidths

	health_min_ill_d_in30_log	health_min_ill_d_in30_log	health_min_
Conventional	-0.29**	-0.24*	-
	(0.12)	(0.13)	(
Bias-corrected	-0.36***	-0.29**	-
	(0.12)	(0.13)	(
Robust	-0.36**	-0.29*	-
	(0.15)	(0.17)	(
Control Mean	-0.29	-0.24	-
Change (%)	0.12	0.13	
First Stage	-0.36	-0.29	-
Bandwidth	0	0	
Efficient Obs.			
Observations			

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

Back

Results are Robust to Different Polynomial Degrees

	1st degree (1)	2nd degree (2)	3rd degree (3)
Treated	-0.29** (0.12)	-0.35* (0.19)	-0.41 (0.26)
Control Mean			
Change (%)			
First Stage	0.70	0.64	0.58
Bandwidth	2,658	4,040	5,942
Efficient Obs.			
Observations	32,280	32,415	33,806
Baseline Control			

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

Back

Results are Robust to Different Polynomials

	Branch licenses 2010 (log no.) Polynomial degree		
	One	Two	Three
	(1)	(2)	(3)
Treated	0.19***	0.33***	0.46***
	(0.05)	(0.09)	(0.14)
Control Mean	4.38	4.30	4.28
Change (%)	21.32	39.27	58.81
First Stage	0.80	0.72	0.64
Bandwidth	2,972	4,402	5,947
Efficient Obs.	196	280	356
Observations	561	562	576
Baseline Control	Yes	Yes	Yes

* p <0.1, ** p <0.05, *** p <0.01. Standard errors in parentheses. Data RBI. District-level.

Back

Results are Robust to Different Polynomials

	1st degree (1)	2nd degree (2)	3rd degree (3)
Treated	0.17*** (0.06)	0.31*** (0.09)	0.44*** (0.14)
Control Mean			
Change (%)			
First Stage	0.80	0.72	0.64
Bandwidth	3,329	4,148	6,099
Efficient Obs.			
Observations	561	562	576
Baseline Control			

* p <0.1, ** p <0.05, *** p <0.01. Standard errors in parentheses. Data RBI. District-level.

Back

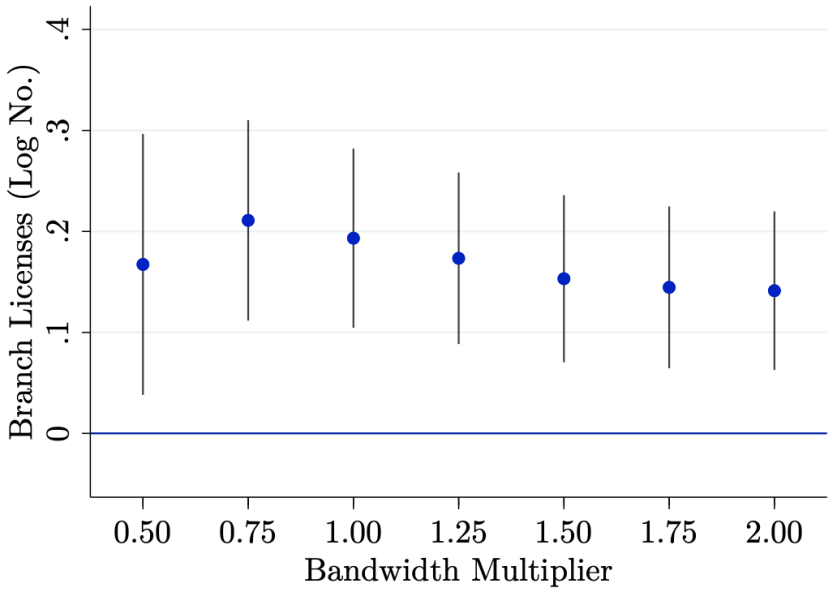
Limited Evidence of Discontinuities at Placebo Cutoffs

	Placebo cutoff						
	-3,000 (1)	-2,000 (2)	-1,000 (3)	0 (4)	1,000 (5)	2,000 (6)	3,000 (7)
Outcome							
Branch licenses (log no.)	0.04	0.06	0.78	0.00	0.22	0.01	0.92
Branches (log no.)	0.04	0.14	0.50	0.00	0.40	0.52	0.87

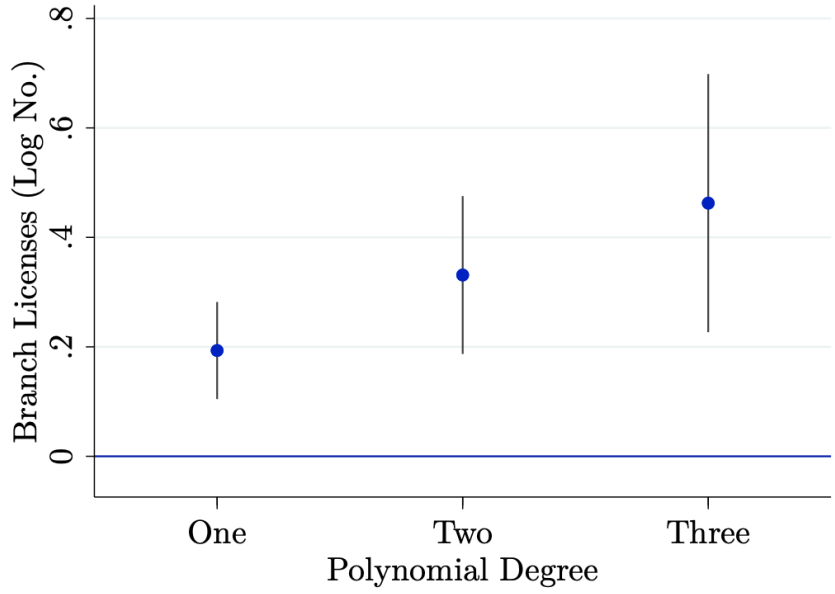
* p <0.1, ** p <0.05, *** p <0.01. Standard errors in parentheses. Data RBI. District-level.

Back

Results are Robust to Different Bandwidths and Polynomial Degrees



(a) Branch Licenses (2010)



(b) Branch Licenses (2010)

Table Bandwidths Table Polynomials Back

Multiple Hypothesis Testing

- Resources available in World Bank Blog (McKenzie, 2020)
- Three approaches
  1. Summary indices
  2. Family wise error rate (controls for a single false rejection)
  3. *False discovery rate (controls expected proportion of rejections)*
- Apply code by Anderson (2008) on false discovery rate

Back

A Snapshot of Health Care Spending Shows No Increase

	Outpatient expenses (log Rs) (5)	**Inpatient expenses** (log Rs) (6)
Treated	-0.45*	-0.14
	(0.23)	(0.30)
Control Mean	2.73	1.33
Change (%)	-36.06	-13.46
First Stage	0.70	0.56
Bandwidth	3,793	1,902
Efficient Obs.	17,418	8,537
Observations	29,182	27,312
Baseline Control	Yes	Yes

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

- We cannot conclude that there was no increase in health care demand!

Back

Challenges in Measuring Health Care Demand

1. **Snapshot of health care demand** at the time of the surveys is observable, not historical demand in the previous years

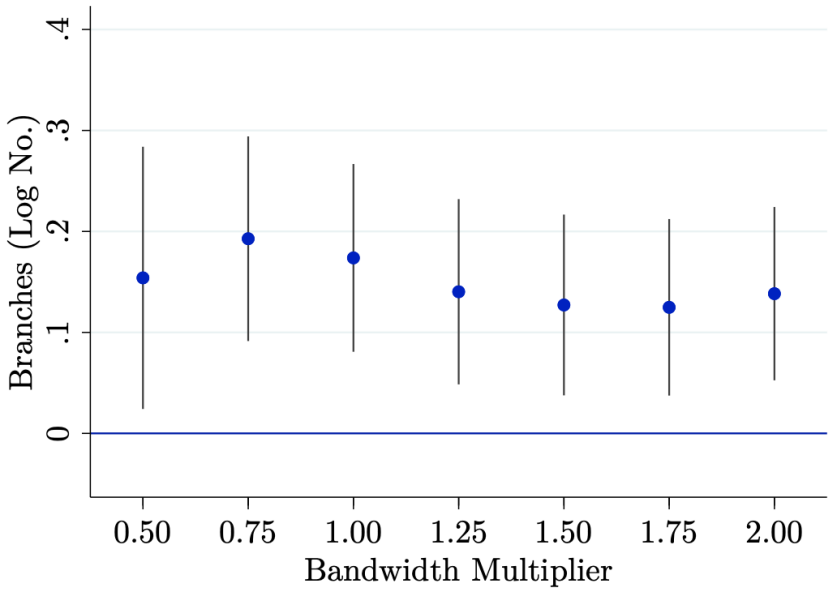
    - By then, households might have already improved their health status, reflected in lower health care demand

2. **Medical spending is not a good proxy** of health care demand

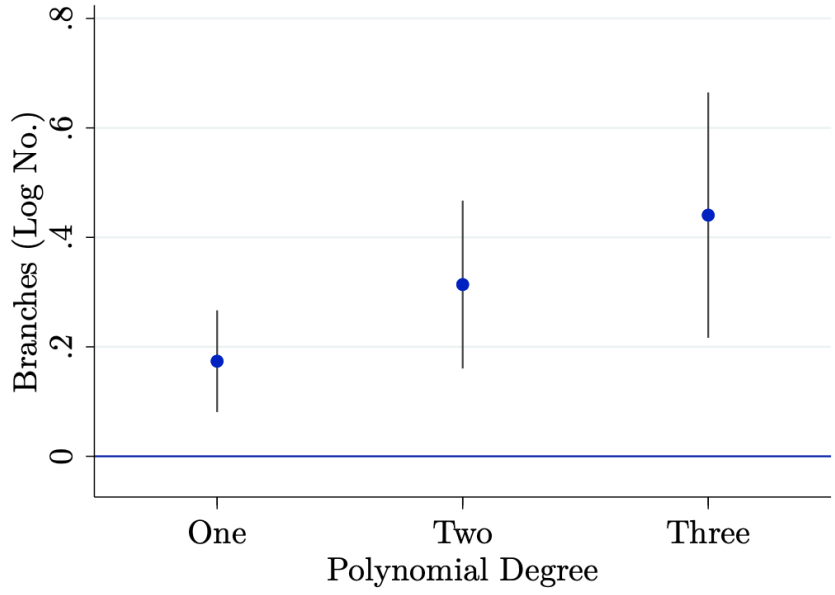
    - Prices might have adjusted (unobservable)
    - Insurance could have decreased households' out-of-pocket share
    - ▶ Negative effect on medical expenses Table

Approach: Proxy health care demand by health status outcomes such as vaccination rates and risks associated with pregnancies Back

Results are Robust to Different Bandwidths and Polynomial Degrees Branches (2010)



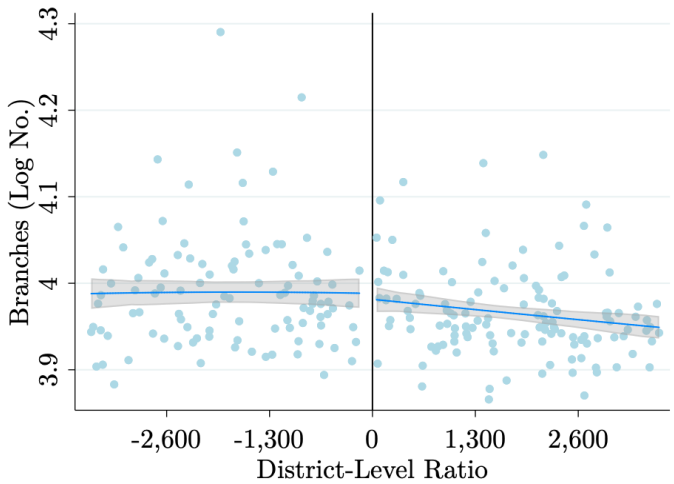
(a) Robustness to Different Bandwidths



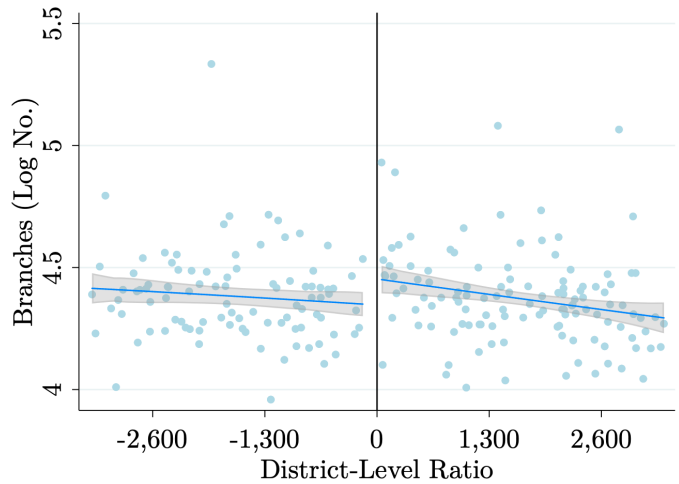
(b) Robustness to Different Degrees

Branch Licenses | Table Bandwidths | Table Polynomials | Table Placebo Cutoffs | Back

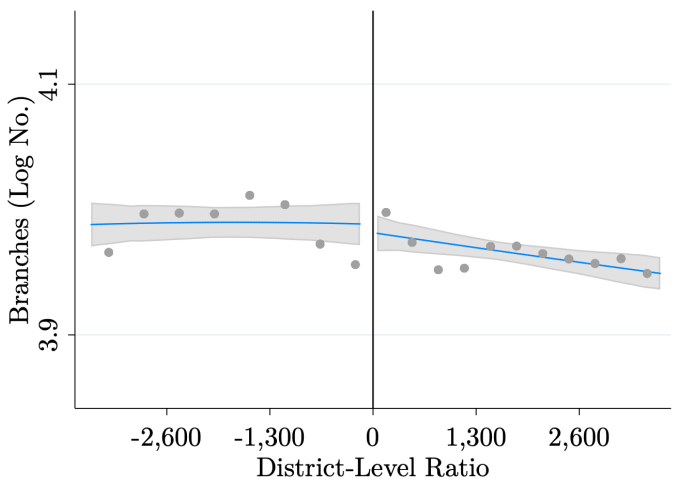
Banks Open Branches



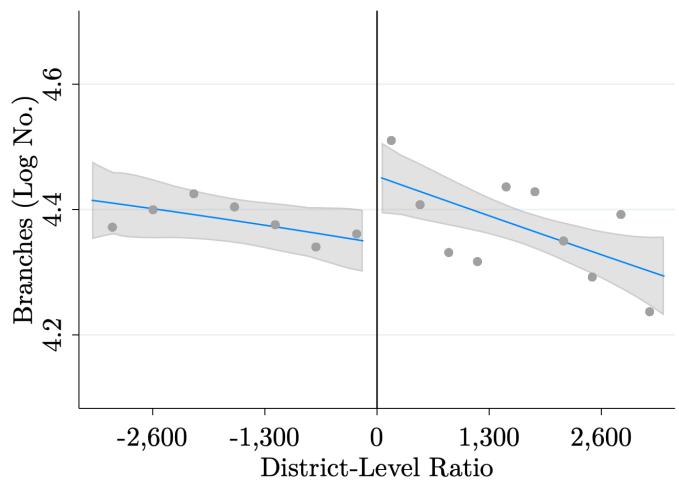
(a) All districts (2004)



(b) All districts (2010)



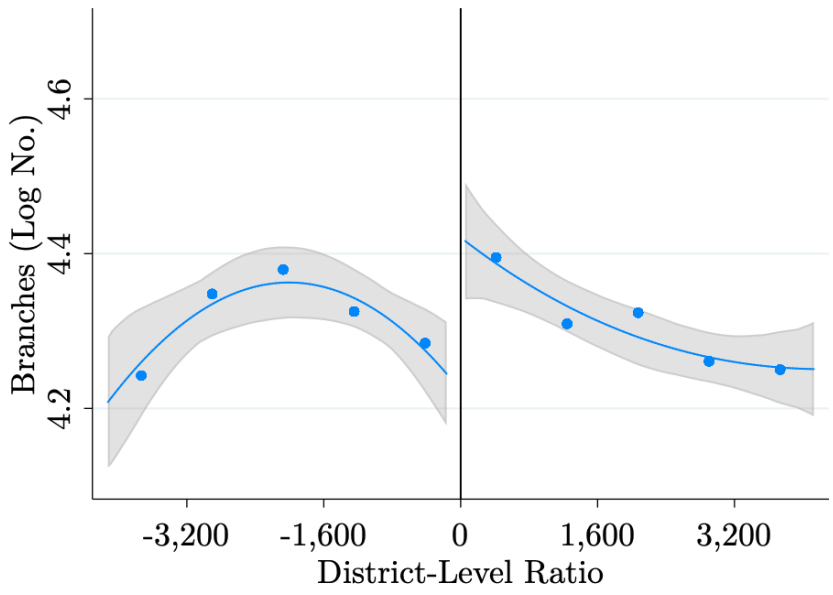
(c) Optimal bins (2004)



(d) Optimal bins (2010)

Back

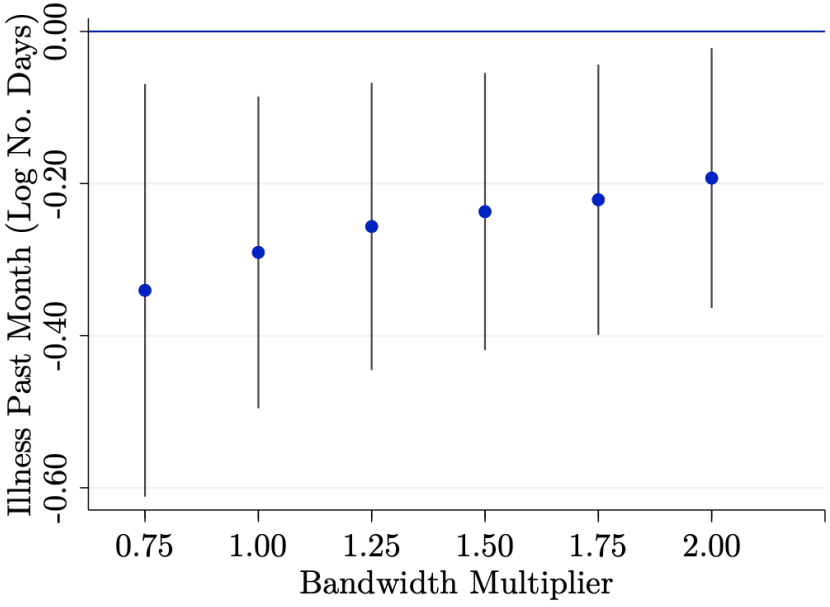
Banks Open Branches



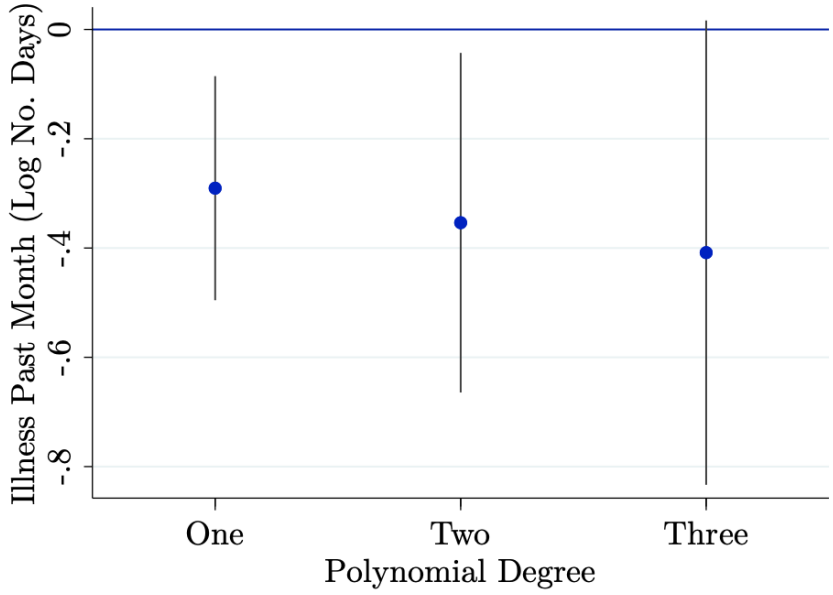
(a) Branches (2010)

Back

Results are Robust to Different Bandwidths and Polynomial Degrees



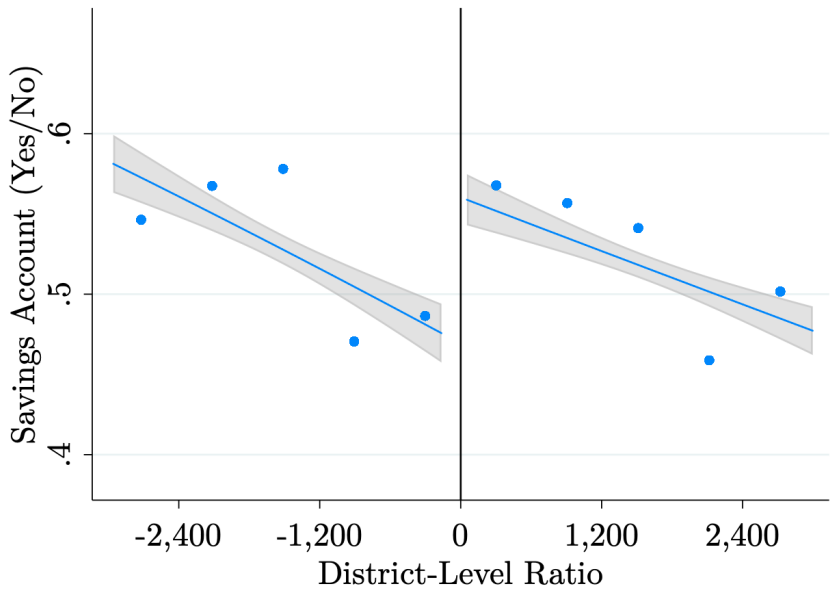
(a) Robustness to Different Bandwidths



(b) Robustness to Different Degrees

Table Bandwidths | Table Bandwidth | Table Polynomials | Back

Households Take Savings Accounts



(a) Savings Account (Yes/No)

Back

Household Surveys Confirm Improved Health Care Supply

Urban households in treatment districts **report significantly fewer problems** with respect to

- Distance or transport to provider
- Personnel absenteeism
- Lack of drugs at facilities

Table
Back

SHRUG Details

- Socioeconomic High-resolution Rural-Urban Geographic Platform for India (SHRUG)
- Asher, S., Lunt, T., Matsuura, R., and Novosad, P. (2021)
- https://www.devdatalab.org
- Data: economic activities, population characteristics, forest cover, covid spread, ...

Back

Income and Health in Developing Countries

- Haushofer and Shapiro (2013) examine short-term impacts (9 months) of unconditional cash transfers, they find an increase in medical expenditure but no improvement in health

- Haushofer and Shapiro (2018) study the long-term impacts (3 years) of unconditional cash transfers and find no increase in medical expenditures or improvement in health

- Egger et al. (2021) examine medium-term impacts (18 months) of unconditional cash transfers amounting to a fiscal shock of 15% of the local GDP and find no improvement in health

Potential explanations

1. Don't spend more on health (unlikely, Haushofer and Shapiro, 2013)
2. They spend more, but supply doesn't adjust because too few households get transfers (unlikely, Egger et al., 2019)
3. Many households spend more, but supply adjust slowly
4. Many households spend more, but supply is inelastic

Back

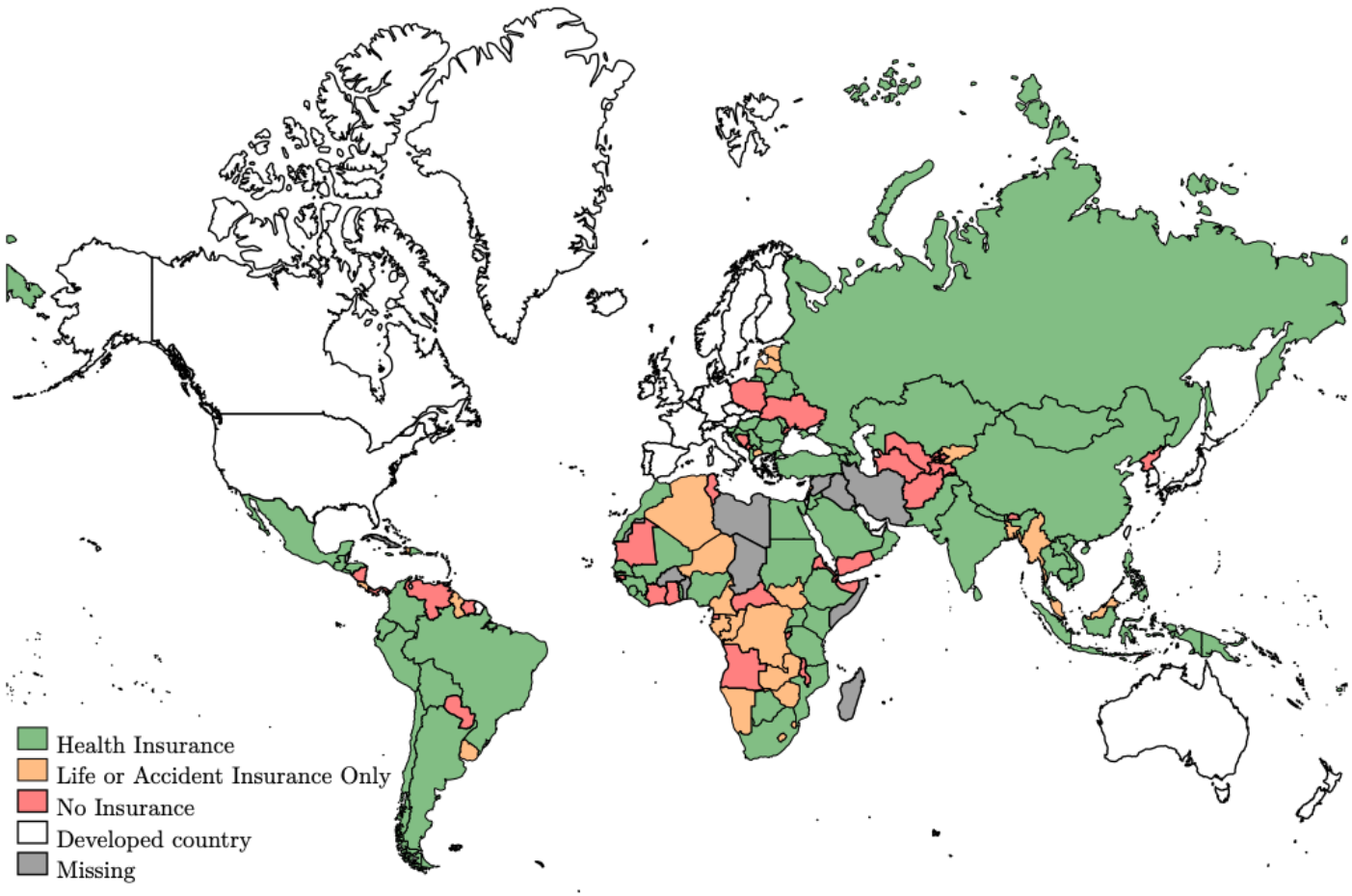
Income and Health in Developed Countries

- Strong positive correlation between income and health (Curtler et al., 2011)

- Studies that look at lottery winners find no positive relationship on adult or child health (Cesarini et al., 2016; Apouey and Clark, 2015)

Back

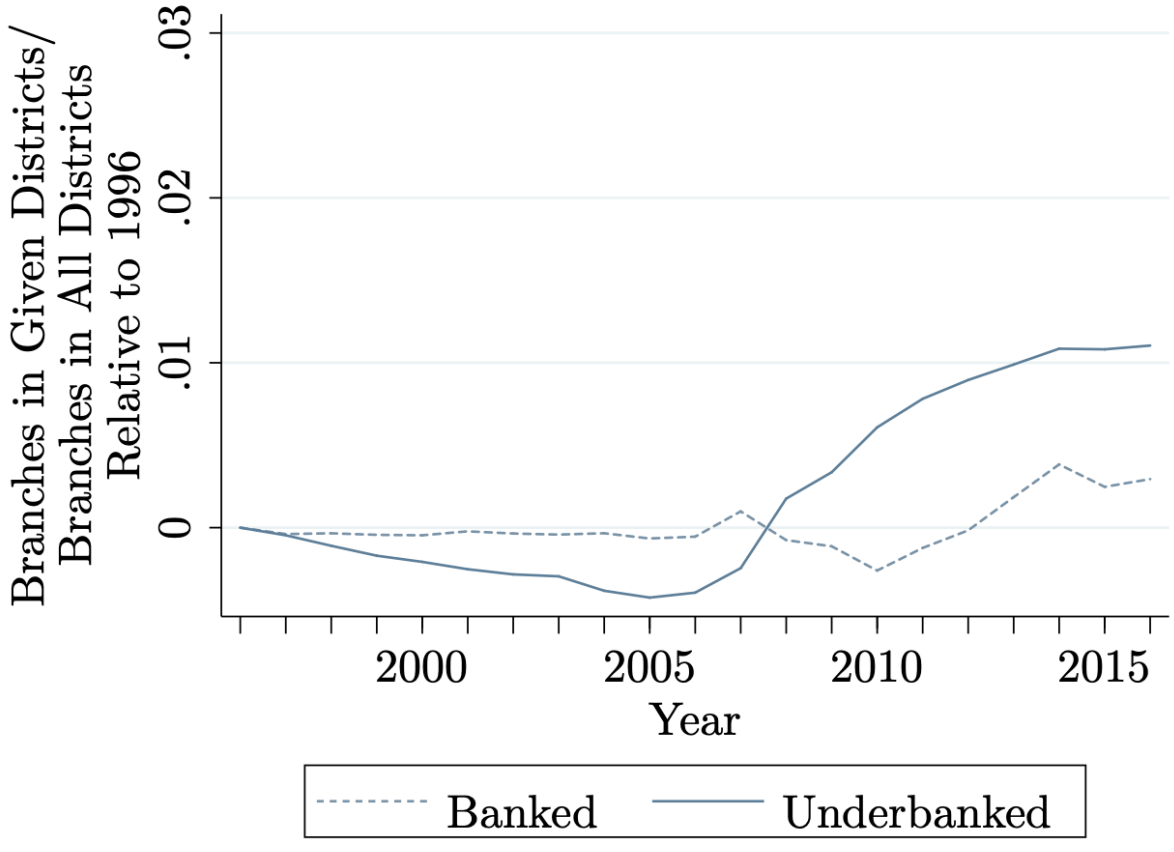
Banks Offer Health Insurance in Other Developing Countries



Back

Minor Evidence That Less Branches in Control Group

This is No Identification Threat (Just Makes the Discontinuity in Branches Larger)



- Considering a typical bandwidth of ±3,000

Back

Effect Sizes are Similar to Other Successful Interventions

- Conditional cash transfers reduces probability of illness for children by 39% (Gertler, 2004)
- Monitoring health care providers reduces child mortality by 33% (Bjorkman and Svensson, 2009)

Effect Sizes are Similar to Other Successful Interventions

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Supplementary evidence

- **Replicable** in other data set Children Women

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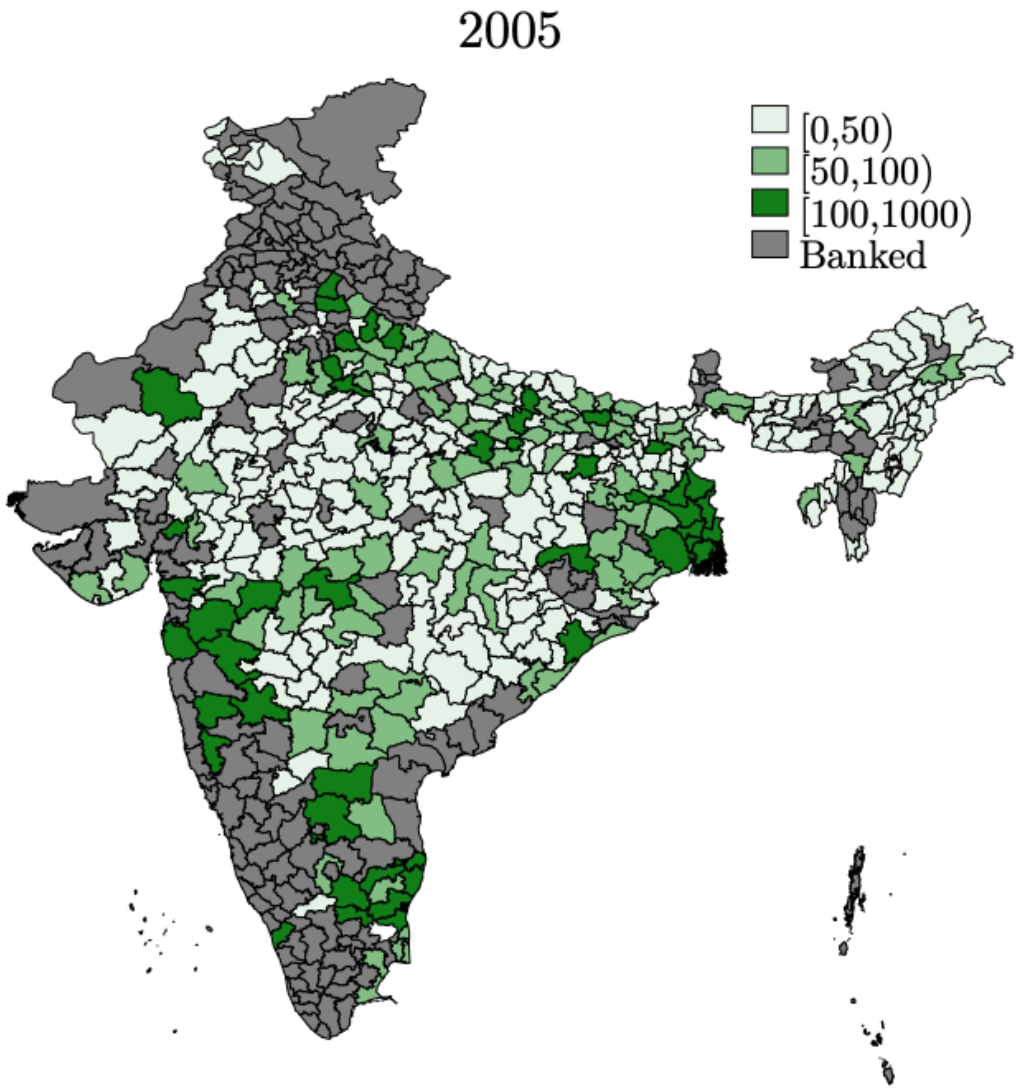
- Conditional cash transfers reduces probability of illness for children by 39% (Gertler, 2004)
- Monitoring health care providers reduces child mortality by 33% (Bjorkman and Svensson, 2009)
- Diseases such as diarrhea often have **highly effective treatments** (Duflo and Banerjee, 2011)

Supplementary evidence

- **Replicable** in other data set Children Women
- No effect for diseases such as cancer Table

Back

Banks Open Branches



Back

Health-Related Economic Outcomes Improve

	Days missed work/school due to illness		**Medical expenses past month**	
	(yes/no) (1)	(log no.) (2)	(yes/no) (3)	(log Rs) (4)
Treated	-0.30***	-0.44***	-0.18**	-0.88**
	(0.10)	(0.13)	(0.08)	(0.35)
Control Mean	0.41	0.58	0.52	2.12
Mean Change (%)	-71.46	**-35.40**	-33.61	**-58.56**
Bandwidth	2,331	2,513	2,373	2,948
Efficient Obs.	12,730	12,421	12,862	14,576
Observations	36,805	33,346	36,805	32,983
Baseline Control	No	No	No	No

* 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 miss **half a day** per month less of work or school due to an illness and spend significantly less on medical expenses

Back

Eliminating Other Concerns

1. Households move to treatment districts. If those who move are healthier, I confuse their characteristics with a treatment effect of the policy

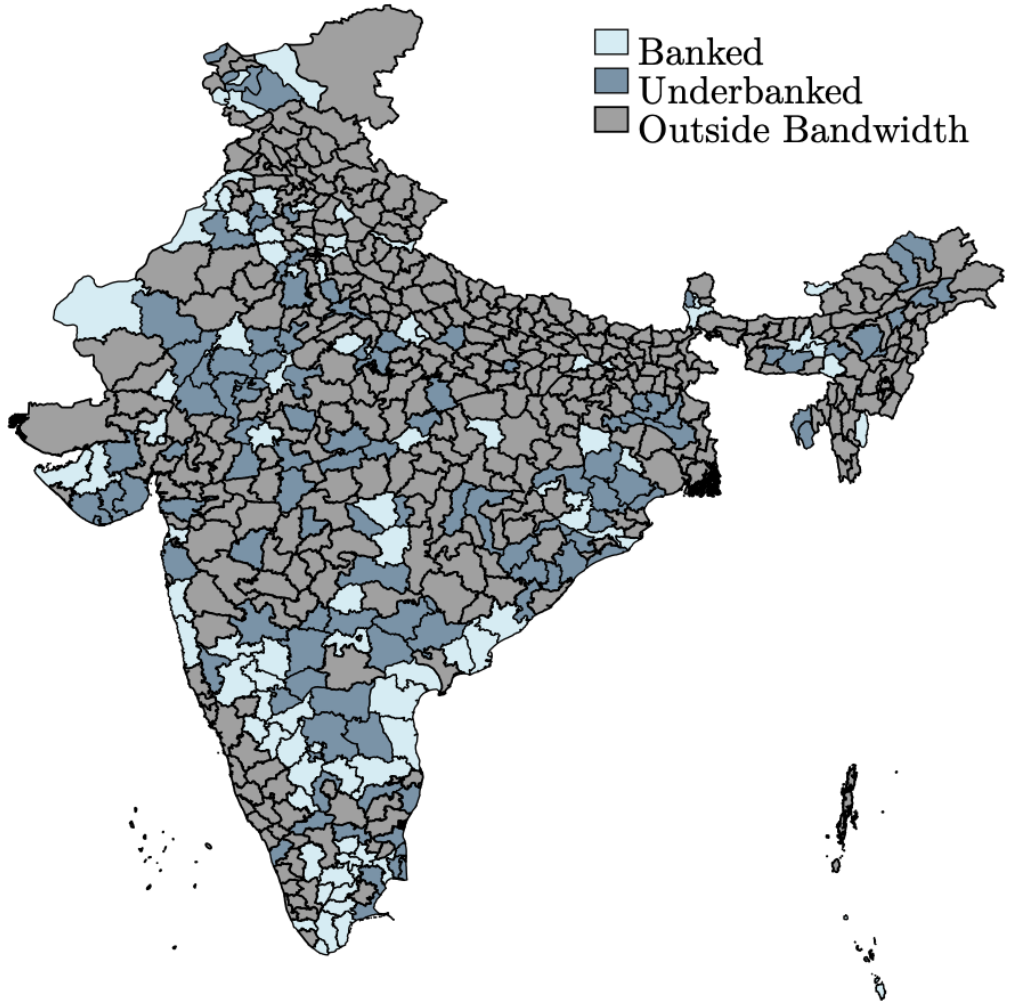
   - Only 0.5% of households migrated to current district since policy
   - Migration not significantly more likely to treatment districts Table

2. I mistake discontinuities around the cutoff for the effect of the RBI policy, while they actually stem from other policies

   - No policy that uses the same cutoff
   - Other policies are not significantly more likely to be implemented in treatment districts Table

Back

Geographical Distribution Within Typical Bandwidth



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

Map without bandwidth | State Comparison Map

Households Have Higher Consumption and Spend More on Food

	Total consumption (log Rs) (1)	**Food consumption** (log Rs) (2)	**Meals per day** (no.) (3)	**Hygiene expenses** (log Rs) (4)
Treated	0.07**	0.06*	0.24**	0.06
	(0.04)	(0.03)	(0.10)	(0.06)
Control Mean	7.48	6.71	2.75	4.02
Mean Change (%)	**7.68**	5.73	8.64	5.82
Bandwidth	4,120	2,755	3,004	2,246
Efficient Obs.	14,903	11,415	16,611	9,896
Observations	21,410	21,345	34,773	23,010
Baseline Control	Yes	Yes	Yes	Yes

* p <0.1, ** p <0.05, *** p <0.01. Standard errors in parentheses. Data IHDS II (2011/2012). Household-level. Consumption measures monthly per capita.

- Six years after the policy, household in treatment districts have **8 percent higher consumption** and **spend more on food**

Back

Top 10 Banks in India Offer Health Insurance

Family Health Optima Insurance Plan

Other Developing Countries
Back

Households Take Up Savings Accounts and Health Insurance

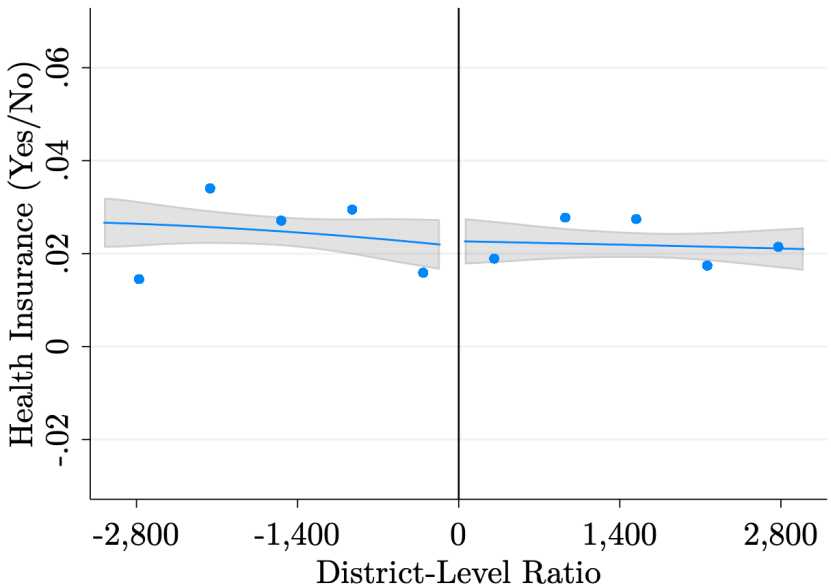
	Savings account (yes/no) (1)	**Bank loan** (yes/no) (2)	**Health insurance** (yes/no) (3)
Treated	0.19*	0.04	0.17**
	(0.10)	(0.05)	(0.07)
Control Mean	0.51	0.23	0.06
Mean Change (%)	**36.48**	19.70	**272.69**
Bandwidth	3,023	2,370	1,704
Efficient Obs.	16,674	12,856	8,482
Observations	36,786	36,785	34,181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

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

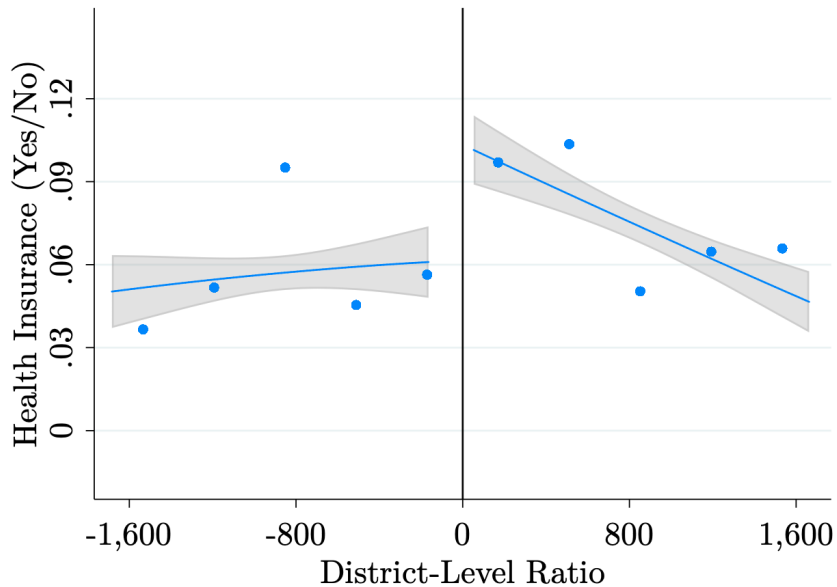
- Six years after the policy, households are **36% more likely to have a savings account** and **273% more likely to own health insurance** in treatment districts
- Other studies show that savings accounts alone are not likely to drive major welfare changes (Dupas et al., 2018)

Smoothness Pre-Policy Back

Households Take Up Health Insurance



(a) **Pre:** Health Insurance (Yes/No)



(b) **Post:** Health Insurance (Yes/No)

Savings Accounts Back

Practitioners Suggest That Banks Finance Health Care Providers

"The banks financed the doctors, the instruments, ...
new small hospitals opened up."

Yash Pratap Bhatiya, Chief Manager,
working at Oriental Bank of Commerce from 1980 to 2019

Back

Health Care Providers Gain Credit Access and Improve Supply

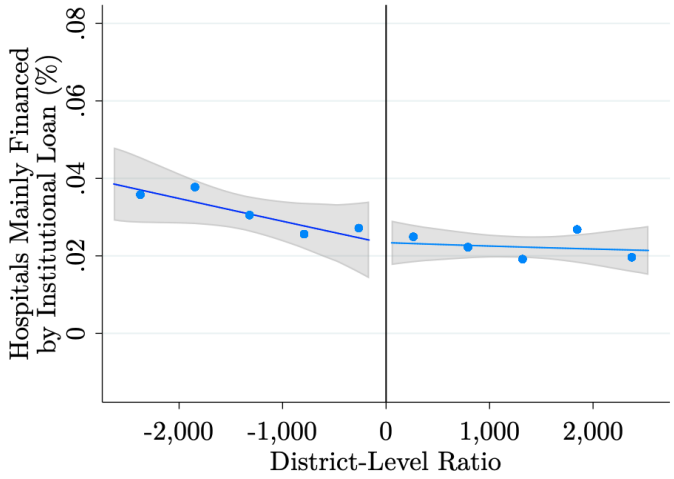
	Pre-policy (2005)		Post-policy (2013)	
	Hospitals mainly financed by instit. loan (%) (1)	Number of hospitals (log no.) (2)	Hospitals mainly financed by instit. loan (%) (3)	Number of hospitals (log no.) (4)
Treated	0.001	-0.15	0.010**	0.88***
	(0.012)	(0.16)	(0.004)	(0.33)
Control Mean	0.032	5.42	0.014	5.96
Mean Change (%)	4.62	-13.96	**67.77**	**140.07**
Bandwidth	2,638	4,328	2,435	3,127
Efficient Obs.	171	268	163	201
Observations	538	539	538	538
Baseline Control	No	No	No	No

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

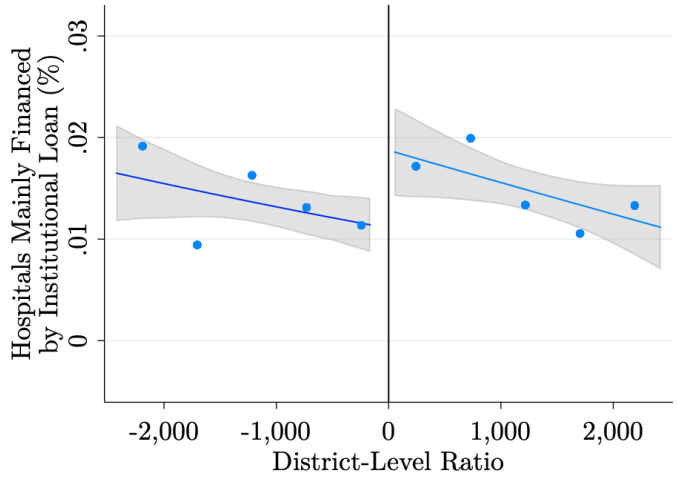
- Eight years after the policy, treatment districts have a higher fraction of hospitals financed mainly by institutional loans and **140 percent more hospitals** (control mean 31 hospitals per 100,000 people)
- Household surveys confirm improved health care supply Table

IA Mechanism Summary

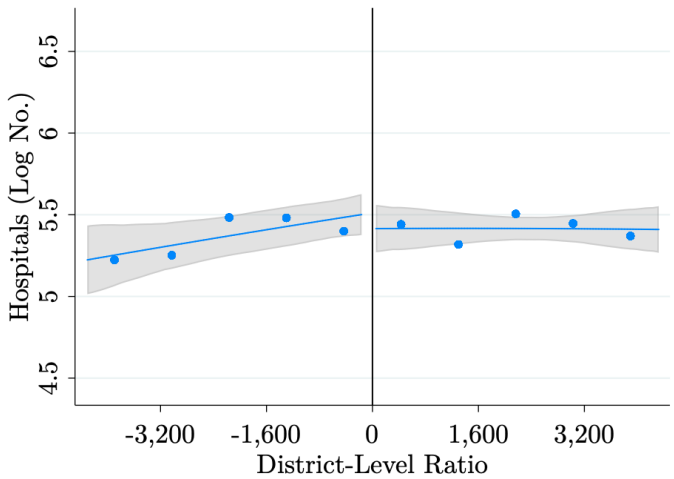
Health Care Providers Gain Credit Access and Improve Supply



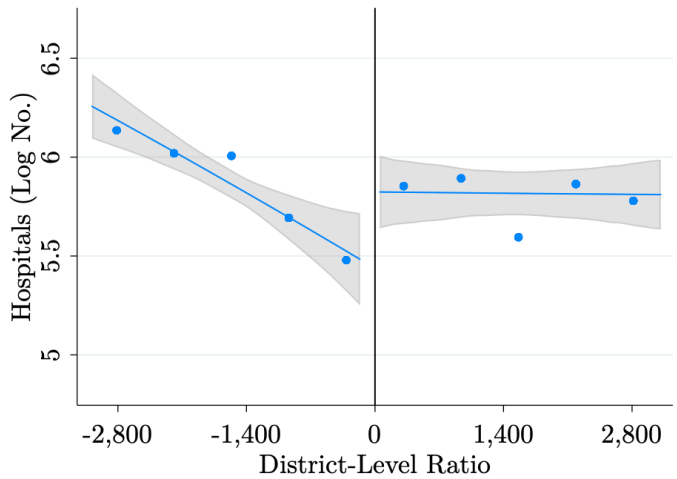
(a) **Pre:** Loan



(b) **Post:** Loan



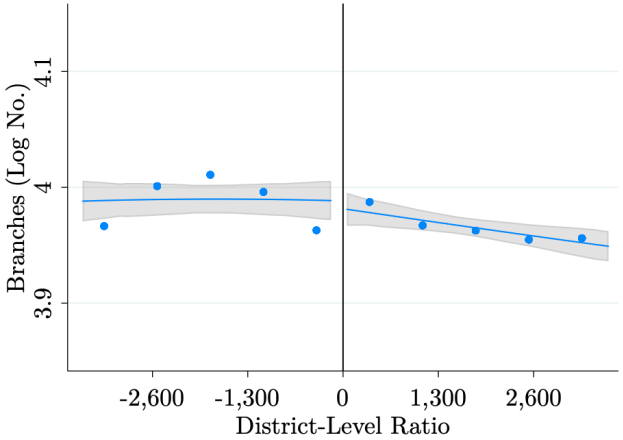
(c) **Pre:** Hospitals



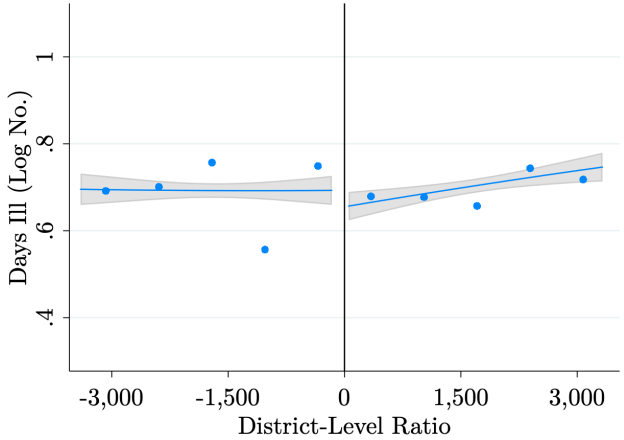
(d) **Post:** Hospitals

Back

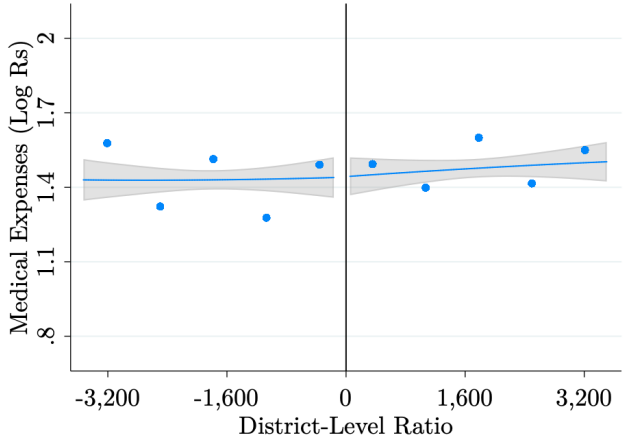
Smoothness Before the Policy



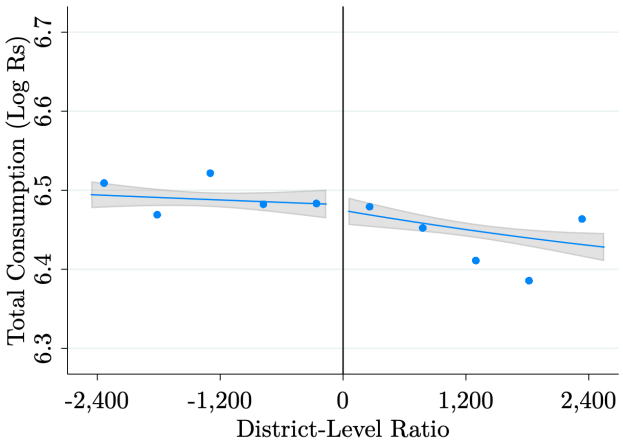
(a) Branches



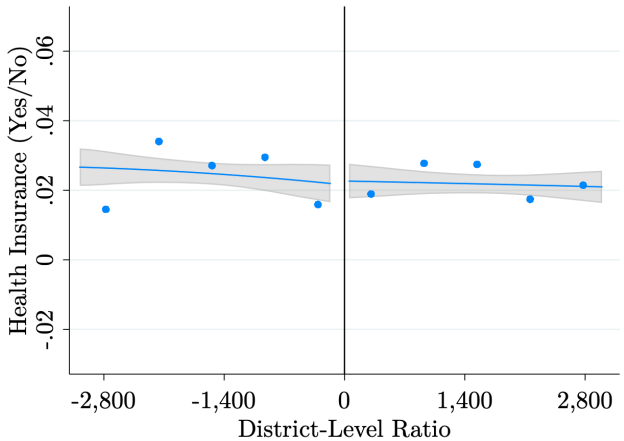
(b) Days Ill



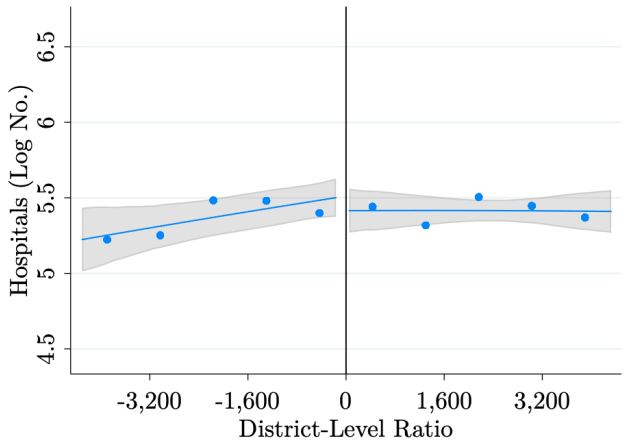
(c) Medical expenses



(d) Total Consumption



(e) Health Insurance



(f) Hospitals

Back

Banks Open Branches

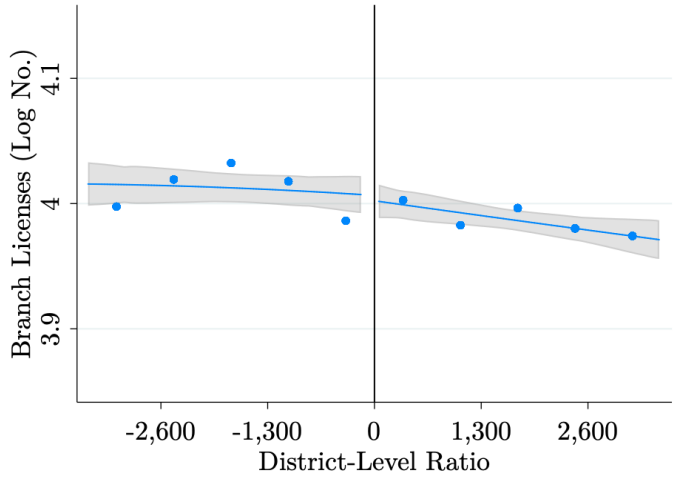
	Pre-policy (2004)		Post-policy (2010)	
	Branch licenses (log no.) (1)	Branches (log no.) (2)	Branch licenses (log no.) (3)	Branches (log no.) (4)
Treated	0.02	0.01	0.19***	0.17***
	(0.02)	(0.02)	(0.05)	(0.06)
Control Mean	4.00	3.98	4.38	4.38
Mean Change (%)	1.81	1.01	21.32	**18.98**
Bandwidth	3,490	3,621	2,972	3,329
Efficient Obs.	223	230	196	213
Observations	561	562	561	561
Baseline Control	Yes	Yes	Yes	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.

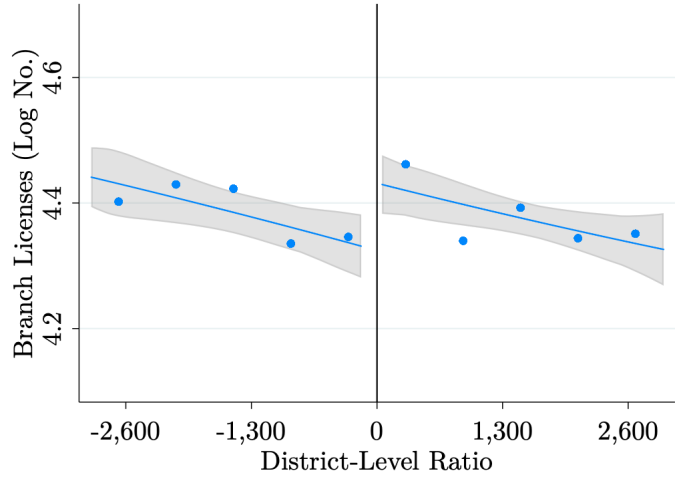
- Five years after the policy, banks have **19% more branches** in treatment districts (control mean 7 branches per 100,000 people)

Robustness | Placebo Bank Type | Stronger Reaction for Private Banks | Back

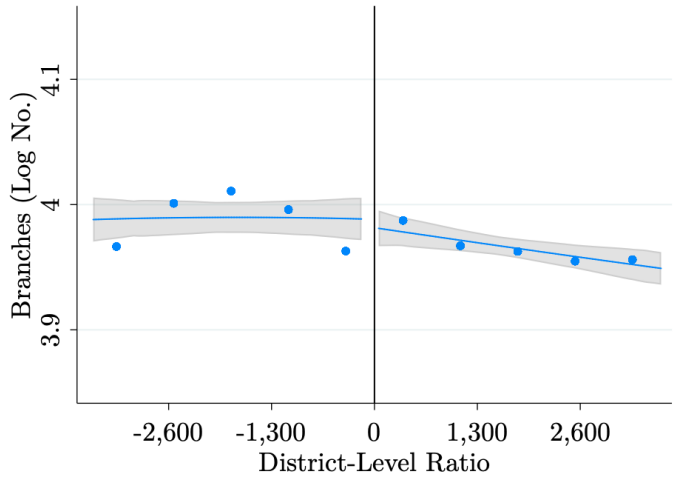
Banks Open Branches



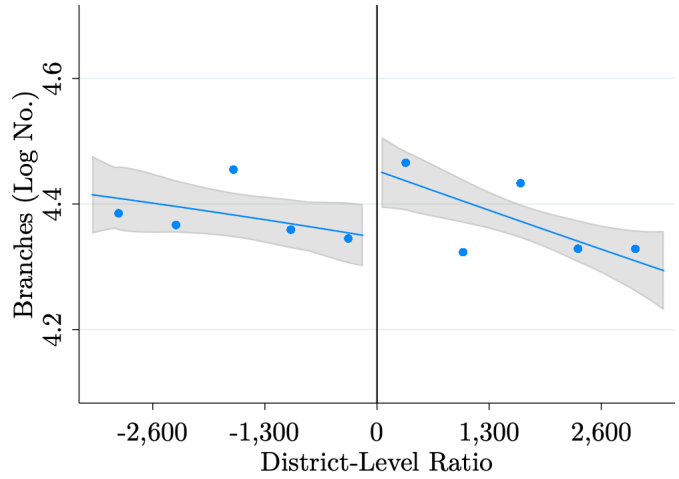
(a) **Pre:** Branch Licenses (2004)



(b) **Post:** Branch Licenses (2010)



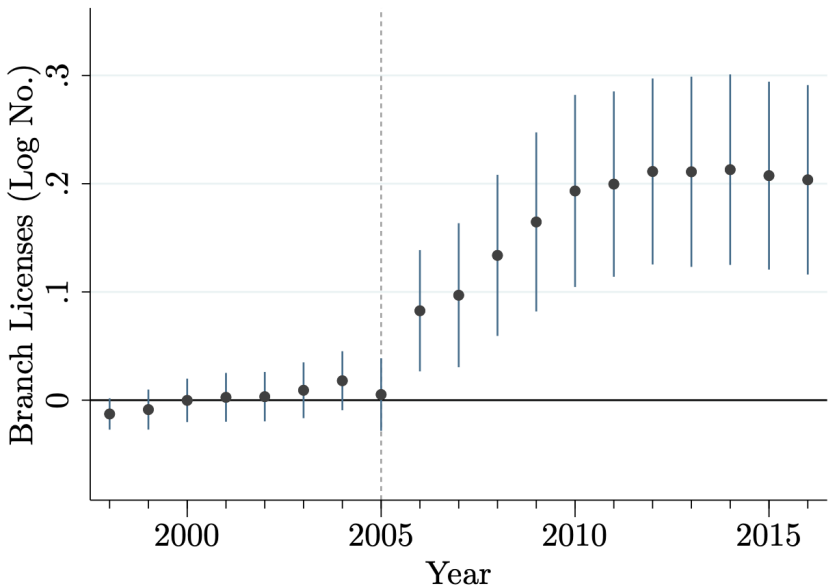
(c) **Pre:** Branches (2004)



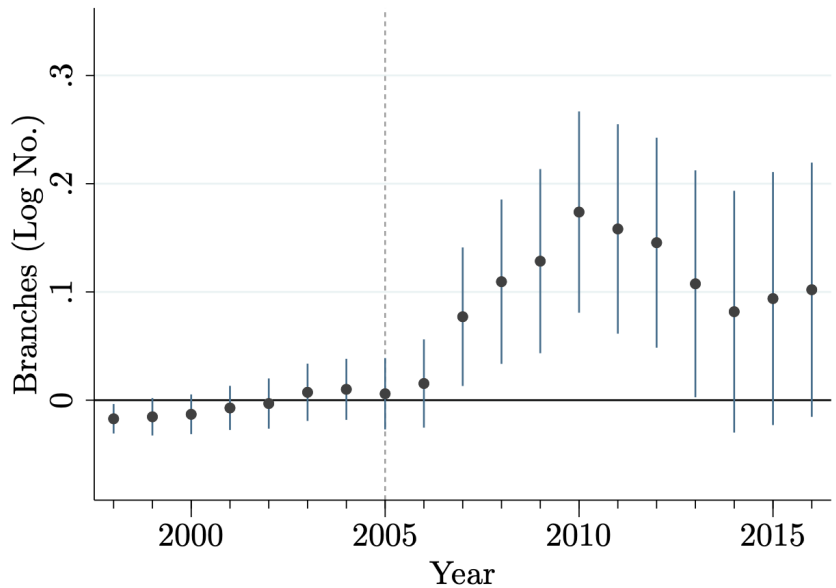
(d) **Post:** Branches (2010)

Different Binned Means | 2nd Degree | Back

Dynamics Correspond to Policy Timing



(a) Branch Licenses (Dynamics)



(b) Bank Branches (Dynamics)

Policy Change in 2010 | Deposits and Credit | Branch Profitability | Back to Identification Assumption | Control Districts | Animation | Back

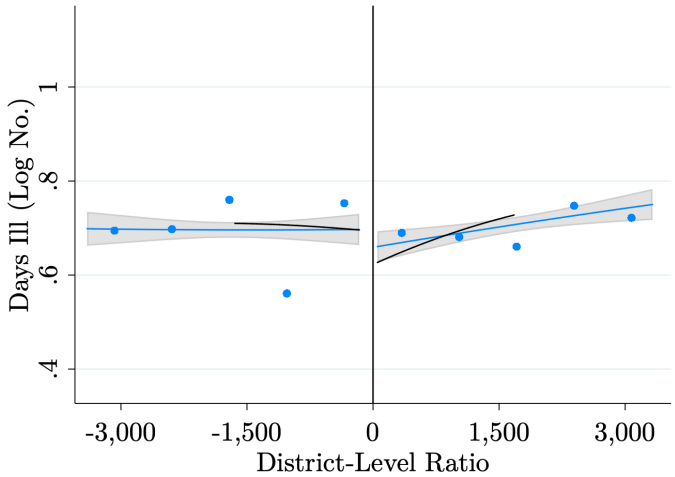
Smoothness Pre-Policy

	Pre-Policy (2004/2005)		
	Days ill (non-chronic) (log no.) (1)	Days missed due to illness (log no.) (2)	Medical expenses (log Rs.) (3)
Treated	-0.11	-0.19	-0.14
	(0.13)	(0.14)	(0.27)
Control Mean	0.64	0.48	1.32
Mean Change (%)	-10.49	-17.68	-13.03
Bandwidth	3,418	2,524	3,566
Efficient Obs.	15,574	12,122	16,019
Observations	31,375	32,442	31,812

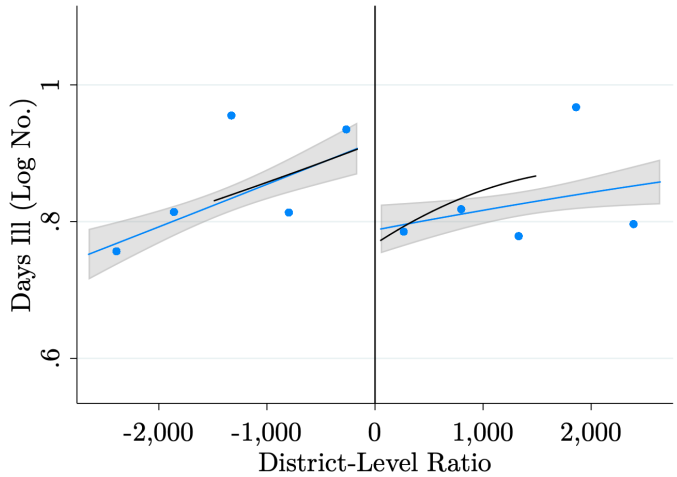
* p <0.1, ** p <0.05, *** p <0.01. Standard errors in parentheses. Data IHDS I (2004/2005). Household level.

Back

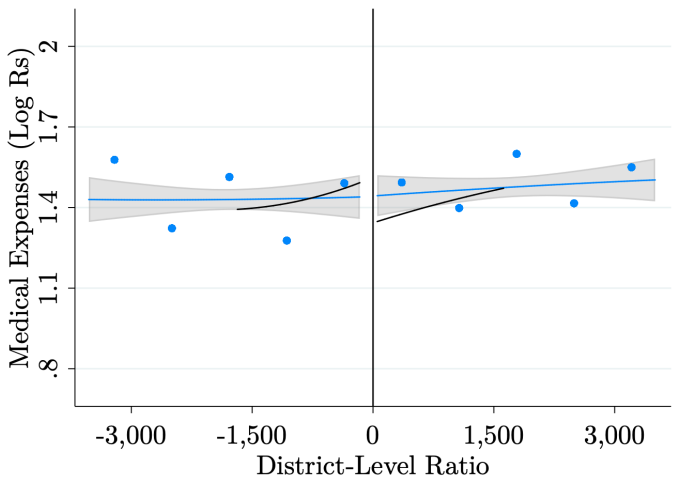
Morbidity Rate Decreases



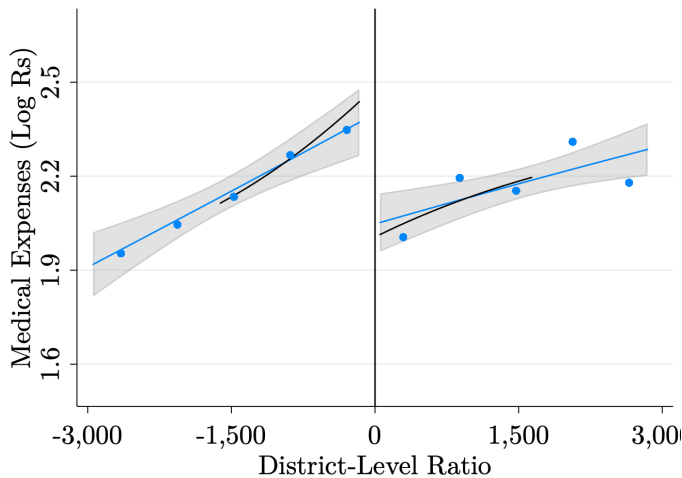
(a) **Pre:** Days Ill (Non-Chronic)



(b) **Post:** Days Ill (Non-Chronic)



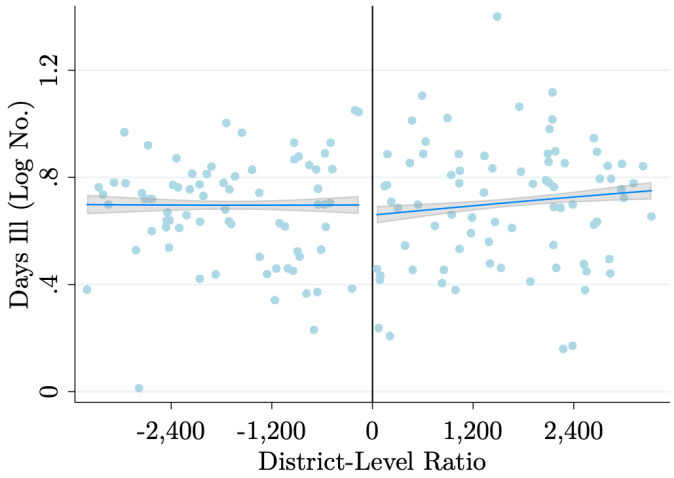
(c) **Pre:** Medical Expenses



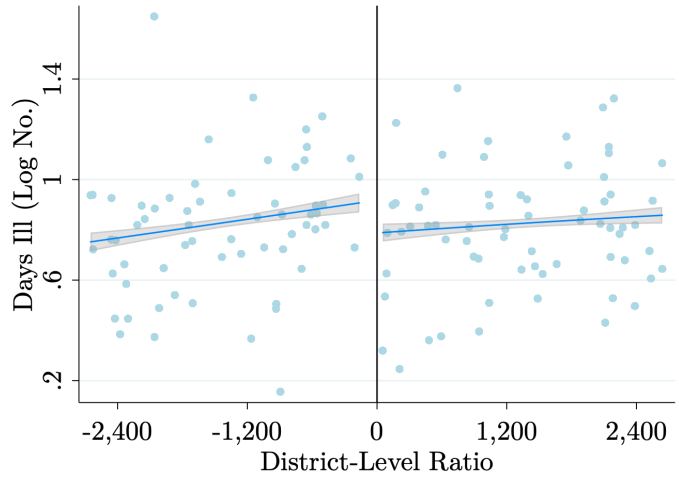
(d) **Post:** Medical Expenses

Back

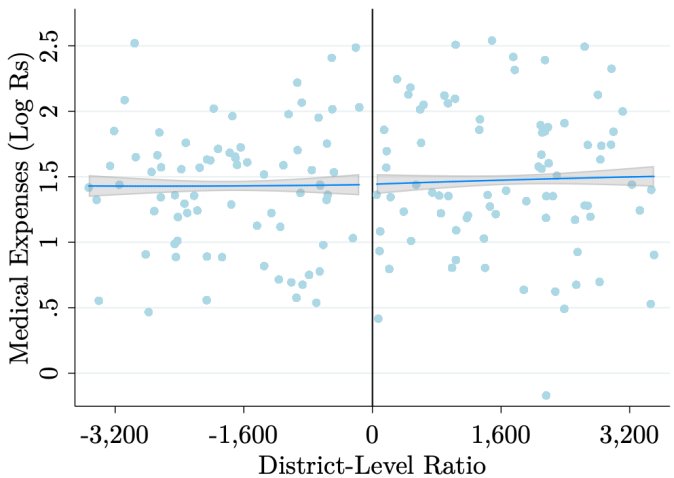
Morbidity Rate Decreases



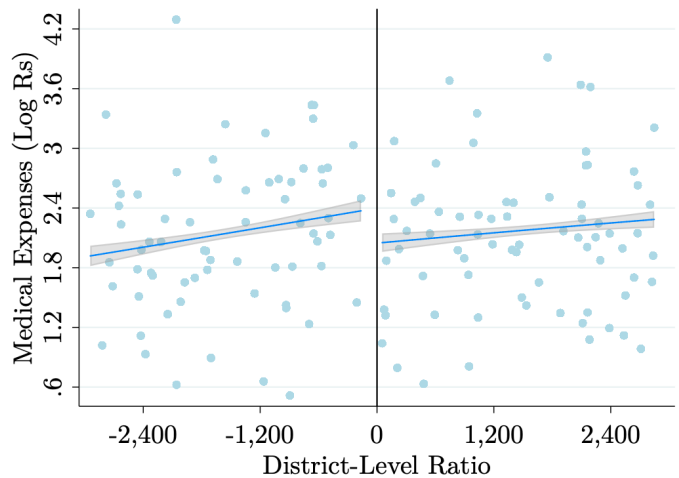
(a) **Pre:** All districts



(b) **Post:** All districts



(c) **Pre:** All districts



(d) **Post:** All districts

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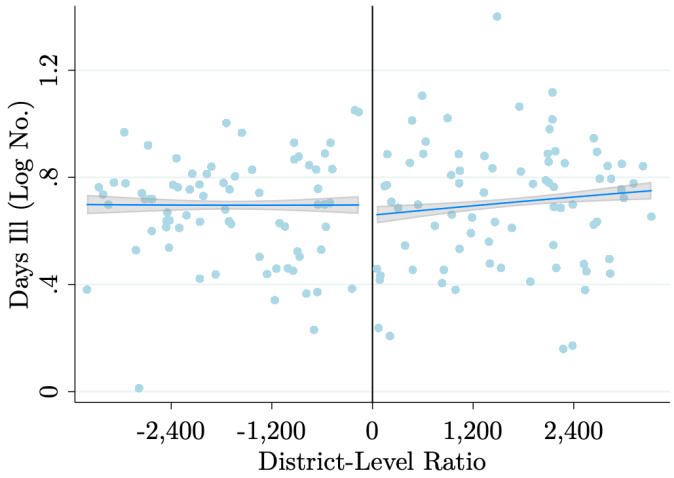
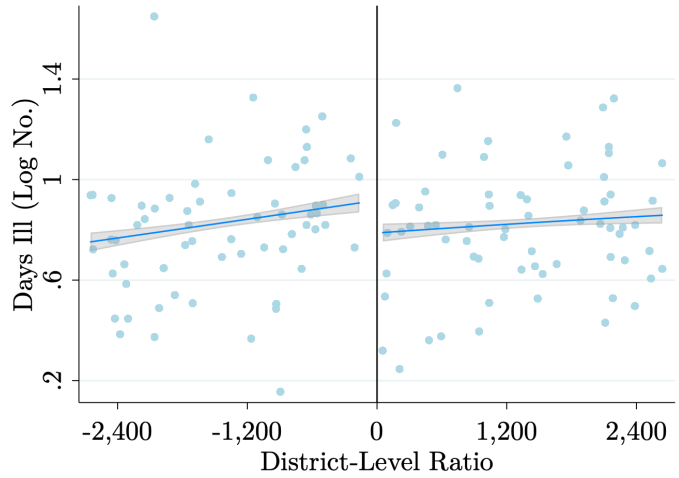
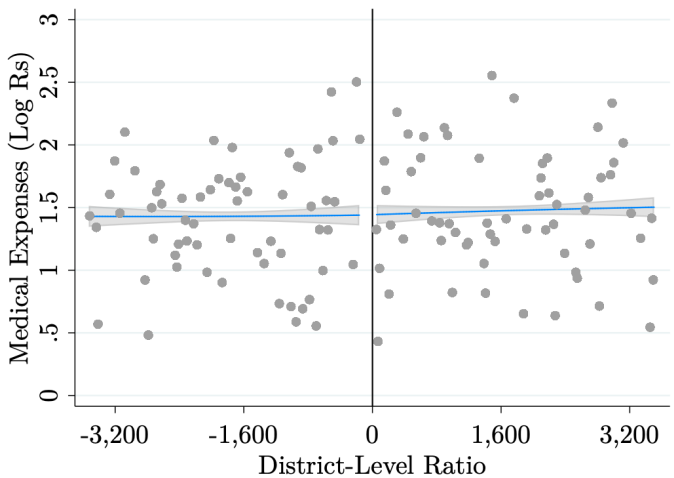
Morbidity Rate Decreases



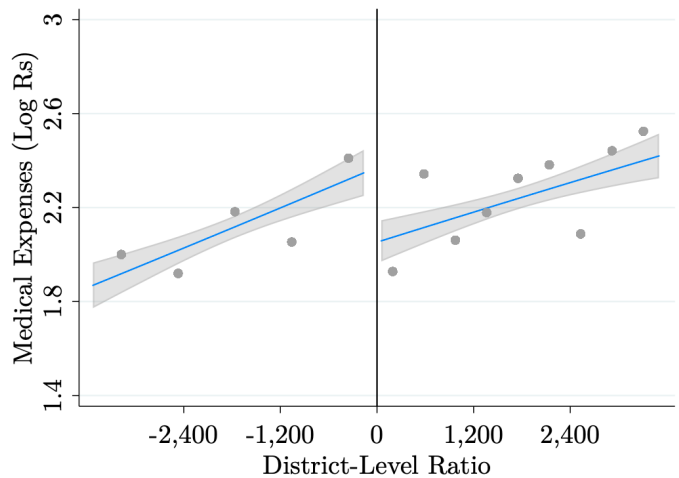
(a) **Pre:** All districts



(b) **Post:** All districts



(c) **Pre:** All districts



(d) **Post:** All districts

Back

Papers Using Same or Similar Policy

- 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

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