Targeting Using Ex-post Information in the Microcredit Market

Marup Hossain; Conner Mullally
University of Florida

Abstract

Rich monitoring data generated by many anti-poverty programs can be used to assess the credit-worthiness of small and medium entrepreneurs.

We show that households who applied for loans and were approved by the BRAC microcredit program are the better-off group among the beneficiary households from its livestock transfer program.

Self-selection by borrowers and subsequent screening by BRAC jointly lead to a better borrowers' pool.

Subjective information on borrower aspirations is an important predictor of loan approval decision by BRAC.

Targeting potentially successful borrowers?

We use the Random Forest (RF) and Extreme Gradient Boosting (XGBoost) supervised machine learning (ML) methods to predict what would be the probability of productive use of a loan and repayment difficulty for the rejected and the non-applicant households had they taken a loan from BRAC.

We use pre- and post-loan information of the approved households to train the ML methods and predict outcomes for the rejected and non-applicant groups.

Context

We examine whether BRAC used the performance of beneficiary households from the “Targeting the Ultra-Poor (TUP)” program to target borrowers who have safe credit risks.

We use data from the randomized control trial (RCT) conducted by Bandiera et al. (2017),

Among the 3,755 beneficiary households, 36% took at least one loan from the BRAC-microcredit program, another 8% were rejected, and rest of the households never applied for a loan between 2008 and 2011.

We use households’ pre-microcredit objective and subjective information to examine whether the approved households have less credit risk compared to the rejected and the non-application households.

Return to time by household loan status

The marginal revenue product of labor (MRPL) in livestock activities (income) is 0.19 points lower for the non-applicant compared to the approved households.

MRPL (asset) is 0.30 points lower for the rejected households compared to the approved households.

The probability of productive use of a loan is 3 to 4 percentage points (8-10%) lower for both the rejected and the non-applicant households compared to the approved households.

The predicted probability of repayment-difficulty is 1 to 2 percentage points (14-21%) lower for the rejected households relative to the approved households.

Conclusions

The TUP program generated valuable information, both objective and subjective, about the credit worthiness of beneficiary households.

The importance of subjective information in determining borrower quality casts doubt on the applicability of pure credit-scoring model in the microcredit market.

Contact

Marup Hossain
University of Florida
Email: maruphossain@gmail.com
Website: maruphossain.weebly.com
Phone: +1 352 300-4837

References