

Does Relationship Lending Still Matter in the Consumer Banking Sector?  
Evidence from Two Financial Service Organizations in Vermont

by

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*We use actual loan applications submitted to a community development credit union (CDCU) and a traditional community bank to examine the role of relationship lending in the automobile loan market. We first show that the community bank relies upon credit scoring, not relationship lending; low-income households with poor credit histories are very unlikely to receive car loans from this traditional bank. We then show that relationship lending is a critical factor in the loan decision at the CDCU; low-income households with strong ties to the institution are likely to receive loans, despite poor credit histories. We conclude that as consolidation, deregulation and technology move mainstream financial institutions away from relationship lending and toward credit scoring, CDCUs will occupy an increasingly critical niche for low-income households.*

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**Introduction**

An extensive theoretical literature confirms that asymmetric information between borrower and lender can lead to excess demand in traditional credit markets (Jaffee and Russell 1976, 1984; Jaffee and Stiglitz 1990; Stiglitz and Weiss 1981; Williamson 1987). Under conditions of asymmetric information, rationing by price may lead to adverse selection since rising interest rates increase the average “riskiness” of the borrower, potentially reducing profit per dollar lent. Thus, a “bank-optimal” interest rate can emerge at a rate lower than is necessary to clear the market, but above which expected profit per dollar lent falls.

Empirical studies on relationship lending<sup>1</sup> have shown that information obtained through personal interactions between borrower and lender can reduce information asymmetries, lower the cost of financial capital and lessen credit rationing in the markets for both small business loans (e.g., Berger and Udell 2002; Cole 1998; Blackwell and Winters 1997; Scott 2004; Siles, Hanson and Robison 1994) and consumer loans (e.g., Chakravarty and Scott 1999; Holmes, Isham and Wasilewski 2004). However, as consolidation, deregulation, and technological advances transform the financial services sector, the relative importance of relationship lending is decreasing. Consolidation in the banking industry is eroding the market share of small banks that traditionally base lending decisions on qualitative *soft information* (e.g., character, motivation) and increasing the market share of money centers and super-regional banks that rely heavily

on quantitative *hard information* (e.g., credit scores, income, financial ratios) (Cole, Goldberg and White 2004; Scott 2004).<sup>2</sup> Moreover, the growth of Internet banking, branchless banks and ATMs as well as technological advances in information processing, credit scoring and automated underwriting have limited the opportunity and need for personal interactions with loan officers. Some researchers suggest that technological improvements have enabled lenders to make 80 percent or more of their lending decisions without the involvement of a loan officer (Mester 1997; Palla 2000).

The diminishing role of relationship lending is likely to have the greatest impact on low-income households. Such families are often credit rationed due to the relatively high cost of assessing their creditworthiness: their imperfect or non-existent credit histories mandate more time-consuming risk assessment and customized loan products (Attanasio, Goldberg and Kyriazidou 2000; Grant 2003; Hogarth and O'Donnell 2000; Munnell, Browne, McEneaney and Toottell 1996; Villegas 1989). Holmes, Isham and Wasilewski (2004) show that when credit histories are unknown (as is often the case with low-income households), the lender/borrower relationship becomes a particularly important determinant of loan approval; that is, borrowers without credit histories are more likely to be denied loans when they have no relationship with the lender.

Community development credit unions (CDCUs) may be able to counteract this harmful trend. CDCUs are financial institutions dedicated to, and governed by, the members of a low-income community.<sup>3</sup> By combining one-on-one financial counseling with flexible lending, CDCUs have successfully relied on relationship lending to provide financial services and affordable capital to underserved areas across the U.S.<sup>4</sup> The 'common bond' restriction has also allowed CDCUs to incorporate member reputation

into lending decisions, further reducing information asymmetries associated with high risk lending. Peer pressure and moral suasion among (mutually liable) members have also increased the ability of CDCUs to reduce default risk. Lastly, as non-profit institutions, CDCUs return earnings to their members through better-priced products, providing additional incentive for members to monitor potentially high-risk peers. It is through these relationship and peer lending practices that CDCUs have lowered the cost of financial capital and decreased the existence of credit rationing among low-income populations. As a credit union with the unique mission to cater to the financially underserved, CDCUs may be one of the few remaining financial institutions to still rely on relationship lending in credit decisions.

Using data from a CDCU and a more traditional community bank, we examine the role of relationship lending in the market for automobile loans. Rather than relying on surveys or hypothetical loan applications (as is commonly done in the literature), we use actual loan applications submitted to each institution to assess the relative importance of hard and soft information in *bona fide* credit decisions. We first show that credit scoring, rather than relationship lending, is relied upon by the community bank, and that low-income households with imperfect or non-existent credit histories are very unlikely to receive car loans from this traditional bank. We then show that relationship lending is a critical factor in the car loan decision at the CDCU; low-income households with poor or unknown credit histories, but strong ties to the institution, are able to receive car loans. This provides preliminary evidence that as consolidation, deregulation and technology move mainstream financial institutions away from relationship lending and toward credit

scoring, CDCUs will occupy an increasingly critical niche as the credit-supplier for low-income households.

The paper is structured as follows: in Section II, we introduce the two financial institutions and illustrate the difference between the two sets of consumers that apply to these institutions for car loans. In Section III, we present our empirical strategy, and in Section IV we present the econometric results. Section V concludes.

### **1. The Community Development Credit Union and the Community Bank**

The two lending institutions compared in this paper are Vermont's Opportunities Credit Union (OCU) and a community bank in Addison County, Vermont. While both offer similar deposit products (e.g., checking and savings accounts) and loans (e.g. real estate, auto, personal, small business), there are important differences between the two institutions. The OCU, founded in 1989 by a coalition of faith-based organizations, is a CDCU with total assets of \$29 million and serves members in over 200 Vermont towns. The community bank, established over 50 years ago, is much larger, with total assets over \$150 million. However, its service area is concentrated in the twenty-three towns of Addison County. It is one of six banks with branches in the county.

While anyone can apply for a loan at the community bank, OCU loans are restricted to members only. In order to become an OCU member, individuals must be willing to pay a \$5.00 initiation fee and deposit at least \$5.00 in a share account. The other distinguishing feature of the OCU is its heavy reliance on counseling-based lending; OCU loan officers work closely with low-income borrowers to establish money management skills and develop reasonable savings and loan repayment plans. For

example, individuals without credit histories are often extended ‘tracker’ loans in order to establish a positive credit history and borrowers in financial crisis are provided ample opportunity to restructure loans rather than face repossession and stiff penalties. The loan officers also encourage applicants to provide other soft information, such as character references from employers, landlords and community members, when applying for a loan.

The comparisons in this paper are based on all car loan applications submitted to the community bank over the period 1999 to 2001 ( $n = 297$ ) and all car loan applications submitted to the Working Wheels Program at the OCU over the period 1998 to 2002 ( $n = 609$ ). Working Wheels began in 1998 as a response to the lack of adequate public transportation in Vermont and the subsequent necessity of private automobile access for workers. Working Wheels clients are typically referred to the OCU by one of the five Community Action Agencies (CAAs) in the state or by friends, employers, and car dealers.

For each application, information was collected on demographic and financial characteristics as well as the credit history of the potential borrower. Tables 1 and 2 present averages for approved and rejected applicants at, respectively, the community bank and the OCU.

The demographic variables listed in Table 1 for the community bank are: age of the applicant; the percentage of borrowers who reside in the town where the bank is located; the number of years that the applicant has spent at his or her current address; and the percentage of applicants with a prior account (hence, a *relationship*) with the bank. Since this was the only relationship information contained in the loan file, it represents the best available proxy for relationship strength. Approved applicants lived more than



two years longer in the bank's community and they had a significantly stronger "relationship" with the bank than did rejected applicants.

The financial variables defined for the community bank are: the applicant's (and co-applicant's, if any) monthly income and the percentage of applicants who had declared bankruptcy within the past 10 years. Average monthly incomes were significantly higher and bankruptcy rates were significantly lower for approved applicants than for their rejected counterparts.

The loan-specific variables defined for the community bank include: the percentage of car loan applications with co-signers; the applicant's credit score; the car's value at the time of the application; the loan-to-value ratio; and the community bank's markup above the prime (interest) rate at the time of the loan. Approved applicants had a significantly higher percentage of co-signers, higher credit scores, smaller loan-to-value ratios, and smaller markups than did rejected applicants at the community bank.

The three groups of variables ? demographic, financial, and loan-specific ? were, with few exceptions, similarly defined for the OCU. Here, an OCU member for at least two months was regarded to have a *relationship* with the credit union.<sup>5</sup> Applicants approved at the OCU were slightly older and more likely to have a "relationship" with the credit union than rejected applicants.

Apart from the financial variables already defined for the community bank, the OCU recorded the applicant's debt-to-income ratio, that is, the ratio of the borrower's monthly debt to his or her monthly income. Applicants approved at the OCU had significantly higher monthly incomes and smaller debt-to-income ratios than did rejected applicants.

OCU loan application forms indicated whether or not the applicant had submitted a previous application to the Working Wheels Program. And, indeed, applicants who were approved were more likely to have applied before than applicants who were rejected. Moreover, approved applicants at the OCU had significantly higher credit scores on average than did rejected applicants.

The approval rate for car loans at the community bank was 77 percent while the approval rate for the Working Wheels Program at the OCU was 41 percent ( $p < .001$ ). Other noteworthy differences between all applicants (approved and rejected) at the two institutions included: credit scores (Bank: 669, OCU: 580,  $p < .001$  for a one-tailed test); monthly incomes (Bank: \$3335, OCU: \$1300,  $p < .001$ ); a “relationship” with the institution (Bank: 79 percent, OCU: 51 percent,  $p < .001$ )<sup>6</sup>; and the percentage of co-applicants (Bank: 46 percent, OCU: 13 percent,  $p < .001$ ). In all four comparisons, the averages were significantly higher for the community bank. There were, however, no age differences between the two groups of applicants (Bank: 35.4 years, OCU: 36.5 years,  $p = .114$ ) nor were there any discernible differences in the percentage who had declared bankruptcy in the past 10 years (Bank and OCU: 6 percent,  $p = .447$ ).

In summary, the OCU serves lower income and arguably higher risk clients that more conventional lenders would otherwise not regard as bankable.

## **2. Empirical Strategy**

As suggested by the discussion of the mission and history of the OCU in the previous section, the objective function of a Working Wheels loan officer is likely to differ from that of a traditional financial institution. The objective of a traditional bank is to maximize profits from current and future loans. While the OCU does seek profits in

order to expand its operations, the objective function of the OCU is to provide access to capital to lower-income individuals so that they can improve their well-being through higher wages and access to better jobs, training and childcare. At the VCDU, helping clients with credit-building and financial education is also a critical part of their mission.

The difference in these objective functions implies that a Working Wheels officer will, in equilibrium, approve a greater number of loans to more low-income residents than will a traditional loan officer. As noted above, the challenge for the Working Wheels officer is to collect enough observable data from each applicant in order to judge creditworthiness. Given the limited credit experiences of many low-income applicants, the OCU must rely more heavily on other applicant characteristics in the loan approval process.

We model the loan approval process at these two types of institutions as follows. To determine loan allocation for a randomly selected applicant  $i$  at time  $t$ , loan officers collect and analyze three types of information. First, they collect all publicly available financial information ( $F_{it}$ ) that could affect one's ability to earn income and to repay the loan. This information includes (when available) credit score, income, debt-to-income ratio, and bankruptcy history. Second, they collect personal information ( $P_{it}$ ) that could affect creditworthiness, including age, presence of a co-applicant, and number of years at current address. Third, a loan officer may also draw conclusions about the applicant's creditworthiness based on data that measure the nature of the applicant's relationship ( $R_{it}$ ) with the financial institution prior to this loan application. This can include the applicant's holding of other accounts at the institution, the number of months that the individual has been a member of the institution at the time of application, and the

applicant's previous loan history. Each of these measures serves as a proxy for the strength of the relationship between the borrower and lender.

To estimate this underlying decision, begin by letting  $W_{it}^*$  be a latent random variable for applicant  $i$  which is some measure of the individual's creditworthiness at time  $t$ . Assume that  $W_{it}^*$  is a linear function of a set of non-stochastic independent variables and an error term. These covariates include (as discussed above) vectors of financial ( $F_{it}$ ) and personal ( $P_{it}$ ) information; measures of the applicant's relationship with the financial institution ( $R_{it}$ ); and other possible determinants ( $X_{it}$ ).

This credit allocation process can be estimated as follows:

$$(1) \quad W_{it}^* = \beta_0 + F_{it}\beta_1 + P_{it}\beta_2 + R_{it}\beta_3 + X_{it}\beta_4 + \varepsilon_{it},$$

where  $\varepsilon_{it}$  is assumed to be standard normal.

In fact,  $W_{it}^*$ , a measure of the individual's perceived creditworthiness, is not recorded. Only the application decision is observed. Let  $A_{it} = 1$  if  $W_{it}^*$  exceeds a certain amount  $W^a$  and the application is approved, and let  $A_{it} = 0$  if  $W_{it}^*$  is less or equal to  $W^a$  and the application is not approved:

$$(2) \quad A_{it} = \begin{cases} 1 & \text{if } W_{it}^* > W^a \\ 0 & \text{if } W_{it}^* \leq W^a \end{cases}.$$

Under these conditions, probit analysis is appropriate for estimating the probability of loan approval.

### 3. Empirical Results

In this section, we present the econometric results of a model in which we test for the determinants of loan approval at each of these two financial institutions. Our basic model includes covariates that are common to the two data sets. These covariates include

‘credit score’, ‘missing credit score’, ‘monthly income’ (in thousands), ‘prior bankruptcy’, primary applicant’s ‘age’, and presence of a ‘co-applicant’. We also include a proxy for the strength of the relationship between borrower and lender, although as discussed above, the relationship variables differ slightly between the banks. For the community bank, we include a measure for whether the applicant is an ‘account holder’ with the bank. For the OCU data set, we have a measure that indicates whether the applicant has been a member of the OCU for at least ‘two months’<sup>7</sup> and whether the applicant has ‘previously applied’ for a Working Wheels loan. Lastly, we add variables that are unique to each of the data sets to our basic model to ensure that the results are robust to inclusion of additional bank-specific covariates.

Table 3 presents the results of the basic model. As shown in column 1, the financial variables are critical determinants of the loan decision at the community bank. First, ‘credit score’ is a significant and large determinant of loan approval at the community bank: a 75 point (the standard deviation for this sub-sample) decrease in ‘credit score’ would reduce the probability of receiving a car loan by 0.14. At the same time, not having a credit score – which was the case for 11 percent of the community bank applicants - decreases the probability of getting a loan by 0.29. Finally, monthly income is also a significant and large predictor: a one standard deviation decrease in monthly income (almost \$2,500) decreases the probability of receiving a loan by 0.09. As one would expect, financial characteristics are critical in the loan approval process at the community bank.

By contrast, the measure of relationship lending is not statistically significant at the community bank. We argue that this measure, holding an account at the bank, is a

relatively strong measure of relationship lending: being an account holder implies that the client has had a previous interaction with a member of the bank and has an established history. Therefore, the fact that this measure is not a statistically significant predictor of receiving a car loan is quite telling: for customers of this community bank, the chances of getting a car loan are largely determined by financial characteristics, above all else. The finding that the community bank relies more on hard information than soft information is supported by the fact that the loan application only included information on whether or not the applicant had an existing account with the bank. When we requested information about how long applicants were account holders at the bank, the loan officer confirmed that this information would be difficult if not impossible to obtain and was not used in actual loan decisions. As shown in column 2, our finding that the borrower-lender relationship is insignificant is robust to the inclusion of additional covariates such as ‘years at present address’, ‘resident in bank’s town’, and ‘total debt’.<sup>8</sup>

How does this compare to the OCU? As shown in column 3, the financial variables are also critical determinants of the loan decision at the OCU. For this sub-sample of less financially well-off Vermonters, ‘credit score’ is also a significant and large determinant of loan approval at the community bank: a 65 point (the standard deviation for this sub-sample) decrease in ‘credit score’ would reduce the probability of receiving a car loan by 0.18. But by contrast to the community bank, not having a credit score – which was the case for 56 percent of the OCU applicants – does not significantly decrease the probability of getting a loan. More than any other result, this shows that the OCU is clearly targeting clients who would have difficulty obtaining car loans elsewhere. Finally, income is also a significant and large predictor in this sub-sample, even though

the mean incomes for this sub-sample are much lower: a one standard deviation decrease in income (\$975) decreases the probability of receiving a loan by 0.11. For this sub-sample, we also add a ‘no income’ dummy, as 207 of the 609 ‘Working Wheels’ applicants have no stable income.<sup>9</sup> Remarkably, as shown in columns 3 and 4, clients without a regular income do not have a lower probability of receiving a ‘Working Wheels’ loan (statistically insignificant coefficients of -0.010 and -0.027, respectively). For this sub-sample, financial characteristics are also critical in the loan approval process, but clients with a limited financial history – and even without a regular income – are still able to secure car loans.

In the case of the OCU, both measures of relationship lending are statistically significant. Column 3 illustrates that, *ceteris paribus*, being a member of the OCU for at least two months increases the probability of receiving a car loan by 0.30. Column 4 illustrates that if a client has previously applied for a car loan, this increases the probability of receiving a car loan by almost the same percentage, 0.31. Controlling for financial characteristics, relationship lending has a significant, very large effect on the loan process for Working Wheels clients.

We performed a number of robustness tests on these results. First, as noted above, we find similar results if we replace the at least ‘two month’ membership measure with at least ‘one month’ or at least ‘three month’ measures. As confirmed by the OCU loan officers, the empirical results suggest that the lender-client relationship is rapidly established in the Working Wheels program. Second, we added information on debt-to-income and the referring agency<sup>10</sup> to the model but, as shown in columns 5 and 6, the results on ‘credit score,’ ‘no credit score,’ and the relationship variables are the same.

Third, we included both measures of relationship lending ('two months membership' and 'previous application') together in the same model, even though results are likely biased because of multicollinearity (the correlation coefficient between these two variables is 0.61). According to this alternative model, if a Working Wheels applicant has been an OCU member for two months and had applied previously, this increases the probability of receiving a car loan by 0.39, slightly more (than shown in columns 4 and 5) when each of these measures is tested alone.<sup>11</sup>

#### **4. Conclusion**

This paper provides preliminary evidence that as consolidation, deregulation and technology move mainstream financial institutions away from relationship lending and toward credit scoring, community development credit unions (CDCUs) will occupy an increasingly critical niche as the credit-supplier for low income and traditionally underserved populations. Using actual loan applications from a CDCU and a more traditional community bank, we find that financial information, particularly credit score, is the primary determinant of loan approval at the community bank; low-income households with imperfect or non-existent credit histories are very unlikely to receive car loans from this traditional bank (e.g., those without documented credit scores are almost 30% less likely to obtain a car loan than otherwise similar individuals with credit scores). We further show that the community bank, which collects very little soft information on applicants, does not rely on relationship lending in its loan decisions; holding a prior account with the bank has no significant impact on loan approval at the community bank.



In contrast, relationship lending is a critical factor in the car loan decision at the CDCU. Loan officers require that applicants join the credit union and establish a share account. Applicants are encouraged to obtain character references from employers, landlords and community members and to work with bank officers to build financial management skills. Our findings suggest that this reliance on soft information is important; low-income households with poor or unknown credit histories, but strong ties to the institution, are able to receive car loans at the CDCU. In particular, individuals without credit scores suffer no significant disadvantage in the loan process and, furthermore, membership at the CDCU for at least two months increases the probability of receiving a car loan by 30%. This is in direct contrast to the community bank where lack of credit history decreased the probability of receiving a loan by almost 30% and account holders received no preferential treatment in the loan decision.

We believe that these empirical findings from Vermont demonstrate an ongoing challenge in the provision of financial services in the United States. Despite the existence of sophisticated and efficient capital markets in the U.S., many low-income and minority groups do not have bank accounts and are unable to obtain loans in mainstream consumer credit markets. For example, nearly 10% of all U.S. households and twenty-two percent of low-income families lack a checking or savings account (Aizcorbe, Kennickell, and Moore 2003; Barr 2003). Without this basic tool, households lack a safe place to save for a home, car, education, and retirement, thereby resorting to costly check-cashers and other fringe (and less regulated) suppliers for basic transaction needs. Furthermore, low-income and minority families often report difficulty establishing credit or qualifying for loans with conventional lenders (Attanasio, Goldberg and Kyriazidou

2000; Grant 2003; Villegas 1989). Those who are credit constrained in mainstream markets are forced to rely on payday lending, title loans, rent-to-own, pawn broking and tax refund anticipation loans with typical annualized interest rates over 100 percent (but often as high as 500 percent) and stiff pre-payment penalties (Barr 2004; Caskey 2002). Reliance on this largely unregulated alternative financial sector not only undermines the financial stability of the poor, but also imposes negative externalities on the rest of society (Barr 2004).

Mainstream financial institutions, particularly traditional commercial banks, may be reluctant to open accounts and extend loans to poor families due to the perceived higher costs and lower profitability associated with low income customers. Such clients are more likely to bounce checks, have smaller, less stable balances, require more time from customer service and have poorer credit histories than their wealthier counterparts (Hogarth and O'Donnell 2000). As pressure to return high profits to shareholders increases, it is likely that traditional banks will increasingly rely on high volume, 'cookie cutter' loans based on credit scoring to assess client risk. In the absence of well-developed mechanisms for relationship lending in financial institutions like the OCU, this will further limit the availability of credit to low-income clients whose imperfect or non-existent credit histories require more time-consuming risk assessments and customized loan products.

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**Table 1. Averages for Loan Applicants at the Community Bank**

	Approved (n = 249)	Rejected (n = 360)	p-value on difference*
<i>Demographic variables</i>			
Age	36.0	33.6	.130
Resident in bank's town	0.25	0.22	.336
Years at present address	7.58	5.14	.022
Relationship	0.81	0.70	.022
<i>Financial variables</i>			
Monthly income	3607	2433	<.001
Missing monthly income	.02	.03	.368
Declared bankruptcy	.04	.10	.036
<i>Loan-specific variables</i>			
Co-applicant	.51	.32	.003
Credit score	686	607	<.001
Missing credit score	.09	.20	.004
Car value	9433	8649	.255
Loan-to-value ratio	80.92	87.95	.025
Missing loan-to-value ratio	.05	.33	<.001
Markup	3.09	4.31	<.001
Missing markup	.01	.26	<.001

Note: \* for a one-tailed alternative

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**Table 2. Averages for Loan Applicants at the OCU**

	Approved (n = 249)	Rejected (n = 360)	p-value on difference*
<i>Demographic variables</i>			
Age	37.6	35.8	.038
Female	.77	.74	.183
Relationship	.72	.37	<.001
<i>Financial variables</i>			
Monthly income	1487	1128	<.001
Missing monthly income	.24	.42	<.001
Declared bankruptcy	.04	.07	.081
Debt-to-income ratio	28.2	40.9	<.001
Missing debt-to-income ratio	.25	.38	<.001
<i>Loan-specific variables</i>			
Co-applicant	.16	.11	.029
Previous application	.37	.13	<.001
Credit score	601	558	<.001
Missing credit score	.47	.62	<.001

Note: \* for a one-tailed alternative

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**Table 3. Probit Regression Results**

	<i>Community Bank Models</i>		<i>OCU Models</i>			
	(1)	(2)	(3)	(4)	(5)	(6)
<i>Relationship Variables</i>						
Account held	.0949 (.0652)	.0485 (.0568)				
Two-month membership			.2998** (.0427)		.3052** (.0441)	
Previous application				.3109** (.0519)		.3058** (.0534)
<i>All Other Variables</i>						
Credit score	.0019** (.0003)	.0017** (.0033)	.0028** (.0005)	.0030** (.0006)	.0031** (.0006)	.0032** (.0006)
Missing credit score	-.2893** (.0980)	-.2020* (.1053)	-.0369 (.0473)	.0011 (.0480)	-.0665 (.0493)	-.0334 (.0501)
Monthly income (000s)	.0373** (.0140)	.0377** (.0137)	.1176** (.0338)	.1250** (.0375)	.1041** (.0349)	.1112* (.0396)
Missing monthly income			-.0104 (.0616)	-.0267 (.0635)	-.1570 (.0994)	-.1657 (.1036)
Declared bankruptcy	-.0928 (.1150)	-.0555 (.0984)	-.1481 (.0813)	-.1825* (.0775)	-.1585 (.0815)	-.1933* (.0776)
Age	-.0001 (.0018)	-.0007 (.0019)	.0022 (.0018)	.0030 (.0018)	.0025 (.0019)	.0033 (.0019)
Co-applicant	.0218 (.0512)	-.0240 (.0541)	-.0572 (.0681)	-.0933 (.0691)	-.0836 (.0693)	-.1176 (.0696)
Years at present address		.0088** (.0033)				
Resident in bank's town		-.0294 (.0524)				
Total debt		-.0051** (.0014)				
Debt-to-income ratio					-.0066** (.0014)	-.0066** (.0013)
Missing debt-to-income ratio					-.0423 (.1077)	-.0532 (.1088)

Numbers in parentheses are standard errors.

\* Significant at the .05 level.

\*\* Significant at the .01 level.

<sup>1</sup> “Relationship lending” refers to lending decisions that incorporate *soft information* (knowledge about a borrower’s character, motivation, etc.) obtained through personal interactions between borrower and lender.

<sup>2</sup> For example, the number of community banks and credit unions in the United States has declined over 50 percent since 1980, while the share of industry assets held by the ten largest bank holding companies has increased from less than 25% to over 75% (DeYoung, Hunter and Udell, 2004; NCUA Annual Report 2002).

<sup>3</sup> In fact, nearly all CDCUs are designated “Low Income” by the National Credit Union Association (NCUA) meaning that more than half of its members earn less than 80 percent of the average of all wage earners as established by the Bureau of Labor Statistics, or have annual household incomes that fall at or below 80 percent of the median household income as established by the Census Bureau (Section 701.34 NCUA Rules and Regulations, accessed online at [www.ncua.gov](http://www.ncua.gov)).

<sup>4</sup> The National Federation of Community Development Unions claims 225 member institutions, distributed over 43 states. Two-thirds serve urban areas with the densest concentrations in the Northeast and Southeast. The median CDCU has \$1.4 million in assets and serves over 1000 members ([www.natfed.org](http://www.natfed.org)).

<sup>5</sup> All Working Wheels loan applicants are required to establish an account with the bank in order to submit a loan application; thus we cannot use “prior account with the bank” as a measure of relationship strength.

<sup>6</sup> Recall that “relationship” is defined differently for the two institutions.

<sup>7</sup> For the results reported below, we generate essentially the same results if we replace this length of membership by at least one month or at least three months.

<sup>8</sup> ‘Years at present address’ controls for residential stability and risk of flight.

<sup>9</sup> There were no applicants without stable income at the community bank.

<sup>10</sup> Many Working Wheels clients are referred to the OCU by one of the five Community Action Agencies (CAAs): Community Action in Southwestern Vermont (Bennington and Rutland Counties); Central Vermont Community Action Council; Champlain Valley Office of Economic Opportunity; Northeast Kingdom Community Action; and Southeastern Vermont Community Action. These are a diverse set of community-based social agencies, located throughout the state, that help low-income households find access to no-cost or low-cost services, including emergency health care and financial support. We include dummy variables reflecting the referral agency in columns (5) and (6) but omit these results for the sake of brevity.

<sup>11</sup> Of the 609 Working Wheels applicants, 118 have either been an OCU member for two months or have applied before; another 122 have been an OCU member for two months and have applied before. In the model that includes both of these relationship measures, the (significant) coefficients on these two regressors are 0.227 for ‘two months membership’ and 0.168 for ‘previous application’.