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The Lessons from DECFP Impact Evaluations

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Our latest note highlights the results from a pilot exercise conducted in Peru, which shows psychometric credit scoring can increase access to credit for small and medium enterprises who do not have a credit history, without increasing default risk for the lender

Psychometrics as a Tool to Improve Access to Credit

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Small and medium enterprises (SMEs) often face greater credit constraints than large firms because they lack audited financial statements and other information about their operations, and as a result, financial institutions have difficulties assessing the risk of lending to them.

Comprehensive credit bureaus where lenders share information have been shown to increase credit to SMEs. However, not all countries have credit bureaus and where bureaus exist, the information they provide may be limited, for legal and institutional reasons. Also, loan applicants are subject to a chicken-and-egg problem. Bureau information is most useful for making credit decisions regarding loan applicants with a detailed credit history, but applicants can only build that history by getting credit, for which they need a good credit history.

The Entrepreneurial Finance Lab (EFL) has developed an alternative credit information tool, based on psychometrics, which can potentially be used by lenders to better screen loan applicants. We examined the effectiveness of this tool in increasing access to credit by SMEs in the context of a pilot exercise conducted in Peru.

EFL tool and Context

The financial institution participating in the study, the fifth-largest commercial bank in Peru, piloted the EFL tool starting in March 2012, with the goal of expanding its lending to SMEs. Loan applicants filled out a 45-minute questionnaire (the current version takes 25 minutes) and EFL generated a credit score based on the applicant's answers to questions capturing information that can predict loan repayment behavior, including the applicants' attitudes, beliefs, integrity, and performance. All applicants who achieved a score higher than a threshold set by the bank were offered a loan.

Peru has several private credit bureaus that, together, cover 100 percent of the adult population. Thus, all loan applicants also have a traditional credit score. But for individuals who have not previously taken out a loan from a formal financial institution, this score is based primarily on demographic information rather than actual credit history and banks may be reluctant to lend to them.

For these applicants without a credit history, we ask whether being offered a loan based on their EFL score increased use of credit. Clearly, individuals with an EFL score above the threshold should have been more likely to take out a loan from the implementing bank than individuals with an EFL score below this threshold. However, individuals with an EFL score below the threshold could potentially have gotten a loan from another financial institution.

A second question we ask is whether lending to new clients based on the EFL tool increases credit risk for the bank.

Data and Study Design

We obtained data on formal credit usage and repayment behavior from the Superintendencia de Banca y Seguros (SBS) in Peru, as well as data collected by the implementing bank and EFL on 207 loan applicants that were part of the pilot exercise.

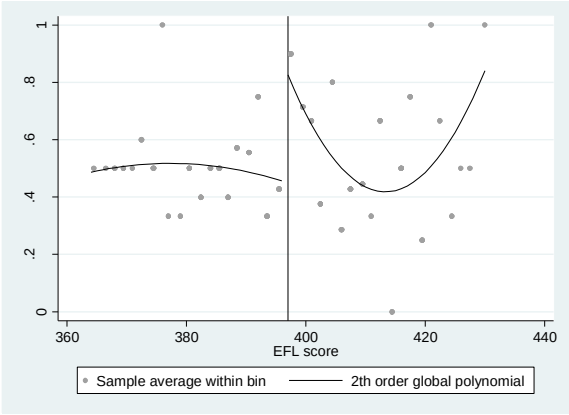
To measure the effect of the EFL tool, we use a regression discontinuity design that compares loan applicants who scored just

above and just below the EFL score threshold set by the bank for offering a loan. We used different parametric specifications and also local linear regression to check robustness of the results.

Results

- We find that those above the threshold are more likely to have a loan from any financial institution than those below the threshold (figure 1), suggesting the EFL tool increased use of credit for SME owners without a credit history. About 45% of applicants just below the threshold obtained a loan, compared to 80% just above the threshold.

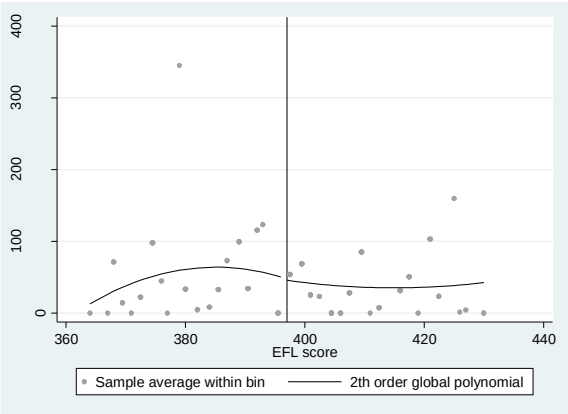
Figure 1. Increase in Loan Use at EFL Score Threshold



Note: The figure shows a dummy = 1 if the applicant received a loan from any formal financial institution. The average of this variable is calculated for 20 bins on each side of the EFL score threshold.

- Note that not all applicants with an EFL score above the cutoff ended up taking out a loan, leading to a non-linear relationship between the EFL score and the likelihood of having a loan. This relationship may be driven by characteristics, such as risk aversion, that are captured by the EFL score. That is, more cautious applicants may have decided not to accept the loan offer after seeing the loan terms.
- We do not find significant differences in loan repayment behavior across applicants above and below the EFL score threshold (see Figure 2).

Figure 2. Number of Days in Arrears around EFL Score Threshold



Note: The figure shows maximum number of days in arrears. The average of this variable is calculated for 20 bins on each side of the EFL score threshold.

Policy Implications

Our results illustrate the importance of information for assessing credit risk and expanding use of credit. Increasing the quality of the information that credit bureaus can access—for example, including data from retailers and utility companies in addition to financial institutions, and allowing positive information (payment history on accounts in good standing) in addition to negative information (late payments, defaults, and bankruptcies)—could improve credit-scoring models and increase lenders confidence in these scores, even for entrepreneurs who have not previously borrowed from formal financial institutions. In the meantime, EFL offers a practical solution to financial institutions in countries where well-developed credit bureaus are in the process of consolidation.

For further reading see: Arráiz, Irani, Miriam Bruhn, and Rodolfo Mario Stucchi. (2015) "Psychometrics as a tool to improve screening and access to credit" World Bank Policy Research Working Paper no. 7506

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