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The miracle of microfinance? Evidence from a randomized evaluation

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Information

- Huge expansion of microcredit (200 million clients or so)
- Double success:
    - Commercial (e.g. Compartamos IPO)
    - Recognized as a way to alleviate poverty, perhaps *the* way (Yunus Nobel Prize)
- Remains controversial (arguments similar to those against pay day loan in the US): prey on innocent customers etc.
- Suprisingly little quantitative evaluations on either side of this debate
- And until recently no randomized evaluations (despite the general agreement that the selection issues are particularly thorny in the case of microcredit. e.g. debate between Jonathan Morduch and Pitt and Khandker, probably the best attempt to do evaluate microcredit with non experimental data)

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Credit constraints are important

- Microfinance may relax credit constraints
  - Firms are credit-constrained: De Mel, McKenzie and Woodruff (2009); McKenzie and Woodruff (2008); Banerjee and Duflo (2008), etc.
  - Encourages investment: expand old businesses, set up new ones
- Mitigates income effects on education, health, child labor
- Provides option of borrowing in future—reduces need for insurance, holding cash/other assets, keeping other credit lines open
- May also simply reduce the interest rates at which the poor can borrow.

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Other arguments for possible impacts of microcredit

- Allows households to turn small savings into large sums; may make resisting temptation (tea, cigarettes, etc.) easier
  - may change the pattern of consumption (large items vs small items): Banerjee and Mullainathan (2009)
- Increases the rate of return on future investment/consumption makes savings now more attractive
  - May be knock-on effects in the presence of fixed costs
- Gives women better outside options; may increase influence on family outcomes
- The effect on savings vs. consumption today is ambiguous

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The Spandana Program

- This is a traditional microcredit program
  - Group liability
  - Loans only to women
  - Weekly or monthly repayment
  - Starting loan is Rs. 10,000 (~$250)
  - Interest rate: 12% per year nondeclining balance (24% APR)
- Spandana was already a large MFI in South India, not previously operating in Hyderabad.
- Agreed to randomly phase in operations in Hyderabad.

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Endline Sample

- 104 neighborhoods: 52 treatment, 52 control
- 7,200 households total
- Households with the following characteristics were surveyed (more likely to become microfinance clients):
  - At least one woman aged 18-55
  - Household has lived in the neighborhood at least 3 years
  - Not rated as someone Spandana wouldn't lend to
- The study measures impact for households with these characteristics; results for other types of households could be different

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Takeup

	First stage		
	(1)	(2)	(3)
	Borrows from Spandana	Borrows from any MFI	Borrows on credit
Treatment	0.133***	0.083***	-0.093***
	[0.023]	[0.030]	[0.034]
Control Mean	0.052	0.186	.441
Control Std Dev	0.222	0.389	.497
N	6651	6651	6638

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Takeup, cont.

	First stage		
	(4)	(5)	(6)
	Spandana	MFI	Borrowing
	borrowing	borrowing	on credit
	(Rs.)	(Rs.)	
Treatment	1406.814***	1250.504**	-390.956
	[261.568]	[477.956]	[1168.656]
Control Mean	592.47	2404.7	8757.9
Control Std Dev	2826.855	6698.2	32786.0
N	6651	6651	6638

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Reduced-form impacts: businesses

Impacts on business creation

	All households	
	(1)	(2)
	New	Stopped a
	business	business
Treatment	0.016**	-0.003
	[0.008]	[0.004]
Control Mean	0.054	0.031
Control Std Dev	0.252	0.173
N	6735	6650

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Reduced-form impacts: businesses

Impacts on business outcomes

| | Existing business owners | | |
| | (1) | (2) | (3) |
	Profit	Inputs	Revenues
Treatment	475.15	2391.534	2866.683
	[2326.340]	[4441.696]	[3187.618]
Control Mean	550.494	13193.81	13744.304
Control Std Dev	46604.8	59769.3	47025.5
N	2362	2362	2362

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Reduced-form impacts: businesses, cont.

Industries of new businesses

	New businesses Treatment	New businesses Control	Treatment-Control Difference
Food/ agriculture	0.299	0.214	0.085* [0.044]
Clothing/ sewing	0.135	0.185	-0.05 [0.033]
Rickshaw/ driving	0.056	0.110	-0.054* [0.028]
Repair/ construction	0.016	0.035	-0.019 [0.015]
Crafts vendor	0.024	0.040	-0.017 [0.017]
Other	0.470	0.416	0.054 [0.056]

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Reduced-form impacts: expenditure

Impacts on monthly household expenditure

	(1)	(2)	(3)
	Rs per capita per month		
	Total PCE	Nondurable PCE	Food PCE
Treatment	9.863	-6.689	-12.674
	[37.231]	[31.857]	[11.618]
Control Mean	6821	6775	6821
Control SD	1419.229	1304.786	520.51
N	978.299	852.4	263.099

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Reduced-form impacts: expenditure, cont.

Impacts on monthly household expenditure				
	(4)	(5)	(6)	(7)
	Rs per capita per month			
	Durable PCE	Durables used in biz.	"Temptation goods"	Festivals (not weddings)
Treatment	19.575*	6.832*	-8.859*	-22.217**
	[11.308]	[3.519]	[4.885]	[10.620]
Control Mean	6775	6817	6857	6857
Control SD	116.174	5.335	83.88	119.489
N	332.563	89.524	130.213	161.522

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Reduced-form impacts:
"empowerment," health, education

Treatment effects on empowerment, health, education

	Women's empowerment: All households			
	(1)	(2)	(3)	(4)
	Woman primary decision-maker	Woman primary decision-maker (non-food spending)	Health expenditure (Rs per capita/mo)	Index of social outcomes
Treatment	0.014	0.024	-2.608	0.008
	[0.035]	[0.032]	[12.431]	[0.023]
Control Mean	0.662	0.516	140.253	-0.002
Control Std Dev	0.473	0.500	455.740	0.457
N	6849	6849	6821	6856

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Reduced-form impacts: "empowerment," health

Treatment effects on empowerment, health

	HHs with loans: Woman primary decision-maker on loans	Health: HHs w/ kids 0-18: Child's major illness
	(1)	(2)
Treatment	0.009	0.017
	[0.017]	[0.032]
Control Mean	0.281	0.420
Control Std Dev	0.396	0.659
N	6028	5871

Notes: Child's major illness is an
illness on which the HH spent more than Rs. 500.

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Reduced-form impacts: dealing with shocks

Borrowing to deal with shocks (unconditional)

	Borrowed for shock	Amount borrowed	Borrowed from MFI	Amount from MFI	Borrowed from Spandana
Treatment	-0.021	-498.857	0.010**	119.020**	0.009***
	[0.026]	[404.178]	[0.005]	[46.483]	[0.003]
Control mn	0.185	2434.628	0.012	90.938	0.003
Control sd	0.565	12470.508	0.115	1012.973	0.053
N	6702	6702	6702	6702	6702

Notes: Shocks include health events and property losses costing Rs 500
or more, job loss by a household member, and death of a a
household member.

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Reduced-form impacts: dealing with shocks

Dealing with health shocks (conditional on shock)

	Borrowed from Spandana	Borrowed from relatives or friends	Borrowed from moneylender	Borrowed from other source
Treatment	0.009***	-0.009	0.009	-0.025*
	[0.003]	[0.020]	[0.020]	[0.013]
Control mean	0.003	0.236	0.225	0.097
Control sd	0.058	0.425	0.418	0.296
N	4384	4384	4384	4384

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Reduced-form impacts: dealing with shocks, cont.

Dealing with health shocks (conditional on shock)

	Received gifts	Other financing	Missed any work
Treatment	-0.002	-0.004	0.001
	[0.005]	[0.006]	[0.021]
Control mean	0.027	0.02	0.68
Control sd	0.161	0.141	0.467
N	4384	4384	4384

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Summary of predictions

When credit access increases:

- Those without an existing business face a nonconvexity due to the fixed cost:
- Talented (A_H) and/or patient (δ_H) households will pay the fixed cost to start a business: consumption may fall
- Less-talented (A_L) impatient (δ_L) households will borrow to increase consumption
- Existing business owners don't face a nonconvexity: borrow to increase c_1 and investment (K)
- Less-talented (A_L) patient (δ_H) households will not borrow

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Predicting who is a likely entrepreneur

RHS variable: Household opened new business	
Spouse is literate	0.017
	[0.014]
Spouse works for wage	-0.048***
	[0.016]
Number prime-aged women	0.009
	[0.009]
Own land in Hyderabad	0.019
	[0.032]
Own land in village	-0.018
	[0.017]
Any teenagers in household	0.025*
	[0.014]
Constant	0.049***
	[0.018]
N	2134

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Expenditure by business status
Control households

	Expenditure for control households, by business status				
		Did not have a business 1 yr ago			
	Old business	High-business	Low-business	P value:	P value:
	owners	propensity	propensity	(1)=(3)	(2)=(3)
	(1)	(2)	(3)		
Total PCE	1,479.56	1,430.31	1,347.56	0.014	0.011
(Rs/mo)					
Nondurable PCE)	1,335.57	1,336.81	1,237.32	0.006	0.051
(Rs/mo)					
Number of	979	2,571	1,525		
control households					

Note: P-values computed using cluster-robust standard errors. Old business owners are those who own a business

started at least 1 year before the survey. High-business propensity households are those (who did not have a business

1 year before the survey) with median or above predicted propensity to start a new business; low-business propensity

households are those with below-median propensity who did not have a business 1 year before the survey.

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Results by business status

Expenditure

Effects by business status: monthly per-capita expenditure				
	Durable expenditure	Business durables	Nondurable expenditure	"Temptation goods"
Main effects:				
Biz propensity	4.49	-7.58	201.94***	-25.03***
(no old biz)	(19.68)	(7.62)	(57.56)	(8.10)
Any old biz	50.13**	1.74	202.42***	-10.58
	(22.08)	(9.20)	(51.13)	(7.97)
Interact w/ treatmt:				
No old biz	-46.72**	-5.10	213.30**	19.90*
	(23.10)	(9.33)	(99.12)	(12.06)
Biz propensity	67.40**	7.45	-260.24**	-32.87***
(no old biz)	(29.17)	(8.63)	(102.29)	(12.35)
Any old biz	55.42**	18.90**	65.12	-14.71*
	(24.53)	(8.86)	(56.03)	(8.86)
N	6141	6179	6141	6183

Business effects on existing business owners

Profits

Profits effects on existing business owners

	OLS		95th %ile regression	Median regression
	All	Drop biz w/ 0 inputs or income	Drop biz w/ 0 inputs or income	Drop biz w/ 0 inputs or income
Treatmt effect	784.967	143.27	2095	80
	[2,561.379]	[2,516.557]	[2,120.626]	[221.443]
Cntrl mean for existing businesses	35.829	1,432.80	95th %ile in treatment is Rs. 14,473	Median in treatment is Rs. 1,768
Cntrl Std Dev	47055.357	27,446.82		
N	2084	1968	1968	1968

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Interest rates

Interest rates are hard to measure: only directly reported for 13% of loans

- Average in control: 38% per year
- Average in treatment: 62% per year
  - Drop 1 reported rate of 24,600% ⇒ 46% per year
- Respondents could also report the loan principal, total amount they would pay, and the duration of the loan (another 17% of loans)
  - average in control: 51% per year (27% without values>24,000%)
  - average in treatment : 72% per year (34% without values>24,000%)
- Or respondents could report the payment they made, how often and for how long (<.1% of loans) ⇒
  - average in control: 51% per year
  - average in treatment : 83% per year (due to 3 values>24,000%; otherwise 34%)

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Income effects?

- Could the increase in consumption for low business propensity HHs be an income effect?

- Average interest rate for moneylender loans: 60% per year

- Spandana: 12% per year (non-declining balance)

- Rs 10,000 loan at 12% nondeclining vs. 60% nondeclining would save Rs 4800 in interest per year, or Rs 400 per month; Rs 80 per capita for a family of 5.

- Using the first stage on Spandana borrowing (13.3pp) $\Rightarrow$ TOT effect of MFI borrowing on expenditure for low business propensity HHs is $210/.133 =$ Rs. 1580 per month per capita

  - TOT with the first stage on any MFI borrowing $\Rightarrow$ TOT effect of MFI borrowing (8.3pp) on expenditure for low business propensity HHs is Rs. 2530 per month per capita

- Income effects can't explain the increase in spending

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- Takeup of MFI loans is lower than is often predicted
  - This matters for planning sample sizes
  - It also suggests microcredit is not for everyone
- Microcredit does have impacts, and they differ for different households:
  - 1 in 5 new MFI borrowers starts a new business (8.3pp more MFI loans $\Rightarrow$ 1.7pp more new businesses)
  - Those who already had businesses invest in durables
  - Likely new entrepreneurs invest in durables and restrict their nondurable consumption
  - Those who don't have or want a business consume more
- These are impacts ~15 months after MFI entry
- Longer-term impacts may differ
  - A resurvey is measuring impacts after 3-3.5 years