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Information and default in consumer credit markets: Evidence from a natural experiment

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ABSTRACT

Despite the prominent role that information plays in the economic theory of credit markets, no direct evidence exists on the causal relationship between the availability of information about loan applicants and loan performance. This paper provides such evidence by exploiting an unanticipated change in the amount of information visible in an online market for loans to measure the impact of lender information on loan outcomes. Conditional on data available in both periods, allowing lenders to access more borrower credit information substantially reduced default rates among high-risk borrowers by 17 percentage points on average but had almost no effect on low-risk borrowers. Immediate lender returns increased by about 12 percentage points and took 5 weeks to decay. Among high-risk loans, returns converged within credit grade bins. Using panel information on lenders, I find that the information improved loan performance in two ways: first, it significantly improved the screening performed by lenders already active on the website. Second, it attracted new lenders who were better at screening loan applicants and earned higher returns. I test whether the reform resulted in selection among loan applicants using data that is unobserved by lenders in both periods. I find that there was no change in unobserved credit quality among loan applicants, but that the information improved lenders' ability to select the (unobservably) higher quality borrowers from the pool of applicants. I also find suggestive evidence that lenders' beliefs about loan applicants, as measured by the minimum interest rate at which they were willing to lend, converged.

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1. Introduction

Information is widely considered a crucial component of well-functioning credit markets. Active screening of loan applicants redirects funds towards borrowers who are more likely to repay and reduces the private and social costs of default. Without sufficient information, lenders cannot properly perform such screening. Yet despite its importance, relatively little empirical work exists on the impact of lender information on loan outcomes. Information provision is costly, but there is no evidence of its effect on loan performance, making it difficult to assess whether credit markets should invest in information provision or, e.g., contract enforcement. This study provides such evidence by using a natural experiment to document the causal effect of lender information on the quality of lender decisions.

Although information frictions have been thoroughly explored in theory,[1] plausibly estimating of the effect of information on credit market outcomes is not straightforward. Data on which credit-worthiness metrics a lender uses when making an investment decision are not readily available. Even if such data existed, the amount of information a lender chooses to use is likely endogenous to loan performance. Information acquisition is costly and lenders who are best able to apply information are more likely to inform themselves. Simply contrasting the default behavior of loans made by well-informed lenders and those made by poorly-informed lenders may reveal more about the lender than the role of information.[2]

My analysis avoids these issues by exploiting an unanticipated, dramatic increase in borrower credit report details visible to lenders on Prosper.com, a peer-to-peer lending website. At its launch in February of 2006, lenders were only able to see very coarse information on a potential borrower's credit-worthiness, specifically the borrower's debt to income ratio and a range of his or her credit score. On April 18, 2006, the website added several additional credit metrics, including the number of delinquent accounts, past bankruptcies, credit inquiries and homeownership status. Using a regression discontinuity (RD) design and conditioning on information available in both the pre- and post-policy change periods, I find that allowing lenders access to this new credit history data improved lenders' ability to screen borrowers. The change in the information policy caused the average probability of default to decrease by approximately 7 percentage points. The reduction in the default rate was driven almost exclusively by high-risk loans, whose default probability decreased by between 15 and 23 percentage points. This reduction in the default rate for high-risk loans represents a decrease of over 45% from the pre-policy default level.

I use data measuring borrower credit-worthiness that were unobserved by lenders both before and after the policy change to evaluate whether selection by loan applicants can explain these results. While I do not find that the new information deterred unobservably high-risk borrowers from applying for loans, I do find that lenders were better at choosing borrowers of ex ante higher quality from among the applicant pool. These results imply that the new information reduced default rates by improving lender screening rather than inducing selection among loan applicants.

Immediate lender returns increased by about 12 percentage points after the new information became available. This increase in returns was driven entirely by an improvement in lenders' ability to filter out potential defaulters and returns to non-defaulting loans did not change over this period. Furthermore, the variance of returns within credit grade bins fell for high-risk loans, suggesting that the information allowed lenders to better price loan risk.

Using panel data on lenders' bids, I find that the improvement in default probability occurred through two channels. First, I use a lender fixed effects model to show that the new information improved both the ex ante quality and the ex post performance of investments made by lenders who were active before the information policy changed. Second, I evaluate the performance of investments made by lenders who joined the site only after the new information became available. I find

[1] See, e.g., Stiglitz and Weiss (1981), De Meza and Webb (1987), and Jaffee and Russell (1976).

[2] For example, Grinblatt et al. (2009) find that investors with higher IQs earn superior returns.

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