

# EE468: Integrated Public Economics, Development and Political Economics

## Lecture 9: Credit

28 March 2014

---

**Sommarat Chantararat** (sommarat.chantararat@anu.edu.au)

### Outline

- Key impediments of lending to the poor
- The economics of microfinance
- Impacts of microcredit on poverty reduction

## Motivating facts on lending to the poor

- Most of the poor do not have access to any form of formal credit
- Most public subsidised credit programs to the poor tend to fail with high default rates, function like free transfers and sometime become political giveaway!
  - Mandated banks in India have 42% default rate and cost \$2.72 to increase income of the poor by \$1 (Duflo 2009). Agricultural credit increases by 5-10% in election years (Cole 2010)
- Informal credit institutions have always existed (moneylenders, ROSCAs, mutual credit, group lending, etc.) with high interest rates
- The microfinance revolution jump-started with the Grameen Bank established in Bangladesh by Mohammed Yunus (the Nobel Peace Prize Winner!)
  - Microcredit has expanded as a worldwide phenomenon with \$25 billion outstanding loans today, 150-200 million clients and low default rates
  - Many microfinance institutions (MFIs) are very profitable, e.g., Compartamos in Mexico. They also now provide boarder set of financial services

## Motivating facts on lending to the poor

- Microcredit used to be considered as one of the best ways to solve poverty. Today, there are big controversy on whether microcredit is actually good for the poor! (high interest, pressure to repay, etc.)

## Today we will try to understand some basic questions

- What are the key impediments of lending to the poor?
- Why does formal credit fail to reach the poor?
- What innovation did the microfinance introduce to overcome these impediments?
- Did microcredit really help the poor and if so how?

## Credit of rural households living on less than a dollar a day

- Low and varying capacity to access to credit, most from informal!

	Percent with a loan	Fraction of loan from a bank
Cote d'ivoire	30.5	5.7
India (udaipur)	6	6
Indonesia	11.6	25.3
Mexico	18.5	17.4
Pakistan	93	1.5
Panama	2.8	--
Peru	12.3	0
Timor Leste	10.9	0

Source: Banerjee and Duflo

## Some facts about credit markets

### ➤ **Key barriers to credit market**

- Information asymmetries (“unobserved” loan default behavior)
  - Moral hazard (can lender observe how borrower use their loan?)
  - Adverse selection (especially when interest is high, why?)
- High costs of monitoring and enforcements → lending to the poor is costly!

### ➤ **Three sources of demand for credit** (different repayment potentials)

- For fixed capital to start up a business (could be risky or productive)
- For working capital of on-going production (repetitive loans)
- For consumption smoothing (low return)

### ➤ **Two types of lenders** (different capital, contract and information costs)

- Formal: government, commercialised banks (lower capital cost but limited relation/information with local clients)
- Informal: MFIs, group lending, ROSCAs, cooperatives, etc. (higher capital cost but tighter relationship and information about local clients)

## Some facts about (informal) credit markets for the poor

- Almost all lending to the poor are informal
- Lending rates are much higher than deposit rates within the same economy
  - In Pakistan, avg annual interest is 78.5% vs. avg. cost of capital of 32.5%
- Extreme variability in the interest rates charged within the same economy
  - Sd. of 38.3% for annual interest rates in Pakistan (so range from 2-150%)
- Credit rationing with the poor get small loans but pay higher interest rates
  - In India, credit limit is proportional to borrower's net worth, the landless pay interests at 28%-125% while the cultivators pay 21%-40%
- The rates of default are quite low!
- Production and trade finance (working capital) are the main reasons given for borrowing!, even in the case where the rate of interest is relatively high
- Segmentation but seem to have ex-ante competition in the credit markets

## A simple model of credit market with monitoring cost

- Loan repayment is imperfectly enforceable
- The borrower can invest  $k$  toward gross return  $f(k)$ . With wealth  $w$ , he needs to borrow  $k - w$ . At interest rate  $i$ , he needs to repay  $i(k - w)$  at the end. The cost of not repaying loan is assumed to be  $h$  (assumed to be proportionate to investment, e.g., excluded from lending, social sanction,  $h < r$ )
- In the presence of default possibility and information asymmetries, the lender will need to incur monitoring cost at a fixed rate  $c$  (give out trial loan, etc.) to try to make sure of borrower's repayment. The cost of capital is  $r$  (pay to depositors)
- The lender will thus only give out loan up to the point where the borrower has the incentive to repay  $\rightarrow f(k) - i(k - w) \geq f(k) - hk$  or

$$i(k - w) = hk$$

- The lender will also need to set an interest rate high enough to cover the cost. At still competitive credit market, lender's zero profit condition yields

$$i(k - w) = r(k - w) + c$$

## A simple model of credit market with monitoring cost

- Bringing the two incentive compatibility conditions, we get total loans and interest:

$$k - w = \frac{hw - c}{r - h} \quad \text{and} \quad i = r + \frac{c(r - h)}{hw - c}$$

- Loan sizes  $\uparrow$  with wealth, cost of default;  $\downarrow$  with lender's monitoring cost
- Credit rationing exists: those with  $hw - c < 0$  will be unable to borrow
- In this model without default, lending rate is higher than deposit rate due mainly to monitoring cost (induced by  $w$  and  $h$ )
- Interest rates vary by capital cost, monitoring cost, cost of default and wealth
- Increase  $w$  will increase loan and reduce interest: MFIs often insist on saving as a way into borrowing  $\rightarrow$  helping the poor save is way to building wealth
- Cutting monitoring cost  $c$  is the key for expanding credit at cheaper interest  
How? (group lending, social capital, interlinked contracts, etc.)
- Increasing cost of default  $h$  could enhance loan availability at lower interest How?  
(social sanction, applications of biometric technology, etc.)

## Why are formal institutions absent?

$$k - w = \frac{hw - c}{r - h} \quad \text{and} \quad i = r + \frac{c(r - h)}{hw - c}$$

- Banks do not know the borrowers' credit worthiness well and so have to incur high monitoring cost. This could result in credit rationing at any on-going rate  
→  $hw - c < 0$
- Banks may face an interest rate ceiling by law → preventing them from charging high enough  $i$  to cover the monitoring/enforcement costs
- The required collateral  $w$  could not be met by rural borrowers
  - The type of assets the poor have (land, livestock in the thin, illiquid markets, labor) might not be acceptable as collateral!
  - What should be collateral for education loan? Agricultural loan for landless households?

## Why do informal credit/moneylenders exist?

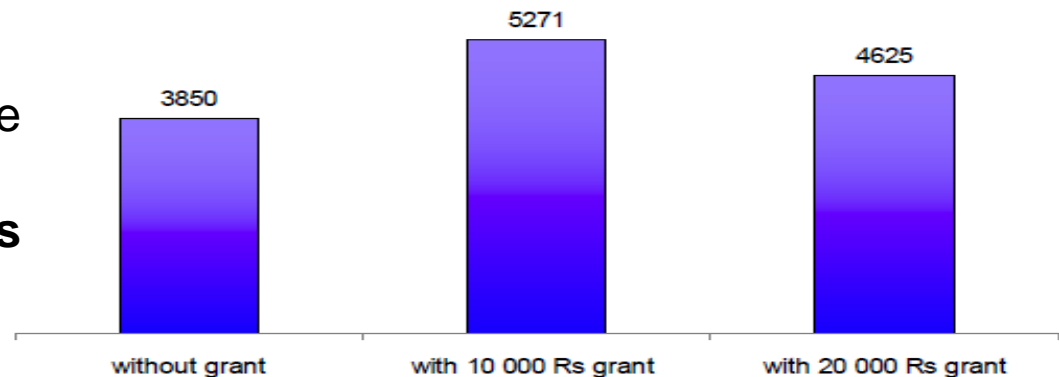
$$k - w = \frac{hw - c}{r - h} \quad \text{and} \quad i = r + \frac{c(r - h)}{hw - c}$$

- Moneylenders are closed to the people in the local village. They have much better information of their clientele and so could reduce monitoring cost  $c$
- Interlinked credit transactions → most of them are landlords, shopkeepers, agricultural traders with lending relationship tie with production relationship
  - This improves information, reduce monitoring cost and enhance enforcement
  - They are more open to exotic kinds of collateral (land, livestock, labor)
- But the interest rates are high and sensitive to capital and monitoring costs!
  - They face higher capital cost!
  - *Ex-ante* competition but *ex-post* lock in: there are many lenders in a village (they are not monopoly) but too costly to switch money lender, why?
  - Commonly interest rates range from 3%-4% per month!

## Are there still constraints on moneylender markets?

### ➤ Would the poor borrow at high interest rates?

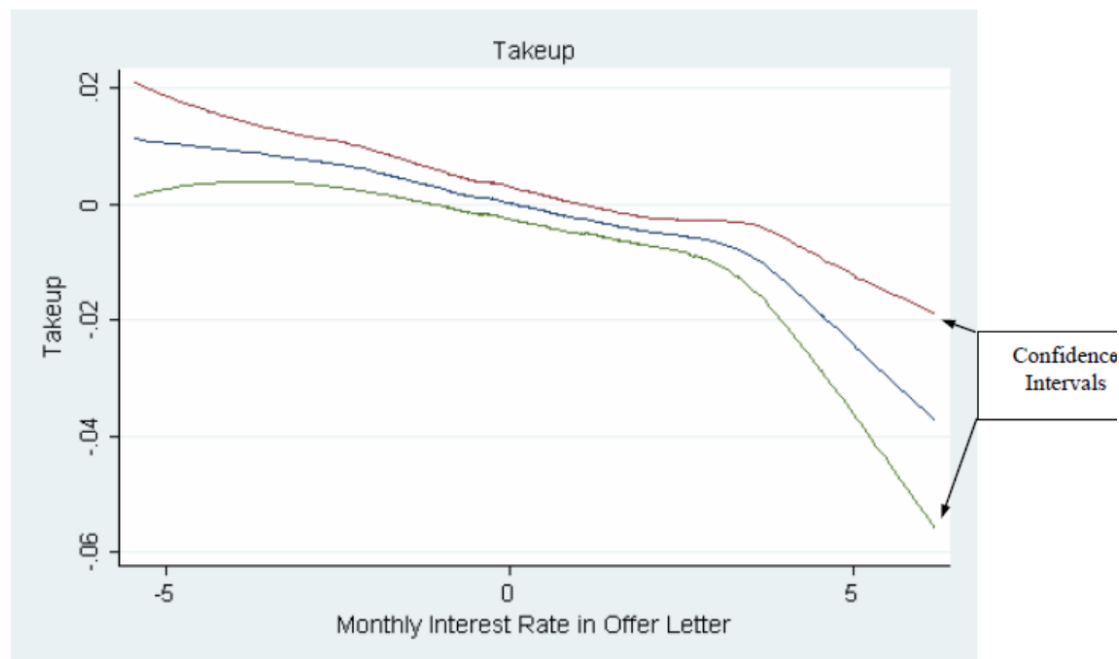
- Some poor with high rates of returns on capital still do while others with low return will select themselves out of the market
- de mel, McKenzie and Woodruff found returns to capital for micro-entrepreneurs in Sri Lanka to be as high as 5.7% per month on average (higher than the average borrowing rates!)
- Select 405 households identified with small business (less than \$1,000 fixed capital, less than \$100 in machinery or stock)
- Randomise encouragement to participate in the study with random drawing of prizes (grants of \$100 or \$200 in cash or in-kind)
- Follow up survey to monitor returns to those grants on increase in **real monthly business profits**



## Are there still constraints on moneylender markets?

### ➤ How sensitive is the demand for credit to interest rates?

- We saw earlier that poor could have high return investment, they should be able to borrow. What is their sensitivity to interest rates?
- Karlan and Zinman found that credit demand among South African is not that sensitive to interest rates ... a little more sensitive to interest increase
- Work with bank to randomise loan offers with different interest rates and durations to 55,000 former clients
- 96% of the randomised interest rates are below normal and 4% above



## Are there still constraints on moneylender markets?

- **Do clients really understand the interest rates given that they might not be very clearly presented in the loan contract?**
  - Karlan and Zinman also randomise various marketing aspects of loan offers (at the same interest rate), e.g., photo, language affinity, wording of “special rate”, “discount”, compare with other competitors
    - They found that these manipulations affect demand as much as interest rates → client’s awareness might be limited!
  
- **Could high interest rates reinforce moral hazard and adverse selection leading toward virtuous circle of high rates and credit rationing?**
  - Those borrow at high rates are those who do not plan to repay (adverse selection), high rates induce incentive not to repay (moral hazard) → Testing moral hazard and adverse selection is hard as both are unobservable! But default rates for existing loans seem low!

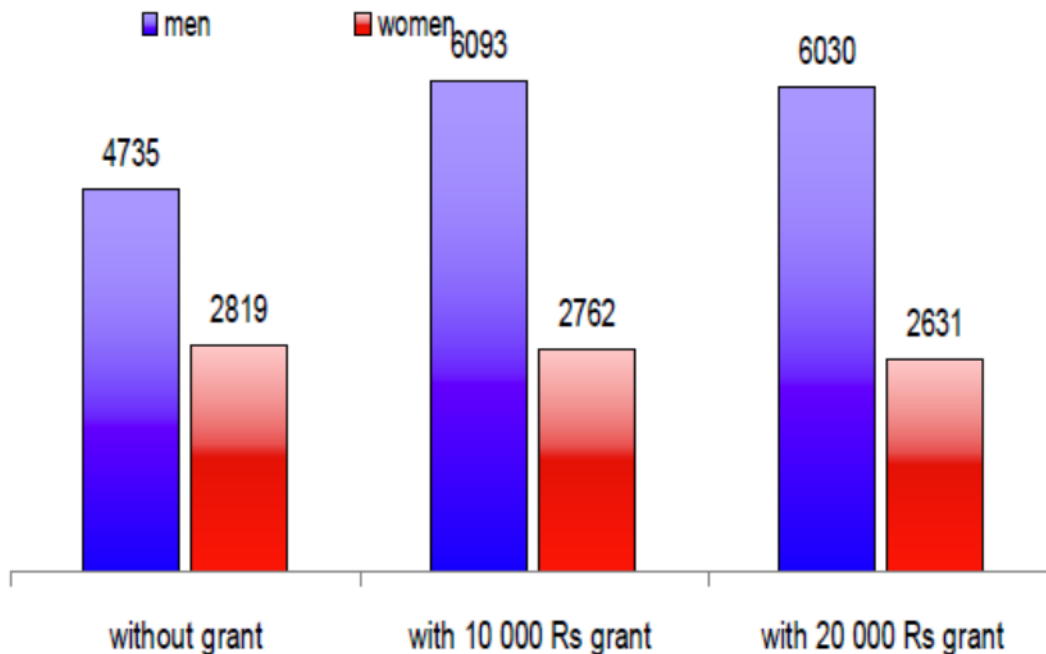
## Microfinance promise: How might they solve the problems?

- **Default rates in microfinance are extremely low (less than 2%)**
- **Key economics of microfinance**
  - Lend almost only to women
  - Weekly repayment schedule
  - Group lending (5-10 women who know each other, group liability)
  - Regular meeting to form bonding and discuss other business strategies
  - Very small loans initially, the size increases over repeated borrowing
  - Extensive monitoring by credit officers who are not well paid but with incentives based on number of clients and repayment rates
  - High interest rates (at least 20% per year)

# Microfinance promise: How might they solve the problems?

## ➤ Lend mostly to women

- We don't have evidence yet if women are more reliable in repayment
- This could meet social goal to empower women in the households
- Would women have higher rate of return on investment than men?



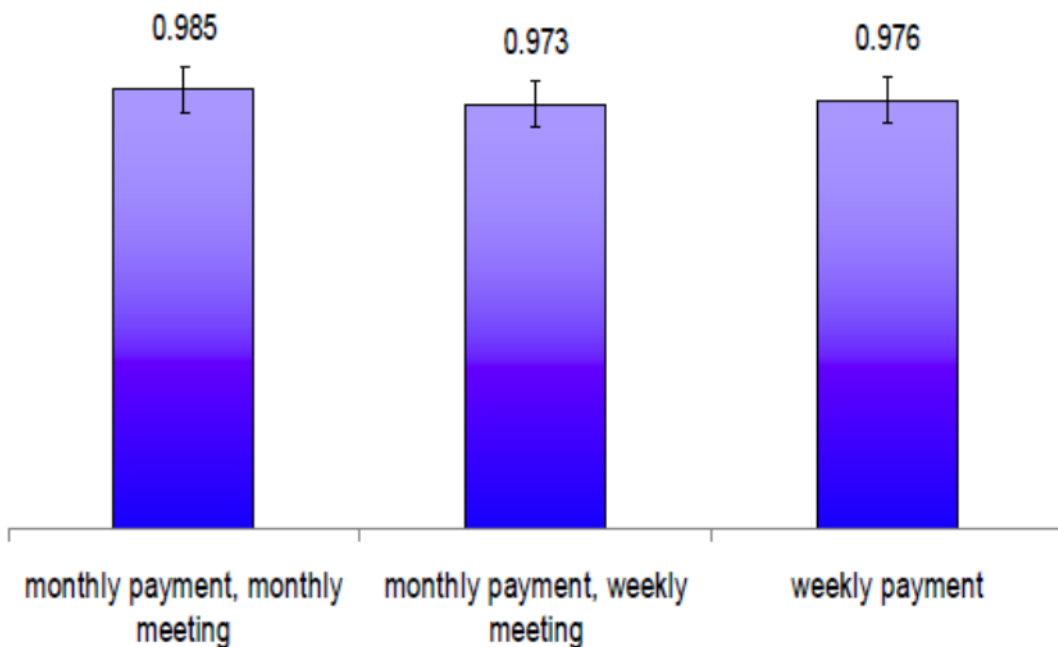
de mel, McKenzie and Woodruff found returns to capital for women to be a lot lower than men in Sri Lanka!

- Intrahousehold problems, inefficiencies?
- Some loans are more for consumption smoothing for the households with low or zero returns?

## Microfinance promise: How might they solve the problems?

### ➤ Weekly repayment schedule and regular meetings

- Regular repayment creates discipline and easier for clients to save small amount toward repayment rather than big one!
- But these features could discourage borrowers with unmatched production cycle (crop production) and have no time for meetings

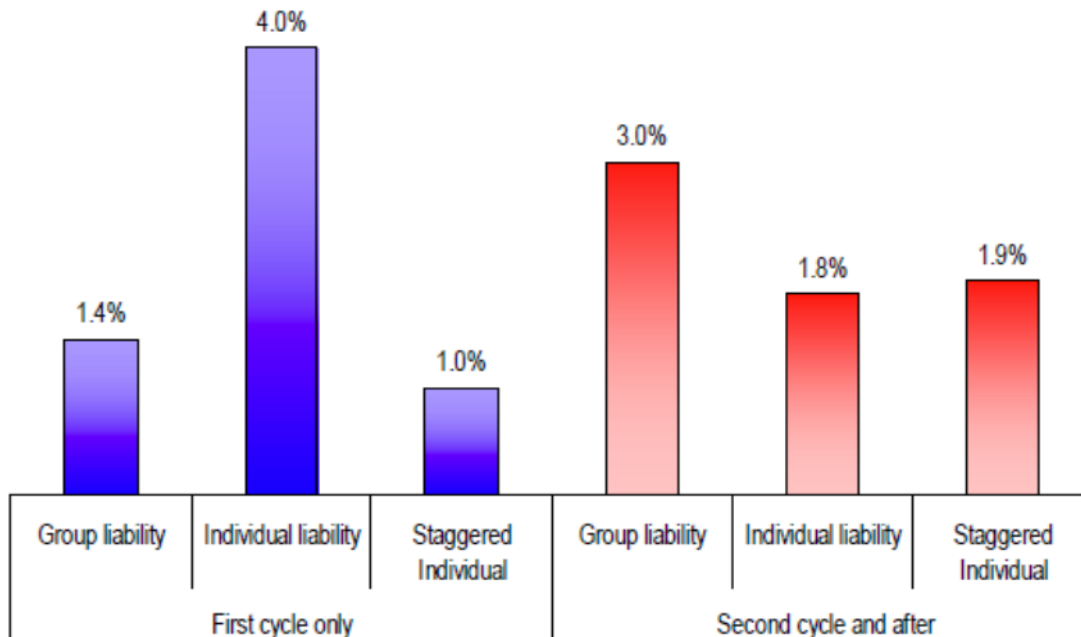


Field and Pande randomise 100 groups of clients of a MFI in India into different repayment and meeting frequencies

- They found repayment is as high in monthly and weekly schedules!

## Microfinance promise: How might they solve the problems?

- **Group lending with joint liability** → the famous feature of microcredit!
  - Cannot borrow again if the group does not reimburse → two potential effects:
    - Screening effect: women will only select and join other reliable women
    - Peer monitoring effect: they will monitor each other (for free)
  - But joint liability could create excessive pressure and discourage some?



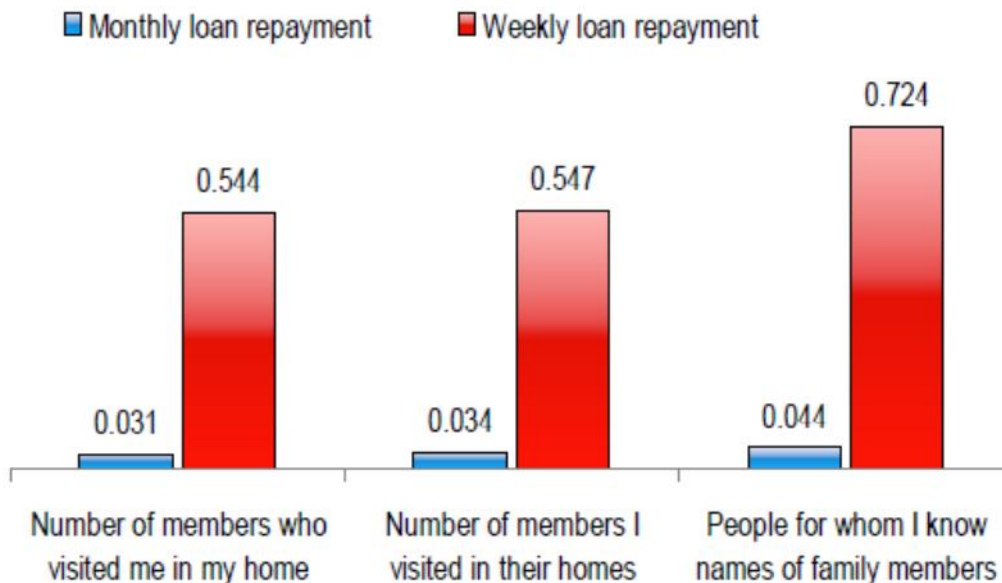
Kalan et al. work with Green bank of the Philippines to randomise centres to implement group liability, individual liability in group and staggered (group later convert to individual liability with high repayment)

Many MFIs are transiting away from this model into “group lending with individual liability”

## Microfinance promise: How might they solve the problems?

### ➤ Regular group meeting and social capital:

- Regular meetings may favor social interactions and social capital
- Karlan studies MFI, FINCA in Peru, randomly assign loan clients into groups based on the order in which they visit the office to join
  - He found lower default rates in groups with more members living close by and have same culture!



Field and Pande also found

- More contacts between people in groups with weekly meetings
- strong correlations of weekly loan repayment and the amount of “social capital” people form in group interaction (weekly)!

## The bottom line: What explains microfinance success?

- **The key features (group-based, lend to women, etc.) might not in fact be the most important ones.** MFIs still rely heavily on old-fashioned principles:
  - They tend to require clients to save to build up collateral apart from social K
  - Rely extensively on credit officers with strong incentives to monitor rePMT
- **Their success might come largely from the fact that they extend credit to those unable to access credit (or at a better rate)**
- **They still have high cost of monitoring and high interest rates** (but slightly lower than what clients could get else where)
  - Yunus remark “they are no better than moneylenders they try to displace”
  - MFIs remark “if clients are willing to borrow at these high rates, why wouldn’t we continue to lend and to make the market”
- **As MFIs grow, competitions across MFIs or agents may cause problems?**
  - The strength of the threat to be cut out of credit become less strong if borrowers have more options → increase level of debt outstanding, revolving loans → key causes why farmers in India committed suicide!

## Impact of microcredit: Is it always good to the poor?

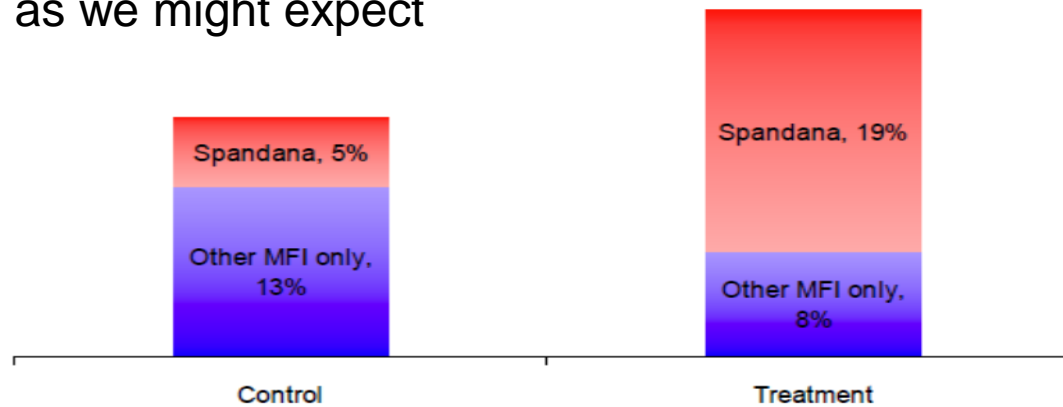
- In contrast to research on why this works, little evidence found on its impacts!
- MFIs have abandoned to look into the impacts (assuming that if clients come back, they must gain something out of this venture)
- **Why is it necessary to evaluate impacts of MFIs?**
  - Most MFIs are also highly subsidised especially those that lend to the poorest. Venture capitalists invest heavily on these MFIs realising existence of these subsidies
    - Need to make sure “benefit to the poor’ is greater than the subsidy cost!
  - Increasing realisation that borrowing from microcredit does not always good for poor client
    - poor information, increasing competition among MFIs could lead them into “debt traps”

## Impact of microcredit: Spandana in India (Banerjee et al.)

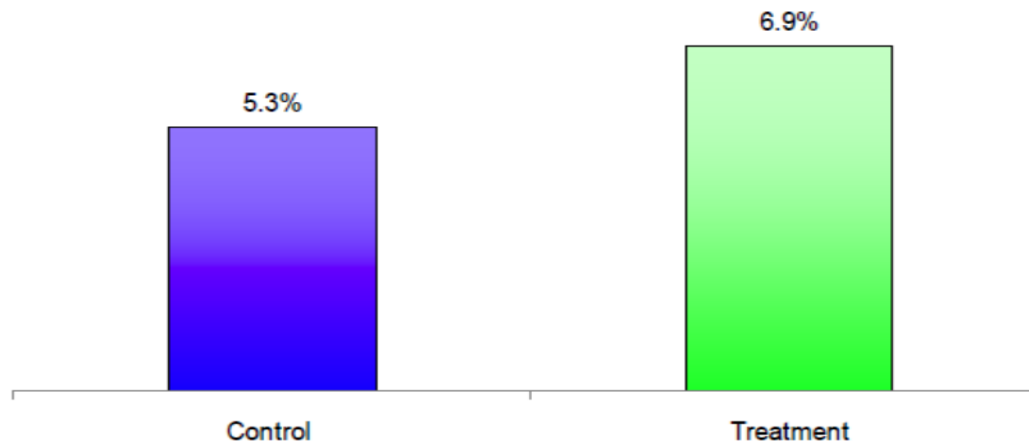
- Spandana is one of the fastest MFIs in India operating in 8 states with 2 million clients, \$297 million debt outstanding
  - Main product: standard Grameen type group lending to women (18-55 years) who live in slum at least 3 years, group of 10 women, joint liability, loan size \$200 with weekly repayment, varying interest rates with 24% per annum average
- Randomise phase-in of microcredit programs to 104 slums in southern India (half implemented now, half after two years) → this only allows evaluation at slum level (intend to treat effect) NOT individual level!
- Baseline survey before implementation of 20 HHs/slum, endline survey after 2 years of 100 HHs/slum
  - Profile of potential clients (from baseline): family size of 5, poor but not ultra poor (47% under \$2/day, only 6% under 1\$/day), 98% primary school and 84% secondary school participations, 31% have business but small, low specialisation, very little assets! 69% have debt 49% from moneylenders at 3.84% interest rates per month on average.

## Impact of microcredit: Spandana in India (Banerjee et al.)

- **Take up rate in the first two years are not so great.** Not as high market penetration as we might expect

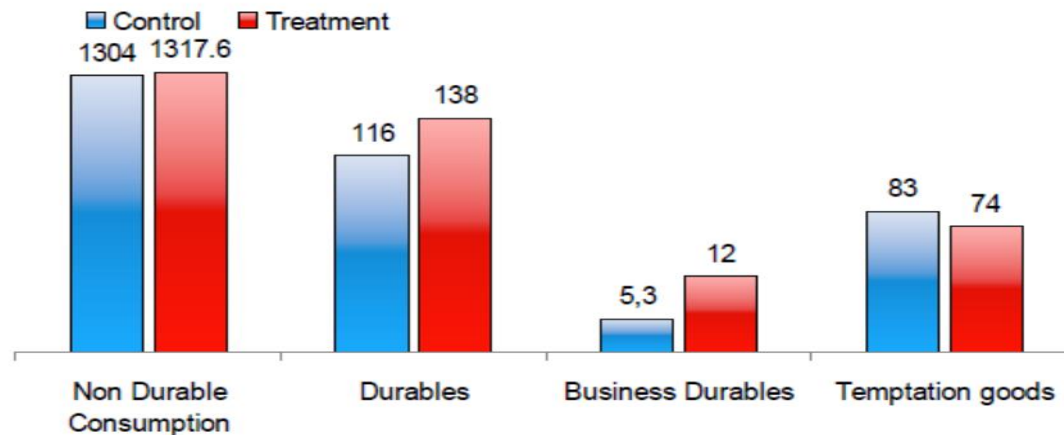


- **More new businesses were created in treatment slums.** As this difference is due to 14% difference in people who take up Spandana, the effect of getting a loan on starting business is  $1.6\%/14\% = 12\%$

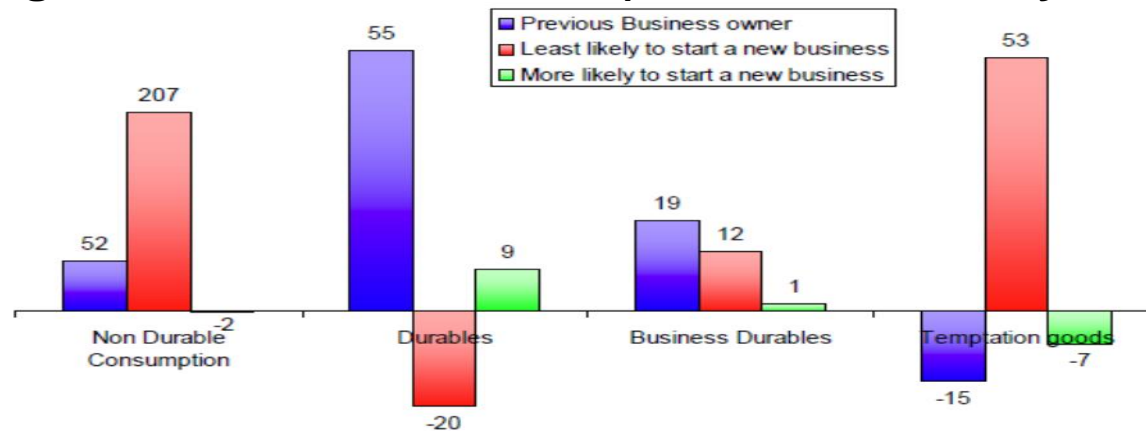


## Impact of microcredit: Spandana in India (Banerjee et al.)

- Increase in assets and business durables, decrease unnecessary expenses! But no effect on other consumptions (food, education, health)



- Positive impacts on asset investment for existing or new entrepreneurs (as well as acting as commitment to save?) But NOT for everyone!



## Is microfinance really the next revolution?

- Spandana appears to create positive impacts by allowing some poor to invest in asset. However, the cost is high, and this is not for everyone (those with no entrepreneur drive do not seem to benefit)
- MFIs appear to resolve some market impediments and offer competitive products relative to others in the market
- This could be revolution in the way we help the poor to help themselves! With credit (and insurance) products offered to the poor at market sustainable rates, this intervention could get some poor out of poverty without too much cost!
  - With their comparative advantage, MFIs product design and development should be supported more by development communities
  - Other alternative innovations → interlinked contracts, local credit bureaus, other incentivised technology (biometric technology?)
- But we also need to realise that MFIs products are not for everyone → so this should complement other poverty alleviation efforts NOT to replace them totally