

ABDUL LATIF JAMEEL  
Poverty Action Lab

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TRANSLATING RESEARCH INTO ACTION

# Randomized Evaluation: Start-to-finish

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**J-PAL**

# Course Overview



1. What is Evaluation?
2. Outcomes, Impact, and Indicators
3. Why Randomize?
4. How to Randomize
5. Sampling and Sample Size
6. Threats and Analysis
7. Generalizability
- 8. Project from Start to Finish**

# Motivations

- Impact of microcredit one of two priorities for evaluation for JPAL
  - Large and growing area with many claims but no experimental evidence
  - Selection likely to be a major problem
- Needed to find the right opportunity
  - Representative program
  - Strong partner commitment
  - Sufficient sample size
- Took years of active search to find the right partner in Spandana

# The partner: Spandana



- Launched in 1998
- By 2002: 16,400 clients
- Group lending, small but rising amounts
- For profit and less education focused, but similar to others
- Moving into a new city
- Very committed head in Padmaja Reddy

# The setting: Hyderabad, India



# About Hyderabad

## The city

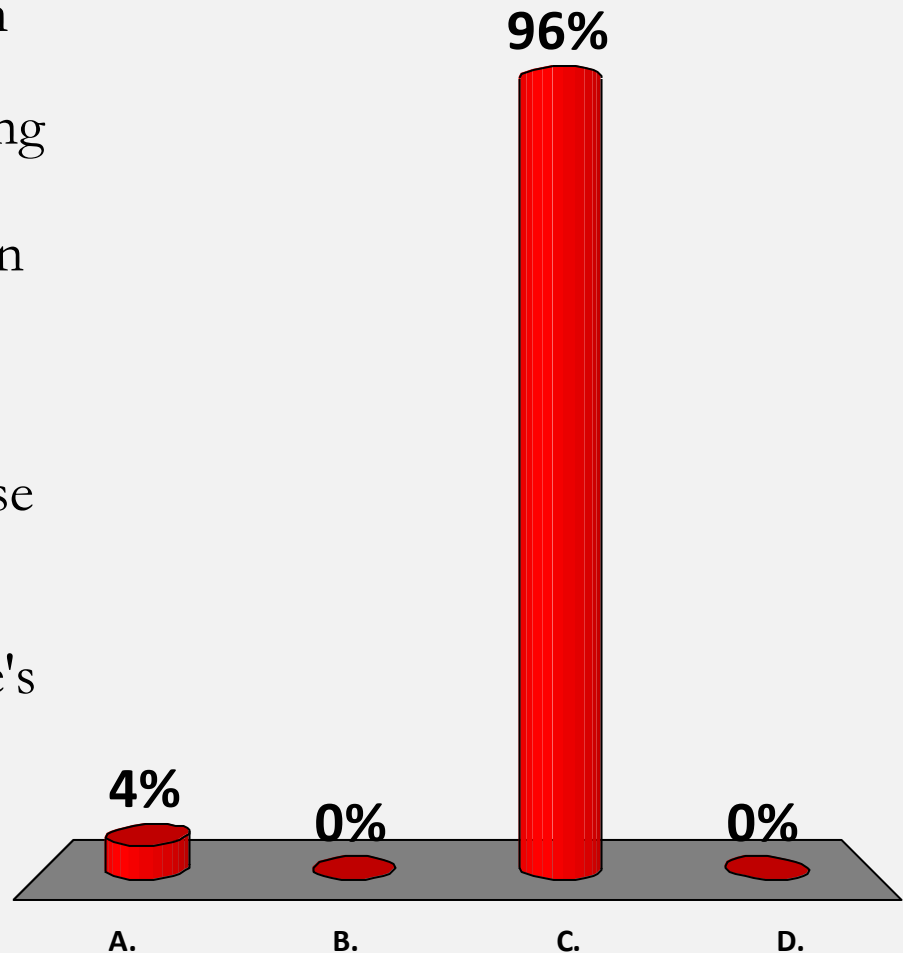
- 1/3 of Hyderabad's population lives in slums
- In 2004, no MFIs were working in these neighborhoods
- Yet 69% of households had an informal loan

## The households

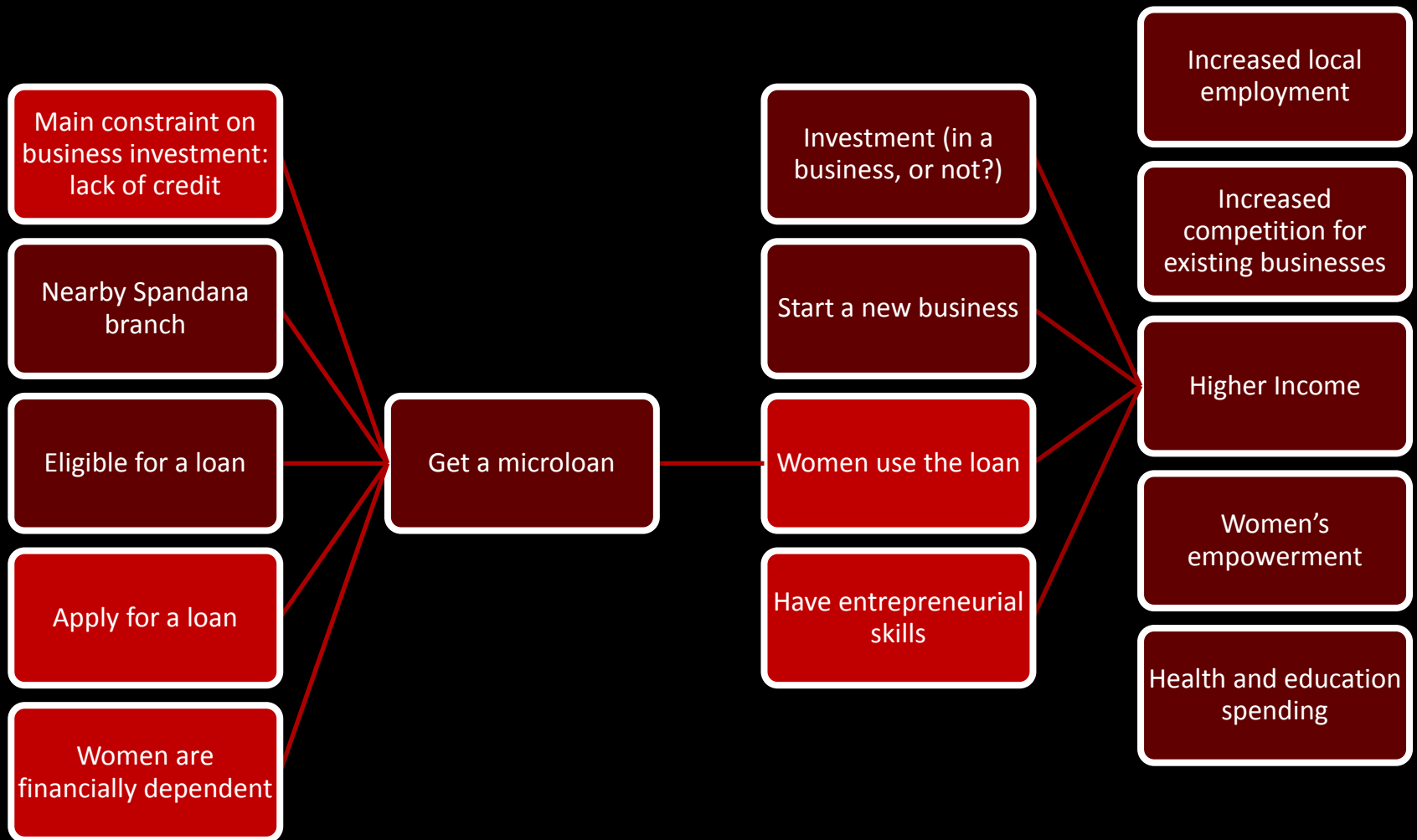
- Avg. expenditure, per person per month: **Rs. 981** (\$18)
- Avg. debt : **Rs. 36,567** (\$670)
- Literacy rate: **68%**
- Businesses per person: **30%**
- Enrolled or finished studies? **29%**

# Why can't we just compare women who take up microcredit to those that don't?

- A. It's missing the point - if women don't take up microcredit, we should spend resources on finding out why.
- B. It's unethical - comparing women in this way is a value judgment
- C. It's biased - women who choose to take up microcredit may be systematically different than those that choose not to.
- D. It's fine! We certainly can compare these two groups, there's no problem.

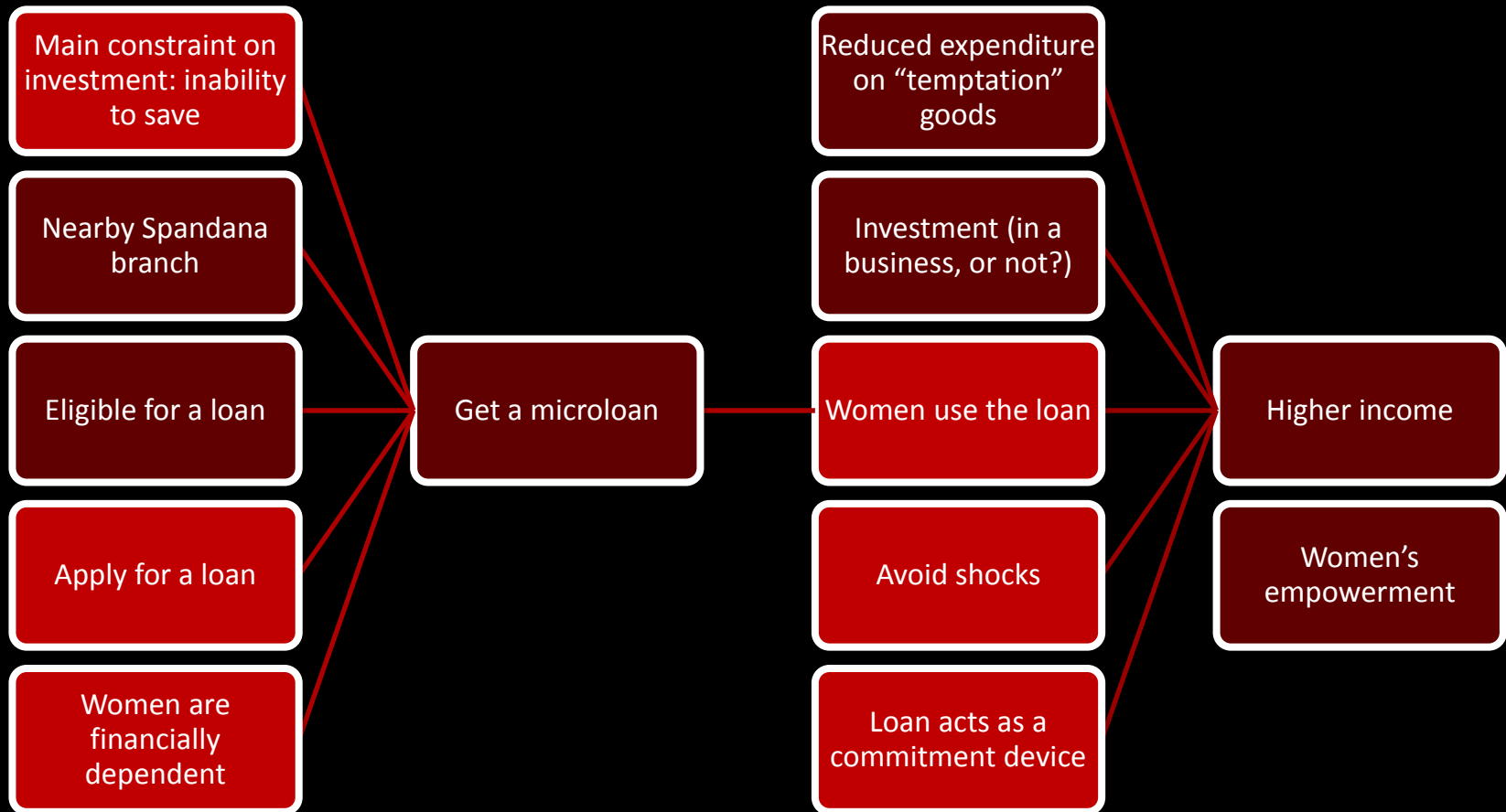


# Theory of change: Entrepreneurship

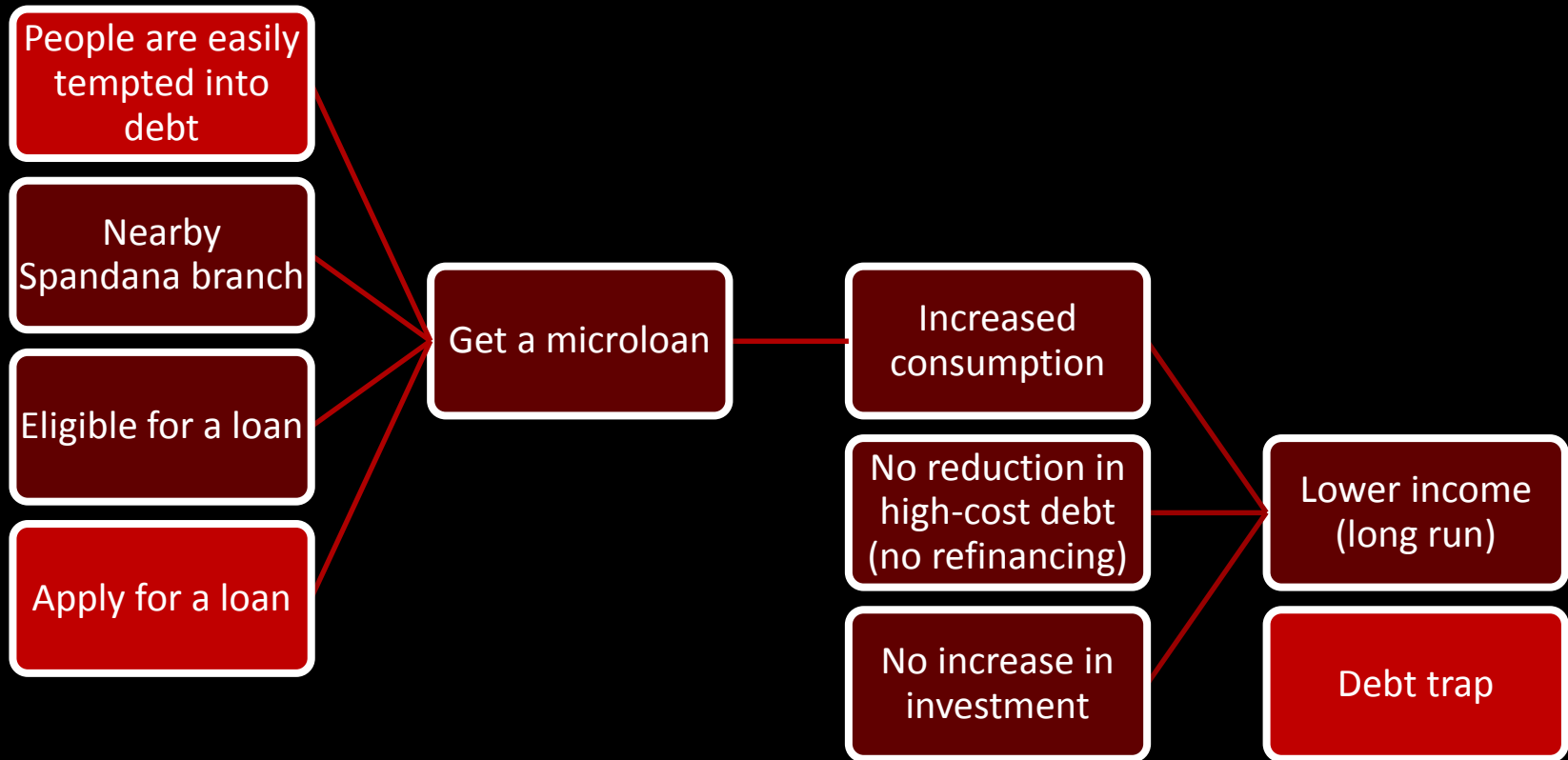




# Theory of change: Savings



# Theory of change: Consumption



	<b>Objectives Hierarchy</b>	<b>Indicators</b>	<b>Sources of Verification</b>	<b>Assumptions / Threats</b>
<b>Impact (Goal/ Overall objective)</b>	Higher income	Spending	Household survey	Poor access to credit prevents households from investing in business or assets
<b>Outcome (Project Objective)</b>	Households start new businesses; expand existing ones	Purchase of durable goods	Household survey	No problems of self-control, no time-inconsistency
<b>Outputs</b>	Increased MFI borrowing	Number of microloans	Household survey, Administrative data from MFIs	No borrowing from informal sources
<b>Inputs (Activities)</b>	MFI branches are opened	Branches are operating; providing services	Branch visits/ surveys	Sufficient resources, funding, manpower

# Research questions

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Following conversations with Spandana, we (jointly) came up with...

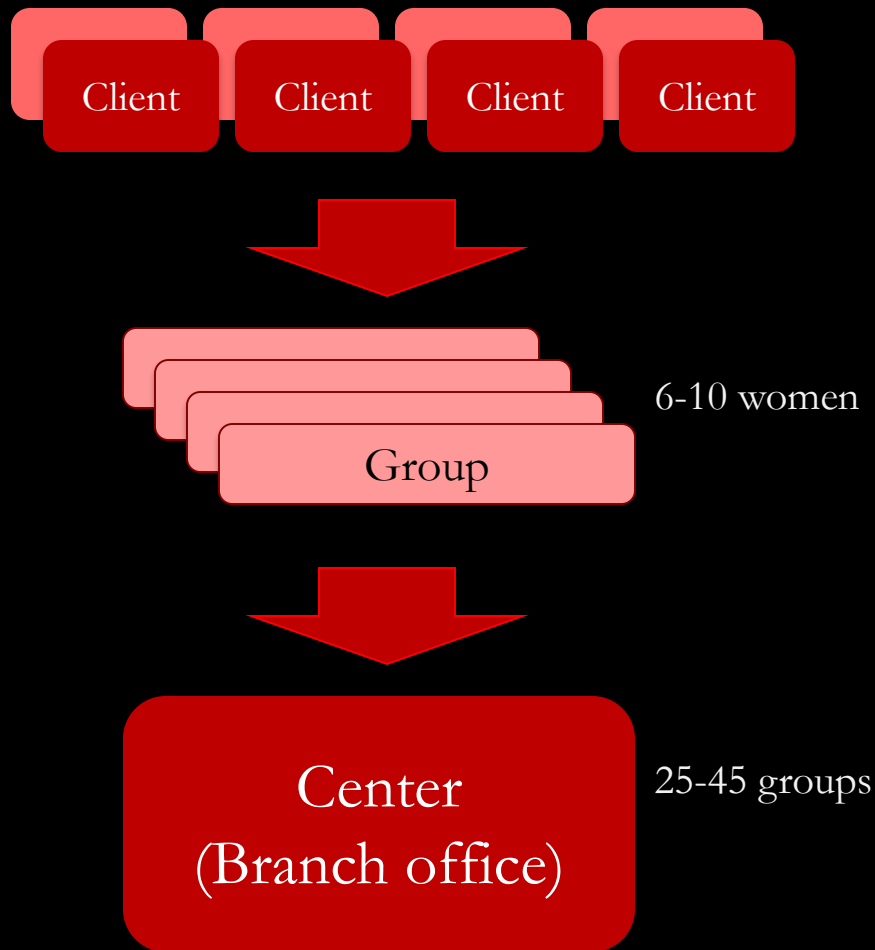
1. What happens when you offer microcredit?
2. What's the take-up?
3. Does household expenditure change?
4. Are new businesses created? Do existing businesses make more profits?
5. What about education? Health? Female empowerment?

Indicator	Instrument	Source
Investment	Number of businesses per household; business size; duration; costs and revenue; sales	Household questionnaire: <ul style="list-style-type: none"> <li>- Household member module               <ul style="list-style-type: none"> <li>- Business module</li> <li>- Loan module</li> </ul> </li> <li>- Health event module</li> </ul>
Consumption	Monthly expenditures of the household, itemized; “Special” spending (e.g. weddings)	
Women’s empowerment	Decision-making by household members	
Health and education	Number of health events; tuition spending; education completed of all household members	

# Challenges in measurement

- People mix household and business accounts and do not have a good idea of their profits
  - Walk people through recent revenue and expenditures
- Not accurate recall on loans
  - Is there strategic under reporting?
- How to measure social outcomes, when small part of survey?
  - Low power to pick up changes in health, and limited time to ask about all types of health, so looked at intermediate measures that covered different types of health issues eg expenditure on health
  - Many good but time consuming measures of women's empowerment, opted for women's control over expenditures, as more closely linked to a financial intervention

# The intervention: The loans



- Clients must be:
  - Female
  - 18-59 years old
  - Residing in the same area for >1 year
  - Valid ID/residential proof
  - >80% of women in a self-formed group must own their own home

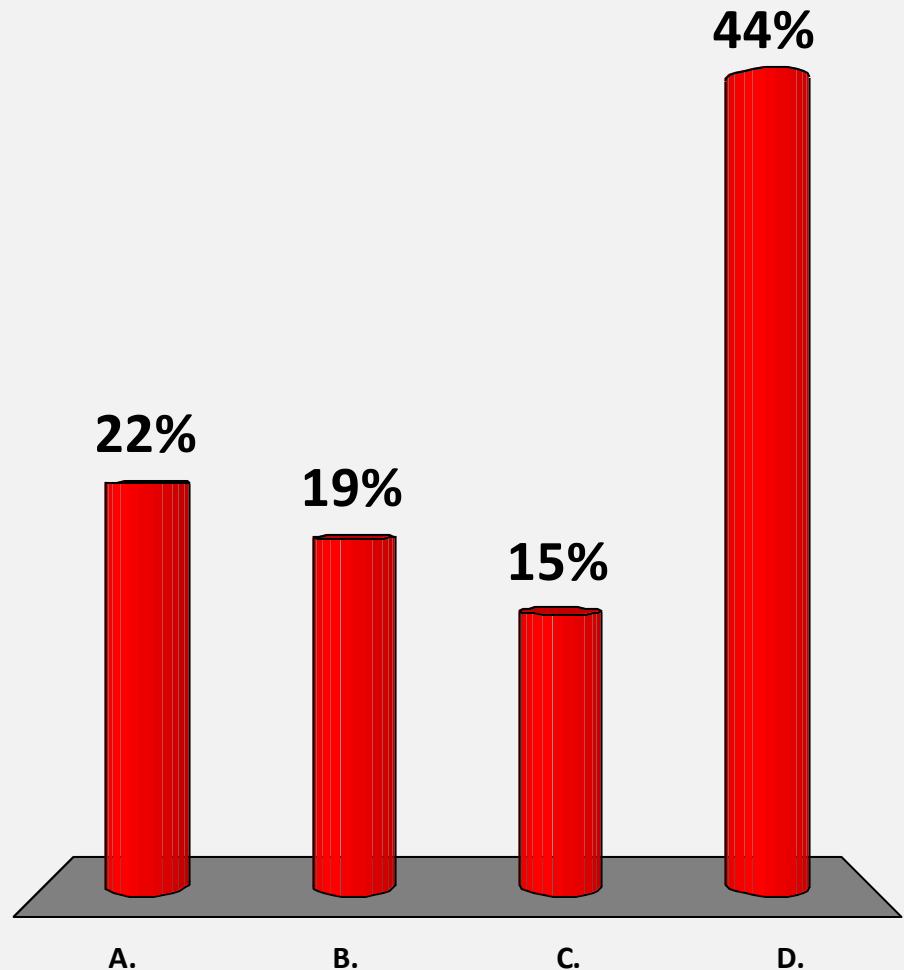
What unit of randomization makes sense if we want impact on community including spillovers?

A. Client

B. Group

C. Credit officer

D. center/branch office?





# Research design

- What unit of randomization makes sense?
  - wanted impact on community, including spillovers
- Spandana reviewed neighborhoods for suitability
  - selected 120 originally but dropped 16 because mostly migrants
- Tradeoff—including more neighborhoods would give more power, but if low suitability, take up low and power low
- Eventually 104 neighborhoods: 52 treatment, 52 control
- Spandana wanted to get started but reviewing was slow
  - Randomized in groups as they came in.
  - Used matched randomization to increase power

# Unit of randomization: The tradeoff

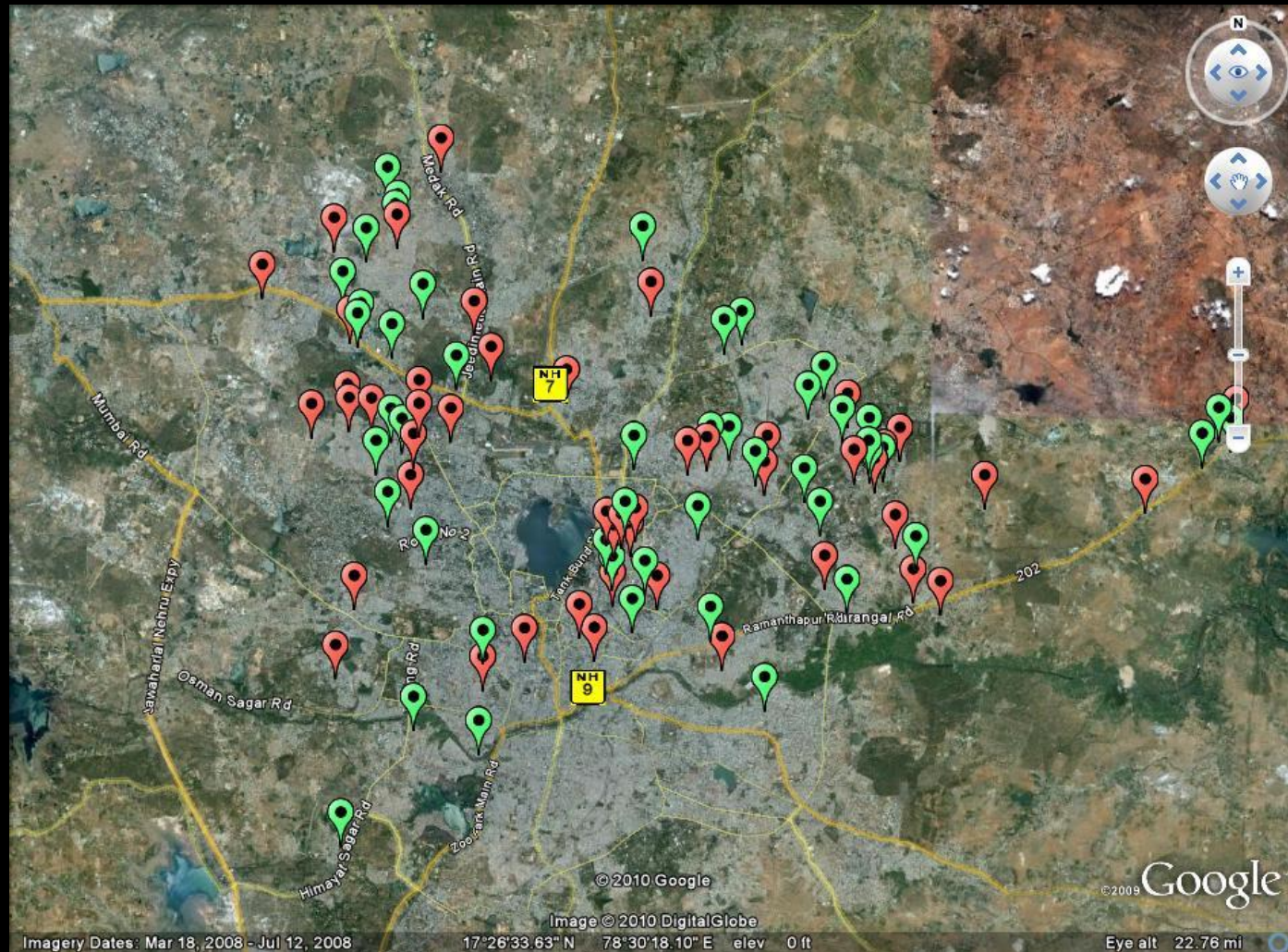
## Pros

- People self-identified with these areas on the ground (they knew their neighborhood)
- If bigger unit, would lose power
- If smaller, no way to check out spillover effects

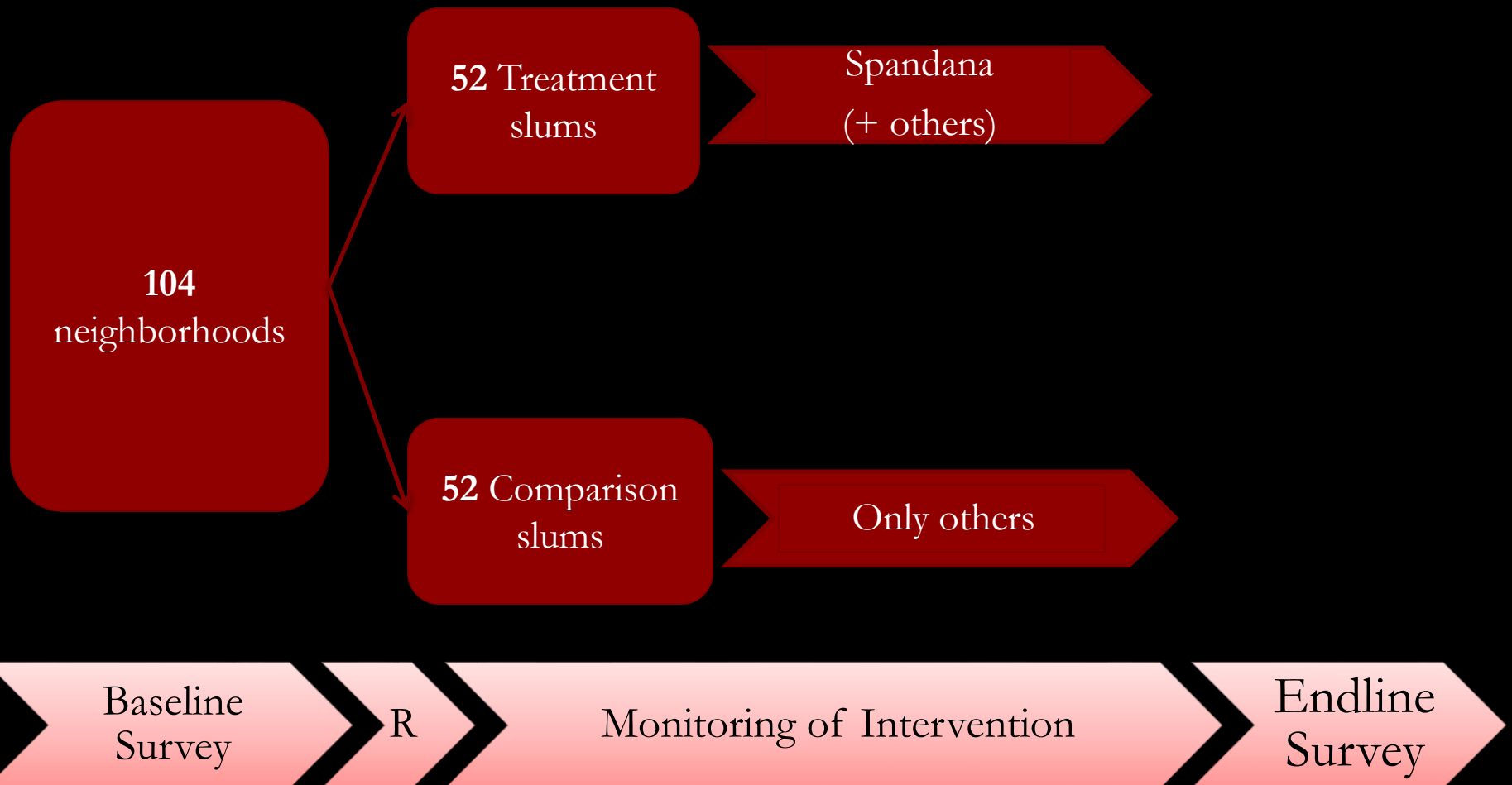
## Cons

- Some neighborhoods were pretty small
- Potential for crossovers

# Treatment and control areas



# Research design



# Baseline survey (2004)

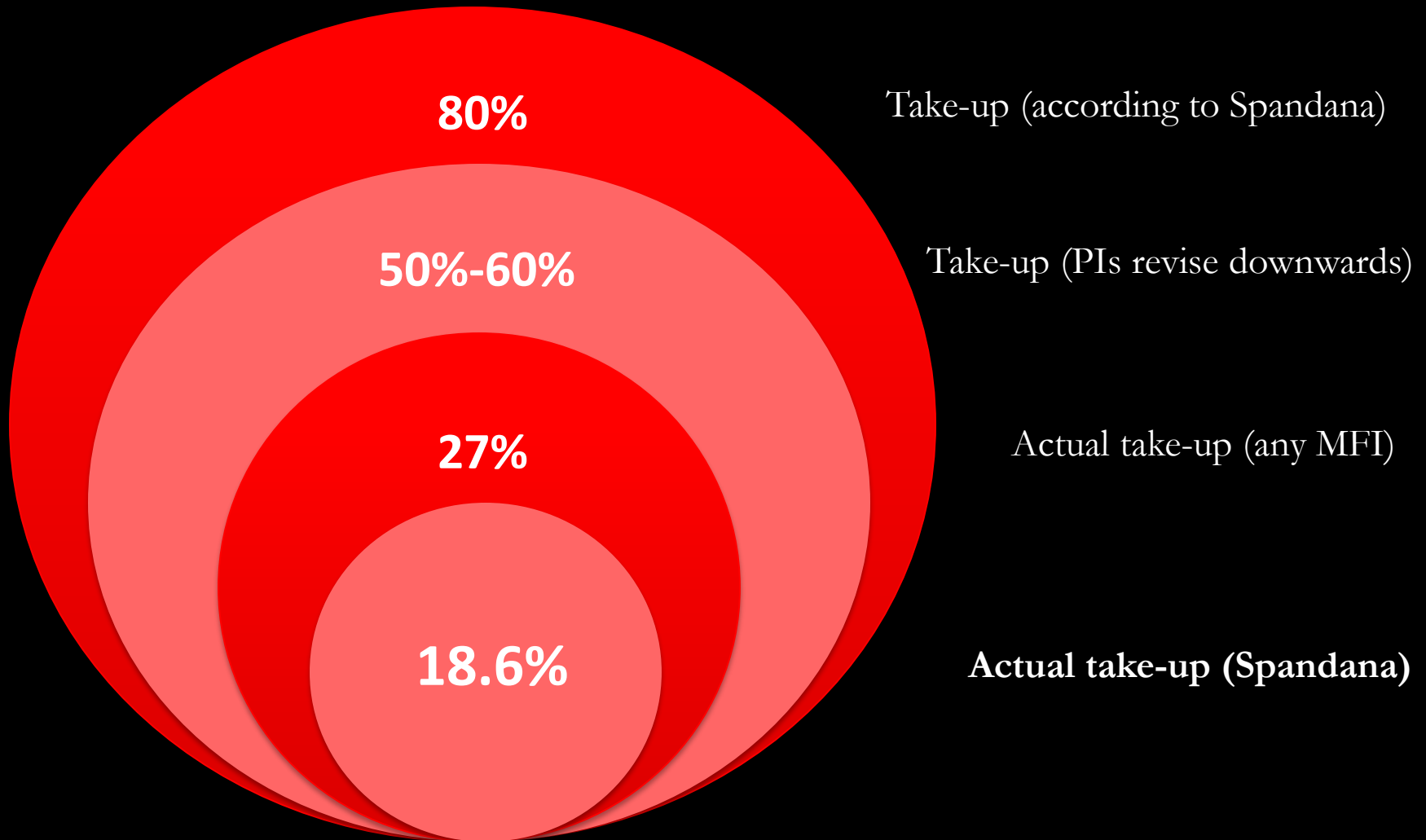
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- $n = 2,800$  households
- 120 neighborhoods identified by Spandana
- HHs randomly selected – must have  $>1$  eligible client (18-59 y.o. woman)
- No census, survey company used random walk
  - Ended up with overrepresentation of HH near center of slum
  - Endline done with census to get list of eligible HH

# Threats and response to threats

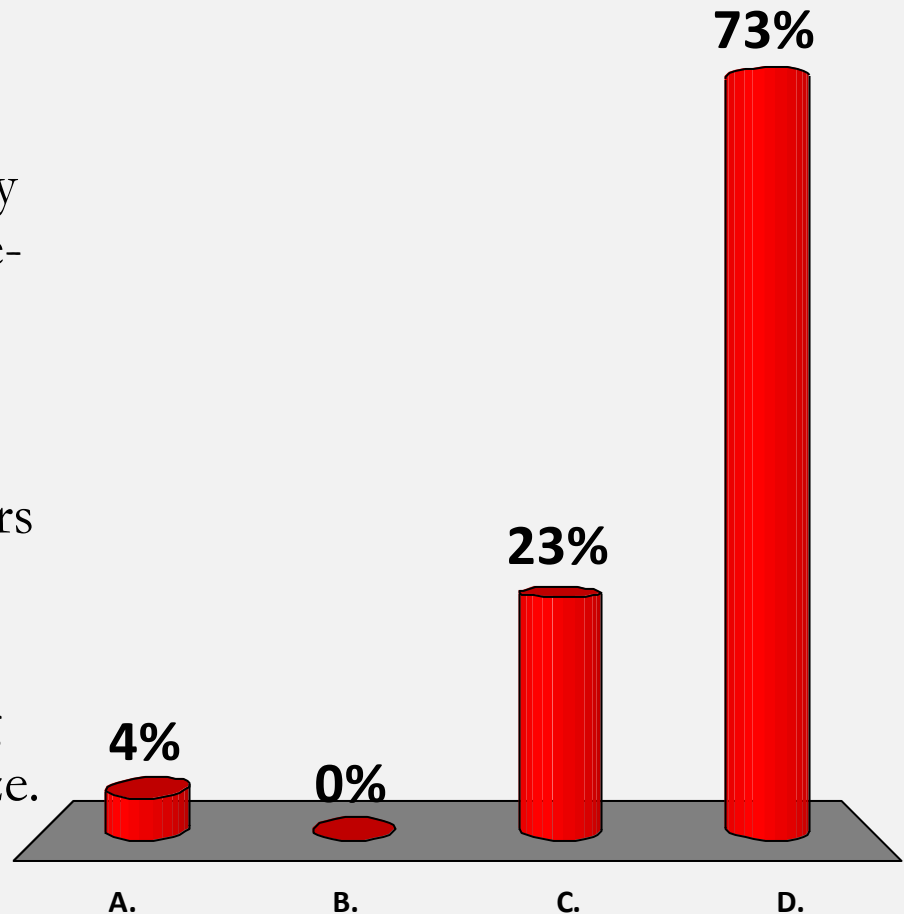
- Invasion of controls
  - Incentivized credit offices went into controls
  - Other MFIs expanded operations rapidly
- Low take up
  - Special surveys to measure take up
- Worked with Spandana to restrict their credit officers
- Timing—take up rising in treatment and comparison
- Should we encourage more take up? No
- Over sample borrowers? No
- Massively increase sample at endline of those likely to borrow. Came with some costs.

# The problem of take-up



# Why was low take-up a problem for the Spandana study?

- A. It wasn't a problem, because the take-up rate is just another indicator to analyze.
- B. It wasn't a problem, because they had accurately predicted the take-up rate when calculating sample size.
- C. It biased the results, since low take-up meant that non-compliers had to be dropped from the treatment group.
- D. It reduced their power, requiring them to increase their sample size.





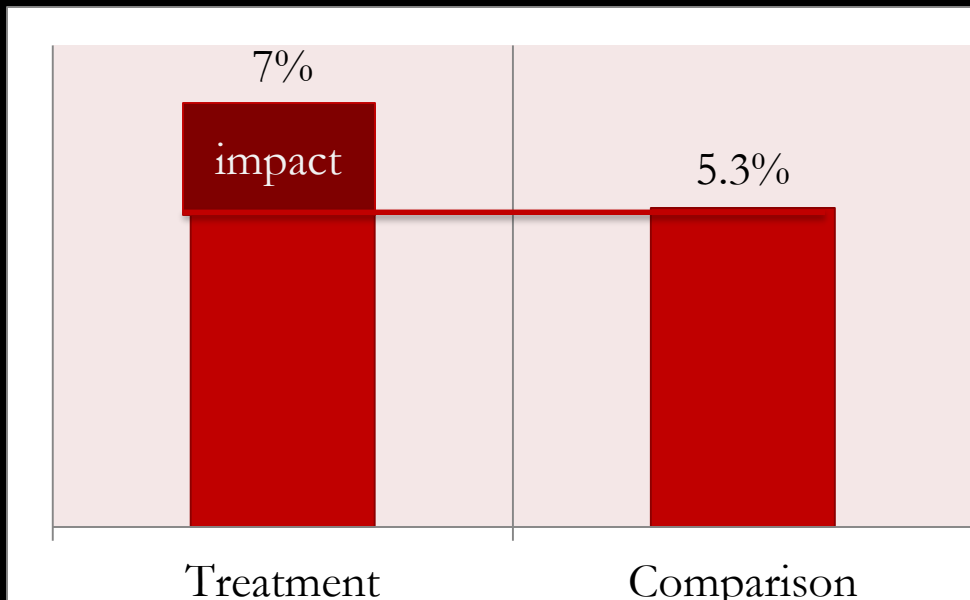
# Endline survey (2007-2008)



- Census of HH
- $n = 6,800$  households
- same 120 neighborhoods
- resampled (new households)

# Results: Businesses

- Overall take-up of loans: 27% (vs. 18.7%)
- 30% of loans were used to start new businesses
- 22% to buy stock for existing businesses



Percent of households operating a new business.

# Results: Spending



- HHs with existing businesses
  - bought more durable goods
- HHs likely to start a business
  - cut back on temptation goods (tobacco, eating out, etc.)
  - and invested more
- HHs unlikely to start a business
  - Spent more on non-durable consumption
- No change in health, education, empowerment

# The fourth estate chimes in

HOME /

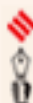
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Guest columnist

## Microfinancing changes lives around the world — measurably

Microfinancing can help poor people around the world with small loans that can change their lives, writes guest columnist Brigit Helms. The anecdotes are plentiful but a new study shows the benefit.

By Brigit Helms  
Special to The Times

IT is the question I hear more than any other — does microfinance actually work? It's a good question and one we should ask about any activity that purports to have an impact on the lives of the poor, marginalized and vulnerable. But answering that question is rarely as straightforward as a simple yes or no.

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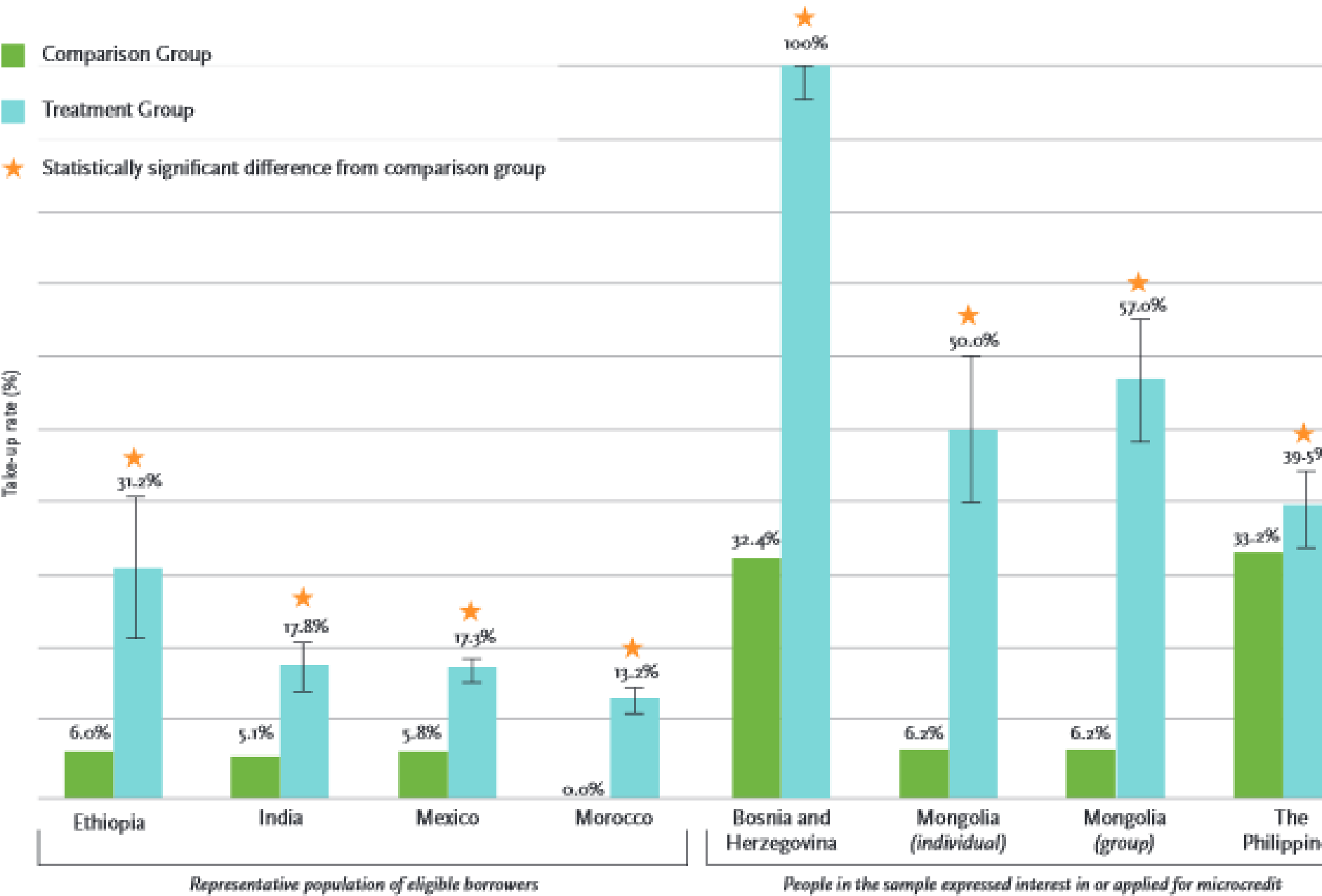
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# Long-term follow-up (36 months)

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- 91% of first endline households identified
- Microcredit available in control too
  - but treatment area has had it for longer
- 30% take up of microcredit
  - most not taking up microcredit do have other forms of loans
- Businesses in treatment group have slightly more assets and larger businesses have slightly more profits
  - most still small
- Not difference in social outcomes
- Caveat, only small difference between take up in treatment and comparison

FIGURE 2 MICROCREDIT TAKE-UP WAS MODEST WHEN MFIs OFFERED IT TO A GENERAL POPULATION OF ELIGIBLE BORROWERS



# Similar results across 7 studies

TABLE 2 SUMMARY OF MICROCREDIT'S IMPACT ON VARIOUS OUTCOMES

Outcome	Bosnia and Herzegovina	Ethiopia	India	Mexico	Mongolia	Morocco	Philippines
Business ownership	↑	—	—	—	↑	—	—
Business revenue	—	—	—	↑	—	↑	—
Business inventory/assets	↑	<i>no data</i>	↑	<i>no data</i>	↑	↑	—
Business investment/costs	—	—	↑	↑	<i>no data</i>	↑	↓
Business profit	—	—	—	—	—	↑	—
Household income	—	—	—	—	—	—	—
Household spending/consumption	—	↓	—	↓	↑	—	—
Social well-being	—	—	—	↑	—	—	↓