Measuring Microfinance: Assessing the Conflict between Practitioners and Researchers with Evidence from Nepal

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Summary. — What accounts for the discrepancy between microfinance impact claims of development practitioners and the far smaller impacts found in experimental studies? We demonstrate in a simple theoretical framework why “before-and-after” observations of practitioners overstate microfinance impacts and why estimations in some recent randomized trials underestimate the average treatment effect on the treated (ATT). Our empirical study uses a unique data set from eastern Nepal to study the impact of microfinance in villages where microfinance did not previously exist. We find that approximately three-fourths of the apparent impact of microfinance observed by practitioners is an illusion driven by correlated unobservable factors.

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1. INTRODUCTION

Microfinance emerged in the 1970s as an effective strategy to increase credit access among the poor in developing countries who were routinely shunned by formal lenders and left to borrow from informal money lenders at elevated interest rates. The growth of microfinance since this time has been unprecedented. The 2014 Microcredit Summit reports that in 2011 there were 203 million microfinance borrowers in the developing world, among these being 116 million of the world’s poor living on less than $1.25 per day.

Yet even with the tremendous resources that have flowed into microlending, there has been substantial disagreement regarding the impact of microfinance. Anecdotal evidence from practitioners in the field tends to overwhelmingly report growth in enterprises, income, and improvements in household welfare after borrowers take microfinance loans. Academic studies are more mixed. While some studies have found substantive impacts of microfinance on household income, consumption, and poverty reduction (Berhané & Gardebroek, 2011; Field, Pande, Papp, & Rigol, 2013; Imai, Raghav, Ganesh, & Annim, 2012; Khandker, 2005; Khandker & Pitt, 1998), many studies find only modest or even no impact from microfinance (Angelucci, Karlan, & Zinman, 2012; Attanasio, Augsburg, De Haas, Fitzsimons, & Harmgart, 2011; Augsburg, Haas, Harmgart, & Meghir, 2012; Banerjee, Duflo, Glennerster, & Kinnan, 2013; Coleman, 1999, 2002; Crepon, Devoto, Duflo, & Parienté, 2014; Dingcong, Infante, Kondo, & Orbeta, 2008; Giné & Mansuri, 2011; Karlan & Zinman, 2011; Morduch, 1998; Morduch & Roodman, 2009). 2

We demonstrate in a simple theoretical framework that the discrepancy between practitioners and academics stems from two factors. First is the presence of unobserved shocks affecting the timing with which a given borrower takes a microfinance loan. These phenomena, which may be related to economic opportunities or changes in self-motivation, are generally unobservable to both practitioners and researchers, but are complementary to microfinance borrowing and enterprise investment. We show that because borrowers have an incentive to take loans at the same time that these opportunities or increases in self-motivation arise, a large portion of the gain in enterprise and household welfare that practitioners observe before and after microfinance loans is illusory, not properly accounting for the counterfactual.

Second, we demonstrate that the impact estimates of many recent experimental and quasi-experimental studies are likely to underestimate the average treatment effects of microfinance. A major shortcoming of even some of the most celebrated microfinance impact studies (e.g., Augsburg et al., 2012; Banerjee et al., 2013; Coleman, 1999; Karlan & Zinman, 2011) is that these studies were implemented in areas where considerable microfinance lending already existed among the treated population when new microfinance was made available in the experimental design. Such studies are forced to obtain impacts on marginal borrowers induced into taking new microfinance loans as part of the implemented research design. While the authors of these papers are generally careful to qualify their results as impacts limited to “compliers,” they are often taken by the development community to represent the average impact of microfinance generally, not simply the average impact of microfinance on the last borrowers in an area to take microfinance loans.

Unlike many types of interventions where an estimate on later compliers presents a reasonable approximation to the average treatment effect on the treated (ATT), such as a health intervention where impacts on the human body of a drug are...
likely to be independent of treatment order, we demonstrate why the impact on late takers of microfinance should be lower than that of the first. The reason is that being an early taker of microfinance is positively correlated with borrower productivity. This productivity in our model is based on hidden economic opportunity that is made up of the sum of two unobservable components: a fixed ability component for each borrower and an idiosyncratic measure of economic opportunity that varies for each potential borrower in each period. Based on the confluence of these two factors, borrowers who take loans in early stages are more likely to possess a higher base level of productivity than those who take up loans in later stages; hence on average they will realize a higher level of impact from borrowing. Although similarly difficult to quantify, the error from inferring average microfinance impacts across the entire population of borrowers from these marginal borrowers may be no less grave than the well-known biases of borrower self-selection or attrition that researchers have been careful to address in the past.

Recognizing the potential problems with carrying out microfinance impact studies in areas with heavy existing microfinance lending, Crépon et al. (2014) present results of a randomized microfinance experiment in Morocco carried out in a region in which virtually no microfinance existed before the experiment. Treated villages were subject to the promotion of group-lending-based microfinance. Research results from the study show that access to credit resulted in the expansion of enterprises and increased profitability, although increases in profits appear to be limited to agricultural enterprises. Interestingly, however, their results show that MFI expansion and increased profitability were realized at a cost: As labor was reallocated to microenterprises, increased profits in these enterprises were offset by a decrease in wages earned in the labor market, so that the net change in income and consumption in these households is insignificant even two years after rollout.

Our study is similar to Crépon et al. (2014) in that it is one of the first efforts to study the impact of microfinance in a rural area previously untouched by microfinance. But in contrast to Crépon et al. our study uses non-experimental data, employing two different types of estimation. First we use an event study (RETRAFACT) methodology (Retrospective Analysis of Fundamental Events Contiguous to Treatment—see McIntosh, Villaran, & Wydick, 2011) to analyze dynamic changes in the probabilities of fundamental events within an event window over the years surrounding treatment. We also employ more conventional difference-in-difference estimations, which are better at gauging single-parameter impacts.

Our event study methodology borrows from the finance literature, in which it is often used to estimate the impact of announcements of mergers and acquisitions on stock prices. (For an excellent review of event studies, see MacInlay, 1997.) Instead of analyzing the impact of firm behavior on stock prices, our enumerators compiled a household history of fundamental I/O events indicative of “development” that could be accurately pinned to a particular year in the life of the household. The RETRAFACT event-study methodology then examines how the probability of these events changes surrounding a treatment such as the introduction of a microfinance lender in a village or the take-up of microfinance itself. The data set we use in this analysis is unique in three respects. First, we have a strong understanding about why certain villages received credit before others, where the microlender expanding operations introduced lending into villages off main highways first, and later into nearby villages off these main highways (and not, subject to this expansion decision rule, that the lender initially targeted better off or worse off villages.) Second, like the Crépon et al. study, it is taken from a rural region in which microfinance did not exist before it was introduced by the lender in our study. The third unique aspect of our data is that take-up of microfinance was extremely high in our study area when credit became available: 51% among our random sample of female entrepreneurs in the six villages from which we collect data, much higher than the 12% take-up rate among the treated villages in the Crépon et al. study. The high take-up rate allows us greater latitude in measuring the impact of microfinance as it has been adopted widely within a given population, and yields considerable power in first-stage instrumental variable estimations.

We use the RETRAFACT event study methodology to estimate dynamic intention-to-treat effects (ITT) controlling for observables while using a region-year fixed effect across paired villages, one of which received credit earlier and a neighboring village that received credit approximately two years later. Using a cross-sectional survey of 703 households in Nepal, enumerators carefully interviewed family members to create a household history over the previous 10 years of discrete, fundamental events to the household that we would expect to be associated with growth in enterprises and increases in household welfare: major capital investments in enterprises, major home improvements, and purchases of consumer durables. The product of these 703 household histories is a retrospective panel data set that contains a matrix of over 7,000 dummy variables consisting of these relatively rare (average probability = 0.037) fundamental events.

We believe there are at least two important results from our study that add to this ongoing investigation into the worldwide impact of microfinance. First, we find that subsequent to taking a microfinance loan, microfinance borrowers are significantly more likely to experience an increase in the probability of a broad array of investment and consumption variables. In this respect, the anecdotal evidence cited by practitioners is corroborated by our data, and thus we find that practitioners are neither lying nor likely even exaggerating the positive changes to MFI borrowers that they witness after borrowers take microfinance loans. However, when we analyze changes in the probability of these events within a window surrounding the introduction of microfinance into our six villages, allowing us to estimate average treatment effects based on credit availability, we find the causal effect of microfinance to be far more modest than the apparent impact that a “before-and-after” analysis would suggest. Indeed we estimate that approximately 3/4 of the impact testified to by practitioners after taking microfinance appear to be something akin to an optical illusion, driven by correlated unobservables. But we also find that the approximately one-fourth of this “apparent impact” that remains is non-trivial; our study finds impacts that are lower than those reported anecdotally by practitioners, but higher than those reported by most recent experimental and quasi-experimental studies.

The second striking result from these data is the similarity of the microfinance impact results obtained using the event study methodology with the Crépon et al. (2014) experimental study, the best study of which we are aware that experimentally estimates microfinance impacts in a region previously unserved by microfinance. Although carried out in different countries (Morocco and Nepal) using different methodologies, the results of both indicate that microfinance has a strong impact on microenterprise expansion and on the size of livestock herds (depending on the type of enterprise), but no significant impact on consumption. These results contrast to some degree
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