

AREC 345: Global Poverty & Economic Development

Lecture 21:

Estimating the Impacts of Microfinance

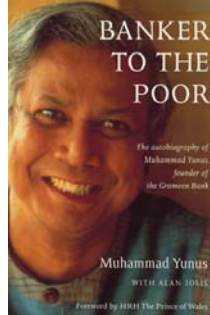
Professor: Pamela Jakiela

Department of Agricultural and Resource Economics
University of Maryland, College Park

Estimating the Impacts of Microfinance

What is Microfinance?

Microfinance is the provision of small, uncollateralized loans to poor borrowers — often via various forms of **group lending**



- UN declared 2005 the Year of Microcredit
- Over 3,500 MFIs reached more than 150 million borrowers by 2007

What is Microfinance?

Components of the traditional microfinance package:

- Small, uncollateralized loans given to poor borrowers
- **Dynamic incentives:**
- **Joint liability:**
- Focus on female borrowers (who are seen as more credit-constrained)

What is Microfinance? Theory of Change



What is Microfinance?

Why might this model work?

Joint liability:

- Borrowers have information about each other (like the moneylender)
- Borrowers can monitor each other (like the moneylender)
- Joint liability creates an incentive for borrowers to screen, monitor

Dynamic incentives:

- Possibility of larger future loans raises cost of default

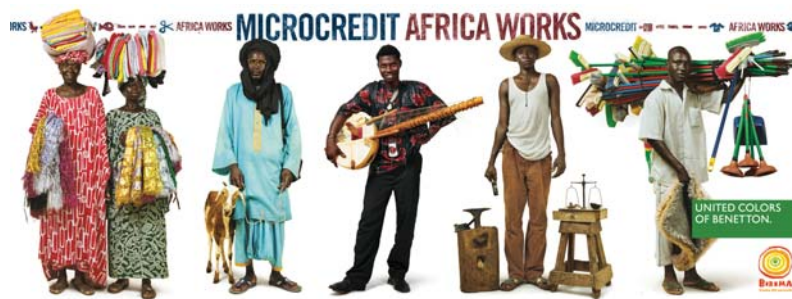
Does microfinance work? What are the impacts?

Does Microfinance Work?

Many studies show that clients who join and stay in programs have better economic conditions than non-clients, suggesting that programs contribute to these improvements. A few studies have also shown that over a long period of time many clients do actually graduate out of poverty... By reducing vulnerability and increasing earnings and savings, financial services allow poor households to make the transformation from “every-day survival” to “planning for the future.” Households are able to send more children to school for longer periods and to make greater investments in their children’s education. Increased earnings from financial services lead to better nutrition and better living conditions, which translates into a lower incidence of illness.

- kiva.org (“loans that change lives”)

Does Microfinance Work?



Microcredit is the way to go to really help developing countries get on their feet — not the IMF or World Bank. As the saying goes, rather than give a starving man a fish, better to teach him to fish. Benetton partnered with singer Youssou N'Dour in this new campaign, to showcase Senegalese workers who have used micro loans to start small, productive businesses — whether textile traders, domestic appliance salesman, mobile toy stores, livestock merchants or others.

- Some random blogger

Does Microfinance Work?

How should we measure the success/impact of microfinance?

- Evidence: many successful MFIs have very low default rates
- Recall quote from Kiva:

Many studies show that clients who join and stay in programs have better economic conditions than non-clients, suggesting that programs contribute to these improvements.

⇒ MFI clients better off than those without micro-loans

- Does this mean that microfinance **causes** an increase in welfare?

Does Microfinance Work? Three Evaluations

Offering Credit to Marginal Borrowers in Bosnia

- An (anonymous) MFI chose a random sample of applicants below their threshold for creditworthiness, and offered them loans

Expansion of Spandana in Hyderabad, India

- The MFI Spandana chose 52 of 104 Hyderabad slum neighborhoods (urban areas) as sites for new lending branches
- Other MFIs already operating throughout Hyderabad

Expansion of Al Amana in rural Morocco

- The MFI Al Amana chose 81 of 162 rural villages located on the fringes of the rural areas where they were already operating
- All villages had no other formal source of credit

Does Microfinance Work? Three Evaluations



Country	Bosnia	India	Morocco
GDP per capita (PPP)	\$9,400	\$5,131	\$6,879
Lender	Anonymous	Spandana	Al Amana
Rural or urban?	rural	urban	rural
Gender of borrowers	male and female	female	male and female
Loan term length	14 months	12 months	3–18 months
Collateral required?	yes	no	no
Joint liability?	no	yes	yes
Group size	—	6–10 people	3–4 people
Repayment frequency	monthly	weekly	weekly or monthly
Loan size (PPP)	\$1,815	\$600	\$1,080
Interest rate	22% APR	24% APR	14.5% APR

Other RCTs in Ethiopia, Mexico, Mongolia, and the Philippines

AREC 345: Global Poverty & Economic Development

Lecture 20: Estimating the Impacts of Microfinance, Slide 11

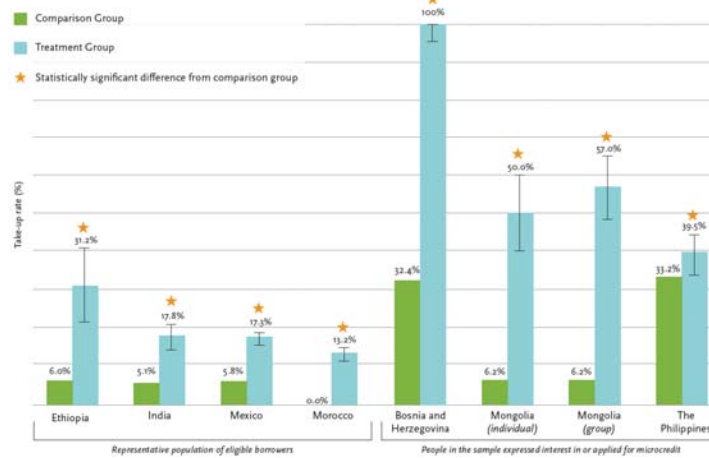
Research Questions

- Do households borrow from the MFIs?
 - ▶ Does this increase the total amount that they borrow?
 - ▶ Do they borrow less from other sources?
- Do they use the loans to start or expand businesses?
- Does microfinance change their lives?
 - ▶ Do they earn, save, or consume more?
 - ▶ Do they spend more on health and education?
 - ▶ Are (female) borrowers more empowered?

AREC 345: Global Poverty & Economic Development

Lecture 20: Estimating the Impacts of Microfinance, Slide 12

The Demand for Microfinance



Note: Statistical significance is noted at the 90 percent confidence level or higher and error bars represent 90 percent confidence intervals. In Ethiopia, India, Mexico, Mongolia, and Morocco, take-up is measured as having any loans from the partner MFI at the time of the endline survey. In India, the results displayed are from the first endline survey (1.5 years), and there is also a statistically significant difference after 3.5 years. In Bosnia and Herzegovina, comparison group take-up is measured as having any outstanding loan from any MFI and treatment group take-up is a direct measurement of those who took up the partner MFI's microcredit offer (76.3 percent of borrowers in the treatment group reported having any loans from any MFI at the time of the endline survey). In the Philippines, take-up is measured as having any loan from any financial institution in the month preceding the endline survey.

The Demand for Microfinance: Bosnia

To measure the impact of microfinance on borrowing:

$$E[\text{borrowing}] = a + b \cdot \text{treatment}$$

Evidence from the Bosnia evaluation:

	Any loan outstanding (1)	Number of loans outstanding (2)	At least one loan outstanding from an MFI (3)	At least one loan outstanding from a bank (4)
Treated	0.193 (0.0258)***	0.429 (0.0650)***	0.439 (0.0289)***	-0.0556 (0.0166)***
Observations	994	994	994	994
Control mean	0.694	1.068	0.324	0.0946

Notes: All variables presented in this table were tested jointly. Administrative data from our MFI show that all respondents in the treatment group received at least one loan from our MFI (1.1 loan on average) while none of those in the control group received any loans from our MFI. Observation unit: respondent. BAM: Bosnia and Herzegovina convertible mark. The exchange rate at baseline was US\$1 to BAM 1.634.

*** Significant at the 1 percent level.

** Significant at the 5 percent level.

* Significant at the 10 percent level.

Source: Endline household survey

The Demand for Microfinance: India

	Spandana (1)	Other MFI (2)	Any MFI (3)	Other bank (4)	Informal (5)	Total (6)	Ever late on payment? (7)	Number of cycles borrowed from an MFI (8)	Index of dependent variables (9)
<i>Panel A. Endline 1</i>									
<i>Credit access</i>									
Treated area	0.127*** (0.020)	-0.012 (0.024)	0.084*** (0.027)	0.003 (0.012)	-0.052** (0.021)	-0.023 (0.014)	-0.060** (0.026)	0.084** (0.041)	0.106*** (0.0291)
Observations	6,811	6,657	6,811	6,811	6,811	6,862	6,475	6,811	6,862
Control mean	0.051	0.149	0.183	0.079	0.761	0.867	0.616	0.330	0.000
Hochberg-corrected <i>p</i> -value									0.000

Notes: The table presents the coefficient of a "treatment" dummy in a regression of each variable on treatment (with control variables listed in the text). Cluster-robust standard errors in parentheses. Results are weighted to account for oversampling of Spandana borrowers. Columns 1-6 under "Credit access" report the probability of having at least one loan from the source listed. The corresponding columns under "Loan amounts" report the loan amount (zero for nonborrowers). "Informal lender" includes moneylenders, loans from friends/family, and buying goods/services on credit. Number of loan cycles from an MFI is the maximum number of loan cycles borrowed with a single MFI, including the current loan (if any); number of cycles is zero for MFI never-borrowers. All monetary amounts in 2007 Rs. Column 9 presents the coefficient of a "treatment" dummy in a regression on treatment of an index of z-scores of the outcome variables in columns 1-8 (including both credit access and loan amounts) for each round following Kling, Liebman, and Katz (2007). *p*-values for this regression are reported using Hochberg's step-up method to control the FWER across all index outcomes. See text for details.

***Significant at the 1 percent level.

**Significant at the 5 percent level.

*Significant at the 10 percent level.

The Demand for Microfinance: Morocco

	Al Amana - Admin data (1)	Al Amana - Survey data (2)	Other MFI (3)	Other Formal (4)	Utility company (5)	Informal (6)	Total (7)	Loan repayment (8)	Index of dependent variables (9)
<i>Panel A. Credit access^a</i>									
Treated village	0.167 (0.012)***	0.090 (0.010)***	-0.006 (0.004)	0.007 (0.003)**	0.017 (0.017)	-0.003 (0.007)	0.076 (0.017)***		0.129 (0.017)***
Observations	4,934	4,934	4,934	4,934	4,934	4,934	4,934		4,934
Control mean	0.000	0.022	0.023	0.016	0.157	0.059	0.247		0.000
Hochberg-corrected <i>p</i> -value									0.000
<i>Panel B. Loan amounts (in MAD)^b</i>									
Treated village	795 (103)***	-13 (34)	356 (181)*	180 (89)**	-112 (169)	1,206 (290)***	33 (13)**		
Observations	4,934	4,934	4,934	4,934	4,934	4,934	4,934		4,934
Control mean	180	124	519	566	493	1,882	42		

Notes: Observation unit: household. Sample includes households with high probability-to-borrow score surveyed at endline, after trimming 0.5 percent of observations (3,525 who got both a full baseline and endline household survey administered, plus an additional 1,409 households who got only the full endline survey administered). (See Section 3 for an explanation of sample strategy.) Coefficients and standard errors (in parentheses) from an OLS regression of the variable on a treated village dummy, controlling for strata dummies (paired villages) and variables specified below. Standard errors are clustered at the village level. Controls include: number of household members, number of adults, head age, does animal husbandry, does other non-agricultural activity, had an outstanding loan over the past 12 months, HH spouse responded to the survey, and other HH member (excluding the HH head) responded to the survey. Column 9: the dependent variable consists of an index of z-scores of the outcome variables in columns 2-8 (including both credit access and loan amounts) following Kling, Liebman, and Katz (2007). *p*-values for this regression are reported using Hochberg's correction method.

^aColumn 1-8: dummy variable equal to 1 if the households had an outstanding loan over the 12 months prior to the survey.

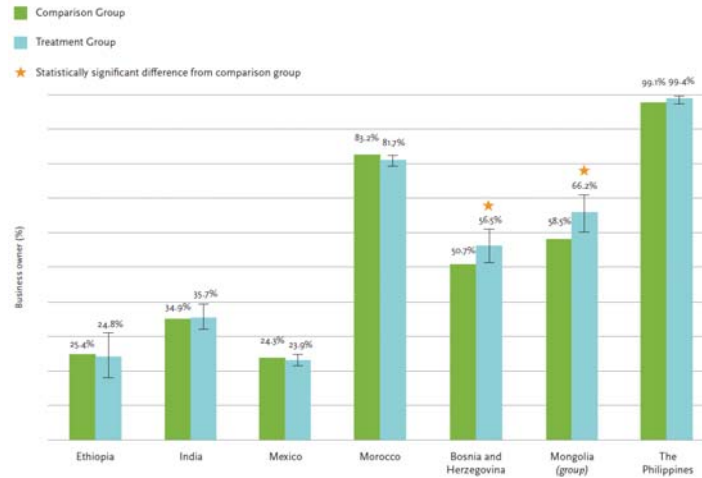
^bSum of outstanding loans (in MAD) over the 12 months prior to the survey.

***Significant at the 1 percent level.

**Significant at the 5 percent level.

*Significant at the 10 percent level.

Impacts on Entrepreneurship Are Limited



Note: Statistical significance is noted at the 90 percent confidence level or higher and error bars represent 90 percent confidence intervals; in Ethiopia, ownership is measured for non-farm businesses; in India, displayed results are from the first endline survey (1.5 years), and there is also no statistically significant difference after 3.5 years; in Bosnia and Herzegovina, differences in business ownership are not significant for multiple hypotheses testing; in Mongolia, displayed results are for household businesses. There was also a positive statistically significant difference for respondent businesses.

Impacts on Entrepreneurship: Bosnia

Dependent variables: ownership of a business, assets, profits, etc.

	Asset value (BAM) (1)	Ownership of inventory [Yes = 1] (2)	Main business of respondent			Any self-employment income (HH) [Yes = 1] (6)
			Revenue (BAM) (3)	Expenses (BAM) (4)	Profit (BAM) (5)	
Treated	-414.5 (5,390)	0.0513 (0.020)*	1,384 (981.4)	601.4 (592.9)	671.9 (541.3)	0.0602 (0.0293)
Observations	967	994	994	994	994	994
Control mean	93,294	0.0923	4,391	1,664	2,896	0.669
	Business ownership [Yes = 1] (7)	Business in services [Yes = 1] (8)	Business in agriculture [Yes = 1] (9)	Has started a business in last 14 months (10)	Has closed a business in last 14 months (11)	
Treated	0.0584 (0.031)	0.0312 (0.025)	0.0350 (0.028)	0.0210 (0.022)	-0.0168 (0.027)	
Observations	994	994	994	994	994	
Control mean	0.507	0.169	0.239	0.124	0.230	

Notes: Covariates included. Observation unit: respondent except income from self employment (household). BAM: Bosnia and Herzegovina convertible mark. The exchange rate at baseline was US\$1 to BAM 1.634. Significance levels are corrected for multiple hypotheses testing.

*** Significant at the 1 percent level.

** Significant at the 5 percent level.

* Significant at the 10 percent level.

Result:

Impacts on Entrepreneurship: India

Dependent variables: ownership of a business, assets, profits, etc.

	Assets (stock) (1)	Investment in last 12 months (2)	Expenses (3)	Profit (4)	Has a self- employment activity (5)	Number of self- employment activities (6)	Has started a business in the last 12 months (7)	Has closed a business in the last 12 months (8)	Index of dependent variables (9)
<i>Panel A. Endline 1</i>									
Treated area	598 (384)	391* (213)	255 (1,056)	354 (314)	0.0083 (0.0215)	0.018 (0.0380)	0.009 (0.006)	0.002 (0.008)	0.0357 (0.0188)
Observations	6,800	6,800	6,685	6,239	6,810	6,810	6,757	2,352	6,810
Control mean	2,498	280	4,055	745	0.349	0.503	0.047	0.037	0.000
Hochberg-corrected <i>p</i> -value									0.175
<i>Panel B. Endline 2</i>									
Treated area	1,261** (530)	-134 (207)	-530 (547)	542 (372)	0.023 (0.023)	0.045 (0.040)	-0.000 (0.010)	-0.000 (0.006)	0.0151 (0.0186)
Observations	6,142	6,142	6,116	6,090	6,142	6,142	6,142	6,142	6,142
Control mean	5,003	1,007	5,225	953	0.418	0.561	0.083	0.053	0.000
Hochberg-corrected <i>p</i> -value									>0.999

Result:

Impacts on Entrepreneurship: Morocco

Dependent variables: ownership of a business, assets, profits, etc.

	Assets (1)	Sales and home consumption (2)	Expenses (3)	Of which: Investment (4)	Profit (5)	Has a self- employment activity (6)	Index of dependent variables (7)
Treated village	1,448 (658)**	6,061 (2,167)***	4,057 (1,721)**	-224 (223)	2,005 (1,210)*	-0.015 (0.010)	0.029 (0.015)**
Observations	4,934	4,934	4,934	4,934	4,934	4,934	4,934
Control mean	15,984	30,450	21,394	1,529	9,056	0.832	0.000
Hochberg-corrected <i>p</i> -value							0.233

Notes: Observation unit: household. Coefficients and standard errors (in parentheses) from an OLS regression of the variable on a treated village dummy, controlling for strata dummies (paired villages) and variables specified below. Standard errors are clustered at the village level. Same controls as in Table 2. Definitions: Column 1 Sum of assets owned in the three activities, including the stock of livestock; column 2 Total Production = sum of agricultural, livestock, and non-agricultural business production over the 12 months prior to the survey. Production includes both sales and self-consumption. Agricultural production also includes stock; column 3 Sum of labor, inputs, rent and investment in all three activities, purchased over the 12 months prior to the survey; column 4 Sum of productive assets purchased over the 12 months prior to the survey. Animal husbandry assets include the purchases of livestock; column 5 Profit = column 2 - column 3; column 6 Variable equals 1 if the HH ran a self-employment activity over the 12 months prior to the survey; column 7 The dependent variable consists of an index of z-scores of the outcome variables in columns 1-6 following Kling, Liebman, and Katz (2007). *p*-values for this regression are reported using Hochberg's correction method.

***Significant at the 1 percent level.
**Significant at the 5 percent level.
*Significant at the 10 percent level.

Result:

Impacts on Other 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	—	—	—	↑	—	—	↓

Note: Green (red) arrows represent statistically significant positive (negative) differences in outcomes between the treatment and comparison groups at the 90 percent confidence level or higher, dashes represent no statistically significant difference; Ethiopia: While none of the individual business outcomes showed a positive impact, a combined business outcomes index did; a decline in household spending/consumption is measured as an increase in food insecurity; India: The increase in assets occurred only after 3.5 years, while the increase in inventories occurred only after 1.5 years; Mexico: Household spending is measured as the value of assets purchased in the past two years; social well-being is measured as a combination of women's empowerment outcomes and trust in people; Mongolia (group): Business assets measured as an index of listed assets increased, while assets measured as monetary stock did not; Morocco: There was an increase in combined business sales and home consumption, an increase in business costs, and no change in investment; The Philippines: There was a decrease in the number of businesses and number of paid employees; household spending/consumption was measured as changes in food costs and quality; a combined social well-being index showed a negative effect.

Summarizing the Impacts of Microfinance

1. Most households do not want a microfinance loan
 - 1.1 Take-up rate is 13.3 percent in India, 16.7 percent in Morocco
2. Microfinance has small but significant impacts on self-employment
 - 2.1 In Morocco, households in treatment villages increased the scale of their entrepreneurial activities, but did not launch new enterprises
3. Access to microfinance does not increase income or consumption
 - 3.1 Impacts on self-employment profits are small
 - 3.2 Offsetting reductions in labor income (in Morocco)
4. Microfinance does not empower women, improve child outcomes

Summarizing the Impacts of Microfinance

Should we change our minds about microfinance?

- It is definitely not a silver bullet

Yet more than 1 in 10 households wants to take out an MFI loan — why?

- Dealing with (health, crime, etc.) shocks?
- Non-business investments (education, home improvements)?
- In order to save?

Are savings interventions a simpler approach?

Study Guide: Key Terms

Should we change our minds about microfinance?

- microfinance
- dynamic incentives
- joint liability
- take-up