An assessment of microfinance interventions on the ultra poor

Seiro Ito, Takashi Kurosaki, Abu Shonchoy, Kazushi Takahashi

Institute of Developing Economies, Hitotsubashi University, Institute of Developing Economies, Sophia University

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IER, Hitotsubashi University

Motivation 1: Costly, risky, and stressful?

- Why is there so few evidence on positive microfinance impacts?

- Why is the outreach of MF limited to the relatively wealthy?

- Supply: Capital constraint is only one of the constraints.

- Demand: Managerial ability? Not all of us are entrepreneurs.

Motivation 2: Adult trainability?

- Some argued that cognitive skills interventions must take place early in life.

- May be true in high income countries where a school system is efficient that leaves no low hanging fruit.

- In low income countries, schools are inefficient that can leave some room for interventions in later life.

- Mixed evidence on adult training impacts. Can we supplement elementary managerial capacity with a tweak in program archtecture?

Related literature:

- MF is not successful in reaching out to the poorest of the poor, or the ultra poor (**?**). Empirical evidence in **????** supports this claim. Some authors discuss the tradeoff between sustainability and outreach for microfinance institutions (MFIs) **???**.

- There is a growing interest on managerial impacts on firm growth in LDCs (**???????**). Evidence on profits is mixed: **???** report effectiveness, while **???** conclude that they are ineffective.

- **?**: These studies are too different to compare, in terms of population, interventions, measurement (variables, timing), and most importantly, implied statistical power in the design.

We conjecture that the previous studies might have a too limited time frame, a too wide variety of investment options, and a lesser degree of control in isulating from outside options.

We want:

- A long enough follow up period.
- Less heterogeneity, more statistical power.
- Less uncontrolled treatments.

NGOs and CBOs: Livestock (usually calf) is the most popular and plausibly the only viable investment option.

Our study area is ideal for impact evaluation:

- A 4-year (unexpectedly extended to 5-year) project.
- A smaller choice set.
- Little or no MFI/NGOs presence.

Theretical considerations in related literature: Management as a technology

- Bloom et al (2016): theory and global evidence supporting the theory. RCTs to improve management skills of micro entrepreneurs, resulting in higher productivity or adoption of good management practices.

- Bloom et al. (2016 QJE): inventory control and factory information training in India. Higuchi et al. (2015 JEBO): KAIZEN training in Vietnam. More KAIZEN RCTs in Africa by Sonobe and his co.

(Less related) Behavioral foundation of entrepreneurship

- Astebro et al. (2014): review paper. Fafchamps and Quinn (forthcoming): random assignment of peers to entrepreneurs in Ghana. Kremer et al. (2013, AER P&P): behavior biases' impact on firm performance in Kenyan retail shops; using risk games. Fehr and List (2004, JEEA): Trust games to CEOs in Costa Rica

- Reminder as a tool to overcome limited attention issues: Several RCTs in the context of savings (e.g., Karlan et al. 2016; Kast et al. 2012). On-going RCT on micro entrepreneurs in India by Goto et al. (2017)

We want to measure the impacts of managerial capacity in MF uptake and outcomes.

But managerial capacity is unobservable.

We design the study to allow us to infer if managerial capacity matters for successes.

We make the managerial capacity useless by offering a credit under the environment which requires a minimal level of managerial capacity.

Success rates in this "easy" credit $\simeq$ success rates in a comparable credit
$\Rightarrow$ Managerial capacity does not causally affect MF success (or our provision of help was hoplessly useless that requires managerial capacity in "easy" credit)

"Easy": Provide a calf, supplementary services, and training.

A 4×4 factorial, stepped wedge design with placebo controls

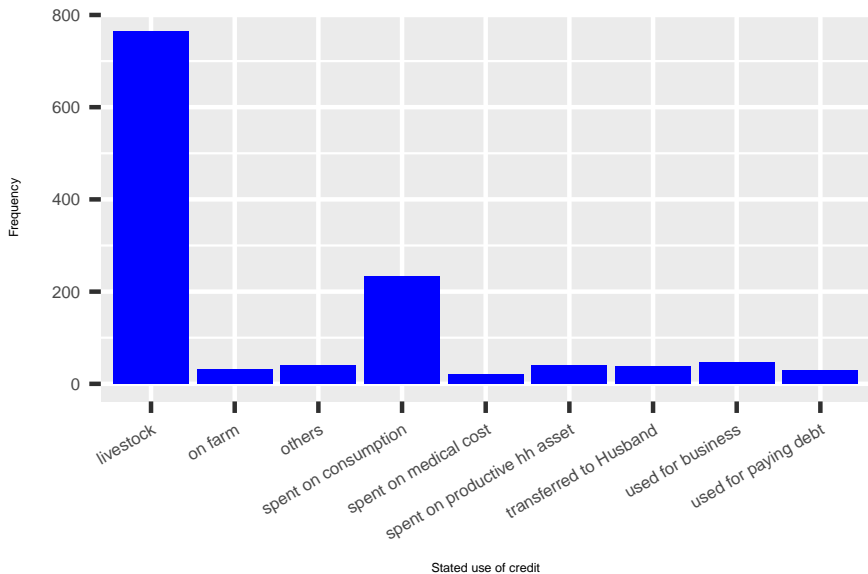|	large, grace	large	small
cow	managerial capacity		
large, grace		saving constraint	
large			convex technology
control	level	impacts	

We will report the "level impacts" as a linear function of treatment dose difference $t_1 - t_0$ between the control and the treated.

$$\text{impacts} = \mathcal{E}[y|\text{treated}] - \mathcal{E}[y|\text{control}] = \mathcal{E}[y|t_1] - \mathcal{E}[y|t_0] = b(t_1 - t_0).$$
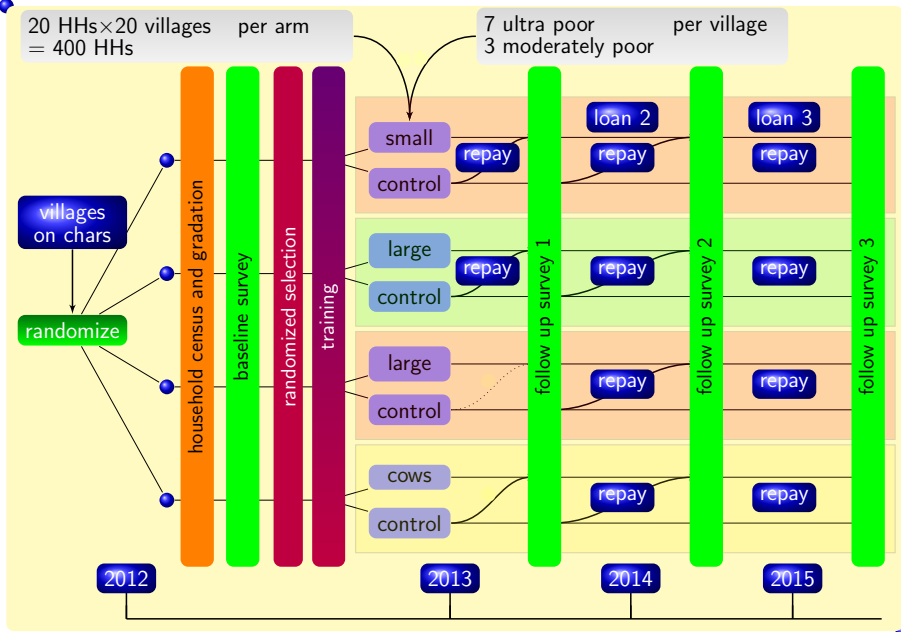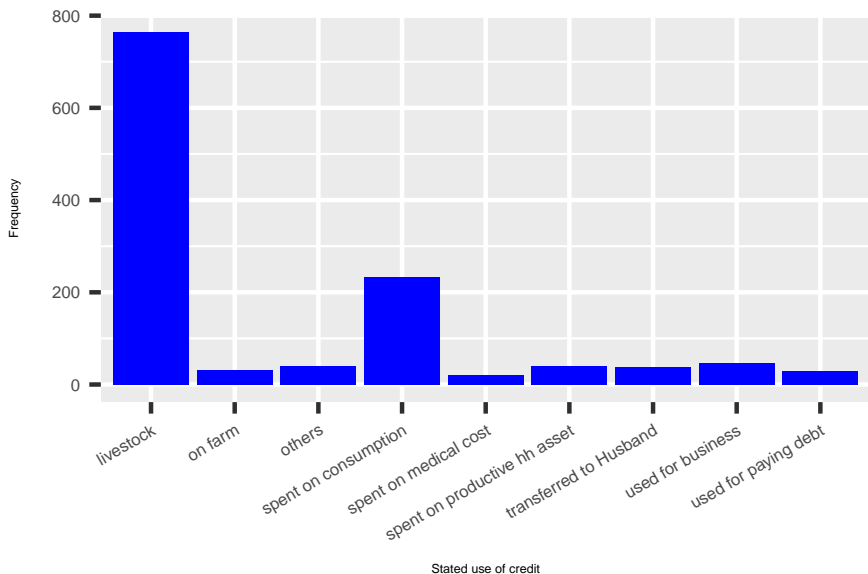
Disbursement

Stated use of credit

As expected, livestock is the majority investments.

Currently, we are collecting the final round data.

I will report the intermediate results up to round 3.

control / treated: Initial treatment assignment. All the control will be given a chance to be treated in our stepped wedge design.

credit: Actual disbursement of credit.

elapsed days: Number of days since receiving a credit. About 200 + day difference between cotrol and treated in a same cluster. We consider this as a measure of continous treatment (as in dose-response). We have not exploited it yet.

TABLE 1: FD ESTIMATES OF THREE MEALS PER DAY, ROUND 2, 3

	(1)	(2)	(3)	(4)	(5)	(6)
large	−0.014 (0.099)		0.067 (0.096)		−0.008 (0.097)	0.124 (0.086)
large grace	0.093 (0.090)		0.162 (0.098)		0.087 (0.084)	0.197** (0.091)
cow	−0.079 (0.101)		−0.051 (0.101)		−0.069 (0.098)	−0.009 (0.098)
lost to flood	−0.043 (0.133)		−0.005 (0.134)			
control		0.211* (0.117)		0.236** (0.119)		
treated		0.176 (0.117)		0.178 (0.141)		
credit			0.147** (0.064)	−0.062 (0.062)		0.142** (0.065)
large * credit			−0.367*** (0.126)			−0.423*** (0.125)
large grace * credit			−0.230** (0.090)			−0.265*** (0.091)
cow * credit			−0.108 (0.134)			−0.122 (0.136)
treated * credit				−0.006 (0.086)		
elapsed days * 100					−0.001 (0.006)	0.006 (0.009)
R^2	0.01	0.009	0.022	0.011	0.009	0.029
n	2043	2043	1838	1838	1657	1527

There may not be much of poverty alleviation impacts on the meal intake.

This is contrary to our expectation, because the area is known for a hunger season called *monga*.

Nonfarm asset accumulation by arms: Within cluster comparisons
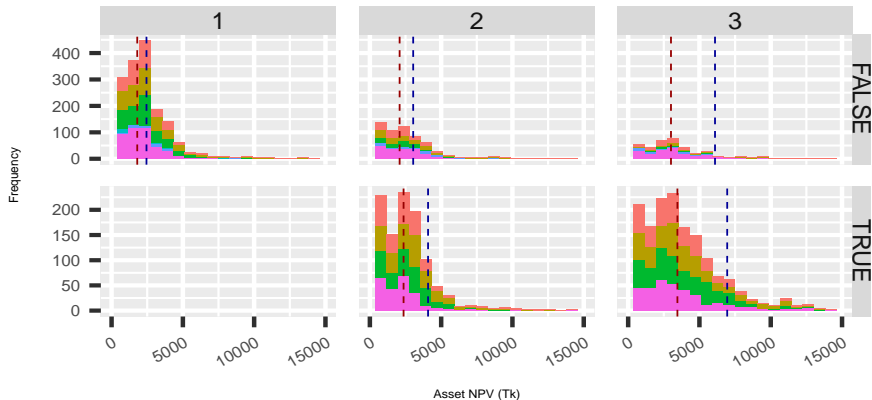
Almost zero gradient.

There is no poverty alleviation impact on nonfarm asset accumulation.

This was expected, because most of the investments were on livestock.

Livestock accumulation: Within cluster comparisons
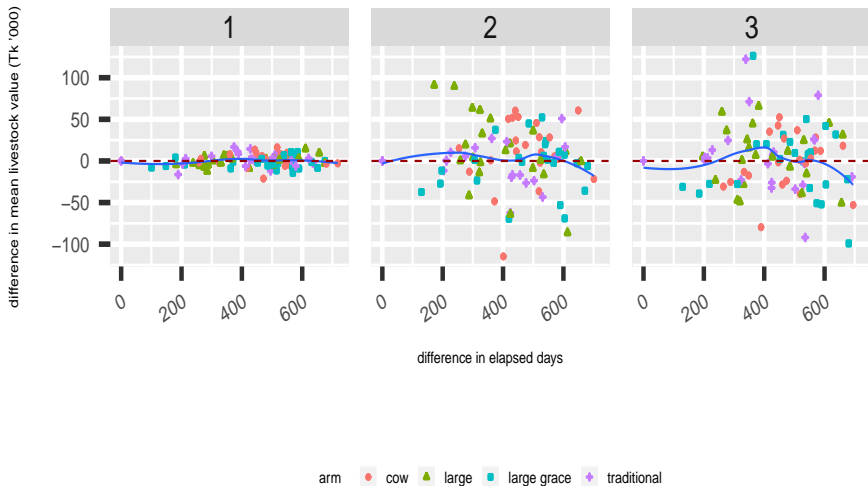
Zero difference at start but becomes increasingly more heterogenous in the later rounds.

Total asset accumulation by arms: Within cluster comparisons

Zero difference at start but becomes increasingly more heterogenous in the later rounds. Dose-response is not monotonic.

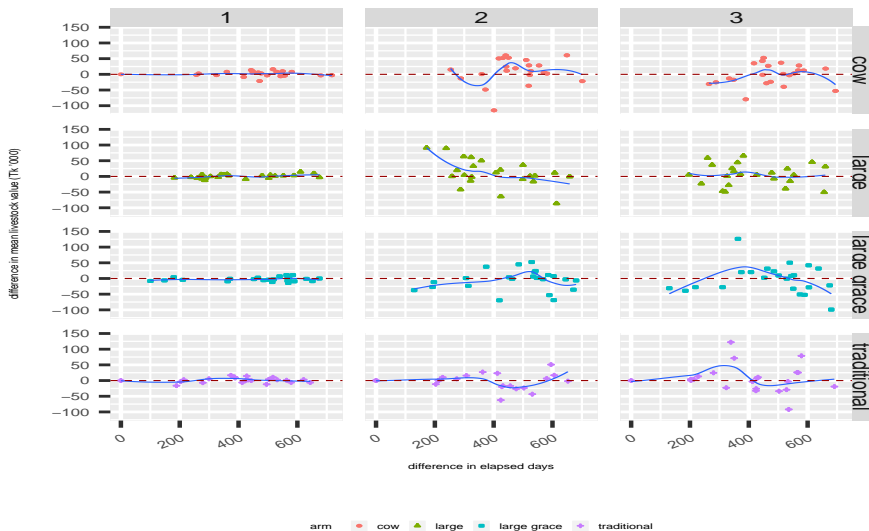Table 2: Descriptive statistics of asset regression data

	min	25%	median	75%	max	mean	std	0s	NAs	n
elapsed	49	296	352	556	892	400.8	204.6	0	0	276
size	65	82.8	89	97	171	91.8	17	0	0	276
ratioChildren	0.3	0.4	0.4	0.5	0.6	0.4	0.1	0	0	276
ratioAdults	0.4	0.5	0.6	0.6	0.7	0.6	0.1	0	0	276
ratioDisabled	0	0	0	0	0	0	0	168	0	276
ratioMale	0.4	0.5	0.5	0.5	0.6	0.5	0	0	0	276
ratioLiterate	0	0.2	0.3	0.4	0.5	0.3	0.1	0	0	276
ratioLiterateMale	0	0.1	0.2	0.2	0.3	0.2	0.1	0	0	276
ratioHeadLiterate	0	0	0	0	0.1	0	0	51	0	276
avgDiffElapsed	0	331.6	452.3	543.5	717.4	431.7	156.3	9	0	276
avgDiffVal	-116	-7.1	1	14.3	129.4	3	30.7	9	0	276
avgVal	1.2	15.2	43.2	87.6	192.4	56.4	48.3	0	0	276
avgVal1	0.7	15.3	54.8	88.8	230.4	59.4	48.4	0	0	276
avgVal0	1.2	15.2	43.2	87.6	192.4	56.4	48.3	0	0	276
avgElapsed	122.6	267.9	346.3	477.5	892	374.5	145.7	0	0	276
avgElapsed1	544.3	729	834.8	857.3	899	806.2	71.8	0	0	276
avgElapsed0	122.6	267.9	346.3	477.5	892	374.5	145.7	0	0	276

TABLE 3: DID ESTIMATES OF ASSET IMPACTS

	(1)	(2)	(3)	(4)
(Intercept)	3.511 (4.794)	3.127 (4.744)	−177.737 (162.074)	−156.113 (162.405)
avgDiffElapsed	−0.006 (0.010)			
avgDiffElapsed * cow		−0.008 (0.011)	−0.006 (0.010)	−0.003 (0.011)
avgDiffElapsed * large		−0.003 (0.012)	−0.003 (0.011)	−0.003 (0.011)
avgDiffElapsed * large grace		−0.006 (0.013)	−0.009 (0.013)	−0.005 (0.013)
avgDiffElapsed * traditional		−0.004 (0.014)	−0.010 (0.014)	−0.008 (0.015)
size			−0.027 (0.107)	−0.007 (0.104)
ratioChildren			150.652 (165.090)	144.698 (161.753)
ratioAdults			202.275 (165.389)	191.880 (160.061)
ratioDisabled			−374.066** (173.656)	−364.441** (171.045)
ratioMale			17.408 (33.939)	−28.147 (50.547)
ratioLiterate				−33.128 (36.090)
ratioLiterateMale				105.570 (77.780)
ratioHeadLiterate				−6.597 (110.909)
R^2	0.001	0.001	0.022	0.028

There is no poverty alleviation impact on total asset accumulation.

This was not expected, because most of the investments were on livestock.

TABLE 4: DID ESTIMATES OF LIVESTOCK IMPACTS

	(1)	(2)	(3)	(4)
(Intercept)	3.760	3.312	−132.813	−107.738
	(5.113)	(5.221)	(243.731)	(235.304)
size			−0.004	0.043
			(0.113)	(0.118)
ratioChildren			61.527	63.033
			(241.252)	(231.535)
ratioAdults			163.485	171.256
			(249.577)	(236.432)
ratioDisabled			−392.670**	−413.142**
			(199.920)	(210.322)
ratioMale			45.227	−37.036
			(42.598)	(54.860)
ratioLiterate				−61.047
				(42.057)
ratioLiterateMale				174.673**
				(85.504)
ratioHeadLiterate				−115.088
				(125.939)
avgDiffElapsed	yes	no	no	no
avgDiffElapsed * arms	no	yes	yes	yes
R^2	0.001	0.003	0.033	0.045
n	141	141	141	141

There is some poverty alleviation impact on livestock asset accumulation for educated male headed households.

It shows livestock accumulation continued for the two years (up to 2015) after we started to disbursing loans in 2013.

We find almost zero impact of loan disbursement when compared with the late loan takes in the same cluster.

This might have been expected to some people because one calf/cow with repayment would not drastically change the asset position of the UP.

It was disappointingly surprising to me, nonetheless.

We will need to:

- Consider impacts on flows, not stocks.
- Incorporate generalised propensity score for continuous treatments **????**.
- Make use of factorial design to test the main hypothesis.

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