Take-up: Why Microfinance Take-up Rates Are Low & Why It Matters

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Introduction

If you listen to the strongest pitches for microfinance, you would imagine that everyone offered microfinance would leap at the chance to be a customer. Yet this is not so. Evidence shows that it's usual that under half of eligible households participate in microfinance. Moneylenders are still in business, and many individuals in developing countries still rely primarily on family and friends to meet their needs for money. This is not necessarily a bad thing: informal sources of credit provide a useful way to finance profitable investments or respond to life events. But it shows that the demand for existing microfinance institutions and products can't be taken for granted.

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The take-up of new products and services is where demand and supply meet. Individuals choose whether to borrow money, open a saving account or buy insurance based on their own needs and preferences, as well as the products and services offered by financial institutions. Participation rates therefore reveal valuable information about customers' interest in a particular product or service, and might reveal the pent-up demand for better products, or for better-priced products. Studying take-up can help us understand how to design and price products that attract more clients and serve them better. Take-up rates also have implications for the design of impact evaluations, as low take-up rates typically require researchers to use far larger samples in order to detect impact, all else equal (Bauchet and Morduch 2010).

This note brings together what we know about take-up rates, drawing in large part on our field experience. It first reviews why take-up rates and participation are important, and how they can be measured. Data from 2 surveys and 13 projects show that take-up rates of financial services range between 2 and 84 % of eligible individuals. Take-up of loans is not system-

atically higher or lower than take-up of savings or insurance products, but the variation in rates is larger for loans than for the other two types of products. Perhaps surprisingly, in two of our projects eligible individuals who did not borrow reported that high interest rates were not their main reason for not borrowing. Similar answers were reported by Magill and Meyer (2005), and Navajas and Tejerina (2006). This type of self-reported evidence is anecdotal, however. Randomized studies of actual behaviors for both credit and savings, rather than reports of intentions, show that borrowers' sensitivity to interest rates and fees is high. Actively studying take-up with rigorous research designs can provide more definitive answers and help us understand how to design better products that attract more clients and serve them better.

Take-up Matters

Understanding take-up and participation in microfinance matters for several reasons. First, the fact that participation in microfinance is not universal shows that microfinance is not a panacea, and is not for everyone. Microfinance has had tremendous success in expanding access to financial services for millions of poor entrepreneurs, but greater challenges emerge when targeting the poorest individuals. Identifying creditworthiness becomes harder when assets are fewer and incomes are less assured. Even among creditworthy individuals, not all seek debt (Johnston and Morduch 2008).

Second, take-up rates signal interest in given products. They are a useful tool for microfinance institutions and analysts alike to understand what individuals want and what helps them the most. Low take-up rates can also indicate a demand for better products, or better-priced products. Careful measurement and analysis of take-up rates should therefore be an integral part of the product design process and constitute good business practices.

Third, take-up rates affect the empirical methodology for measuring impact. Low take-up rates mean that sample sizes for surveys and analyses must be proportionately larger in order to have the required statistical power to test hypotheses. The example in Box 1 illustrates how a research project could not be fully implemented and yielded fewer insights because of low take-up rates.

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BOX 1: EXAMPLE OF HOW TAKE-UP AFFECTS IMPACT EVALUATION DESIGN

Researchers at Innovations for Poverty Action wanted to learn about the mechanisms of group liability. Their objective was to test whether group or individual liability worked better for the lender, reached different individuals, and had different impacts. A project was designed that entailed randomly assigning villages which a particular lender was going to enter into three groups: the first group of villages would borrow with group liability, the second group would borrow with individual liability, and the third group would not be served by the bank until after the project ("control group"). Having a control group would make it possible to measure the impact of microcredit, relative to no entry. In practice, only about 10 percent of eligible villagers actually borrowed. The low take-up rate meant that the effect of the loans, measured at the village level, was diluted in a larger group of non-borrowers. As a consequence, a much larger sample was required to detect the impact of the loans. In this project, the number of villages that the bank was not yet serving was limited, so the control group was canceled and the entire study became just about group versus individual liability. As a simple numerical example, where a study with 50% take-up might require a sample size of 954, the sample size would increase to 5,956 if the take-up rate drops to 20%, all else equall.[1]

How to Measure Take-up?

Most evaluations compare outcomes for a treatment group, which receives Take-up rates are a ratio of the number of individuals who "participate" in a program, to the number of individuals in a larger population. In microfinance, participation can be defined as having borrowed in the last few years, having an active loan, opening a savings account, signing-up for an insurance contract, etc. When measuring take-up, participation is typically the easy part to quantify. The denominator, however, can be difficult to estimate, and can lead to very different calculations.

There are three different types of measurements of take-up rates: the first is population-based aggregate estimates from administrative records of the government and regulators, the second makes use of general household surveys of a population, and the last is based on carefully-designed analyses of specific products or services. Each type of measurement has merits and shortcomings.

First, take-up can be measured as aggregate participation in a given population, which is sometimes referred to as the "penetration rate." These measurements are typically based on data from microfinance institutions and census data. For example, dividing the number of clients of a particular lender by the total population in its areas of activity would provide useful information. Honohan (2004) thus calculates microfinance penetration rates by dividing the number of borrowing microfinance clients by the total population. His measure yields penetration rates of 13.1% in Bangladesh and 4.3% in Sri Lanka. As Anand and Rosenberg (2008) point out, however, the number in the denominator should be reduced to include only potential borrowers, in order to provide relevant data on take-up for the

1. These calculations assume a minimum detectable effect size of 0.3 standard deviations, baseline and follow-up surveys with 0.7 correlation between them, and an 80% chance of detecting the impact if the impact did occur. The sample sizes indicated are for both treatment and control groups, assuming an equal split between the two.

population of interest. They identify several important reductions, such as individuals who are not poor, not microentrepreneurs, too young or too old to borrow, or not interested in borrowing. A 2006 World Bank report, for example, assesses microfinance's penetration in South Asia by dividing the number of poor microfinance clients by the number of poor individuals in South Asian countries.[2] Using this formula, the penetration rate reaches 62% in Bangladesh and 63% in Sri Lanka, although the report warns that a significant number of non-poor individuals also participate in microfinance, inflating the estimates. Naturally each of the denominator reductions can be debated: Why should only microentrepreneurs be considered in the denominator? And perhaps those not interested in borrowing are not interested because the products are of low quality. If so, why should they be removed from the denominator? The advantage of population-based measures is that they are the most comprehensive, and in some ways the cheapest and easiest to compute. But they suffer from four main shortcomings: (a) they typically cannot distinguish between individuals who are not eligible or not creditworthy, and individuals who are eligible or creditworthy but choose not to participate; (b) they may double-count customers who maintain accounts with more than one financial institution; (c) they give little information on why people participate or not; and (d) they do not take into account whether microfinance institutions and other suppliers of financial products and services have even tried to reach people.

The second type of take-up measurements come from general-purpose household surveys, such as the World Bank's Living Standards Measurement Surveys (LSMS). Household surveys provide a finer picture of participation in an area by meticulously asking information to a limited number of individuals. Customized questionnaires can provide a detailed picture of respondents' financial portfolio and elicit information on past behaviors and future plans. They also improve on aggregate data by letting analysts measure participation among different groups, such as individuals and households of various poverty levels. Two types of general-purpose surveys can be used. Cross-sectional surveys—such as the LSMS—provide a "snapshot" of participation, and sometimes include data on previous participation elicited through recall questions. Alternately, panel surveys, which interview the same individual or households several times, provide a "video" of take-up, but they are expensive and rare. General-purpose surveys, however, typically do not provide a measure of the creditworthiness of the respondents, and generally do not ask about latent demand. The data they provide are also sensitive to how the questions were asked and who answered them (Cull and Scott 2009), reducing their accuracy.

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2. The World Bank's calculation uses national poverty lines to determine the number of poor families, and assumes average family sizes for each country (between 5 and 6 members per family). The percentage of microfinance clients that are poor is estimated from EDA studies and secondary sources.

The other main source of data on take-up comes from "controlled processes," i.e., experiments, pilots, and other studies designed to measure demand. Here, a sample of geographic areas or individuals is clearly identified and approached through a carefully-designed marketing process. Then, one can measure the take-up rate using only administrative data from the institution. Naturally, if a baseline survey is conducted before the marketing campaign, one can also learn a great deal more about who takes up products by merging the survey data with the institution's data.

Such a process also allows for simple and clean tests of the relative take-up of different products and services. Researchers at Innovations for Poverty Action have done this on topics ranging from price (i.e., by randomizing the interest rate on individual or community offers of credit, savings and insurance; Karlan and Zinman 2008, Dupas and Robinson 2009) to marketing content (Bertrand et al. 2007) to group or individual liability rules (Giné and Karlan 2009).

Such studies, however, are most often linked to one provider, so a low take-up rate might be observed because target individuals are already borrowing or saving elsewhere. Hence some understanding of the underlying market penetration is useful for interpreting and comparing results across settings. Furthermore, if one bank's marketing led someone to borrow, but just not with the bank that delivered the marketing, then such a process would underestimate the take-up rate. This approach also typically restricts take-up measurement to a limited period of time, which means that individuals might not have taken-up *then* only because they did not need the service at that moment. In Bangladesh, for example, take-up rates rose from 45% to 76% between 1991/92 and 1998/99 (see Table 1). Thus longer windows for collecting take-up data can help ascertain whether certain product features do matter in the long run more so than the short run, or vice versa.

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Taking Stock of Participation Rates

Regardless of the type of data and measurement, participation rates are often well below 100%. Aggregate data collected by Beck et al. (2007) show that the average number of deposit accounts in commercial banks was 60 per 100 people, for a sample of 43 developing countries. The average number of loans from commercial banks was 12.5 per 100 people, for the 34 developing countries for which Beck et al. could gather this indi-

cator. Beck et al.'s estimates do not include microfinance clients. Another calculation, by Chaia et al. (2009), includes clients of both formal and semi-formal institutions, such as microfinance. Chaia et al. estimate that more than half of the world's adult population (2.5 billion out of 4.7 billion) does not use formal or semi-formal financial services to save or borrow. In Sub-Saharan Africa, only 20% of adults use formal or semi-formal financial services. Much of the story behind the numbers rests with supply factors, but our evidence shows how important the demand side is as well.

A comparison of rates measured by general-purpose household surveys and controlled processes in various settings, provided in Tables 1 and 2, shows a tremendous variation in participation rates for microfinance—even in populations that are eligible and have access to financial institutions. Take-up rates of credit, savings, and insurance products taken together vary from 2 to 84% of eligible individuals, with most rates for the surveys and projects we collected being in the 7 to 50% range.

Table 1: Take-up rates measured by household surveys

COUNTRY	SURVEY	YEAR	PRODUCT	TAKE-UP RATE (%)	TAKE-UP PERIOD (MONTHS)
BANGLADESH	BIDS	1991/92	Credit	45	Ever borrowed
BANGLADESH	BIDS	1998/99	Credit	76	Ever borrowed
INDONESIA	MASS	2002	Credit	38	36
INDONESIA	MASS	2002	Savings	42	36

SOURCES: Authors' calculations from BIDS and MASS data. The BIDS data were used in Pitt and Khandker 1998. The MASS data were used in Johnston and Morduch 2008.
NOTE: The take-up rate in this table refers to the percentage of creditworthy or eligible households borrowing or saving with a formal financial institution.

Table 2: Take-up rates measured by controlled processes

COUNTRY	FIELD PARTNER	TYPE OF PRODUCT	TAKE-UP RATE (%)	PRODUCT	TAKE-UP PERIOD (MONTHS)	INTEREST RATE (% PER MONTH)	SAMPLE FRAME	MARKETING TYPE
MEXICO	Compartamos Banco	Credit	4	Existing	1	3 - 4.5	New clients	Face-to-face
PERU	Arariwa	Credit	7.9	Existing	18	3.8 - 4.8	Census of households	Community meetings + Face-to-face
SOUTH AFRICA	Credit Indemnity	Credit	8.7	Existing	2.5	3.25 - 11.75	Former credit clients with good repayment history	Mass mailing
GHANA	Opportunity International	Credit	1.8	Existing	1	2 - 3.75	New clients	Face-to-face
PHILIPPINES	Green Bank, Inc.	Insurance	27	New	24	n/a	Existing borrowers of rural bank	Face-to-face
PHILIPPINES	Green Bank, Inc.	Insurance	46	New	5	n/a	Existing borrowers of rural bank	Face-to-face
KENYA	K-Rep Development Agency	Savings	55	Existing	6	0	New clients	Face-to-face
PHILIPPINES	First Isabela Cooperative Bank (FICO)	Savings	2.5	New	8	3.5	Existing clients	Face-to-face
PHILIPPINES	First Valley Bank	Savings	23	New	4	1.5 - 5.5	New clients	Face-to-face
PHILIPPINES	Green Bank Inc.	Savings	28	New	Ever saved	4.25	Existing clients	Face-to-face

SOURCES: Authors' calculations from field projects, and Dupas and Robinson (2009) for the Kenya project.

NOTES: The take-up rate in this table refers to the percentage of pre-identified potential clients that applied for a loan, opened a savings account, or bought an insurance contract. For the project in Kenya, the denominator is constituted of individuals offered a savings account; take-up is defined as opening the account and making at least one deposit within the first 6 months after opening the account (Dupas and Robinson 2009).

Tables 1 and 2 make two points. First, in our small sample of projects and surveys, take-up rates measured by controlled processes (2 to 8.7%) are lower than those measured by household surveys (38 to 76%). The former typically involve one lender only, which can lead to very low estimates of take-up. Surveys, on the other hand, are able to capture take-up of a wider variety of loan and saving products, and from more lenders, which reduces the variance in take-up rates.

Second, no clear pattern emerges when comparing take-up rates of credit, savings, and insurance products. Take-up of credit products presents the largest variation (2 to 84%). Rates of take-up of savings products do not exceed 55%. Finally, no more than half of households or individuals offered an insurance product contracted the insurance.

Why Do Individuals Choose Not to Borrow?

The data on take-up rates we exposed in the previous section do not show any clear pattern determining take-up. Hence, understanding the reasons for take-up—or "turn-down"—are important. We were able to gather data on why individuals said they did not borrow from four projects following a controlled sign-up process, and one survey. Results are presented in Table 3.

While self-reports cannot be taken entirely at face value, several important messages are conveyed by these data. First, the most common reason for not borrowing that is self-reported in surveys is a desire "not to be in debt." Fear of debt, or desire not to get into debt, was the most commonly cited reason for not borrowing in a project testing potential clients' sensitivity to interest rates in Mexico. In the 2002 MASS survey in Indonesia, half of credit worthy respondents indicated not having borrowed in the last three years from any formal lender because they do not want to be in debt. This reason for not applying for a loan was also reported by 37% of microentrepreneurs surveyed by Magill and Meyer (2005) in Ecuador.

Naturally it is difficult to separate "does not want to be in debt" from "does not want to be in *this* debt." Thus when respondents say they do not want to be in debt, it is hard to ascertain whether debt at a lower price, debt with more flexible repayment structure, debt with individual rather than joint liability, etc., would be acceptable, but debt as it is currently offered in their market is not. Or, are the individuals saying they are simply averse to the concept of borrowing?

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Table 3: Reasons for not taking up loans

PROJECT	TYPE OF DATA	REASONS FOR NOT TAKING UP	PERCENTAGE
Study of cosignatory requirement (Peru)[A]	Controlled process	Was refused loan by NGO	37.5
		Spouse did not sign for loan	16.7
		Interest rate too high	12.5
		Loan amount too low	12.5
		Preferred individual loan	12.5
		Communal bank did not form	8.3
MASS Survey (Indonesia)	Survey	Don't want debt	50.6
		Security insufficient or absent[B]	8.7
		Unfulfillable administrative requirement[B]	7.8
		Borrowed informally	5.0
		Income deemed insufficient[B]	4.5
		Facility not available	2.4
		Owns no venture	2.1
		Venture deemed unfeasible or risky[B]	2.1
		No consent from spouse/family	1.1
		Credit application rejected[B]	1.1
		Requested loan too large[B]	0.5
		Other	14.2
Study of interest rates sensitivity (Mexico)	Controlled process	I don't want to go into debt	45
		I have credit with another institution	22
		The interest rate is too high	9 - 12[C]
		I don't trust	9 - 11[C]
		Does not meet credit requirements	2
		Not interested	4
		Other	6 - 7[C]

Percentages are the percentage of respondent who provided each reason.

A. At the time of writing, the sample size for the percentages for this project was 24 loan applicants.

B. A respondent may be creditworthy with Bank Rakyat Indonesia (the microlender who evaluated creditworthiness of all respondents) but denied by a commercial bank or another microlender for the reasons indicated in this table.

C. Responses varied in the range indicated depending on the interest rate offered.

Second, even though these data apply to a population of poor households who rely on expensive moneylenders or microfinance institutions to meet their credit needs, the price of loans is not one of the most-often cited reasons for not borrowing. This is not to say that interest rates do not matter: high interest rates are cited as a reason for not borrowing by 10 to 13% of respondents in several projects, and preliminary results from an Innovations for Poverty Action project in Mexico show significant and large (larger than 1) elasticities of demand for credit to interest rate. Evidence from Bangladesh shows somewhat smaller (under 1) elasticities of loan demand to price (Dehejia et al. 2009).

Finally, survey data from Indonesia clearly indicate that the design of loan products is a critical factor in take-up. Even though the sample from which data are calculated is constituted of creditworthy individuals, as evaluated by Bank Rakyat Indonesia, a quarter of the respondents never borrowed because they could not find an adequate loan product: they had too little or no way to secure the loan, or their business or income was inadequate.[3] Expanding financial access therefore requires studying, testing, and evaluating better new products and new designs.

Although not the most cited reason for not taking up, understanding poor individuals' sensitivity to interest rates is a key factor to help them benefit from access to financial services.

How to Address Low Take-up?

Data on take-up and on reasons for not taking-up loan products provide critical information to help practitioners, policy-makers and academics expand financial access for poor individuals. They clearly indicate, for example, that interest rates do matter. Although not the most cited reason for not taking up, understanding poor individuals' sensitivity to interest rates is a key factor to help them benefit from access to financial services. Innovations for Poverty Action is conducting several projects to test borrowers' sensitivity to interest rates in Latin America, Africa and Asia. In these projects, different interest rates are offered to randomly-selected loan applicants, and take-up rates are one of the outcomes of interest. Preliminary results show that fewer individuals borrow when the price of loans increases: in Mexico, overall take-up of the village banking product offered in that project was around 4.1%. Take-up in randomly-selected branches offering the lower rate was between 4.6 and 5.1%, and take-up at higher-rate branches was between 3 and 3.5%. This implies a 50% higher take-up rate when interest rates are lower (albeit from a low base).

Innovations for Poverty Action also has been and is testing various features of loan and savings products, and using take-up rates to learn how the

3. The exact answers representing 25.2% of respondents are: security insufficient or absent, unfulfillable administrative requirement, income deemed insufficient, owns no venture, and venture deemed unfeasible (i.e. credit unworthy) or risky.

needs of poor clients are best served. Box 1 provided an example of a test of the joint liability mechanism that many microlenders rely on (also see Giné and Karlan 2009).

Another study, by Bauer et al. (2008), investigates the characteristics of borrowers in India, and yields useful insights into the psychology of microcredit take-up. The authors notably find that individuals with self-control issues (people with "hyperbolic discounting," in economic terms) have a particular demand for microcredit loans. This holds especially true for women and for loans from self-help groups. This research suggests that the structured features of microfinance loans (specifically peer pressure and regular, structured installments) may help particular groups of potential borrowers, and shows how studying take-up can help inform microfinance product design.

Conclusion

Unlike what is often assumed, take-up rates for credit, savings, and insurance products are often low. This indicates that existing institutions and products do not serve all poor households, including not all of those that are creditworthy. Data indicate that the most common reason for not taking-up loan products is a desire not to be in debt, but this is just a starting point. Is it a fear of debt, or is it dissatisfaction with the current terms of credit offered in the marketplace? Interest rates are often mentioned as well as other product features. Studying how take-up varies as product and process features vary can help financial institutions understand how to attract more clients and serve them better.

References

Anand, Malika, and Richard Rosenberg. 2008. "Are We Overestimating Demand for Microloans?" CGAP Brief (April 2008).

Bauchet, Jonathan, and Jonathan Morduch. 2010. "An Introduction to Impact Evaluations with Randomized Designs." Financial Access Initiative Framing Note.

Bauer, Michal, Julie Chytilová, and Jonathan Morduch. 2008. "Behavioral Foundations of Microcredit: Experimental and Survey Evidence from Rural India." Institute of Economic Studies Working Papers 28/2008, Charles University in Prague.

Beck, Thorsten, Asli Demirgüç-Kunt, and Maria Soledad Martinez Peria. 2007. "Out: Access to and Use of Banking Services Across Countries." *Journal of Financial Economics* 85: 234–266.

Bertrand, Marianne, Rema Hanna, Simeon Djankov and Sendhil Mullainathan. 2007. "Obtaining a Driving License in India: An Experimental Approach to Studying Corruption." *Quarterly Journal of Economics* 122(4): 1639–1676.

Chaia, Alberto, Aparna Dalal, Tony Goland, Maria Jose Gonzalez, Jonathan Morduch, and Robert Schiff. 2009. "Half the World Is Unbanked." Financial Access Initiative Framing Note (October 2009).

Cull, Robert, and Kinnon Scott. 2009. "Measuring Household Usage of Financial Services: Does It Matter How or Whom You Ask?" World Bank Policy Research Working Paper 5048. World Bank, Washington, DC.

Dehejia, Rajeev H., Jonathan Morduch and Heather Anne Montgomery. 2009. "Do Interest Rates Matter? Credit Demand in the Dhaka Slums." Financial Access Initiative.

Dupas, Pascaline, and Jonathan Robinson. 2009. "Savings Constraints and Microenterprise Development: Evidence from a Field Experiment in Kenya." NBER Working Paper 14693.

Giné, Xavier and Dean Karlan. 2009. "Group Versus Individual Liability: Long Term Evidence from Philippine Microcredit Lending Groups." Financial Access Initiative and Innovations for Poverty Action Paper.

Honohan, Patrick. 2004. "Financial Sector Policy and the Poor: Selected Findings and Issues." World Bank Working Paper 43. World Bank, Washington, DC.

Karlan, Dean, and Jonathan Zinman. 2008. "Credit Elasticities in Less Developed Countries: Implications for Microfinance." *American Economic Review* 98(3): 1040–1068.

Magill, John H., and Richard L. Meyer. 2005. "Microenterprise and Microfinance in Ecuador." USAID, March. Washington, DC.

Navajas, Sergio, and Luis Tejerina. 2006. "Microfinance in Latin American and the Caribbean: How Big Is the Market?" Inter-American Development Bank, November. Washington, DC.

World Bank. 2006. "Microfinance in South Asia: Toward Financial Inclusion for the Poor." World Bank, December. Washington, DC.