Do Community Banks Play a Role in New Firms' Access to Credit?

By Yan Y. Lee and Smith Williams[1]

This Draft: June 18, 2014

(Very Preliminary – Please Do Not Cite)

ABSTRACT

Using a new panel dataset, the Kauffman Firm Survey (KFS), we investigate whether the proximity to banks, in particular community banks, helps increase new firms' access to credit. Preliminary evidence, controlling for important firm characteristics such as their observed credit score and local bank market and economic conditions, shows that increasing firms' distance to their nearest bank decreases their likelihood of using any bank loan. Further, this effect appears to work primarily through startup firms' access to personal loans used for business purposes. In contrast, decreased proximity increases usage of expensive credit card debt to finance firm operations. These results offer an improvement over previous studies which rely only on cross-sectional survey data as we control for unobserved time-invariant characteristics of the firm in identifying an effect of bank distance on firms' access to credit.

[1] The authors' affiliations are The Federal Deposit Insurance Corporation (FDIC) and may be emailed at ylee@fdic.gov and smwilliams@fdic.gov. The authors would like to thank the Ewing Marion Kauffman Foundation for providing access to the confidential Kauffman Firm Survey data and Cody Hyman and Lily Freedman for their research assistance. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the authors and do not necessarily reflect the views of the FDIC or the Ewing Marion Kauffman Foundation.

I. Introduction

In the United States, net job creation is largely a story of new and young firms (Neumark, Wall, and Zhang 2008, Haltiwanger, Jarmin, and Miranda 2010, Kane 2010). New firms create more new jobs each year than any other firm age group. Kane (2010) estimates that new firms generate at least four times the average annual number of jobs created by any other age group. Startup firms also have higher rates of employment growth in their early years than do older firms, conditional on survival (Haltiwanger, Jarmin, and Miranda 2010). However, many new firms—and their associated jobs—do not survive more than a few years. Haltiwanger, Jarmin and Miranda estimate that firm deaths eliminate 40 percent of the jobs created by startups within the first five years. These authors interpret the high rates of job creation and destruction by new firms as evidence of an up-or-out dynamic—a new firm either grows or dies. This study asks whether community banks play a role in increasing new firms' access to capital.

Recent research indicates that access to outside credit is an important factor for firm success. Robb and Robinson (2010), Lee and Zhang (2010), Mach and Wolken (2011), and Cole and Sokolyk (2014) show that new and small firms with access to formal outside funding are less likely to fail. Yet, most startup firms lack quantifiable evidence of their creditworthiness, making it difficult for potential lenders to distinguish between new firms with a high likelihood of repaying a loan and those with a low likelihood. This classic problem of asymmetric information results in credit constrained startups (Holtz-Eakin,

Joulfaian, and Rosen 1992, Nanda 2011) that are vulnerable to temporary liquidity shortfalls—a situation that can lead to premature death.

Local lenders may be able to overcome the information asymmetry by gathering private information that helps to better differentiate between good and bad firms. For example, a bank may have a consumer relationship with an aspiring entrepreneur or may be aware of a need in the community that is not being addressed by current businesses. This type of "soft" information gathered through the bank's relationships may be useful in reducing the credit constraints for new firms. Support for this idea is found in studies that show credit availability increases with a firm's proximity to a bank branch (Brevoort and Hannan 2006, Argawal and Hauswald 2010) and that the likelihood of a firm defaulting on a loan increases with the distance from the lender (DeYoung, Glennon, Nigro 2006, Argawal and Hauswald 2010).

However, prior studies exploring the relationship between a firm's distance to local banks and the use of bank loans have primarily utilized data that contain a mix of new and established firms. For example, many of the studies exploring the connection between firm access to bank credit and bank proximity use the Survey of Small Business Finance (SSBF) from the Federal Reserve Board, which in 2003 (the most recent survey) was composed of firms with an average age of 13 years and a median age of 15 years. Much more information is available for a 13 year-old firm than for a startup. We focus on startup firms so that our estimates are not confounded by the possibility that firms are better able to demonstrate their credit worthiness with each year they survive. Thus, our

results add to the literature exploring the effect of distance on access to credit by focusing on the subset of small firms for whom the least is known, and perhaps for whom the acquisition of soft information by local banks is most useful.

We investigate whether proximity to local banks increases use of bank credit by the most opaque of firms, startups. Further, we test whether the reliability of such soft information perhaps decays with distance from banks. Next, we determine through which credit products this effect is borne out, in particular whether it is through personal loans used for business purposes, business loans, or through business lines of credit. We also verify that decreased proximity to nearby local banks also increases credit use from personal and business credit card loans. We would expect that startup firms would be less likely to substitute with these forms of credit, which can be expensive and typically use hard information to underwrite, if a local bank can provide the necessary funding. Throughout, we also control for the general banking environment by including the number of bank branches within 10 miles of the firm, the share of community banks with a majority of their deposits within the county, and bank deposit concentration at the county level.

We use the confidential, restricted access version of the Kauffman Firm Survey (KFS) and information from the Summary of Deposits (SOD) from the Federal Deposit Insurance Corporation (FDIC) to answer our research questions. The KFS contains annual information on nearly 5,000 firms from their birth in 2004 through 2011. The data collected in the survey includes financial and organizational arrangements, employment patterns, characteristics of the firms

and owners, and the location of the firm (zip codes). The information also includes the firm's time-varying credit score which we employ as a credible control for the firms' objective creditworthiness. Many banks, including community banks, use credit scores and other hard information as a part of the loan determination process, even when they use additional non-quantifiable, soft information. A model of a firm's access to bank financing would suffer from omitted variable bias if it did not adequately control for its observable creditworthiness.

Further, given its longitudinal nature, a major advantage of the KFS data is that unobserved time-invariant characteristics of the firm can be controlled for with firm fixed effects. One example may be that firms more likely to use bank credit may be those that endogenously choose to locate closer to banks. In addition, Lee et al. (2010) show that a firm's choice of capital structure is largely determined by unobserved characteristics of the firm. Our results offer an improvement over studies that rely on cross-sectional survey data because we control for such confounding factors in identifing the effect of bank distance on new firms' access to credit.

Controlling for firm fixed effects, and for important firm characteristics such as their observed credit score information, and for general bank market and economic conditions, we find evidence that increasing a firm's distance to the nearest bank decreases the likelihood of receiving any bank credit. Further, this effect appears to work primarily through a startup firm's access to personal loans used for business purposes. Thus, even though proximity to a local bank appears

to overcome part of the problem of having limited hard information for new firms and increase their access to bank credit, it appears that the community bank relies on the personal credit worthiness of the new firm owners to underwrite the loan. As expected, decreased proximity of these new firms from their nearest local bank also increases their usage of more expensive personal and business credit card loans. These findings are consistent with earlier studies that show a negative relationship between an opaque firm's use of bank credit and the distance to a bank.

II. Literature Review

A significant body of literature suggests that the distance between a firm and its bank is important for a number of outcomes, including the firm's likelihood of obtaining credit.[2] The theoretical relationship between physical proximity and a firm's access to bank credit is motivated by increasing transaction costs as a firm moves further from the bank (see Elliehausen and Wolken, 1990). One possible source of increased transaction costs are the increasing physical dollar and time costs of travel for banks and customers who are further away from each other. The other source of costs is informational. Proximity is thought to make it easier for banks to gather information on the creditworthiness of a firm,

[2] Other outcomes explored that relate lender distance to firm experience include probability of default and loan pricing. For example, DeYoung et al (2006) find that borrower-lender distance, while economically small, increases the probability of default, and that a bank's use of credit scores dampens this effect. In studying differences between rural and urban small business relationships, DeYoung et al (2010) hypothesize and confirm that rural banks' stronger relationships with their customers decreases the likelihood of default; they further find that default rates are higher when borrowers were located outside the market of their lenders. In regards to loan pricing, Degryse and Ongena (2005) and Argawal and Hauswald (2010) both find that loan rates actually decrease with distance between firm and lender, which they attribute to the decreased transportation costs of certain types of loans (Degryse and Ongena 2005), and lending competition under asymmetric information (Argawal and Hauswald 2010).

both in assessing the firm itself, and in knowledge of local business conditions. Thus, increasing the distance from a bank decreases a firm's probability of obtaining a loan because of the deteriorating quality of the bank's information about the firm and its prospects.

Several empirical studies support the theoretically predicted negative relationship between distance and the availability of loans. For example, using proprietary data from one large U.S. bank, Argawal and Hauswald (2010) examines whether proximity to the firm facilitates the gathering of private information, and consequently affects loan disposition and pricing outcomes. Using loan-level data, they are able to calculate the driving distance between the firm and the branch to which the loan application was made, the distance to the nearest branch of the bank, and the distance to the nearest competitor of the studied bank. Because their dataset includes both the firm's credit score and the loan officer's subjective assessment of the firm, they are able to credibly identify the private information used in granting and pricing the loan. Holding all else constant, they find that a firm's distance from the bank decreases the likelihood of obtaining credit from the bank. Importantly, while a loan officer's private assessment increases the probability of loan approval, this effect decreases with distance to the bank. The authors interpret their results as evidence that private information is important for banks, and that this information is locally based. A similar negative relationship between lending to opaque borrowers and the proximity to a bank can be found in Elliehausen and Wolken (1990) and Brevoort and Hannan (2006).

However, the effect of distance on credit availability to small firms has been shown to vary over different types of lenders. Peterson and Rajan (2002) investigate whether the distance between a lender and its small business customer has changed over time. Using the 1993 Survey of Small Business Finance (SSBF)—a cross-sectional survey—they construct a 'synthetic panel' of lender-firm pairs from information about the length of the relationship between a firm and a creditor financial institution. They show that the average distance between a lender and a firm has increased over time, particularly for firms that use non-bank financial firms for loans and for the firms that have the most quantifiable information available.[3] The effect is muted for firms who use banks for credit and that are more informationally opaque. Thus, the authors conclude, banks appear to have a comparative advantage at monitoring loans that require a physical presence.[4] This conclusion is consistent with the premise that proximity to a bank should increase a firm's likelihood of obtaining credit.[5]

Recognizing that specialization may also occur within the banking industry, Brevoort and Hannan (2006) ask whether the relationship between distance and the likelihood of lending to a small business varies across different types of banks, and whether these relationships change over time. The authors

[3] Peterson and Rajan measure distance by physical distance as well as the manner in which the firm and the lender communicate.

[4] Brevoort, Holmes, and Woken (2009) use updated data but a similar approach as Peterson and Rajan and reach similar conclusions.

[5] A parallel literature explores the differences in access to mortgages and the mortgage default rates across lender types (Coulton, Chan, Schramm, and Mikelbank 2008, Laderman and Reid 2008, Moulton 2010, Ergugor 2010, Ergugor and Moulton 2011). The general results are that local banks originate more mortgages to more opaque individuals than do financial institutions without a local presence. Further, the default and interest rates of the local bank mortgages are both lower compared to non-local ones. These findings are consistent with the hypothesis that local banks having an informational advantage over other types of mortgage lenders.

use Community Reinvestment Act (CRA) data from 1997 to 2001 on the volume and size of loans made to census tracts by banks with established branches in the tract. They show that the probability of a bank making a loan to any one census tract decreases with the bank's distance to the tract. Further, this 'deterrent effect' of distance is stronger for smaller banks, and the relationship between distance and loans to small business did not change over the time period studied.

The above papers, while not exhaustive, support the notion that distance contributes to whether a firm is able to obtain bank lending.[6] For startup firms, this access to credit is particularly important. Recent research shows that new and small firms with access to formal outside funding are less likely to fail (see, for example, Robb and Robinson (2010), Lee and Zhang (2010), and Mach and Wolken (2011)). However, as the newest of firms, startups are by definition opaque and lack quantifiable evidence of their creditworthiness. Therefore, it is difficult for potential lenders to distinguish between "good" new firms, those with a high likelihood of repaying a loan, and "bad" ones, those with a low likelihood. As a result, this classic problem of asymmetric information results in startups being particularly credit-constrained (see Holtz-Eakin, Joulfaian, and Rosen 1992, Nanda 2011). .

However, small local lenders, whom we term "community banks," may be better suited to overcome this information asymmetry. First, community banks by definition are owned, managed, staffed, and funded by members of the community and thus have an intimate knowledge of the local area and lower

[6] See Brevoort and Wolken (2008) for an extensive literature review of the research exploring the relationship between proximity and the provision, delivery, and use of banking services.

transportation costs for on-site visits with new firms. Second, there are fewer layers of management between the loan officer and the owners, which makes it easier for owners to monitor the accuracy of soft information and the community bank less reliant on hard information in the loan decision process. Finally, as argued by Stein (2002), loan officers in small banks have greater incentives to produce accurate soft information because they know capital will be allocated to high value projects. This differs from the loan officer at a large, decentralized bank because of the uncertainty about where the central office will decide allocate resources.

A large empirical literature provides support for the informational advantage of community banks. For example, small banks are documented to rely a greater extent on information about the character of the borrower (Cole, Goldberg, and White 2004). Using the information on the financial experiences of firms with fewer than 500 employees from the 1993 SSBF, Berger et al. (2005) ask whether opaque firms are more likely to have loans from small banks, and whether small banks are better at alleviating the credit constraints of these firms, among other questions. In addition to firm size, the authors use information on whether the firm has financial records as proxies to define opacity, and find evidence that small banks are better able to gather and use soft information to extend credit to these firms. Consistent with this apparent small bank advantage, small firms in turn give the highest ratings to community banks with regard to their performance in meeting credit needs and maintaining strong banking relationships (Scott 2004). Further, small business loans made by banks with

more local knowledge default substantially less often (DeYoung, Glennon, Nigro, and Spong 2010).

On the other hand, large banks are shown to employ standard criteria obtained from financial statements, usually available only for larger, more established firms, in the loan decision process (Cole, Goldberg, and White 2004). Further, large banks are found to be both less likely than small banks to lend to small, young firms, and more likely to lend to large, mature firms (see Haynes, Ou, and Berney 1999, Cole, Goldberg, and White 2004, Cowan and Cowan 2006, Kittiakarasakum 2010, Scott 2004, Berger, Miller, Petersen, Rajan, and Stein 2005).[7]

In summary, the current literature shows that bank distance has a relationship with whether firms receive bank credit and that small banks facilitate lending to small firms by gathering and employing non-quantitative information to assess credit riskiness. However, it is an open question whether distance to local banks benefits truly opaque firms. In this paper, we combine and test these two premises by asking whether proximity to local banks increases access to credit for the most opaque of firms – startups. Typically, small firms are studied because firm size is a simple proxy for firm opacity. With data on startups, we specifically target the type of firm that should most benefit from a bank using local information. In contrast to most other studies, the data we use follows the

[7] However, new technologies have increased the lending opportunities of both large and community banks. For instance, the development of business credit scores in the 1990s produced quantifiable information on previously opaque firms which are now employed by both types of banks in business loan underwriting (De Young, Frame, Glennon, and Nigro 2010, Berger, Rosen, and Udell 2007, Berger and Black 2011). Berger and Black (2011) demonstrates that both large and community banks lend to opaque firms, which they proxy for with firm size.

sample of firms for seven years. Thus, we offer an improvement over previous studies by exploiting the panel nature of the data to control for endogenous and unobservable choices of the firms. In doing so, we are able to identify whether it is indeed distance to a community bank that increases the probability of bank funding or as opposed to the best firms choosing to locate in closer proximity to banks. In the following section we describe the KFS data, formally present our estimation strategy, and outline our testable hypotheses.

III. Data & Methodology

A. Data

The primary data we use in this study was gathered by the Ewing Marion Kauffman Foundation through the Kauffman Firm Survey (KFS).[8] The Foundation interviewed 4,928 randomly selected firms that began operations in 2004 about their founding and conducted seven follow-up surveys on an annual basis. The resultant panel dataset contains information on the startup's business strategy, offerings, organization, and owner characteristics, as well as information about the financial arrangements and experiences of the firm. This study employs the responses of 2,998 firms that participated in all of the eight surveys or have been confirmed as going out of business during the sample period.[9]

The principal outcomes variables we use are derived from firms' answers in the KFS to questions regarding the use of bank loans. In the survey, the firms are asked whether they have used the specific type of debt to fund the firm's

[8] For more information on the KFS see http//www.kauffman.org/kfs and Robb et. al. (2009).
[9] The excluded firms, then, are those that refused to participate in, or that the Kauffman Foundation could not locate for one or more of the follow-up surveys.

operations during the year.[10] The questions were asked about both the loans that were obtained in the business' name and the loans for which the firm's owners are personally responsible, but for which the funds were used for business purposes. Our variables capture whether the firm used any bank loan (excluding credit cards), a personal bank loan for business purposes, a bank loan in the business' name, a business credit line, and whether the firm used personal credit cards, or used business credit cards to finance operations.[11]

Table 1 presents summary statistics, including information on the firms' use of bank credit, separated by loans that likely require only quantifiable, or 'hard', information to obtain such as a personal credit card, and loans that may require additional soft information to acquire.[12] The startups are estimated to be more than twice as likely to use credit cards for financing annual operations than they are to use bank loans. On average, half of the firms use credit cards issued in the business' name, 38 percent use personal credit cards, , and just under 17 percent use any other type of bank loan. Of the bank loans used to finance operations, firms are most likely to use a personal loan. Of the business loans, the startups are most likely to use a business line of credit.

Our main interest is in whether starting a new firm nearer a bank, and nearer community banks in particular, affects a startup's likelihood of obtaining bank financing. The KFS does not ask about the firm's banking environment, so

[10] Using debt for annual operations is separate and distinct from whether the firm owes a specific type of loan, as the amount owed will reflect both the amount used in that year's operations as well as debt taken on to finance the operations in prior years.

[11] While the KFS asks both about the use of the loans and their amounts, we focus on the use responses as many of the amount variables are missing in the data.

[12] The means and estimates used in this analysis are weighted averages to accommodate for the stratified survey design of the KFS.

instead, we take advantage of the restricted access version of the KFS which contains information on the location of the firm.[13] Specifically, we use the firm zip code and information from the Federal Deposit Insurance Corporation to create measures for banking access. First, we gather data on local bank branches from the Summary of Deposits from the FDIC, where we remove from the SOD sample any branches that businesses are unlikely to access for their financial needs, such as bank administrative offices or branches located on military bases.[14] We then use the firm zip code centroid to calculate our main explanatory variable of interest, the distance to the nearest community bank branch. [15,16,17] We then use the branch observations to calculate the number of bank branches within 10 miles of the firm to capture the firm's general access to banking services. In addition to the distance to the firm's nearest branch and the number of nearby branches, we are interested in the effects of the characteristics of the banking market on the firm's use of bank credit. For example, the amount of competition for customers in the area could affect how aggressively any one bank markets its

[13] The majority of information contained in the KFS is publicly available through the Kauffman Foundation's website. We use a restricted dataset which contains greater detail on the firms' responses as well as information about the firms' credit ratings and the firm zip code.

[14] The SOD gathers information as of June 30th of each year on the branch location and deposits of FDIC insured institutions.

[15] Location calculations are made using the STATA 'nearstat' ado file (Jeanty 2010) which employs the greatest circle distance to measure the shortest distance between two points on the surface of a sphere.

[16] Community banks are defined as outlined by Appendix A of the FDIC's Community Banking Study of 2012. http://www.fdic.gov/regulations/resources/cbi/study.html In general, the community bank designation was given to those institutions whose banking organization is not considered a specialty bank, that have a loans-to-assets ratio of at least 33 percent, a core-deposits-ratio of at least 50 percent, and a limited geographic scope.

[17] A next step is to improve our measure of proximity of the firm to the bank branch. The location information that the KFS provides for the firm is the zip code and currently we use the zip code centroid to locate the nearest bank branch. However, given that the firm may be located at any point in the zip code, we view a better measure of proximity would be to average the distance between the zip code centroid and the nearest 3-5 bank branches.

commercial products. As such, we use the firm's zip code to connect the firm to the county-level banking market characteristics. We connect the firm to the deposit based Herfindahl-Hirschman Index (HHI) by bank to control for the competitiveness of the banking market. We also calculate the share of the community banks in the county that have a majority of their deposits in the county, as a measure of the local community banks' focus on the area. We connect other non-bank county-level information that might explain the demand or supply of bank loans to finance a firm's operations as well, including historical house prices, the county GDP per establishment, and the per establishment personal income from investments. [18]

The summary statistics of Table 1 indicate that these firms are located relatively close to a community bank branch, with the average distance to the nearest community bank branch calculated as two miles, which is very similar to the median distance between a bank branch and a firm for whom a loan application has been accepted found in Agarwal and Hauser (2010). However, traveling two miles in an urban environment is quite different from traveling two miles in a suburban or rural one, so in our estimations we use the minimum distance to the branch, where distance is first scaled by the square mile land area per establishment in the county.[19] The counts of the branches within ten miles of

[18] Information on house prices is collected and maintained by Fiserv, Inc., and accessed through Moody's Analytic's economy.com. Information on county GDP and income are from the U.S. Bureau of Economic Analysis.

[19] We would have preferred to calculate actual travel distance to the nearest branch as in Argawal and Hauswald (2010). However, the privacy restrictions associated with the location information in the KFS do not allow such distances to be calculated.

the firm's zip code centroid clearly indicate that on average firms locate in areas with many bank branches.[20]

As noted, both non-community banks and community banks regularly use commercially available credit ratings of firms in the loan underwriting process. Thus, omitting this information would be problematic. This is the second advantage of using the restricted information in the KFS, as it contains a categorical variable based on the Dun and Bradstreet Commercial Credit Score, where firms are categorized by default probability percentiles.

Certain other characteristics of the firm and its owners are also likely to influence a firm's likelihood of utilizing a bank loan in financing annual operations. For example, whether the firm has taken steps to legally protect the owner's personal assets by forming as a corporation, or as a limited-liability company (LLC). As such, we have gathered these variables from the survey. The firm variables we retain include information on the legal form of organization, whether the firm is based at home, has employees, has intellectual property, offers products or services or both, industry, and whether the firm's owner believes that the firm has a competitive advantage over similar firms. The owner characteristics include age, sex, race and ethnicity, whether the owner has prior experience in the industry, and the number of hours worked per week on average on behalf of the firm.[21]

[20] In the estimations, the counts of branches are scaled by the number of establishments in the county.

[21] We follow Robb et.al. (2009) in assigning the owner characteristics of the primary owner in firms in which there are multiple owners. The primary owner is generally assigned as the owner with the largest equity share. In cases where there is a tie in the largest share, the number of hours worked and other variables were used to create a rank order of owners.

The summary statistics on the firm and owner characteristics show that nearly 15 percent of the firms were not given a firm credit rating by Dunn & Bradstreet, while just over 20 percent of the new firms were in the highest ratings category. The estimates also show that around 60 percent of the firms organized into an LLC or corporation. We also see that 30 percent of the new firms had female owners and that the owners had around 12.5 years of experience in the industry in which they started the firm. Finally, in Table 1 we see that just over 50 percent of the new firms survived through 2011.

B. Methodology

We estimate models of the form:

$$credit_{jimt} = \beta_{j0} + \beta_{j1} Dist_{it} + Banking_{imt}'\beta_{j2} + Firm_{it}'\beta_{j3} + Market_{mt}'\beta_{j4} + t'\lambda_j + m'\theta_j + \varepsilon_{jimt}$$

where j indexes credit type, i indexes the firm, m indexes the county, and t indexes year.

The literature describes community banks as able to gather and employ non-quantifiable information on the riskiness of firms, and that the reliability of such soft information decays with distance from the bank. If this is indeed the case, we would expect that the distance between a community bank and an opaque firm would decrease the likelihood that an opaque firm would use bank loans to finance its annual operations. Thus, the variable of interest is $Dist_{it}$, the normalized distance between the firm and its closest community bank.[22] Under

[22] Distance is normalized by dividing by the inverse of the establishment density.

the null, β_{j1} is equal to zero. Estimates of that are positive and statistically different from zero are consistent with the alternative hypothesis that an increase in the distance between the firm and the nearest community bank decreases the probability of using credit *j*.

In the event that this distance measure is correlated with other local banking market characteristics, we also control for a vector of banking variables, $Banking_{imt}$, for firm *i*, in county *m* and year *t*: The share of community banks in the county with 50 percent of more of their deposits inside the county, the number of bank branches within 10 miles of the firm, and the Herfindhal-Hirschman Index on bank deposits.[23] These measures attempt to control for the level of focus on the local area by the county's community banks, a firm's access to other bank branches, and the competitiveness of the local banking market, respectively.

The vector $Firm_{it}$ next controls for firm-specific attributes of firm *i* in year *t*. Importantly, we control for observable differences in firm credit riskiness by including the Dun and Bradstreet Commercial Credit Score, whether the firm has been rated, as well as for other characteristics of the firms and their owners. Other firm and owner characteristics included in the basic model are: whether the firm is organized as an S- or C- corporation, or whether it is organized as a limited liability company; the number of hours that the owner works per week for the firm and the number of years of experience that the owner has in the industry; whether the firm has employees, has multiple owners, believes it has a comparative advantage, or possesses intellectual property, is located in the

[23] The number of bank branches within 10 miles is normalized by the number of county establishments.

owner's home, offers a product, offers a service, or offers both a product and a service; the owner's age and age squared; and lastly, two-digit industry fixed effects.

We are also concerned that differences in local economic conditions will affect a firm's likelihood of using bank loans. As such, we include controls for the local economic environment county *m* and year *t* with the vector $Market_{mt}$ which includes the county gross domestic product per establishment, the house price index, and income from investment per establishment. Given that the firms are tracked from 2004 to 2011, a time period over which the macroeconomic conditions in the U.S. experienced a large financial shock, it is most likely that the ability of any firm to secure bank credit does not remain constant during the time period. As such, we include year fixed effects in the model.

The basic model is expected to produce estimates similar to those found in prior studies that use cross-sectional differences between firms. However, cross-sectional estimates likely do not condition for several factors that help determine a firm's use of bank credit. First, there may be a local effect such as an omitted community characteristic that affects the use of bank credit. For example, the elasticity of the real estate supply is likely to affect the ability of the firm owner to pledge real estate as collateral (Saiz 2010, Robb and Robinson 2010) and may be correlated with the accessibility of bank branches in the area. If firms are located in areas where real estate supply is inelastic, then the value of real estate equity will be highly vulnerable to changes in demand and thus banks may be less likely to accept the equity as collateral. The inelastic supply may also be related to the

number of bank branches in the area. While we include the county-level controls of GDP, home price, and investment income, these indicators may not control for any unobserved geographical differences. As such, we also estimate the effects of distance by including a vector of county fixed effects in the basic model.

We also estimate an alternative to this basic model with the inclusion of firm fixed effects. We do so because we are concerned that unobserved characteristics of the firm cause both differences in the choice of capital structure (Lee et al. 2010) as well as the choice of business location. Including firm fixed effects in the basic model will remove the potential bias from these unobserved firm characteristics in the estimates of the effect of proximity on the use of bank credit.

We exploit the geographical variation in community bank branch locations to estimate the effect of proximity on a firm's use of bank credit using a linear probability model. We weight the observations by their population probabilities to account for the survey's stratification strategy and adjust the estimated standard errors for serial correlation within the repeated firm observations and for heteroscedasticity across firms.

IV. Results

A. Any bank loan (excluding credit cards)

Table 2 reports estimation results where we build towards our preferred specifications. Using all eligible firms in our sample, the outcome of interest is whether the startup in that year used any sort of bank loan, where bank loan includes personal loans used for business purposes, business loans, and business

lines of credit, and excludes credit cards. The survey asked specifically whether the firm used this type of loan to finance annual operations and asks separately about the amount of debt owed. Thus, we can conclude that a firm using the loan in that year has access to the loan in the same year. Columns (1) and (2) report naive estimates of the relationship between the outcome, probability of using any bank loan, and the local banking market characteristics.. Specification (2) includes year fixed effects to account for the fact that each year between 2004 and 2011 presented different macroeconomic environments for the firms seeking loans. Our primary variable of interest is the normalized proximity of the startup and its nearest community bank (CB) branch. As expected, the estimates indicate that as the distance to the nearest CB branch increases, the new firms' likelihood of using bank credit decreases. Using the results from (1), firms locating a quarter of a mile further away from the nearest CB are estimated to decrease their probability of using bank loans by 2.35 percent over the sample population average use.[24]

The other banking market characteristics also have the expected effect on the likelihood of using a bank loan. Increasing the share of CBs in the county that are focused on the local area increases the probability of bank loan usage while the bank deposit concentration decreases the likelihood that the firm uses a bank loan. These estimates are consistent with other studies which use panel data (see for example, Cetorelli and Strahan 2006). However, once controls for yearly

[24] The magnitude of the effects reported are calculated using the population mean for the establishment per square mile land area.

differences are included in the estimation (2), the effects of the other local banking market conditions are not estimated to be statistically significant.

In Columns (3) and (4), we add the firm specific controls that are available to us--most importantly where the firm's commercial credit score falls in the distribution, or whether the startup has no credit score at all. The omitted credit score group includes those firms in the highest 30^{th} percentile of scores. The estimates indicate that having a credit score worse than the best group decreases a firm's likelihood of having bank credit, and the effect grows monotonically in magnitude as the firm's observable creditworthiness worsens. The coefficient on having no credit score is negative, but statistically, the probability of these unrated firms using a bank loan is indistinguishable from the firms with the best credit scores. This suggests that the no-credit-score firms may be able to demonstrate in other ways that they are as credit worthy as high credit-score firms.

Other firm characteristics are also found to have an important effect on the likelihood of using a bank loan. Whether the firm is organized as an S- or C-Corporation or as a limited liability company increases its probability of bank loan usage, as does the number of hours that the owner works. Each of these variables may signal the level of commitment the owners have to the business. Whether the firm operates out of the owner's home and whether the firm has employees likely indicate the demand of the firm for outside credit and in the estimations, these variables have the predicted effect on using bank loans.

Column (4) adds additional controls for local economic conditions by including three time-varying county-level indicators, where the results show that

these variables do not have any additional explanatory power for whether the firm uses a bank loan each year. But, as we include these additional controls, the effect of our variable of interest, distance of the firm from the nearest community bank, remains significant in each estimation, and at about the same order of magnitude. Column (4) reflects the estimates that are the most comparable to studies that use cross-sectional variation to estimate the effect of distance on bank credit, and shows that our results are in line with other results in the literature.

Nonetheless, we are concerned that cross-sectional estimates do not condition for unobservable factors that may affect a firm's use of bank credit that are also correlated with a firm's location. As such, we estimate the effects of distance while also including county fixed effects. As shown in column (5), once we include county fixed effects, the coefficient on distance drops to the same size as in Column (1), but is now less precisely estimated. [25] The pattern of results for the other coefficients generally remains the same, except that the significance for two of the credit score controls is reduced beyond standard levels. This is likely due to the fact that for a third of the firms, including county fixed effects is equivalent to including controls for unobservable fixed firm characteristics because they are the only firms sampled from a particular county.

Overall, the results of column (5) do not indicate that unobserved differences in county characteristics largely bias the estimated effect of distance on the likelihood of a firm using bank credit to finance operations but the results do indicate that there may be unobserved firm characteristics that do bias the

[25] The effects of certain local banking market and county characteristics cannot be estimated separately from the effects of county and yearly fixed effects because they do not vary more than between county and over time, and thus are not included in the specification.

results. For example, the most credit worthy firms may choose to locate nearer to community banks. As such, we estimate the model with firm fixed effects to control for the unobserved fixed firm characteristics that affect both location choice and the use of bank credit. The results are presented in column (6). As expected, the magnitude of the coefficient on the distance of the nearest community bank falls. However, distance is still estimated to have a negative and statistically significant effect on the use of bank loans to finance the annual operations of new firms.[26] A firm that is located a quarter of a mile further away from the nearest community bank is estimated to reduce its likelihood of using bank credit by 0.7 percent for the average firm. The results presented in Table 2 are consistent with community banks being able to use soft information to provide new, and thus opaque, firms that are nearby the bank with access to bank credit.

While the estimations of Columns (5) and (6) perhaps over-control for unobserved geographic and firm-specific attributes, because of the very reasonable possibility that the best firms would actively choose their location, these latter two are our preferred specifications, which we will use throughout the remainder of the paper.

B. Measurement Error of Distance

The amount of information on the location of the firms in the restricted KFS data is limited to the zip code of the firm. We then use the centroid of the zip code to calculate the distance to the nearest community bank. While this

[26] The results show that the coefficients on the credit score dummies also become insignificant with firm fixed effects, which implies that the creditworthiness of these firms does not change very much over time.

approach makes the most of the information that we have available, we are concerned that for zip codes that cover a large land area, the distance to the nearest community bank contains significant measurement error. Thus, we are particularly concerned about the distance measured for rural firms, which comprise about five percent of our firm year observations. As such, we estimate the model of the use of bank credit separately for rural and non-rural firms.

The results for the separate estimations for rural and non-rural firms are presented in Table 3. The first six columns report the results for non-rural firms and the effect of distance to the nearest community bank branch largely mimics the estimates for the entire sample of firms.[27] However, the effect of distance for rural firms does not. The size of the point estimate is much larger than that of the urban firms, and this is the result of the scale of the variable being much larger in rural areas. Thus, we can conclude that the estimates reported in Table 2 are driven by the urban firms and that our measure for distance in the rural areas is imprecise. As a result, we will limit our analysis in the remainder of the study to urban, or non-rural, firms.[28]

C. Types of Bank Credit

Tables 2 and 3 indicate that new firms closer to community banks are more likely to access bank credit. In this section, we ask whether firms closer to

[27] For each panel, each column uses the same estimation as the corresponding column of Table 2.
[28] Interestingly, the variable capturing the focus of the local community banks on the county, the share of the community banks in the area with 50 percent or greater of their deposits from within the county, is estimated to have an important positive effect on the likelihood of a firm using bank credit to finance annual operations. We interpret this as evidence that community banks specializing on the local area are important to rural firms. However, we will need to alter our measure of distance for these firms in future analysis.

community banks are more likely to access credit through a particular type of bank loan, by estimating the effects of distance to the nearest community bank separately for these following types of bank credit: Personal loans for business purposes, business loans, business lines-of-credit, business credit cards, and personal credit cards. The results for each of these three estimations are reported in Table 4. Columns (1) through (6) report the effects for each type of loan with the model estimated using county fixed effects, while columns (7) through (10) report estimates from specifications that include firm fixed effects.

The results of the separate estimates for each type of loan clearly indicate that the relationship between proximity to the nearest community bank and access to bank credit is driven by the use of bank loans for which the owner is personally responsible for paying, but from which the funds are used for business purposes. Using the coefficient from the fixed effect estimation of Column (8), we interpret that locating a quarter mile further away from a firm's nearest community bank is estimated to decrease the likelihood of having access to personal bank credit to support annual operations by 1.3 percent. The questions in the survey do not distinguish whether these personal loans are business loans that are backed by personal collateral or are actual personal loans, so it is unclear whether the owner applied for a business loan or a personal loan. Either way, these results suggest that the increased access to bank credit that new firms closer to community banks enjoy is at least somewhat dependent upon the ability of the firm owners to bear the personal responsibility of repaying the loan.

The summary statistics indicate that nearly half of the new startup firms use credit cards, either business credit cards or personal ones, to finance the annual operations of the firm. However, we would expect that new firms that had access to bank credit would be less inclined to use this type of financing due to the relatively higher cost of credit card loans compared to bank loans. Further, the results discussed earlier suggest that it is the startups that are nearer to community banks that are able to access bank credit, and thus we would expect that new firms further away would be those that rely more heavily on credit cards. Columns (5), (6), (11), and (12) report the results of these tests, with (5) and (6) reflecting specifications using county fixed effects, and (11) and (12) specifications using firm fixed effects. As expected, the estimates indicate that new firms located further away from community banks are those that rely on relatively more expensive credit card debt. Further, while the further away firms are more likely to use both business and personal credit card debt, the estimated magnitudes of the effects are much larger for the probability of using a personal credit card. Using the results from the firm fixed effects specifications, firms a quarter of a mile further away are estimated to be 0.64 percent more likely to use business credit cards over the average likelihood, and 7 percent more likely to use a personal credit card.

V. Preliminary Conclusions, Discussion, and Next Steps

New firms, or startups, are an important driver of job creation in the United States. However, many of these firms fail within a few years, and with them, their associated jobs. Because these firms are new, and lack quantifiable

evidence of their creditworthiness early on in their life cycle, they are subject to credit constraints that affect their ability to survive. However, we posit that small local banks, or "community banks," are able to serve these new firms by overcoming asymmetric information problems through their ability to gather at the local level the private information necessary to better differentiate between good and bad firms.

The literature currently suggests that small banks are important in meeting the credit needs of small opaque firms, and that distance from a bank is an important factor in whether a firm has access to bank credit. In this paper, we ask whether proximity to community banks increases startups' access to bank credit. Our focus on startups is important, because they are the firms with the least amount of quantifiable information and therefore should most benefit from any comparative advantage that a community bank may have in serving the needs of opaque firms.

Our use of the restricted access version of the Kauffman Firm Survey provides several important advantages over previous studies. First, we are able to directly study startups, the most opaque of firms. Many previous studies exploring the relationship between banks and access to bank credit use the SSBF, which consists of both new firms and old firms. However, the older firms may have a proven record of credit worthiness. Further, most other studies rely on cross-sectional data, which leaves the estimates of the effects of distance on access to credit subject to bias from unobservable characteristics of the firm. For example, the best firms may endogeneously choose to locate nearer community

banks, but because they are the most creditworthy they would have received bank credit regardless of their location. Our use of the restricted KFS allows us to control for such unobservable characteristics by including firm fixed effects in the estimated model because the survey tracks the same firms for eight years.

Controlling for important firm characteristics such as their observed credit score information, and for general bank market and economic conditions, we find preliminary evidence that increasing a firm's distance to the nearest bank decreases the likelihood of receiving any bank credit. This effect appears to work primarily through a startup firm's access to personal loans used for business purposes. We also establish that increasing the distance between a bank and a new firm increases the firm's use of more expensive business credit card and personal credit cards, which rely purely on quantifiable hard information to underwrite.

Our results are consistent with an information story, where nearby community banks are better able to assess the creditworthiness of opaque firms, and consequently increase the firm's access to bank credit. However, since the distance effect on bank loans works through personal loans, which typically require collateral to underwrite, we are currently unable to differentiate whether community banks are better able to make use of soft information in the underwriting process, or whether it is that community banks pursue a business model where they are willing to take the time and effort to offer the product that best works with the situation of the newly established firm (or both). At this

point, we can only conclude that proximity to a community bank does indeed increase new firms' access to bank credit.

In continuing this work, we plan first to differentiate the effects of distance to the nearest community bank from that of the nearest non-community bank. A current challenge to this task is that the locations of community banks and non-community banks are highly correlated. As such, we plan to distinguish the effects of the two types of banks by interacting the information about the location of the two types with differences in bank characteristics that we think capture the focus on the local market. For example, we plan to exploit differences in the share of the bank's deposits that are located in the nearest branch and the length of time the branch has been with the bank to distinguish the amount of local information that the nearest bank has been able to gather. We also plan to calculate the distance between the firm and the bank's headquarters to account for differences in the ease of sharing soft information about loan applicants with bank decision makers.

Our study of the benefit of community banks on a startup's access to bank funding is motivated by the assumption that this access to credit is important to firm survival. Therefore, the next major set of outcomes that we will investigate is whether these startups are more likely to have survived, as a result of having obtained bank credit. Ultimately, however, we are interested in whether survival of these new firms is of benefit to the greater economy. Therefore, lastly we will examine the employment growth of these firms, given their proximity to community banks.

References

Agarwal, Sumit, and Robert Hauswald. 2010. "Distance and private information in lending," *The Review of Financial Studies*, Vol. 23, No. 7, pp. 2757-2788.

Berger, Allen, and Lamont K. Black. 2011. "Bank size, lending technologies, and small business finance," *Journal of Banking and Finance*, vol. 35, pp. 724-735.

Berger, Allen N., Nathan H. Miller, Mitchell A. Petersen, Raghuram G. Rajan, and Jeremy C. Stein. 2005. "Does function follow organizational form? Evidence from the lending practices of large and small banks," *Journal of Financial Economics* 76:237-269.

Berger, Allen, Richard J. Rosen and Gregory F. Udell. 2007. "Does market size structure affect competition?: the case of small business lending," *Journal of Banking and Finance* vol. 31, pp. 11-33.

Brevoort, Kenneth P., and Timothy H. Hannan, 2006, "Commercial lending and distance: Evidence from Community Reinvestment Act data," *Journal of Money, Credit, and Banking*, vol. 38, p.p. 1991-2012.

Cetorelli, Nicola, and Phillip E. Strahan. 2006. "Finance as a barrier to entry: bank competition and industry structure in local U.S. markets," *The Journal of Finance*, vo. 61, no.1.

Cole, Rebel A., Lawrence G. Goldberg and Lawrence J. White. 2004. "Cookie cutter vs. character: the micro structure of small business lending by large and small banks," *Journal of Financial and Quantitative Analysis*, vol. 39, p.p. 227-251.

Cowan, Adrian M., and Charles D. Cowan. 2006. "A survey based assessment of financial institution of use of credit scoring for small business lending," *Small Business Research Summary* no. 283. SBA.

DeYoung, Robert, Dennis Glennon and Peter Nigro, 2008. "Borrower-lender distance, credit scoring, and loan performance: evidence from informationally opaque small business borrowers," *Journal of Financial Intermediation*, 17, pp 113-143.

DeYoung, Robert, Dennis Glennon, Peter Nigro, and Kenneth Spong. 2010. (**2012?)** "Small business lending and social capital: are rural relationships different?" The University of Kansas Center for Banking Excellence Research Paper #2021-1.

DeYoung, Robert, Dennis Glennon, Peter Nigro, and Kenneth Spong. 2011. "Ruralness and the quality of small business credit," Working paper.

Elliehausen, Gregory E, and John D. Wolken. 1990. "Banking Markets and the Use of Financial Services by Small and Medium-Sized Businesses," Federal Reserve Bulletin Banking Markets and the Use of Financial Services.

Ergugor, Emre O. 2010. "Bank branch presence and access to credit in low- to moderate-income neighborhoods," *Journal of Money, Credit and Banking*, vo. 42, no.7, pp. 1321-1349.

Haltiwanger, John C., Ron S. Jarmin, Javier Miranda. 2010. "Who creates jobs? Small versus large versus young." NBER Working Paper 16300.

Haynes, George W., C. Ou, and Robert Berney. 1999. "Small business borrowing from large and small banks," In *Business Access to Capital and Credit* edited by Blanton, J.L., Williams, A., Rhine, S.L.W. Federal Reserve System Research Conference 287-327.

Holtz-Eakin, Douglas, David Joulfaian, Harvey S. Rosen. 1994. "Entrepreneurial decisions and liquidity constraints," *RAND Journal of Economics*, vo. 25, no. 2, pp. 334-347.

Jeanty, P. Wilner, 2010. "NEARSTAT: Stata module to calculate distance-based variables and export distance matrix to text file," Statistical Software ComponentsS457110, Boston College Department of Economics, revised 07 Feb 2012.

Kane, Tim. 2010. "The importance of startups in job creation and job destruction," Kauffman Foundation Research Series: Firm Formation and Economics Growth. Available at http://www.kauffman.org/uploadedFiles/firm_formation_importance_of_startups.pdf.

Kittiakarasakun, Jullavut. 2010. "Does location impact how banks make their lending decisions?," University of Texas at San Antonio.

Lee, Jeongsik and Zhang, Wei. 2010. "Financial capital and startup survival," Available at SSRN: http://ssrn.com/abstract=1659046 or http://dx.doi.org/10.2139/ssrn.1659046

Lee, Sang Mook, Yuanzhi Li, Jose M. Plehn-Dujowich, and Sheryl Winston Smith. 2010. "The distribution and evolution of the capital structure of entrepreneurial firms: evidence on the financial crisis," Fox School of Business, Temple University.

Mach, Traci and Wolken, John D. 2011. "Examining the impact of credit access on small firm survivability," FEDS Working Paper No. 2011-35. Available at SSRN: http://ssrn.com/abstract=1956696 or http://dx.doi.org/10.2139/ssrn.1956696

Nanda, Ramana. 2011**.** **"**Entrepreneurship and the discipline of external finance," Harvard Business School Working Paper 08-047**.**

Neumark, David, Brandon Wall, and Junfu Zhang. 2008. "Do small businesses create more jobs?" IZA Discussion Paper No. 3888.

Peterson, Mitchell A., and Raghuram G. Rajan. 2002. "Does distance still matter? The information revolution in small business lending," *Journal of Finance*, 57, pp. 2533-2570.

Robb, A., Robinson, D. 2010. "The capital structure decision of new firms," NBER Working Paper No. w16272. Available at SSRN: http://ssrn.com/abstract=1662266

Scott, Jonathan A. 2004. "Small business and the value of community financial institutions," *Journal of Financial Services Research* vol. 25, no. 2/3, p.p. 207-230.

Stein, Jeremy C. 2002. "Information production and capital allocation: decentralized versus hierarchical firms," *The Journal of Finance*, 57: 1891–1921.

Winston Smith, Sheryl, and Alicia Robb. 2011. "Who seeks and who receives? Implications of demand for and access to financial capital by young firms," Working paper.

Table 1: Summary Statistics, Means	
	(1)
Used a Bank Loan to Finance Annual Operations, Excluding Credit Cards	0.16539
	(0.00577)
Used a Personal Loan to Finance Annual Operations, Excluding Credit Cards	0.12653
	(0.00509)
Used a Business Bank Loan to Finance Annual Operations, Excluding Credit Cards	0.05914
	(0.00344)
Used a Business Line of Credit to Finance Annual Operations, Excluding Credit Cards	0.12852
	(0.00575)
Used a Business Credit Card to Finance Annual Operations	0.50096
	(0.00883)
Used a Personal Credit Card to Finance Annual Operations	0.38366
	(0.00754)
Distance to Nearest Community Bank Branch (miles)	2.09620
	(0.10959)
Distance to Nearest Community Bank (Per Establishment Square Mile Land Area)	0.00094
	(0.00086)
Share of Community Banks in County with 50% or More of Deposits Inside County	0.46160
	(0.00516)
Number of Bank Branches within 10 Miles (Per County Establishments)	0.00547
	(0.00048)
Herfindhal-Hirschman Index, Bank Deposits	0.00022
	(0.00001)
County GDP	9.60479
	(0.03975)
County Mean House Price	5.25052
	(0.01335)
County Income from Investment	7.07106
	(0.04174)
Credit Score 70th Percentile or Above	0.21707
	(0.00645)
Credit Score Between 30th and 70th Percentile	0.42133
	(0.00659)
Credit Score Lower than 30th Percentile	0.21511
	(0.00564)
Not Rated Due to High Risk, Including Bankruptcies	0.00521
	(0.00065)
No Credit Score	0.14128
	(0.00511)

(continued on next page)

(continued from previous page)

Table 1: Summary Statistics, Means	
	(1)
Firm is Organized as an S- or C- Corporation	0.29434
	(0.01046)
Firm is Organized as a Limited Liability Company	0.31090
	(0.01048)
Firm Has Employees	0.52827
	(0.00889)
Number of Hours Owner Works Per Week	40.98862
	(0.45015)
Owner Years of Experience in Industry	12.60970
	(0.24098)
Age of Owner	47.16254
	(0.23913)
=1 if Multiple Owners	0.38295
	(0.01068)
=1 if Owner Believes Possesses Comparative Advantage	0.57038
	(0.00807)
=1 if Firm Possesses Intellectual Property	0.19009
	(0.00714)
=1 if Firm is Located in Owner's Home	0.49384
	(0.01121)
=1 if Firm Offers a Product	0.12694
	(0.00641)
=1 if Firm Offers a Service	0.51570
	(0.01021)
=1 if Firm Offers Both Prodcuts and Services	0.35187
	(0.00919)
Number of Firm Year Observations	17,287
Share of Firms who Are Operating in 2011	0.506
Standard errors in parentheses. The estimated means are weighted by population probabilitites to account for the survey stratification strategy.	

Table 2: Any Bank Loan, All Firms						
	(1)	(2)	(3)	(4)	(5)	(6)
Distance to Nearest Community Bank Branch	-0.013***	-0.019***	-0.016***	-0.017***	-0.013*	-0.004*
(Per Establishment/Square Mile Land Area)/mill	(0.002)	(0.002)	(0.004)	(0.004)	(0.007)	(0.002)
Share of Community Banks in County with 50% or More of	0.057**	0.031	0.018	0.038		-0.006
Deposits Inside County	(0.025)	(0.026)	(0.024)	(0.024)		(0.044)
Number of Bank Branches within 10 Miles	-0.041	-0.010	0.020	0.064	-0.069	-0.153
(Per County Establishments)	(0.144)	(0.150)	(0.135)	(0.136)	(0.096)	(0.095)
Herfindhal-Hirschman Index, Bank Deposits	-27.178**	-19.847	-13.775	23.364		3.357
	(12.851)	(12.974)	(13.110)	(16.125)		(28.680)
=1 if Credit Score Between 30th and 70th Percentile			-0.031**	-0.029**	-0.016	-0.004
			(0.013)	(0.013)	(0.012)	(0.011)
=1 if Credit Score Lower than 30th Percentile			-0.049***	-0.047***	-0.036**	-0.022
			(0.015)	(0.015)	(0.015)	(0.015)
=1 if Not Rated Due to High Risk, Indu. Bankruptcy			-0.066**	-0.068**	-0.034	-0.036
			(0.032)	(0.032)	(0.032)	(0.038)
=1 if No Credit Score			-0.021	-0.019	-0.010	-0.022
			(0.017)	(0.017)	(0.016)	(0.016)
Firm is Organized as an S- or C- Corporation			0.041***	0.046***	0.032**	
			(0.014)	(0.014)	(0.016)	
Firm is Organized as a Limited Liability Company			0.052***	0.056***	0.057***	
			(0.014)	(0.014)	(0.015)	
Number of Hours Owner Works Per Week			0.002***	0.002***	0.001***	0.001***
			(0.000)	(0.000)	(0.000)	(0.000)
Owner Years of Experience in Industry			-0.018***	-0.017***	-0.010	
			(0.006)	(0.006)	(0.006)	
=1 if Firm Has Employees			0.062***	0.063***	0.049***	0.025***
			(0.010)	(0.010)	(0.009)	(0.008)
=1 if Multiple Owners			-0.002	-0.003	-0.005	-0.025
			(0.012)	(0.012)	(0.013)	(0.018)
=1 if Owner Believes Possesses Comparative Advantage			0.002	0.002	0.003	-0.004
			(0.009)	(0.009)	(0.008)	(0.008)
=1 if Owner Possesses Intellectual Property			0.015	0.017	0.024**	0.011
			(0.012)	(0.012)	(0.012)	(0.014)
=1 if Firm is Located in Owner's Home			-0.030***	-0.027**	-0.035***	
			(0.011)	(0.011)	(0.012)	
=1 if Firm Offers a Product			0.054	0.055	0.038	
			(0.041)	(0.043)	(0.047)	
=1 if Firm Offers a Service			0.031	0.029	0.021	
			(0.040)	(0.043)	(0.047)	
=1 if Firm Offers Both Products and Services			0.060	0.058	0.048	
			(0.041)	(0.043)	(0.047)	

(continued on next page)

(continued from previous page)

Table 2: Any Bank Loan, All Firms						
	(1)	(2)	(3)	(4)	(5)	(6)
Age of Owner			0.005	0.004	0.006	
			(0.003)	(0.003)	(0.004)	
Age of Owner Squared			-0.000	-0.000	-0.000	
			(0.000)	(0.000)	(0.000)	
Log of County GDP				-0.021		0.053
				(0.014)		(0.079)
Log of County HPI				0.005		-0.009
				(0.011)		(0.031)
Log of County Income from Investment				0.001		0.034
				(0.013)		(0.035)
Year FEs	N	Y	Y	Y	Y	Y
Industry FEs	N	N	Y	Y	Y	N
County FEs	N	N	N	N	Y	N
Firm FEs	N	N	N	N	N	Y
N	17181.000	17181.000	16465.000	16465.000	16513.000	16841.000
R2	0.002	0.011	0.072	0.076	0.235	0.020
Standard errors in parentheses: * p<0.10, ** p<0.05, *** p<0.01						

Table 3: Any Bank Loan

	A. Urban Firms						B. Rural Firms					
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Distance to Nearest Community Bank Branch	-0.013***	-0.019***	-0.016***	-0.016***	-0.012*	-0.004*	-772.130	-620.661	-470.310	-84.862	2520.281	1469.551
(Per Establishment/Square Mile Land Area)/mill	(0.002)	(0.002)	(0.004)	(0.004)	(0.007)	(0.002)	(658.289)	(617.933)	(618.709)	(670.551)	(3334.096)	(3427.074)
Share of Community Banks in County with 50% or More of Deposits Inside County	0.039	0.012	0.003	0.024		-0.029	0.189***	0.171***	0.138**	0.110*		0.190**
	(0.027)	(0.027)	(0.026)	(0.026)		(0.048)	(0.066)	(0.065)	(0.062)	(0.066)		(0.093)
Number of Bank Branches within 10 Miles	-0.027	0.004	0.026	0.056	-0.071	-0.155	2.703	3.090	3.784*	3.699*	-2.398	-1.200
(Per County Establishments)	(0.144)	(0.149)	(0.136)	(0.136)	(0.096)	(0.096)	(2.743)	(2.705)	(2.016)	(1.903)	(2.705)	(2.215)
Herfindhal-Hirschman Index, Bank Deposits	-20.703	-13.300	-8.336	22.236		1.337	-10647.867	10207.219	-9298.711	-5232.445		-2145.531
	(12.932)	(13.078)	(13.208)	(16.412)		(28.610)	(5973.031)	(6084.196)	(6006.871)	(7914.046)		21282.177)
Year FEs	N	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y
Time-Varying Firm Controls	N	N	Y	Y	Y	Y	N	N	Y	Y	Y	Y
Time-Invariant Firm Controls	N	N	Y	Y	Y	N	N	N	Y	Y	Y	N
Industry FEs	N	N	Y	Y	Y	N	N	N	Y	Y	Y	N
Time-Varying County Controls	N	N	N	Y	N	Y	N	N	N	Y	N	Y
County FEs	N	N	N	N	Y	N	N	N	N	N	Y	N
Firm FEs	N	N	N	N	N	Y	N	N	N	N	N	Y
N	16186.000	16186.000	15496.000	15496.000	15534.000	15864.000	995.000	995.000	969.000	969.000	979.000	977.000
R2	0.001	0.010	0.073	0.076	0.219		0.034	0.060	0.163	0.170	0.469	
R2 (Within Estimation)						0.020						0.074

Table 4: Urban Firms Only, Multiple Outcomes

	A. County Fixed Effects						B. Firm Fixed Effects					
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Bank Loans				Credit Cards		Bank Loans				Credit Cards	
Outcome	*Any*	*Personal for Business Purposes*	*Business*	*Business LOC*	*Business*	*Personal*	*Any*	*Personal for Business Purposes*	*Business*	*Business LOC*	*Business*	*Personal*
Distance to Nearest Community Bank	-0.012*	-0.012**	-0.002	-0.001	0.052***	0.073***	-0.004*	-0.005***	-0.000	0.000	0.011***	0.091***
(Per Establishment Square Mile Land Area)	(0.007)	(0.005)	(0.003)	(0.006)	(0.012)	(0.008)	(0.002)	(0.002)	(0.002)	(0.002)	(0.003)	(0.003)
Share of Community Banks in County with 50% or More of Deposits Inside County							-0.029	-0.023	-0.006	0.012	0.062	0.141***
							(0.048)	(0.045)	(0.026)	(0.043)	(0.052)	(0.054)
Number of Bank Branches within 10 Miles	-0.071	-0.068	-0.003	0.029	-0.001	-0.038	-0.155	-0.136	-0.039	-0.114	0.131	0.164
(Per County Establishments)	(0.096)	(0.088)	(0.064)	(0.119)	(0.188)	(0.176)	(0.096)	(0.089)	(0.044)	(0.095)	(0.147)	(0.158)
Herfindhal-Hirschman Index, Bank Deposits							1.337	-9.399	-7.943	-23.613	21.287	0.922
							(28.610)	(24.320)	(22.608)	(18.358)	(34.188)	(36.120)
Year FEs	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Time-Varying Firm Controls	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Time-Invariant Firm Controls	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N
Industry FEs	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N
Time-Varying County Controls	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y
County Fes	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N
Firm FEs	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y
N	15534	15476	15444	15471	15541	15475	15864	15803	15771	15801	15871	15804
R2	0.219	0.195	0.194	0.247	0.282	0.192						
R2 (Within Estimation)							0.02	0.022	0.004	0.016	0.03	0.026

Standard errors in parentheses: * p<0.10, ** p<0.05, *** p<0.01