

Substitution between Sources of Finance in Consumer Capital Markets*

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Abstract

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Abstract

We examine how the availability of competing sources of finance affects consumers' borrowing decisions. To control for the endogeneity of financing choices, we exploit an exogenous change in a binding interest rate ceiling and use a differences-in-differences approach. We find that consumers residing in counties with a larger supply of bank or other finance seek loans at lower interest rates from an alternative source of finance (an online person-to-person consumer lending intermediary) than do similar borrowers residing in counties with poor access to finance. We find that access to bank financing plays a larger role in how consumers seek loans than access to financing from credit unions or payday lenders. This result is particularly strong for borrowers with poor credit.

The new Dodd-Frank Wall Street Reform and Consumer Protection Act is broad legislation that likely will have the most profound impact on financial market regulation since the Securities Act of 1933. One result of this legislation is the creation of a Bureau of Consumer Financial Protection.¹ Initially, this Bureau will introduce an estimated 24 new rules related to consumer finance. However, because appropriate data are scarce, academics and other researchers have only a modest understanding of consumers' financial decision making. In this paper we use unique data and a novel identification strategy to shed light on how the availability of competing sources of finance affect consumers' borrowing decisions.

We use detailed loan request-level data from Prosper.com (hereafter, "Prosper"), a person-to-person consumer lending intermediary, to determine whether the supply of competing capital where consumers reside affects the price they are willing to take from this alternative source of finance. Prosper is the largest online person-to-person lending network in the United States, providing consumers the opportunity to request loans from other consumers. (We explain in greater detail the mechanics of person-to-person lending in the Institutional Details section below.) We find that the supply of local bank capital affects the interest rate borrowers request on a loan from Prosper.

One hurdle to understanding how consumers choose their financing sources and terms is that a borrower's characteristics and the financial environment where he or she resides may be jointly determined. Further, unobservable borrower characteristics such as personal savings rates, job prospects, education, or financial savvy may be correlated with the local financial environment. This paper overcomes this hurdle by exploiting a shift in the interest rate ceiling faced by Prosper borrowers residing in Florida. Prior to April 15, 2008, Prosper borrowers in Florida could request loans with interest rates no

¹ An article titled "The Uncertainty Principle" published in the Wall Street Journal on July 14, 2010 describes how the Dodd-Frank Wall Street Reform and Consumer Protection Act will require at least 243 new federal rule-makings by various new and existing regulatory agencies.

higher than 18 percent, per the state's usury rate ceiling. However, on April 15, 2008, Prosper partnered with WebBank, a Utah-chartered Industrial Bank. This partnership allowed Prosper to achieve nationwide lending (with the exceptions of South Dakota and Texas) with a maximum interest rate of 36 percent, effectively doubling the maximum interest rate Prosper borrowers in Florida could request. We find that the 18 percent rate ceiling was a binding constraint for at least some Prosper borrowers. Indeed, among the borrowers who submitted at least one loan request both before and after April 15, 2008, the average maximum interest rate these borrowers were willing to pay nearly doubled from 15.19 percent to 29.08 percent.

This exogenous change in potential lending rates provides an opportunity to observe how areas with varying levels of capital satisfy consumers' demand for loanable funds. Our approach is a differences-in-differences analysis: do borrowers in areas with a greater supply of capital seek financing at lower interest rates from a person-to-person lending network than similar borrowers in areas with a lower supply of capital, and does the magnitude of the difference in requested interest rates change after the rate ceiling lifts? The rate ceiling shift represents an exogenous source of variation that only affects loan requests made on Prosper, and only for residents of certain states. It is independent of borrower-specific or geographic-specific characteristics which could be correlated with the local supply of capital. Thus, our approach mitigates the possibility of omitted variables driving a relation between the local supply of capital and the interest rate at which borrowers seek financing.

Similar to Becker (2007) and Butler and Cornaggia (2011), we proxy for supply of capital with county-level bank deposits and other measures of financial development. We control for borrower-specific characteristics, including credit grade, debt-to-income ratio, and homeowner status. We also control for demographic conditions within the borrower's county of residence, including per capita income and the unemployment rate.

We find that Prosper borrowers residing in counties with a greater supply of capital seek loans at lower interest rates, particularly after the rate ceiling lifts. Specifically, we find that borrowers living in counties with a level of bank deposits one standard deviation above average in Florida (i.e., counties with a greater supply of bank finance) seek loans with interest rates 1.63 percent lower than similar borrowers in counties with average levels of bank deposits. That is, following the shift on April 15, 2008 to higher maximum interest rates, borrowers residing in counties with a greater supply of bank finance were less likely to seek loans closer to this higher potential interest rate. We find that these results are particularly strong for borrowers with poor credit, indicating that among our sample of Prosper borrowers, high risk borrowers are more sensitive to the availability of bank financing than low risk borrowers.

We perform a number of falsification tests to confirm that the primary source of exogenous variation—the elevated rate ceiling—provides clean identification. The baseline tests involve full sample regression with loan requests created from February 2006 to July 2008. In one set of tests we shorten the sample period to a two-month period centered around April 15, 2008. This dramatic reduction does not lead to a material change in the main conclusion from the baseline regressions, and therefore suggests that our results are not an artifact of broad time trends or the recent Financial Crisis.² We also repeat the baseline tests using data from a two-month period centered around April 15, 2007. This test is designed to dispel concerns that the main result is an artifact of changes

² A report from the Federal Reserve Bank of St. Louis details a timeline of events and policy actions taken by regulators during the Financial Crisis (<http://timeline.stlouisfed.org/pdf/CrisisTimeline.pdf>). Notable events between March 15, 2008 and May 15, 2008 include a reduction in the federal funds rate by 75 basis points to 2.25 percent, the provision of term financing to facilitate JPMorgan Chase & Co.’s acquisition of The Bear Stearns Companies Inc., a reduction of the federal funds rate by 25 basis points to 2 percent, and an expansion of the list of eligible collateral for Schedule 2 TSLF auctions to include AAA/Aaa-rated asset-backed securities. This time period is clearly an economically dynamic one. Our difference-in-difference tests net out these changes, allowing us to draw clean inferences about consumers’ borrowing decisions on Prosper.

in consumer borrowing around Tax Day, and we conclude that the main results are not simply a Tax Day effect.

We also pool loan requests from borrowers in Florida with loan requests made by borrowers residing in California or Texas. Prosper borrowers in California could request loans at interest rates as high as 36 percent before April 15, 2008, per Prosper's California State Lending License. Thus, in our sample period California borrowers did not experience a change in the rate ceiling, making them a useful control group. We perform a similar analysis after pooling loan requests made by borrowers in Florida and Texas. The maximum interest rate for Prosper borrowers in Texas was 10 percent, and remained at this level after April 15, 2008, as Prosper's partnership with WebBank did not apply in Texas. Were we to find similar results for borrowers from these two states (i.e., states that do not have a change in their interest rate ceiling) as we do for Florida, that finding would cast doubt on our interpretation of the main results. Consistent with our main conclusions, in these tests we continue to find that Prosper borrowers residing in counties with a greater supply of bank finance seek loans at lower interest rates, that this effect strengthens after the rate ceiling lifts, and that this effect is indeed restricted to Florida borrowers. Further, to the extent that the Financial Crisis had similar effects in Florida and California (two states heavily affected by the housing bubble), these results also indicate the Financial Crisis does not explain our main finding.

Our findings are consistent with a positive link between banking competition and access to finance. Jayaratne and Strahan (1996) show that removing bank branching restrictions improves access to finance and facilitates economic development. Guzman (2000) shows that credit rationing is more likely to occur under a banking monopoly than a competitive banking market. Beck, Demirguc-Kunt, and Maksimovic (2005) find that banking concentration increases financing obstacles, but only in countries with low levels of economic and institutional development. Although these studies focus on firms rather

than consumers, their results are consistent with ours—competitive banking environments provide better access to finance at a lower cost.

This paper adds to a growing number of studies examining data from person-to-person lending networks in an effort to better understand how, why, and at what cost consumers access this new source of finance. These studies address a wide variety of research topics. For example, Everett (2008) finds that borrowers are less likely to default when they form groups because group membership holds the possibility of real-life personal connections. Ravina (2008) finds that physically attractive borrowers are more likely to secure loans at cheaper interest rates on Prosper. Pope and Sydnor (2011) find evidence that lenders favor certain ethnic groups over others, with systematic underestimation by lenders of the relative default rates between borrowers in different ethnic groups. Duarte, Siegel, and Young (2009) find that lenders on Prosper are less likely to fund loan requests from borrowers whom they perceive as untrustworthy. Hildebrand, Puri, and Rocholl (2010) find that group leaders on Prosper do a better job of screening potential borrowers the more they participate in the loan.

The rest of this paper is organized as follows. Section 1 develops the main hypothesis of the paper by appealing to microeconomic theory of supply and demand. Section 2 provides institutional detail on the mechanics of person-to-person lending. Section 3 describes the data. Section 4 describes our methods and baseline results, as well as robustness tests. Section 5 concludes.

1. Hypothesis development

In this section we explain how the presence of existing banks and other institutions providing access to finance within a county can affect the price (interest rate) at which borrowers seek loans on Prosper.

Figure 1 displays in a stylized graph the hypothesized relation between supply of capital on Prosper (Supply) and two demand schedules for capital. The demand schedule to the left (Demand₁) represents the demand for capital from borrowers on Prosper who reside in counties with good access to finance. That is, we expect borrowers residing in counties with a higher supply of financing from banks, credit unions, or payday lenders to exhibit lower demand for capital on Prosper. The demand schedule to the right (Demand₂) represents the demand for capital from borrowers on Prosper who reside in counties with poor access to finance. We expect borrowers residing in counties with a lower supply of financing from banks, credit unions, or payday lenders to exhibit higher demand for capital on Prosper. The dashed line represents the 18 percent rate ceiling that existed in Florida before April 15, 2008.

[Insert Figure 1 here.]

The maximum price for loanable funds in Florida was 18 percent prior to April 15, 2008, per the usury rate ceiling. Once the rate ceiling for loans on Prosper moves to 36 percent, we expect the market clearing prices for capital to converge closer to their unrestricted equilibria. Specifically, the equilibrium price should be higher in counties with poor access to finance and borrowers exhibiting higher demand for capital via Prosper, while the equilibrium price should be lower in counties with good access to finance and borrowers exhibiting lower demand for capital via Prosper. In short, Price₂ should be greater than Price₁. The fundamental question in this paper is whether differences in the market clearing prices for capital on Prosper are a function of the presence of alternative sources of finance within a county.

2. Institutional Detail on Person-to-Person Lending

Prosper is a new and growing alternative source of finance for consumers. Its distinguishing feature is that it connects consumers who are net savers with consumers

who are net borrowers without the help of a traditional financial intermediary. As of October 2008, over \$178 million of loans have been funded through Prosper.³ Although this amount is small relative to the consumer loan market in the United States, some analysts predict person-to-person lending websites will soon account for \$5 billion of the consumer lending market.⁴

When a prospective borrower applies for a loan on Prosper, he or she begins by creating a loan request which includes the amount he or she would like to borrow (a borrower can request loans ranging in size from \$1,000 to \$25,000) and the maximum interest rate he or she is willing to pay. The borrower writes a detailed description of the purpose of the loan and provides a host of personal information, including his or her income and occupation. The borrower also has the option of listing his or her city of residence. Providing this data item is voluntary, which means our analysis could be susceptible to sample selection problems. In the Robustness section we employ a Heckman (1979) selection model to control for borrowers' propensities to disclose their cities of residence, and we find that controlling for this decision has almost no impact on the results in the baseline tests.

After the loan request is submitted, Prosper retrieves a credit report for the borrower and includes it with the loan listing. The credit report includes a detailed description of the borrower's existing financial condition, including her credit score, delinquency history, and number and usage of existing credit lines. Prosper lists the loan request on its website after combining the borrower's loan request and credit report.

³ Source: Prosper. URL: <http://www.Prosper/join/lend/>. Prosper is the largest person-to-person lending network in the world. Others include lendingclub.com and zopa.com. We focus on the mechanics of applying for a loan on Prosper, but many of the practices we describe here are similar to those of other person-to-person online lending networks.

⁴ Source: MSN Money Central. URL: <http://articles.moneycentral.msn.com/SavingandDebt/ManageDebt/ProsperDotComAnEbayForLoans.aspx>.

Lenders bid on the loans after they appear on Prosper. Prospective lenders create accounts with Prosper, and Prosper must verify that a lender has a bank account before he or she can bid. Lenders can bid amounts ranging from as little as \$50 to the full amount of the borrower's loan request. Lenders also bid an interest rate which they wish to earn from the borrower. This interest rate will be less than or equal to the maximum amount of interest indicated by the borrower.

Lenders submit competitive bids and the bidding process follows the structure of a Dutch auction. The auction remains open for up to ten days. A loan listing will remain unfunded until the sum of lenders' bids equals or exceeds the total amount of the loan request. At this point, bidding may continue, as bids at lower interest rates take the place of bids at higher interest rates. The collection of bidders who ultimately fund the loan are those whose bids sum to the total amount of the loan request at the lowest interest rate. The winning bidders receive an interest rate equal to 0.05% less than the lowest interest rate bid by the losing bidders.

For loan requests that receive at least one bid, funds are transferred from the lenders' bank accounts to the borrower's bank account immediately after the auction closes. Prosper continues to service the loans, transferring funds from the borrower's bank account to the lenders' bank accounts on a monthly basis throughout the life of the loan. Each loan is a fully-amortized, three-year loan. Borrowers face a variety of consequences if they lack sufficient funds to repay the loans. These consequences include additional fees, notifications of past due accounts on their credit reports, and referral to a collection agency in the case of a default.

3. Data

This section describes the data sources we use in this study. We match loan requests made by Prosper borrowers to county-level variables from 2006 through 2008.

3.1. Dependent Variables

Our primary dependent variable is the maximum interest rate (*Maximum rate*) a borrower on Prosper reports that he/she is willing to pay. We also examine the dollar amount the borrower requests when applying for a loan on Prosper (*Amount requested*), the fraction of *Amount requested* funded by lenders on Prosper (*Percent funded*), and the interest rate paid by Prosper borrowers if the loan request received funding (*Realized rate*). For observations in which the loan request is not fully funded, *Realized rate* takes the value of *Maximum rate*.

We have data for 20,392 loan requests made by borrowers in Florida. Borrowers disclose their city of residence for 5,374 of those loan requests. Difference of means tests reveal no significant differences between borrowers who listed or did not list their city of residence along dimensions of debt-to-income ratio, credit grade, or likelihood of homeownership. We discuss below in greater detail whether sample selection biases that could confound the main results arise from the decision to disclose one's city of residence. (We conclude that they do not.) We have data for 6,537 loan requests made by borrowers in California that disclose their city of residence, and 4,919 loan requests made by borrowers in Texas that disclose their city of residence.

Most loan requests in our sample originated before April 15, 2008 (the date the rate ceiling shifted), although several hundred originated after this date. The first loan request in our sample was made on February 13, 2006, and the last was made on July 23, 2008. Table 1 presents summary statistics.

[Insert Table 1 here.]

3.2. Independent variables

Similar to Becker (2007) and Butler and Cornaggia (2011), we use county-level bank deposits from 2006 to 2008 to proxy for access to bank financing. Deposits data

come from the FDIC's website. *Bank deposits* represents the sum of all bank deposits held by FDIC-insured depository institutions within a county for a given year.

We control for two other potentially important sources of consumer finance. We capture access to financing from credit unions by calculating *Credit union deposits*, the sum of all deposits held by National Credit Union Administration (NCUA)-insured credit unions within a county for a given year. Credit union deposits data come from the NCUA's website. This measure is identical in spirit to *Bank deposits*, except we intend it to proxy for access to credit union financing. *Credit union deposits* differs slightly from *Bank deposits* in that deposits data for credit unions are available at the institution level, not the branch level. In other words, *Credit union deposits* assigns the deposits held by various credit union branches to the location of the main office, whereas *Bank deposits* captures precisely the county within which the bank deposits exist.

We also control for the number of payday lenders within a county. The variable *Payday lenders* captures geographical variation in the presence of payday lenders, and hence access to financing from payday lenders. Unlike banks and credit unions, detailed data on the levels of deposits held by each institution are not available for the payday lending industry. Therefore, we collect a snapshot of the number of payday lenders within a county from qwestdex.com, an online telephone book.⁵

We scale the measures of access to finance by county-level population. We control for effects of distance on lending relationships (e.g., Petersen and Rajan (2002)) by scaling the measures of access to finance by county area measured in square miles. Population and county area data come from the U.S. Census Bureau's website. The following example motivates these scaling adjustments. Consider a county containing

⁵ We examine the effect of pawnshop presence on the maximum interest rate borrowers are willing to pay for loans on Prosper. Similar to *Payday lenders*, we collect the number of pawnshops within a county from the online telephone book qwestdex.com. Including this measure has no important influence on our conclusions, and coefficients on pawnshop measures are not significant.

one dollar of bank deposits and one potential borrower within an area of one square mile. This county will provide better access to finance than another county containing one dollar of bank deposits and 1,000 potential borrowers within an area of one square mile. Similarly, the first county will provide better access to finance than another county containing one dollar of bank deposits and one potential borrower within an area of 1,000 square miles.

3.3. Control Variables

Each loan listing on Prosper includes a wealth of information that we use for control purposes. Specifically, we include controls for the borrowers' debt-to-income ratios (*Debt/income*), a dummy variable capturing whether or not a borrower owns a home (*Homeowner*), and a measure of borrowers' creditworthiness (*Credit grade*). We do not observe borrowers' actual credit scores. Rather, Prosper gives borrowers one of eight possible credit grades: AA, A, B, C, D, E, HR (high risk), and NC (no credit history). The credit grades are based upon credit scores from the Fair Isaac Corporation (FICO). Borrowers with FICO scores greater than 760 receive a grade of AA; 759 to 720 receive a grade of A; 719 to 680 receive a grade of B; 679 to 640 receive a grade of C; 639 to 600 receive a grade of D; 599 to 560 receive a grade of E; and 559 to 520 receive a grade of HR. We create the variable *Credit grade* by transforming the letter grades into a numerical score: AA becomes 7; A becomes 6; B becomes 5; C becomes 4; D becomes 3; E becomes 2; HR becomes 1; and NC becomes 0. This transformation assumes a one-to-one relationship between borrowers' FICO scores and creditworthiness, which may introduce measurement error. However, the results we describe below are robust to alternative transformations of *Credit grade*, including taking the log of this measure or including squared terms to capture nonlinearities. Table 2 displays a correlation matrix of the key variables.

[Insert Table 2 here.]

We include several county-level control variables in addition to the borrower-specific control variables. We include county-level per capita income (*Per capita income*) and unemployment rate (*Unemployment*) to capture economic conditions where the borrowers reside for each year of the sample. We collect both of these measures from the U.S. Census Bureau's website. In our tests we include county fixed effects, so time invariant county-level variables are absorbed by our county dummies.

4. Methods and Results

4.1 Motivation: Was the 18 percent interest rate ceiling binding?

It is important to verify that the 18 percent interest rate ceiling was a binding constraint for at least some of the borrowers on Prosper. We examine this issue by isolating loan requests from Prosper borrowers who made at least one loan request before April 15, 2008, and at least one loan request after April 15, 2008. We compare the maximum interest rates these borrowers requested before April 15, 2008 to the maximum interest rates they requested after April 15, 2008. We also compare the fraction of their loan requests filled by lenders, and the number of bids their loan requests received by potential lenders on Prosper. Table 3 presents the results.

[Insert Table 3 here.]

The results indicate that the 18 percent interest rate ceiling was indeed a binding constraint for this group of borrowers. After April 15, 2008, the average maximum interest rate requested by this group of borrowers increased by nearly 14 percentage points, from 15.19 percent to 29.08 percent. Also, potential lenders on Prosper became more interested in forming lending relationships with these borrowers after April 15, 2008. The average percentage of the amount requested by these borrowers that lenders offered to fund increased from 11.59 percent to 18.10 percent, and the average number of bids per loan request more than tripled from 9.1 per loan to 27.5 per loan. These results

indicate that the 18 percent interest rate ceiling prevented at least some borrowers from receiving funding.

4.1 Regression specification: differences-in-differences

Using ordinary least squares (OLS) regressions we regress *Maximum rate* on the variables appearing in Equation (1). The standard errors are robust to heteroskedasticity and we cluster them at the county level. The unit of observation for our dependent variable is individual loan requests. We include here subscripts l , c , and t to denote the loan request, county, and year, respectively, to clarify the structure of our independent variables.

$$\begin{aligned}
 \text{Maximum rate}_{l,c,t} = & \beta_1 \text{Post-4/15/08 dummy}_t \times \text{Access to Finance}_{c,t} + \\
 & \beta_2 \text{Access to Finance}_{c,t} + \\
 & \beta_3 \text{Post-4/15/08 dummy}_t + \\
 & \beta_4 \text{Vector of borrower-specific controls}_{l,c,t} + \\
 & \beta_5 \text{Vector of county-specific controls}_{c,t} + \\
 & \text{Constant} + \epsilon_{l,c,t}
 \end{aligned} \tag{1}$$

Post-4/15/08 dummy is an indicator variable taking a value of one if the loan request was made after April 15, 2008, and zero if the loan request was made before April 15, 2008. This variable should capture changes in the maximum interest rate the borrower is willing to pay as a result of the elevated rate ceiling. We interact this variable with independent variables proxying for access to finance. If borrowers residing in counties with a poor access to finance are willing to pay higher interest rates on loans from Prosper, then this discrepancy should be most pronounced after the rate ceiling lifts. In other words, borrowers residing in counties with poor access to finance will request loans at relatively higher rates on Prosper than borrowers in counties with good access to finance.

For Florida borrowers, once the rate ceiling lifts, both types of borrowers may request loans at rates above 18 percent. However, we expect the incremental change to be smaller for borrowers residing in counties with better access to finance. Therefore, we expect the interaction term to have a negative coefficient for Florida borrowers. During the sample period borrowers in California and Texas did not have a change in the maximum interest rate they could request. We expect the interaction term to have a coefficient indistinguishable from zero for California and Texas borrowers.

Table 4 displays the regression results for loan requests made by borrowers in Florida, California, and Texas estimated separately. The coefficient on the *Post-4/15/08 dummy* \times *Log Bank deposits* interaction term is negative for all three regressions. But, as we expected it is only significant for the Florida regression. Specifically, the Florida regression indicates that for a one-standard deviation increase in the number of county-level bank deposits, a borrower will request a loan with an interest rate 1.63 percent lower than a borrower residing in a county with an average level of bank deposits. The coefficients on interactions of other sources that provide consumer finance (credit unions and payday lenders) with *Post-4/15/08 dummy* are not statistically significant.

[Insert Table 4 here.]

4.2 The main results are robust to alternative specifications and selection bias

Although we do not tabulate the results, our conclusions hold in a variety of other specifications. Omitting from the regression the credit union and payday lender sources of finance, or examining them in isolation does not change our conclusions, nor does using different fixed effects (year, county \times year, none).

One concern is that, because we only use data in which borrowers disclose their city of residence, our findings might not generalize to the larger population of Prosper borrowers. We examine this possibility with a two-stage Heckman (1979) correction model. In the first stage we conduct a probit regression with *Borrower lists city* as the

dependent variable. *Borrower lists city* is a dummy variable taking a value of one if a potential borrower on Prosper discloses her city of residence, and zero otherwise. We regress *Borrower lists city* on borrower-specific control variables, *Post-4/15/08 dummy*, and month \times year fixed effects. We include the Inverse Mill's Ratio of the fitted values from this regression as an explanatory variable in the second stage regression. When we do so, the Inverse Mill's Ratio is statistically significant at the 10% level, indicating that there is some selection bias. However, the coefficient of interest on the *Post-4/15/08 dummy* \times *Log Bank deposits* interaction term remains nearly unchanged (and in fact, is slightly larger in magnitude), indicating that any selection bias does not alter our results or conclusions.

4.3 *The results are not an artifact of time trends or of Tax Day borrowing*

In this section we establish that there is nothing inherently special about April 15th in terms of how consumers make loan requests on Prosper. We repeat the baseline regression in Table 4 after reducing the sample to the two-month period centered around April 15, 2008 (i.e., March 15, 2008 to May 15, 2008). Reducing the sample to a two-month period forces all regressors which vary by year to drop from the regression. Regression (1) in Table 5 contains the results. We include county fixed effects in this regression. The standard errors are robust to heteroskedasticity and we cluster them at the county level.

[Insert Table 5 here.]

The baseline result continues to hold, and is larger in economic magnitude than the results from the full-sample regressions. This short horizon regression provides stronger evidence that time trends in consumer financing decisions are not driving the results and provides supporting evidence that banking presence is an important determinant in the maximum interest rates that borrowers request.

Although the short horizon regression helps eliminate the concern that shocks other than the elevated rate ceiling are driving the main result, it does not eliminate the possibility that an alternative shock occurring on the same date is generating identification. One potential example is Tax Day. Since 1955, April 15th has been the day which tax returns are due to the federal and state governments from U.S. citizens. It could be that many U.S. citizens require funds after remitting tax payments to the IRS, and this shift in demand is the actual source of variation driving the result rather than a change in the rate ceiling.

We test this hypothesis by repeating the short horizon regression using a two-month sample period centered around April 15, 2007, rather than April 15, 2008, and substituting a *Post-4/15/07 dummy* for the *Post-4/15/08 dummy*. The results of this falsification test show that the coefficient on *Post-4/15/07 dummy* \times *Log Bank deposits* (-0.0056) is only about one-fifth of the magnitude of the coefficient on *Post-4/15/08 dummy* \times *Log Bank deposits* (-0.0274), consistent with the elevation of the rate ceiling as of April 15, 2008 being the primary force for changes in borrowers' loan rate requests. We note that a similar regression using a two-month sample period centered around April 15, 2006 is not possible because Prosper had recently come online and borrowers made only eight loan requests during that time period.

Regressions 3 and 4 of Table 5 repeat the short horizon regression for loan requests made by borrowers in California and Texas, respectively, during a two-month sample period centered around April 15, 2008. These tests further explore whether the changing interest rate ceiling was indeed unique to Florida. We find no evidence of a differential effect of access to bank financing on loan requests made by Prosper borrowers in either of these states in the month after April 15, 2008.

4.4. *The change in the Florida rate ceiling affected loan prices but not quantities*

We repeat the baseline regression from the previous section with alternative dependent variables. Table 6 contains the results. The baseline tests reveal whether access to alternative sources of finance has an effect on the price of funds which borrowers request. The first regression uses *Amount requested* as the dependent variable. We intend regressions with this dependent variable to reveal whether the availability of alternative sources of finance has an effect on the *quantity* of funds which borrowers request.

The results suggest that access to bank financing does not play a role in the quantity of funds which borrowers request. This finding is consistent with Prosper borrowers having relatively inelastic demand for funds. This explanation is a likely one because many borrowers on Prosper seek loans to pay off credit card bills.⁶ That is, the quantity of funds which these borrowers request may be largely independent of the availability of financing in the counties where they reside.

[Insert Table 6 here.]

The second regression uses *Percent funded* as the dependent variable. We find no evidence that access to finance from alternative sources within a borrower's county of residence has an effect on his or her ability to receive funding from lenders on Prosper. The third regression uses *Realized rate* as the dependent variable. Not surprisingly, the results of this regression are very similar to those of the baseline regression: banks, but not credit unions or payday lenders, play an important role in the interest rate borrowers receive when requesting loans on Prosper.

4.5. Triple-differences tests: Analysis with control states

We continue to examine whether the elevated rate ceiling is the exogenous shock driving the main result by comparing the results in Florida to those in two control states:

⁶ Source: Practical E-Commerce. (URL: <http://www.practicalecommerce.com/articles/584-A-Lender-Or-Borrower-Be-Is-Prosper-com>) This article is an interview with Prosper CEO Chris Larsen, who notes that majority of borrowers who receive funding on Prosper “are in the so-called sweet spot of credit cards...”

California and Texas. The maximum interest rate that borrowers in California could request was 36 percent prior to April 15, 2008, and it remained at 36 percent after April 15, 2008. Conversely, the maximum interest rate that borrowers in Texas could request was 10 percent prior to April 15, 2008, and it remained at 10 percent after April 15, 2008. Data from both of these states provide useful control groups, as neither was subject to a rate ceiling shift.

We begin by pooling loan requests from borrowers in Florida with loan requests from borrowers in California. We collect the key independent variables, borrower-specific control variables, and geographic-specific control variables for the California data, just as we did for the Florida data. We perform OLS regressions that are similar in spirit to the baseline tests, with the addition of a triple interaction term differentiating loan requests by their state of origin and other lower-ordered interactions. Equation (2) displays the regression equation. The standard errors are robust to heteroskedasticity and we cluster them at the county level. Subscripts l , c , and t denote loan request, county, and year, respectively.

$$\begin{aligned}
\text{Maximum rate}_{l,c,t} = & \beta_1 \text{Post-4/15/08 dummy}_t \times \text{Access to Finance}_{c,t} \times \text{Florida}_l + \\
& \beta_2 \text{Post-4/15/08 dummy}_t \times \text{Access to Finance}_{c,t} + \\
& \beta_3 \text{Post-4/15/08 dummy}_t \times \text{Florida}_l + \\
& \beta_4 \text{Access to Finance}_{c,t} \times \text{Florida}_l + \\
& \beta_5 \text{Access to Finance}_{c,t} + \\
& \beta_6 \text{Florida}_l + \\
& \beta_7 \text{Post-4/15/08 dummy}_t + \\
& \beta_8 \text{Vector of borrower-specific controls}_{l,c,t} + \\
& \beta_9 \text{Vector of geographic-specific controls}_{c,t} + \\
& \text{Constant} + \varepsilon_{l,c,t}
\end{aligned} \tag{2}$$

We include *Bank deposits* as the measure access to finance because this variable was significant in the regressions in Table 4 (unlike *Credit union deposits* or *Payday lenders*). We expect to find a negative coefficient on the triple interaction term. That is, we expect borrowers to request higher loan rates after April 15, 2008; the rate requests should change less in counties with greater access to bank finance; and only borrowers in the state of Florida should exhibit changes in rate requests. Table 7 displays the regression results.

[Insert Table 7 here.]

Similar to the baseline result, we find marginally significant evidence that banking presence affects the maximum interest rate borrowers are willing to pay. The results indicate that after April 15, 2008, borrowers living in Florida counties with bank deposits one standard deviation above average requested loans at rates 4.13 percent lower than borrowers living in counties with average levels of bank deposits.

We repeat this analysis after pooling loan requests from borrowers in Florida with loan requests from borrowers in Texas. We expect borrowers to request higher loan rates after April 15, 2008; the rate requests should change less in counties with greater access to bank financing; and only borrowers in the state of Florida should exhibit changes in rate requests. We find similar results, although they are smaller in economic magnitude. Regression (2) of Table 7 displays the results.

4.6. The results are stronger for borrowers with poor credit

What types of borrowers seek financing from person-to-person lending networks, and does banking presence have a different effect on different borrowers' loan rate requests? We examine these questions by performing a subsample analysis. We analyze the Florida-California and Florida-Texas pooled samples, and we partition them by borrowers' credit grades. Specifically, we create subsamples consisting of loan requests made by borrowers with credit grades of C or lower (NC, HR, E, D, or C), and we create

other subsamples consisting of loan requests made by borrowers with credit grades of B or higher (B, A, or AA). We repeat the Florida-California and Florida-Texas pooled regression analysis in the previous section for each subsample. Table 8 contains the regression results.

[Insert Table 8 here.]

For both the Florida-California and Florida-Texas samples, the results indicate that banking presence affects the maximum interest rate borrowers with low credit grades are willing to pay. However, banking presence does not affect the maximum interest rate borrowers with good credit grades are willing to pay. These results are intuitive. The 18 percent rate ceiling was more likely a binding constraint for borrowers with low credit grades, as lenders demand higher interest rates from riskier borrowers. Once the rate ceiling shifted, these higher risk borrowers were able to secure financing at an interest rate commensurate with their risk levels. In contrast, the borrowers with good credit grades were likely able to secure financing at rates below 18 percent, even in counties with relatively poor access to bank financing.

5. Conclusion

This paper examines how competing sources of finance affect consumers' borrowing decisions using detailed loan request-level data from Prosper, which is a person-to-person consumer lending intermediary and an alternative to traditional sources of finance, such as banks, credit unions, or payday lenders. Using a novel identification strategy based on a shift in the maximum interest rate that borrowers could request when seeking loans on Prosper, we find that consumers with better access to bank financing seek loans at lower interest rates on Prosper.

Our findings enhance our understanding of how consumers make financial decisions because they indicate that consumers do not make borrowing decisions in

isolation from alternative sources of finance. To the contrary, we provide evidence that the competitive force of a greater banking presence causes consumers to seek loans at lower interest rates from alternative sources. This result is particularly strong for borrowers with poor credit, suggesting that riskier borrowers are more sensitive to the availability of competing sources of finance.

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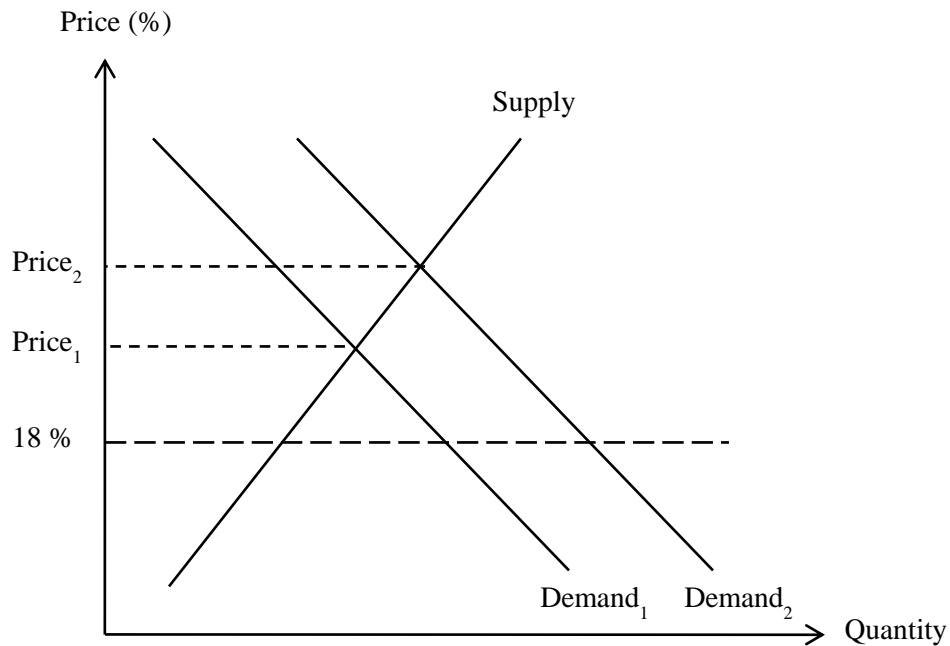


Figure 1 – Hypothesized relationship between supply and demand of capital

This figure displays the hypothesized relation between supply and demand for capital on Prosper. Supply is the supply schedule of capital on Prosper. Demand₁ is the demand schedule for borrowers on Prosper who reside in areas with more bank deposits, credit union deposits, or payday lenders. Demand₂ is the demand schedule for borrowers on Prosper who reside in areas with fewer bank deposits, credit union deposits, or payday lenders. Price₁ represents the market clearing price for capital in counties with more bank deposits, credit union deposits, or payday lenders after April 15, 2008. Price₂ represents the market clearing price for capital in counties with fewer bank deposits, credit union deposits, or payday lenders after April 15, 2008.

Table 1 – Summary Statistics

This table contains summary statistics for all borrower-county observations from the state of Florida. *Maximum rate* is the maximum interest rate the borrower is willing to pay when applying for a loan on Prosper. *Amount requested* is the dollar amount the borrower requests when applying for a loan on Prosper. *Percent funded* is the fraction of *Amount requested* funded by lenders on Prosper. *Bank deposits* is the number of deposits (in millions of dollars) held by FDIC-insured bank branches in the county where the borrower lives. *Credit union deposits* is the number of deposits (in millions of dollars) held by NCUA-insured credit unions in the county where the borrower lives. *Payday lenders* is the number of payday lenders in the county where the borrower lives. *Credit grade* is the borrower's credit grade on a scale from zero (no credit) to seven (highest level of credit). *Debt/income* is the borrower's debt to income ratio. *Homeowner* is a dummy variable taking a value of one if the borrower owns a home, and zero otherwise. *Per capita income* is the dollar amount of income per person in the county where the borrower lives. *Unemployment* is the unemployment rate in the county where the borrower lives. *Population* is the number of residents within a county for a given year (measured in thousands of residents). Note: *Payday lenders* is a snapshot as of May 2009. All of the county-level banking variables and demographic controls vary by year. The full sample period is from 2006 to 2008.

	N	Mean	SD	25 th Pct	Median	75 th Pct
Maximum rate	5,374	0.1626	0.0369	0.1555	0.1700	0.1700
Amount requested	5,374	6,439	6,029	2,500	4,500	8,000
Percent funded	5,374	0.10	0.26	0.00	0.00	0.03
Bank deposits	5,374	24,902	23,621	5,716	18,924	35,363
Credit union deposits	5,374	1,753	2,783	0	684	2,424
Payday lenders	5,374	17.20	10.84	8	14	25
Credit grade	5,374	2.09	1.52	1	1	3
Debt/income	5,157	0.43	1.22	0.12	0.21	0.34
Homeowner	5,177	0.25	0.44	0	0	1
Per capita income	5,374	37.6	7.5	33.3	35.9	40.9
Unemployment	5,374	3.75	0.65	3.3	3.7	4
Population	5,374	1,042	743	408	920	1,749

Table 2 – Correlation Matrix

This table contains correlation coefficients for borrower-county observations from the state of Florida related to borrowers' loan requests and individual characteristics, and the banking environment in which the borrower resides. *Maximum rate* is the maximum interest rate the borrower is willing to pay when applying for a loan on Prosper. *Amount requested* is the dollar amount the borrower is requesting when applying for a loan on Prosper. *Percent funded* is the fraction of *Amount requested* funded by lenders on Prosper. *Bank deposits* is the number of deposits (in millions of dollars) held by FDIC-insured bank branches in the county where the borrower lives. *Credit grade* is the borrower's credit grade on a scale from zero (no credit) to seven (highest level of credit). *Debt/income* is the borrower's debt to income ratio. *Homeowner* is a dummy variable taking a value of one if the borrower owns a home, and zero otherwise. *, **, and *** indicate significance at the 1, 5, and 10 percent levels, respectively.

	Maximum rate	Amount requested	Percent funded	Bank deposits	Credit grade	Debt/income
Amount requested	-0.106***					
Percent funded	0.022***	-0.002				
Bank deposits	-0.021	0.038***	0.031**			
Credit grade	-0.118***	0.382***	0.451***	0.070***		
Debt/income	-0.041***	0.109***	-0.043***	-0.018	0.033**	
Homeowner	-0.032***	0.222***	0.135***	0.053***	0.327***	0.007

Table 3 – Comparisons of Loan Outcomes for Borrowers Submitting Loan Requests Before and After April 15, 2008

This table contains statistics for outcomes related to loan requests made by borrowers on Prosper who requested loans both before and after April 15, 2008.

	Before 4/15/08	After 4/15/08	Difference
Average maximum loan rate borrowers were willing to pay	0.1519	0.2908	0.1389***
Average percent of requested loan amounts that received funding	0.1159	0.1810	0.0651***
Average number of bids received by each loan request	9.1	27.5	18.3***
N	216	180	

Table 4 – OLS Regressions of Maximum Rate

This table contains results from OLS regressions of borrowers' maximum rates (*Maximum rate*) regressed on alternative sources of finance, borrower-specific controls, county-specific controls, and county fixed effects. *Maximum rate* is the maximum interest rate the borrower is willing to pay when applying for a loan on Prosper. *Log Bank deposits* is the logged number of deposits (in millions of dollars) held by FDIC-insured bank branches in the county where the borrower lives. Bank deposit data come from the FDIC's website. *Log Credit union deposits* is the logged number of deposits (in millions of dollars) held by NCUA-insured credit unions in the county where the borrower lives. Credit union deposit data come from the NCUA's website. *Log Payday lenders* is the logged number of payday lenders in the county where the borrower lives. *Log Bank deposits*, *Log Credit union deposits*, and *Log Payday lenders* are standardized to follow mean-zero, unit-variance distributions. *Credit grade* is the borrower's credit grade on a scale from zero (no credit) to seven (highest level of credit). *Debt/income* is the borrower's debt to income ratio. *Homeowner* is a dummy variable taking a value of one if the borrower owns a home, and zero otherwise. *Per capita income* is the dollar amount of income per person in the county where the borrower lives. *Unemployment* is the unemployment rate in the county where the borrower lives. *Population* is the number of residents within a county for a given year (measured in thousands of residents). *, **, and *** indicate the coefficient is significant at the 10, 5, or 1 percent level, respectively. Standard errors, robust to heteroskedasticity and clustered at the county level, appear in parentheses below coefficient estimates.

	Florida	California	Texas
Post-4/15/08 dummy \times Log Bank deposits	-0.0163** (0.0071)	-0.0031 (0.0051)	-0.0178 (0.0114)
Log Bank deposits	0.0129 (0.0097)	0.0533 (0.0442)	-0.0091 (0.0347)
Post-4/15/08 dummy \times Log Credit union deposits	-0.0035 (0.0075)	-0.0013 (0.0030)	0.0036*** (0.0011)
Log Credit union deposits	-0.0058 (0.0096)	0.0002 (0.0038)	-0.0783* (0.0411)
Post-4/15/08 dummy \times Log Payday lenders	-0.0051 (0.0114)	0.0004 (0.0046)	-0.0033 (0.0049)
Log Payday lenders	0.2382** (0.1064)	0.0714 (0.2249)	0.2393** (0.1088)
Post-4/15/08 dummy	0.1213*** (0.0085)	0.0124 (0.0711)	-0.0927 (0.0950)
Credit grade	-0.0060*** (0.0005)	-0.0222*** (0.0005)	-0.0165*** (0.0007)
Debt/income	0.0000 (0.0003)	-0.0002 (0.0004)	0.0012 (0.0008)
Homeowner	0.0016 (0.0018)	0.0022 (0.0020)	0.0031 (0.0022)
Per capita income	-0.0036*** (0.0010)	0.0040*** (0.0007)	-0.0020 (0.0029)
Unemployment	0.0092*** (0.0030)	0.0166*** (0.0036)	0.0833*** (0.0106)
Population	-0.2143 (0.1860)	0.0471 (0.0889)	0.1932 (0.1406)
Constant	0.2184*** (0.0160)	1.5428 (4.2676)	3.0572* (1.6607)
Fixed effects	County	County	County
N	4,960	6,537	4,919
Adjusted R ²	0.4472	0.2937	0.3305

Table 5 – Short Horizon OLS Regressions

This table contains results from OLS regressions of borrowers' maximum rates (*Maximum rate*) regressed on county-level bank deposits (*Log Bank deposits*), borrower-specific controls, and county fixed effects. *Maximum rate* is the maximum interest rate a borrower is willing to pay when applying for a loan on Prosper. *Log Bank deposits* is the logged number of deposits (in millions of dollars) held by FDIC-insured bank branches in the county where the borrower lives. *Log Bank deposits* is standardized to follow a mean-zero, unit variance distribution. Bank deposit data come from the FDIC's website. Regression (1) includes loan requests made by borrowers in Florida from March 15, 2008 through May 15, 2008. Regression (2) includes loan requests made by borrowers in Florida from March 15, 2007 through May 15, 2007. Regression (3) includes loan requests made by borrowers in California from March 15, 2008 through May 15, 2008. Regression (4) includes loan requests made by borrowers in Texas from March 15, 2008 through May 15, 2008. *Post-4/15/08 dummy* is an indicator variable taking a value of one if the loan request was made after April 15, 2008, and zero if the loan request was made before April 15, 2008. *Post-4/15/07 dummy* is an indicator variable taking a value of one if the loan request was made after April 15, 2007, and zero if the loan request was made before April 15, 2007. *Credit grade* is the borrower's credit grade on a scale from zero (no credit) to seven (highest level of credit). *Debt/income* is the borrower's debt to income ratio. *Homeowner* is a dummy variable taking a value of one if the borrower owns a home, and zero otherwise. Credit grade, debt-to-income, and homeowner data come from Prosper. *, **, and *** indicate the coefficient is significant at the 10, 5, or 1 percent level, respectively. Standard errors, robust to heteroskedasticity and clustered at the county level, appear in parentheses below coefficient estimates.

	Florida 3/15/08 to 5/15/08 (1)	Florida 3/15/07 to 5/15/07 (2)	California 3/15/08 to 5/15/08 (3)	Texas 3/15/08 to 5/15/08 (4)
Post-4/15/08 dummy × Log Bank deposits	-0.0274*** (0.0091)		0.0107 (0.0205)	0.0052 (0.0211)
Post-4/15/08 dummy	0.1112*** (0.0192)		-0.0111 (0.0151)	0.0095 (0.0223)
Post-4/15/07 dummy × Log Bank deposits		-0.0056** (0.0027)		
Post-4/15/07 dummy		-0.0052** (0.0022)		
Credit grade	-0.0186*** (0.0040)	-0.0063*** (0.0012)	-0.0193** (0.0088)	0.0034 (0.0061)
Debt/income	0.0133 (0.0571)	0.0004 (0.0006)	0.0086 (0.0068)	-0.0038 (0.0368)
Homeowner	0.0325 (0.0211)	0.0091*** (0.0026)	-0.0140 (0.0204)	0.0073 (0.0169)
Constant	0.1864*** (0.0228)	0.1708*** (0.0031)	0.3251*** (0.0263)	0.0877** (0.0287)
Fixed effects	County	County	County	County
N	147	521	168	87
Adjusted R ²	0.5948	0.1280	0.2325	0.2095

Table 6 – OLS Regressions with Alternative Dependent Variables

Columns (1) through (3) contain results from OLS regressions of dependent variables regressed on alternative sources of finance, borrower-specific controls, county-specific controls, and county-fixed effects. *Amount requested* is the dollar amount the borrower is requesting when applying for a loan on Prosper. *Percent funded* is the fraction of *Amount requested* funded by lenders on Prosper. *Realized rate* is the interest rate paid by Prosper borrowers after a loan request receives funding. This variable takes the value of *Maximum rate* if the loan received no funding. *Maximum rate* is the maximum interest rate the borrower is willing to pay when applying for a loan. *Log Bank deposits* is the logged number of deposits (in millions of dollars) held by FDIC-insured bank branches in the county where the borrower lives. *Log Credit union deposits* is the logged number of deposits (in millions of dollars) held by NCUA-insured credit unions in the county where the borrower lives. *Log Payday lenders* is the logged number of payday lenders in the county where the borrower lives. *Log Bank deposits*, *Log Credit union deposits*, and *Log Payday lenders* are standardized to follow mean-zero, unit-variance distributions. *Credit grade* is the borrower's credit grade on a scale from zero (no credit) to seven (highest level of credit). *Debt/income* is the borrower's debt to income ratio. *Homeowner* is a dummy variable taking a value of one if the borrower owns a home, and zero otherwise. *Per capita income* is the dollar amount of income per person in the county where the borrower lives. *Unemployment* is the unemployment rate in the county where the borrower lives. *, **, and *** indicate the coefficient is significant at the 10, 5, or 1 percent level, respectively. Standard errors, robust to heteroskedasticity and clustered at the county level, appear in parentheses below coefficient estimates.

Dependent variable:	Amount requested	Percent funded	Realized rate
Post-4/15/08 dummy × Log Bank deposits	-2 (415)	0.0007 (0.0238)	-0.0185** (0.0079)
Log Bank deposits	-1,421 (2,220)	0.0032 (0.0639)	0.0166 (0.0106)
Post-4/15/08 dummy × Log Credit union deposits	1,519*** (398)	0.0134 (0.0305)	-0.0081 (0.0080)
Log Credit union deposits	-861 (1,714)	0.0154 (0.0360)	-0.0093 (0.0076)
Post-4/15/08 dummy × Log Payday lenders	-69 (561)	0.0033 (0.0459)	0.0007 (0.0129)
Log Payday lenders	-12,063 (18,703)	-0.5566 (0.7316)	0.2474 (0.1195)
Post-4/15/08 dummy	-1,652*** (460)	0.0872*** (0.0315)	0.2474*** (0.1195)
Credit grade	1,263*** (119)	0.0889*** (0.0039)	-0.0067*** (0.0006)
Debt/income	530*** (143)	-0.0146*** (0.0028)	-0.0001 (0.0003)
Homeowner	1,331*** (474)	-0.0093 (0.0106)	0.0025 (0.0023)
Per capita income	322 (217)	-0.0108 (0.0076)	-0.0031*** (0.0010)
Unemployment	75 (592)	0.0105 (0.0156)	0.0098*** (0.0030)
Constant	-9,049 (6,353)	0.3859 (0.2317)	0.2438*** (0.0316)
Fixed effects	County	County	County
N	4,960	4,960	4,960
Adjusted R ²	0.1776	0.2428	0.4313

Table 7 – OLS Regressions of Maximum Rate with Control States

This table contains results from OLS regressions of borrowers' maximum rate (*Maximum rate*) regressed on county-level bank deposits (*Log Bank deposits*), borrower-specific controls, county-specific controls, and county fixed effects. Regression (1) pools loan requests from borrowers in Florida and California. Regression (2) pools loan requests from borrowers in Florida and Texas. *Florida* is an indicator variable taking a value of one if a Floridian made the loan request, and zero if the borrower lives in a comparison state (California in Regression (1) and Texas in Regression (2)). *Maximum rate* is the maximum interest rate the borrower is willing to pay when applying for a loan on Prosper. *Post-4/15/08 dummy* is an indicator variable taking a value of one if the loan request was made after April 15, 2008, and zero if the loan request was made before April 15, 2008. *Log Bank deposits* is the logged number of deposits (in thousands of dollars) held by FDIC-insured bank branches in the county where the borrower lives. Bank deposit data come from the FDIC's website. *Log Bank deposits* is standardized to follow a mean-zero, unit-variance distribution. *Credit grade* is the borrower's credit grade on a scale from zero (no credit) to seven (highest level of credit). *Debt/income* is the borrower's debt to income ratio. *Homeowner* is a dummy variable taking a value of one if the borrower owns a home, and zero otherwise. Credit grade, debt-to-income, and homeowner data come from Prosper. *Per capita income* is the dollar amount of income per person in the county where the borrower lives. *Unemployment* is the unemployment rate in the county where the borrower lives. Per capita income and unemployment data come from the Census Bureau's website. *, **, and *** indicate the coefficient is significant at the 10, 5, or 1 percent level, respectively. Standard errors, robust to heteroskedasticity and clustered at the county level, appear in parentheses below coefficient estimates.

	Pooled FL & CA loan requests (1)	Pooled FL & TX loan requests (2)
Post-4/15/08 dummy × Log Bank deposits × Florida	-0.0413* (0.0213)	-0.0279*** (0.0074)
Post-4/15/08 dummy × Log Bank deposits	-0.0087*** (0.0023)	-0.0060 (0.0040)
Post-4/15/08 dummy × Florida	0.0913*** (0.0107)	0.1429*** (0.0113)
Log Bank deposits × Florida	-0.1161 (0.1041)	0.1474*** (0.0345)
Log Bank deposits	0.1206 (0.1005)	-0.0840** (0.0360)
Post-4/15/08 dummy	0.0337*** (0.0066)	-0.0189** (0.0086)
Credit grade	-0.0156*** (0.0018)	-0.0111*** (0.0012)
Debt/income	-0.0002 (0.0005)	0.0006 (0.0006)
Homeowner	0.0029 (0.0024)	0.0027 (0.0022)
Per capita income	0.0026*** (0.0009)	-0.0107*** (0.0020)
Unemployment	0.0052* (0.0028)	0.0282*** (0.0054)
Constant	0.1152*** (0.0358)	0.4831** (0.0664)
Fixed effects	County	County
N	11,497	9,879
Adjusted R ²	0.4919	0.3773

Table 8 – OLS Regressions Partitioned by Borrowers' Credit Grades

This table contains results from OLS regressions of borrowers' maximum rate (*Maximum rate*) regressed on county-level bank deposits (*Log Bank deposits*), borrower-specific controls, county-specific controls, and county-fixed effects. The regressions pool loan requests from borrowers in Florida and California or Texas. Regression (1) uses loan requests made by borrowers with low credit grades ("No Credit" to a credit grade of "C"). Regression (2) uses loan requests made by borrowers with high credit grades ("B" to "AA"). *Maximum rate* is the maximum interest rate the borrower is willing to pay when applying for a loan on Prosper. *Post-4/15/08 dummy* is an indicator variable taking a value of one if the loan request was made after April 15, 2008, and zero if the loan request was made before April 15, 2008. *Log Bank deposits* is the logged number of deposits (in thousands of dollars) held by FDIC-insured bank branches in the county where the borrower lives. *Log Bank deposits* is standardized to follow a mean-zero, unit-variance distribution. *Credit grade* is the borrower's credit grade on a scale from zero (no credit) to seven (highest level of credit). *Debt/income* is the borrower's debt to income ratio. *Homeowner* is a dummy variable taking a value of one if the borrower owns a home, and zero otherwise. *Per capita income* is the dollar amount of income per person in the county where the borrower lives. *Unemployment* is the unemployment rate in the county where the borrower lives. *, **, and *** indicate the coefficient is significant at the 10, 5, or 1 percent level, respectively. Standard errors appear in parentheses below coefficient estimates. They are robust to heteroskedasticity and are clustered at the county level.

	Pooled FL & CA loan requests		Pooled FL & TX loan requests	
	Bad Credit (1)	Good Credit (2)	Bad Credit (3)	Good Credit (4)
Post-4/15/08 dummy × Log Bank deposits × Florida	-0.0630*** (0.0203)	0.0136 (0.0525)	-0.0305*** (0.0079)	0.0042 (0.0227)
Post-4/15/08 dummy × Log Bank deposits	-0.0047 (0.0042)	-0.0038 (0.0057)	-0.0036 (0.0032)	0.0080 (0.0057)
Post-4/15/08 dummy × Florida	0.0961*** (0.0090)	0.0422 (0.0339)	0.1738*** (0.0124)	0.0312 (0.0298)
Log Bank deposits × Florida	-0.1556 (0.1052)	-0.0212 (0.3146)	0.1447*** (0.0336)	0.0385 (0.0745)
Log Bank deposits	0.1304 (0.1053)	0.1813 (0.2972)	-0.0822** (0.0363)	0.0142 (0.0475)
Post-4/15/08 dummy	0.0457*** (0.0060)	-0.0031 (0.0120)	-0.0356*** (0.0083)	0.0185* (0.0111)
Credit grade	-0.0099*** (0.0018)	-0.0247*** (0.0022)	-0.0078*** (0.0017)	-0.0155*** (0.0023)
Debt/income	-0.0009 (0.0006)	0.0011 (0.0011)	0.0003 (0.0008)	-0.0003 (0.0013)
Homeowner	0.0014 (0.0023)	-0.0016 (0.0039)	0.0024 (0.0022)	-0.0059* (0.0033)
Per capita income	0.0024** (0.0031)	0.0035*** (0.0013)	-0.0120*** (0.0021)	-0.0022 (0.0028)
Unemployment	0.0020 (0.0031)	0.0097 (0.0081)	0.0285*** (0.0057)	0.0115 (0.0076)
Constant	0.1386*** (0.0459)	-0.0267 (0.0622)	0.5236*** (0.0677)	0.2578*** (0.0899)
Fixed effects	County	County	County	County
N	10,439	1,058	9,073	806
Adjusted R ²	0.4978	0.2748	0.3704	0.2416