

# The miracle of microcredit. Evidence from a randomized experiment

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# Idea of microcredit

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- Very small loans (microcredits) designed to spur entrepreneurship in the poor regions.
- Beneficiaries are people who are not able to get normal loan in a typical bank.
- Usually loan is not given to the individual but to the group – collective responsibility.
- Successful and “fashionable” idea not only in the developing countries - Nobel Prize to the Grameen Bank.

# Spandana Program

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- Canonical group loan product
  - Group of 6-10 women living in the area for at least one year
  - Beneficiaries jointly responsible, can do with the loan whatever they wanted
  - First loan Rs 10,000 (200 USD, 1000 USD PPP)
  - Next loan Rs 10,000 – 12,000, if previous repayed
  - The maximum loan size Rs 20,000
  - Interest rate = 12 %
  - Repayment time = 50 weeks
- Other MFI agencies active in the area
  - $p(\text{MFI loan} \mid \text{treated}) = 27 \%$
  - $p(\text{MFI loan} \mid \text{non-treated}) = 19 \%$

# Randomized Experiment

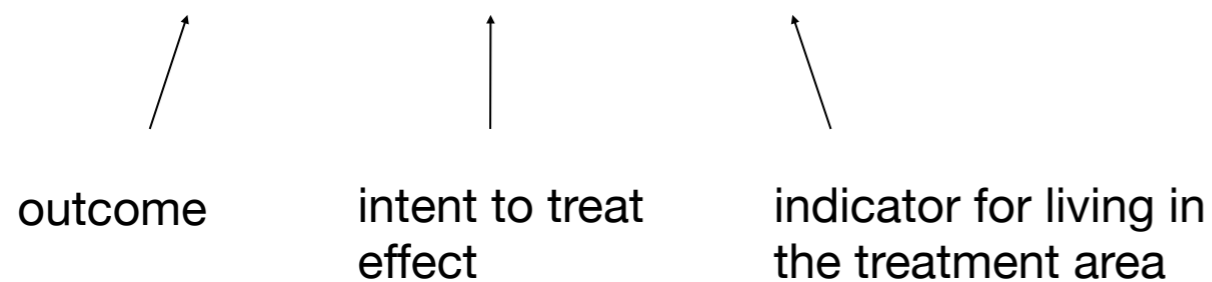
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- 104 neighborhoods in Hyderabad (India's fifth largest city) assigned to
- 52 pairs based on minimum distance of
  - Consumption per capita
  - Share of indebted households
  - Share of households having a business
- One neighborhood (randomly selected) of each pair was "TREATED" (= Spandana's office opened)
- Average 65 households per neighborhood, total 6850 households
- End-line survey (2007) 15-18 months after Spandana's agency opening (baseline survey 2005)
- Goal: observe loan expenditures, new businesses, health, education and women's empowerment

# Estimations

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$$y_i = \alpha + \beta \times Treat_i + \varepsilon_i$$



- Outcomes:
  - New Businesses
  - Expenditures
  - Health, Education and Women's Empowerment

# Results

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- New Businesses
  - Households in the treated areas are 1.7 percentage point more likely to report operating a business in the past year.
  - Business owners in the treated area report more monthly business profits.
- Expenditures
  - 20 % expenditure boost in durables, per capita
  - 130 % expenditure boom in durables used in business (table, chair, sewing machine)
  - 11 % decline in “temptation” goods expenditure
- Health, education, women’s empowerment
  - No significant effects

# New Businesses

Table 3: Impacts on business creation and business outcomes

	All households	Business owners			
	(1)	(2)	(3)	(4)	(5)
	New businesses	Profit	Inputs	Revenues	Employees
Treatment	0.017** [0.008]	4809.835** [2032.781]	2089.988 [4641.245]	6899.823 [4925.634]	-0.028 [0.084]
Control Mean	0.053	1703.821	13006.159	14709.98	0.384
Control Std Dev	0.25	55195.7	59056.7	55860.0	1.656
N	6756	2365	2365	2365	2365

Note: Cluster-robust standard errors in brackets. Profits, inputs and revenues are monthly, measured in Rs. Results are weighted to account for oversampling of Spandana borrowers. \* means statistically significant at 10%, \*\* means statistically significant at 5%, \*\*\* means statistically significant at 1%.

# Expenditures

Table 4: Impacts on monthly household expenditure (Rs per capita)

	(1)	(2)	(3)	(4)	(5)
	Total PCE	Nondurable PCE	Durable PCE	Durables used in a business	"Temptation goods"
Treatment	37.375 [46.221]	17.723 [40.686]	22.300* [11.680]	6.790* [3.488]	-8.999* [5.169]
Control Mean	1419.229	1304.786	116.174	5.335	83.88
Control Std Dev	978.299	852.4	332.563	89.524	130.213
N	6821	6775	6775	6817	6857

Note: Cluster-robust standard errors in brackets. "Temptation goods" include alcohol, tobacco, gambling, and food and tea outside the home. Durables include assets for household or business use. Results are weighted to account for oversampling of Spandana borrowers. \* means statistically significant at 10%, \*\* means statistically significant at 5%, \*\*\* means statistically significant at 1%.

# Education, health and women's empowerment

Table 8: Treatment effects on empowerment, health, education

	Women's empowerment: All households			Health: HHs w/ kids 0-18	Education: Households with children 5-18		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Woman makes spending decisions	Woman makes nonfood spending decisions	Health expenditure (Rs per capita/mo)	Child's major illness	Kids in school	Girls in school (HHs w/ girls 5-18)	Educ. Expenditure (Rs per capita/mo)
Treatment	0.000 [0.011]	-0.001 [0.014]	-2.608 [12.431]	-0.001 [0.024]	-0.028 [0.036]	-0.043 [0.035]	5.017 [12.300]
Control Mean	0.930	0.901	140.253	0.241	1.42	0.72	145.945
Control Std Dev	0.255	0.299	455.74	0.539	1.251	0.882	240.594
N	6849	6849	6821	5123	5439	4058	5409

Note: Cluster-robust standard errors in brackets. Decisions include household spending, investment, savings, and education. Health expenditure includes medical and cleaning products spending. Educational expenditure includes tuition, school fees and uniforms. Results are weighted to account for oversampling of Spandana borrowers. \* means statistically significant at 10%, \*\* means statistically significant at 5%, \*\*\* means statistically significant at 1%.

# Estimations in different groups

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$$y_i = \alpha_0 + \alpha_1 Old\_biz_i + \alpha_2 Biz\_hat_i + \beta_1 Treat_i \times Old\_biz_i + \beta_2 Treat_i \times No\_old\_biz_i + \beta_3 Treat_i \times Biz\_hat_i + \epsilon_i$$

Treatment effect for households who have an old business

Treatment effect for households who don't have an old business and have the lowest propensity to become entrepreneur

Additional treatment effect for households who don't have an old business and have the highest propensity to become entrepreneur

- Three different groups
  - Households who have an old business
  - Households who don't have an old business and have low propensity to become entrepreneur
  - Households who don't have an old business and have high propensity to become entrepreneur
- Results
  - Households with high propensity start more new businesses in treatment than in comparison group
  - Different spending patterns in different groups

# Results for different groups

Table 6: Effects by business status: borrowing and expenditure

	(1)	(2)	(3)	(4)	(5)
	Borrows from any MFI	Started new business	Monthly PCE		
			Durable expenditure	Nondurable expenditure	"Temptation goods"
<b>Main effects</b>					
New biz propensity (no old biz)	-0.0053004 [0.0338]	0.039 [.0189]	20.71 [18.68]	282.37*** [61.54]	-15.83** [7.73]
Any old biz	0.121*** [0.0377]	0.034 [.0147]**	63.52 [17.77]***	269.33*** [57.12]	-3.22 [8.26]
<b>Interaction with treatment</b>					
Any old biz	0.085* [0.0464]	0.011 [.012]	55.42** [26.18]	65.12 [49.09]	-13.4 [8.75]
No old biz	0.0959** [0.0465]	-0.027 [.020]	-36.32 [23.25]	212.41** [100.52]	25.56** [11.39]
New biz propensity	-0.0176 [0.0473]	0.048** [.024]	54.93** [29.50]	-258.49** [102.22]	-39.85*** [12.98]
Control mean of LHS var	0.187	0.053	116.174	1,304.79	85.079
Control Std Dev	0.39	0.25	332.563	852.40	130.751
N	5991	6733	6136	6136	6100

# Conclusions

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- Microcredit does have important effects on business outcomes and the composition of household expenditure
- These effects differ for different households. Those with high predicted propensity, increased their durable investments and cut non-durable and “temptation” goods consumption
- No significant effect on health, education and women’s empowerment
- However these are only short-run results

# Critique

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- Short time period 18 months to observe effects on education, health etc.
- TREATMENT = Spandana's agency in the area
- Other MFI agencies active in the area
  - $p(\text{MFI loan} \mid \text{treated}) = 27\%$ ,
  - $p(\text{MFI loan} \mid \text{non-treated}) = 19\%$
- People considered low-propensity to launch a new business might not be allowed to join credit group
- Amount of credit vs. loan count (authors did)