2016

SMALL BUSINESS CREDIT SURVEY

REPORT ON RURAL EMPLOYER FIRMS

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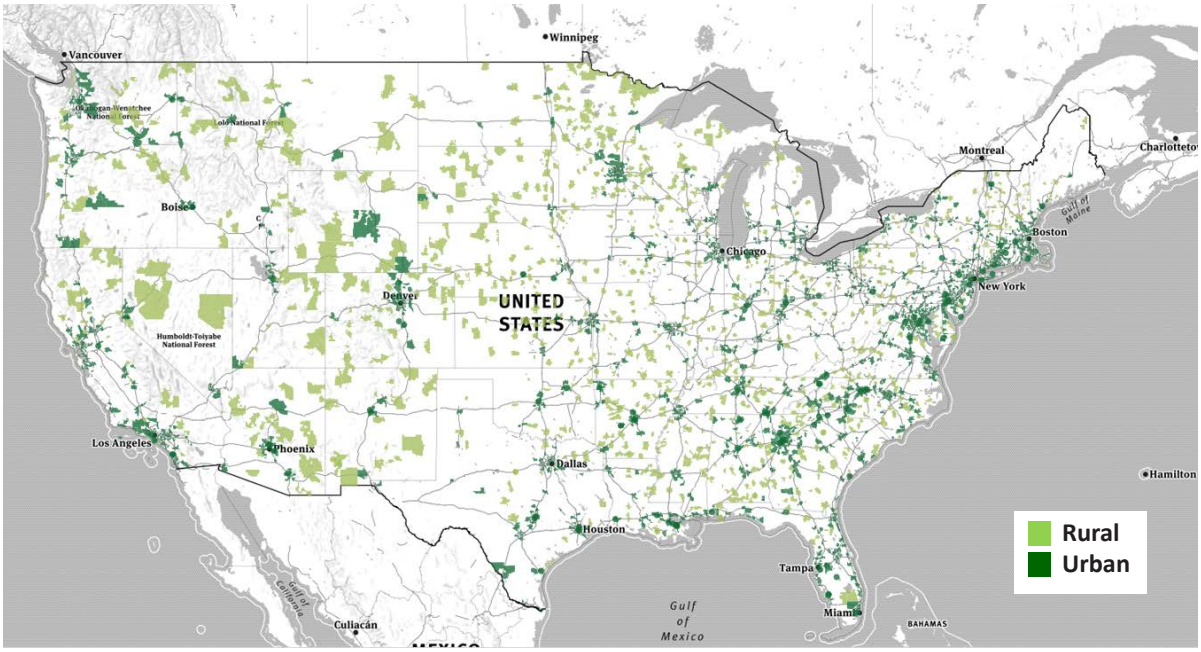
INTRODUCTION

The physical location of rural small employer firms[1] in less densely populated areas presents an economic, demographic and cultural context that is distinct from the one in which urban small employer firms operate. This Report on Rural Employer Firms compares the business and financing conditions of small employer firms located in rural areas[2] to those located in urban areas. This report is part of a series of reports that use data from the 2016 Small Business Credit Survey (SBCS), a national data-collection effort by the twelve Federal Reserve Banks. All differences between urban and rural small employer firms highlighted in this report are statistically significant based on credibility intervals.[3]

Like the nation's population, most small businesses are located in urban areas.[4] Seventeen percent of employer firms are located in rural areas of the country. Map 1 shows the geographic location of urban and rural SBCS respondents, according to the zip code of the employer firm.

MAP 1: GEOGRAPHIC DISTRIBUTION OF SBCS RESPONDENT FIRMS BY ZIP CODE[5]



THIS REPORT ADDRESSES THE FOLLOWING QUESTIONS:

- What characteristics besides their location distinguish rural small employer firms from those in urban areas?
- How does the typical rural small employer firm conduct its search for financing?
- How successful are rural small employer firms in their financing search?
- What factors are associated with a successful financing search for rural small employer firms?

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[1] For the purposes of this report, small employer firms are firms with one to 499 employees, not including the owner(s).
[2] Businesses are classified as being in a rural location if their zip code is not economically connected to an urban cluster of at least 50,000 people. Zip code-level Rural-Urban Commuting Area Codes (RUCAs) can be found at http://depts.washington.edu/uwruca/. RUCAs of 4.0 or higher are classified as 'rural'.
[3] A credibility interval is a model-based version of a confidence interval and is used because the sample is not random. See the Methodology section for a full explanation.
[4] According to the U.S. Census the share of the population located in rural areas was 19.3 percent in 2010.
[5] Alaska and Hawaii are not shown on Map 1, but are included in survey results.

Source: Small Business Credit Survey, Federal Reserve Banks

KEY FINDINGS

Compared to firms located in urban areas,

1. **Firms in rural areas are more stable.**

    - Rural small employer firms are less likely to be growing[6]: 23 percent compared to 30 percent of urban firms.
    - Rural small employer firms tend to be older than urban firms: 30 percent are over 20 years old compared to 22 percent of urban firms.
    - Rural small employer firms are less likely to apply for financing to expand their business: 57 percent of applicant rural firms compared to 65 percent of applicant urban firms.

2. **Firms in rural areas face less financing constraints.**

    - Rural small employer firms, on average, report having higher credit scores: 71 percent of rural small employer firms are low credit risk[7] compared to 64 percent of urban firms.
    - A smaller share of rural small employer firms experienced financial challenges in the prior 12 months: 55 percent of rural small employer firms compared to 62 percent of urban firms.
    - Rural small employer firms were more likely to indicate that they had sufficient financing: 51 percent of rural small employer firms compared to 45 percent of urban firms.
    - A larger share of rural small employer firms received the full amount of financing they were seeking: 51 percent of applicant rural firms compared to 38 percent of applicant urban firms.

3. **Small banks play a bigger role in rural areas.**

    - Banks in rural areas are more likely to be small,[8] and rural small employer firms are more likely to apply to a small bank than to a large bank.[9]
    - Rural small employer firms' ability to access credit is partially attributable to differences in firm characteristics and the share of small bank branches in a respondent's zip code. Small banks comprise a relatively larger portion of the banking sector in rural areas. When the market concentrations of small banks in urban and rural zip codes are held constant, urban and rural small employer firms received similar shares of the amount they requested.

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[6] Growing firms are defined as firms that expanded their workforce and had an increase in revenues from approximately the second half of 2015 through the second half of 2016 and that did not anticipate declines in their workforce numbers from approximately the second half of 2016 through the second half of 2017.

[7] Self-reported business credit score or personal credit score, depending on which is used to obtain financing for their business. If the firm uses both, the higher risk rating is used. 'Low credit risk' is a 80-100 business credit score or 720+ personal credit score. 'Medium credit risk' is a 50–79 business credit score or a 620–719 personal credit score. 'High credit risk' is a 1–49 business credit score or a < 620 personal credit score.

[8] The geospatial analysis of small banks in this report relies on the small bank definition provided by the Federal Deposit Insurance Corporation (FDIC), which they define as banks with $10B or less in total assets.

[9] The SBCS defines small banks as banks with less than $10B in total deposits.

Source: Small Business Credit Survey, Federal Reserve Banks

BACKGROUND

The economic environment of rural areas is distinct from that in which urban small businesses operate. Urban areas have economies of scale and high population density, which brings certain agglomeration benefits. For example, urban economies feature larger labor pools, greater customer bases and lower transportation costs than rural parts of the country. Businesses in urban areas also benefit from knowledge spillovers that occur from industry clusters.[10]

While these factors can help urban firms be more productive, agglomeration economies come with challenges as well. For example, firms in urban areas facer greater competition from startups and are less likely to survive than those operating in rural parts of the country.[11] Firms operating in urban environments also encounter higher operating costs, such as steeper land and labor costs[12] and tend to face more government regulations.[13]

Not only do rural areas have smaller labor pools, their population growth has been slower than that of urban areas over the past few decades, in part due to younger people moving to larger cities in search of better job opportunities or to attend school. [14] Migration has left rural small employer firms with a labor force that is both older and less-educated on average. Health problems such as diabetes and opioid abuse have also disproportionally impacted rural populations, further reducing the supply of labor in recent years.[15]

While rural small employer firms face many resource and workforce challenges, research shows they do not tend to struggle as much as their urban counterparts to find financing.[16] There are a number of federal financing programs designed to increase rural access to credit, including loans, loan guarantees and grants provided by the U.S. Department of Agriculture.[17] These programs are an asset to rural small employer firms and represent a pool of financing that urban firms cannot access. In addition, the owners of firms in rural areas tend to be older and have longer credit histories, both of which tend to be correlated with a firm's perceived ability to repay. Finally – and of greatest consequence to the findings in this report – financial networks in rural communities are often dominated by small community banks. Researchers have found that a relationship approach to banking can be especially advantageous to small businesses and banks in rural areas, because greater social capital in these areas allows for more informed transactions.[18] In addition, past research using the SBCS data has found that employer firms who apply to small banks are more likely to be approved than employer firms who apply to large banks.[19]

These economic, demographic and banking differences help explain the differences in business conditions and financing outcomes of urban and rural small employer firms in the SBCS. Of particular importance in explaining differing financing outcomes for rural small employer firms is the relatively larger presence of small banks in rural areas.

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[10] See Carlino (2011): Three Keys to the City: Resources, Agglomeration Economies and Sorting, U.S. Census Bureau (December 2016): A Comparison of Rural and Urban America: Household Income and Poverty, and Pinto & Sablik (May 2017): Understanding Rural Decline.

[11] Fifteen percent of firms in metro locations are under two years old, compared to 11 percent of firms in non-metro areas, according to 2014 data from Business Dynamic Statistics, U.S. Census Bureau. Establishment exit rates are higher in urban areas overall (8.8 in metro areas versus 8.0 in nonmetropolitan areas) and within most age groups as well. Bird & Sapp (2004) find that businesses in rural areas were twice as likely to be one-of-a-kind in terms of their five-digit Standard Industrial Classification (SIC) code in their communities. Gu et al. (2008) suggest that there may fewer startups in rural areas due to fewer entrepreneur resource programs, less individual wealth and generally differing entrepreneur environments.

[12] See Glaeser (2010): Agglomeration Economics and Renski (2009): New Firm Entry, Survival and Growth in the United States: A Comparison of Urban, Suburban and Rural Areas.

[13] See Saiz (2010): The Geographic Determinants of Housing Supply.

[14] According to the U.S. Census the share of the population located in rural areas declined from 54.4 percent in 1910 to 19.3 percent in 2010. According to research from the U.S. Department of Agriculture, this is partially due to migration patterns, lower birth rates, and a reclassification of rural areas to urban as they expand.

[15] In a November 2017 speech, Atlanta Fed President Raphael Bostic highlighted the lower labor force participation rates of prime age persons in rural areas due to an inability to work for health or disability reasons. Cross-state analysis suggests that diabetes and heart disease are the ailments most correlated with a state's nonparticipation rate for health or disability reasons. Researchers at the U.S. Department of Agriculture show that mortality rates are higher among working-age adults in rural areas and speculate that the higher share of opioid use in rural areas is a cause.

[16] Briggeman & Akers (2010) find that rural small employer firms have less trouble finding credit even when controlling for debt to asset ratio, farm collateral, and owner demographics. Bird & Sapp (2004) find that rural small employer firms in Iowa were more likely to obtain financing in Iowa, controlling for owner characteristics and business age and size. However, Drabenstot (1995) finds rural small employer firms struggle more than urban firms when searching for equity financing.

[17] These include Business and Industry (B&I) Loan Guarantees and Value-Added Producer Grants (VAPG). See "Programs and Services," U.S. Department of Agriculture Rural Development for the full list.

[18] DeYoung et al.(2012) find that default rates are lower among rural small business and banks compared to businesses and banks located in urban areas.

[19] In the 2016 SBCS Report on Employer Firms, 67 percent of employer firms that applied for a loan or line of credit at a small bank were approved for at least some financing, compared to 54 percent of applicants to large banks.

Source: Small Business Credit Survey, Federal Reserve Banks

ABOUT THE SMALL BUSINESS CREDIT SURVEY

The SBCS is an annual survey of firms with fewer than 500 employees. These types of firms represent 99.7 percent of all employer establishments in the United States. The 2016 SBCS, which was fielded in Q3 and Q4 2016, yielded 10,303 responses from employer firms in 50 states and the District of Columbia. SBCS data is not drawn from a random sample of U.S. businesses, but the data are weighted by firm age, industry, number of employees, and geography to assure that results are nationally representative. For detailed information about the survey design and weighting, please see the Methodology section.

Source: Small Business Credit Survey, Federal Reserve Banks

Rural small employer firms and their primary financial decision makers are generally older compared to urban small employer firms (see Figures 1 and 2), which is unsurprising given the previously discussed population trends in urban and rural areas. Sixteen percent of small employer firm owners in rural areas are over 65 years old, compared to 12 percent of urban small employer firm owners.

FIGURE 1: AGE OF FIRM[i, ii]
(% of employer firms)

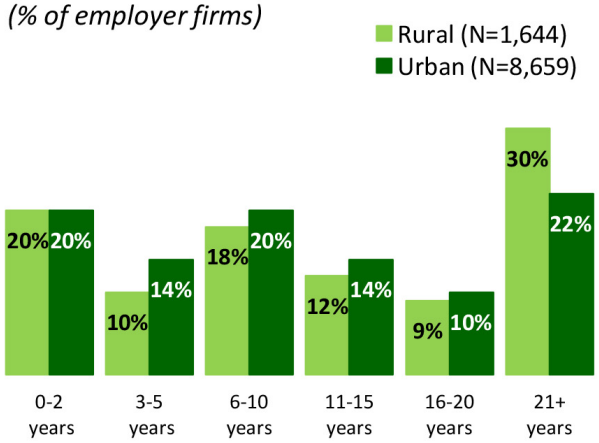
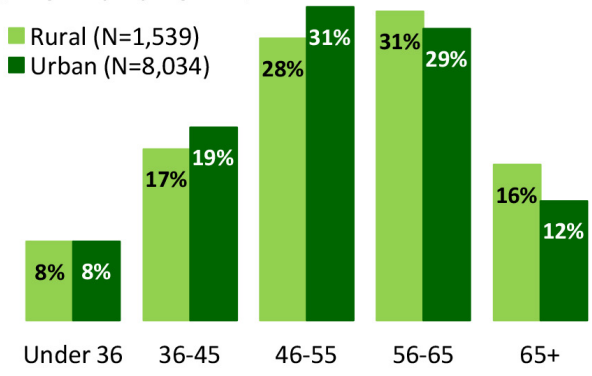


FIGURE 2: AGE OF FIRM'S PRIMARY FINANCIAL DECISION MAKER[ii]
(% of employer firms)



In terms of annual revenues and number of employees, employer firms in rural areas are slightly smaller on average (see Figures 3 and 4). Employer firms in rural areas are also less likely to employ contract workers compared to urban employer firms (34 percent and 44 percent, respectively). At least part of this difference can be explained by the industry distribution of employer firms in rural areas; rural small employer firms are less likely to be in the two industry groups most likely to employ contract workers: professional services and healthcare/education (see Figure 5).[20]

FIGURE 3: REVENUE SIZE OF FIRM
(% of employer firms)

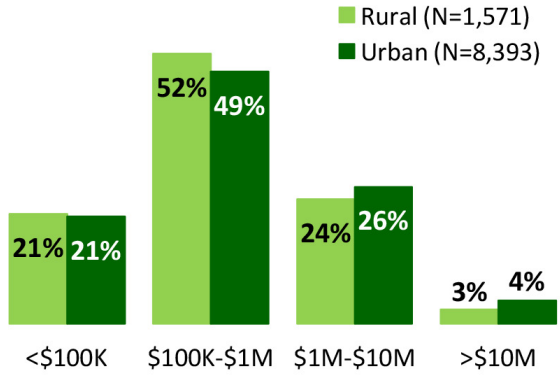
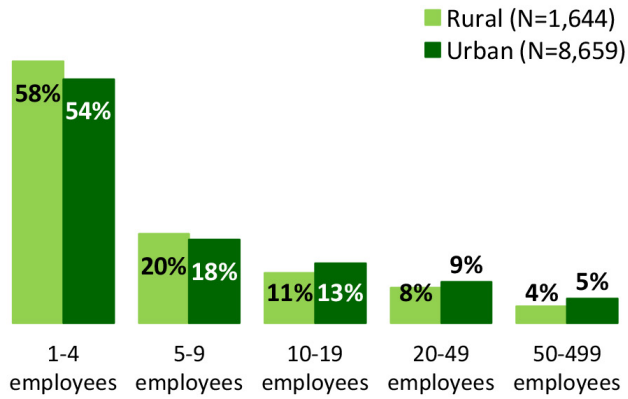


FIGURE 4: NUMBER OF EMPLOYEES[i, ii]
of employer firms)

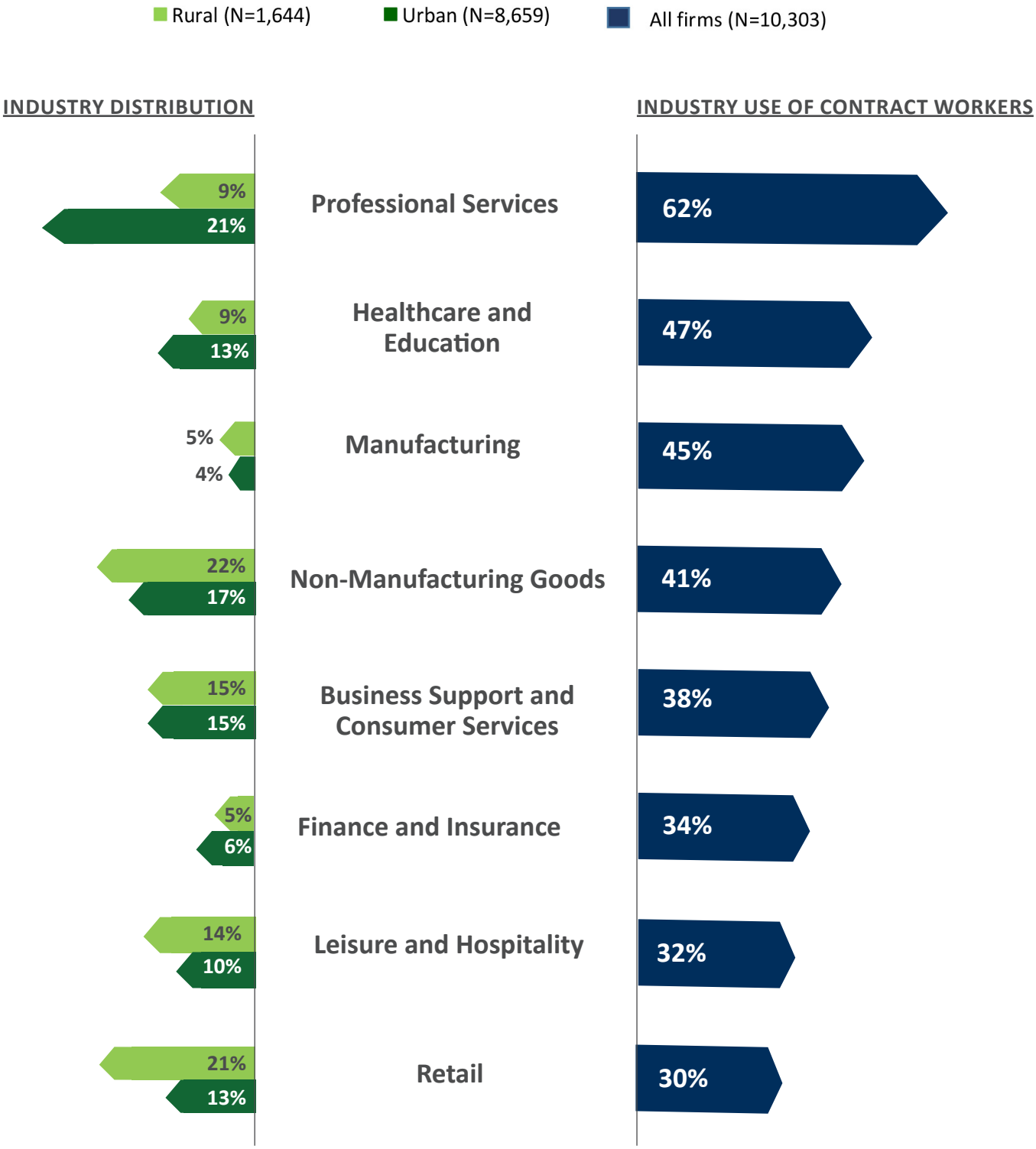


i *SBCS responses throughout the report are weighted using Census data to represent the US small business population on the following dimensions: firm age, size, industry, and geography. For details on weighting, see the Methodology section.*
ii *Percentages may not sum to 100 due to rounding.*

[20] Firm age also helps explain differences in use of contractors between urban and rural small employer firms. Even within the same industry and age, rural small employer firms are still less likely to use contract employees.

Source: Small Business Credit Survey, Federal Reserve Banks

FIGURE 5: INDUSTRY DISTRIBUTION,[i] SORTED BY INDUSTRY USE OF CONTRACT WORKERS



i *SBCS responses throughout the report are weighted using Census data to represent the US small business population on the following dimensions: firm age, size, industry, and geography. For details on weighting, see the Methodology section. Firm industry is classified based on the description of what the business does, as provided by the survey participant. See Appendix in the 2016 SBCS Report on Employer Firms for definitions of each industry.*

Source: Small Business Credit Survey, Federal Reserve Banks

FIRM PERFORMANCE: STABILITY VERSUS GROWTH

In line with the slower economic growth of rural areas discussed in the background, small employer firms in rural areas are more likely to possess several characteristics associated with stability, while small employer firms in urban areas are more likely to be increasing in size. A larger share of small employer firms in urban areas (30 percent) are "growing"— having increased their revenues and staff in the past year, with plans to increase or maintain their number of employees during the next year — compared to 23 percent of small employer firms in rural areas (see Figure 6). Rural small employer firms were also less likely to have applied for financing to expand their business during the prior 12 months (see Figure 7).

FIGURE 6: BUSINESS GROWTH AND DIFFUSION INDICES (DI)[i]
(% of employer firms)

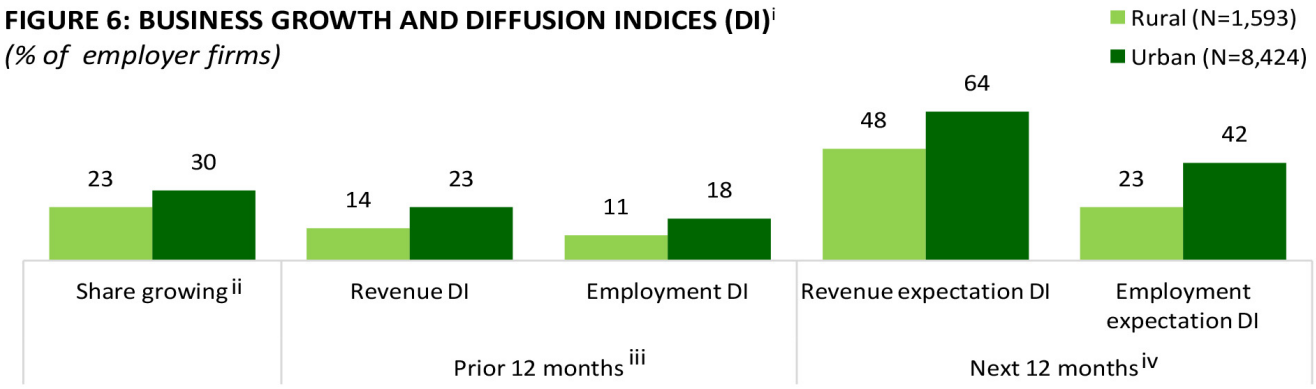
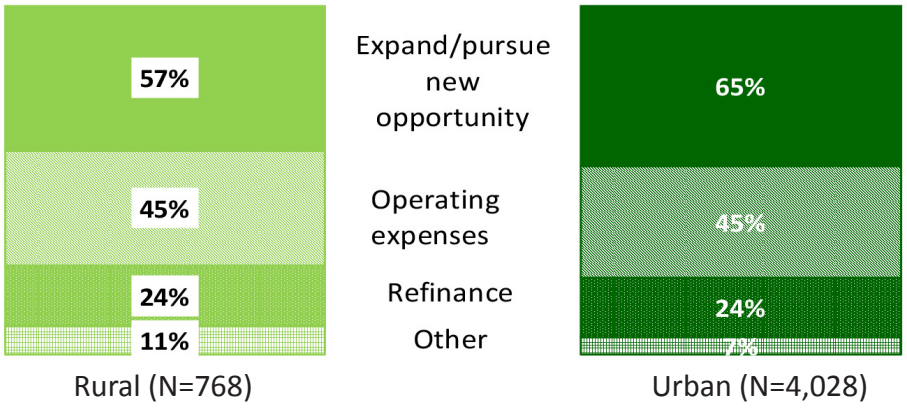


FIGURE 7: REASON[v] **FOR SEEKING FINANCING,** *Prior 12 Months*[iii]
(% of applicants)



i *The diffusion indices are the share of firms with growing revenues or employment minus the share with shrinking revenues or employment.*
ii *Growing firms are firms that expanded their workforce and had an increase in revenues during the past 12 months and that do not anticipate declines in their workforce numbers during the next 12 months.*
iii *Approximately the second half of 2015 through the second half of 2016.*
iv *Expected change in approximately the second half of the surveyed year through the second half of the following year.*
v *Respondents could select multiple options.*

Source: Small Business Credit Survey, Federal Reserve Banks

FIRM PERFORMANCE: STABILITY VERSUS GROWTH

By many measures, small employer firms located in rural areas report fewer problems managing their finances. As previously noted, rural small employer firms tend to be older, and thus likely have a longer credit history. They are more likely to report their credit score in the 'low credit risk' range (see Figure 8) and less likely to have experienced a financial challenge in the prior 12 months compared to urban small employer firms (55 percent and 62 percent, respectively). Specifically, rural small employer firms were less likely to experience challenges with operating expenses as well as challenges with credit availability or funds for expansion (see Figure 9). Despite rural small employer firms facing fewer financial challenges, there was not a statistically significant difference in the share operating at a profit (see Figure 10).

FIGURE 8: CREDIT RISK OF FIRM[i]
(% of employer firms)

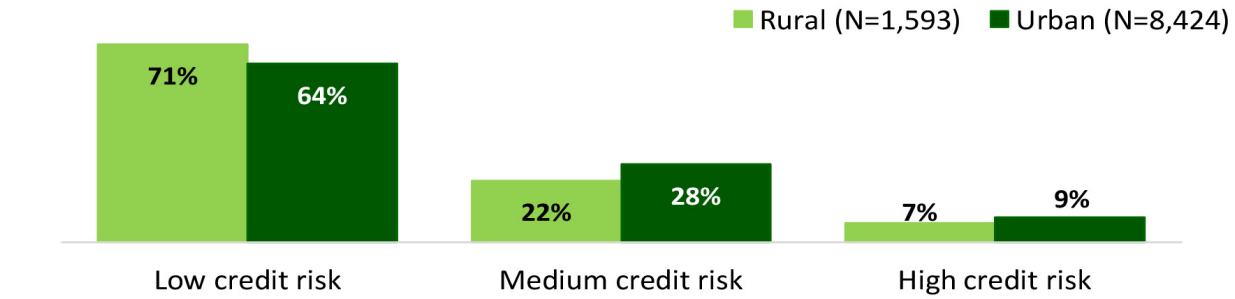


FIGURE 9: TYPES OF FINANCIAL CHALLENGES, *Prior 12 Months*[ii]
(% of employer firms)

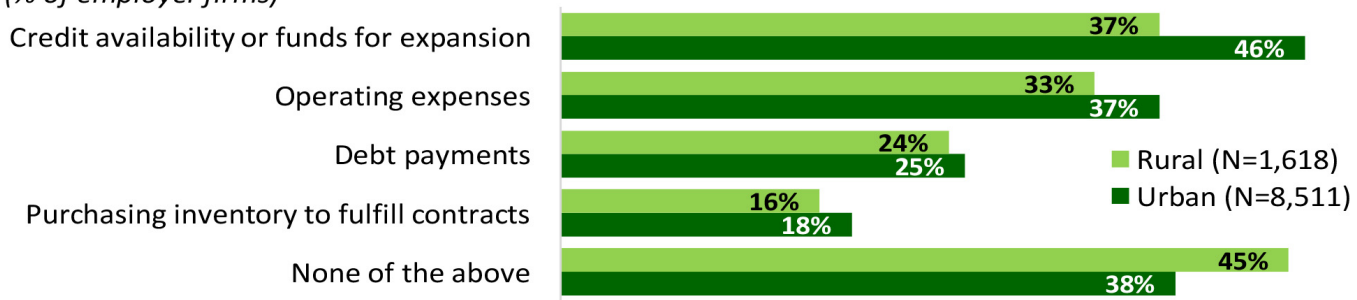
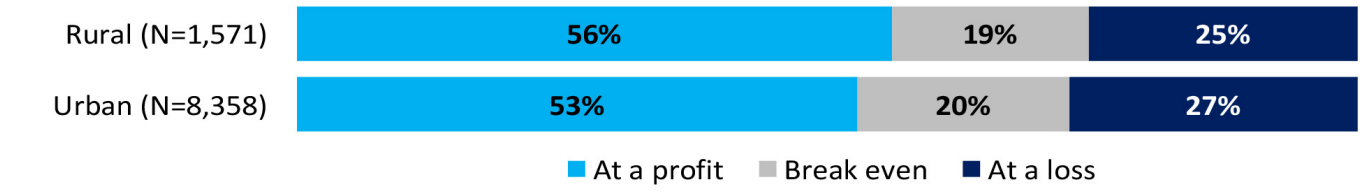


FIGURE 10: PROFITABILITY, *End of 2015*
(% of employer firms)



i *Self-reported business credit score or personal credit score, depending on which is used to obtain financing for their business. If the firm uses both, the higher risk rating is used. 'Low credit risk' is a 80-100 business credit score or 720+ personal credit score. 'Medium credit risk' is a 50–79 business credit score or a 620–719 personal credit score. 'High credit risk' is a 1–49 business credit score or a < 620 personal credit score.*
ii *Approximately the second half of 2015 through the second half of 2016.*

Source: Small Business Credit Survey, Federal Reserve Banks

USE OF FINANCING

Rural small employer firms are slightly more likely than urban small employer firms to utilize external financing (see Figure 11). A greater share of rural small employer firms that did not apply for financing indicated having sufficient financing (see Figure 12). Rural nonapplicants were also less likely to be discouraged about the financing application process than urban nonapplicants (13 percent and 18 percent, respectively). A similar share of rural and urban employer firms have prior outstanding debt (72 percent and 70 percent, respectively) and a similar share applied for financing in the prior 12 months (43 percent and 46 percent, respectively).

FIGURE 11: PRIMARY FUNDING SOURCE
(% of employer firms)

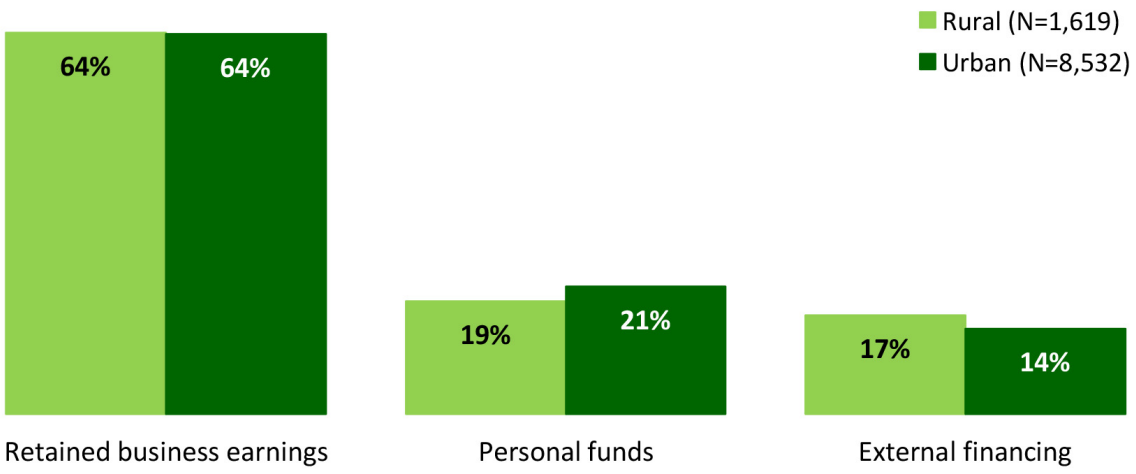
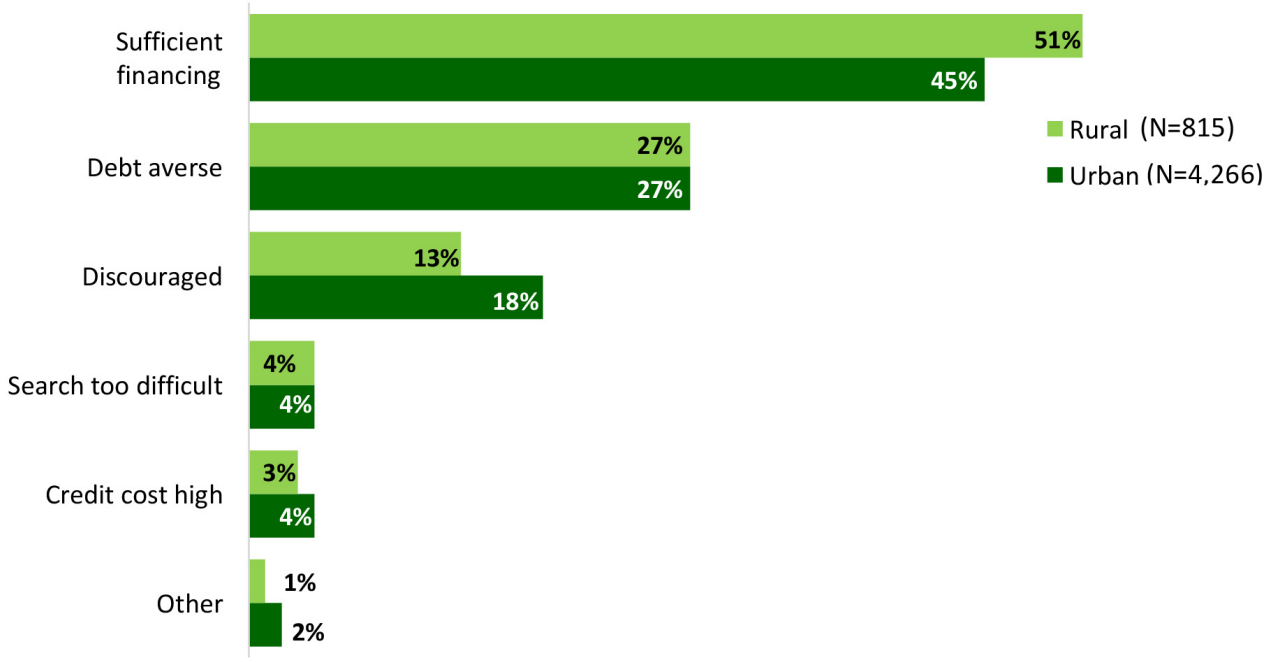


FIGURE 12: PRIMARY REASON FOR NOT APPLYING
(% of nonapplicants)



Source: Small Business Credit Survey, Federal Reserve Banks

Urban and rural small employer firms applied for similar amounts of financing, with the majority of small employer firms applying for $100,000 or less (see Figure 13). Regardless of their geographic location, employer firms were most likely to apply for loan and line of credit (LOC) products – including business and personal loans – and rural small employer firms were less likely than urban firms to apply for credit cards, leasing or factoring (see Figure 14). Urban and rural small employer firms exhibited different preferences for specific loan and line of credit products; rural small employer firms were more likely to seek auto and equipment loans and less likely to apply for lines of credit, loans backed by the Small Business Administration (SBA) and cash advances (see Figure 15).

FIGURE 13: TOTAL AMOUNT OF FINANCING SOUGHT
(% of applicants)

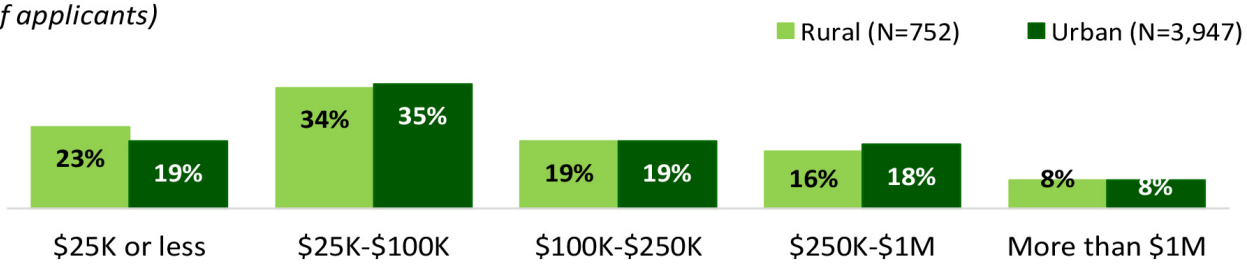


FIGURE 14: FINANCING AND CREDIT PRODUCTS[i] SOUGHT
(% of applicants)

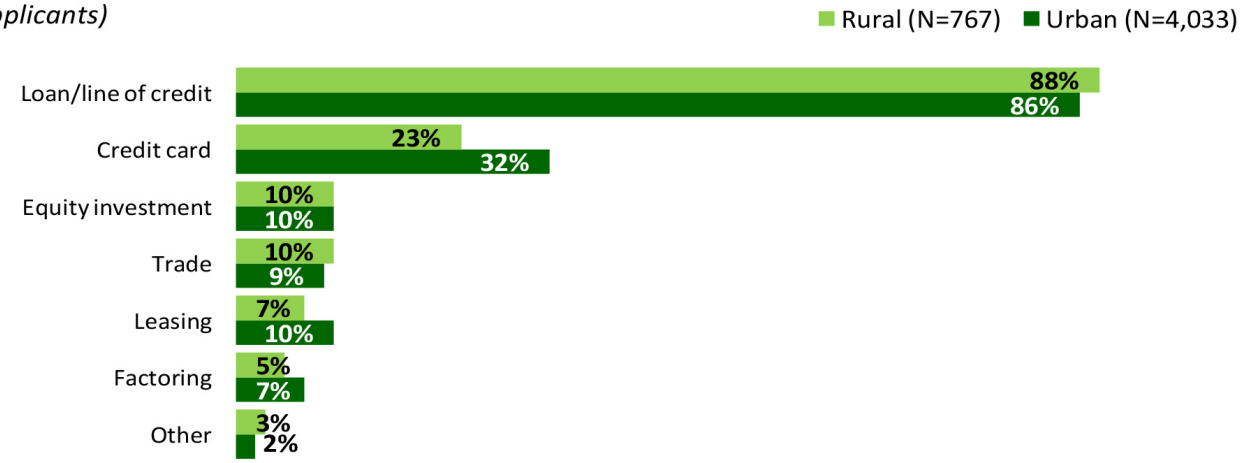
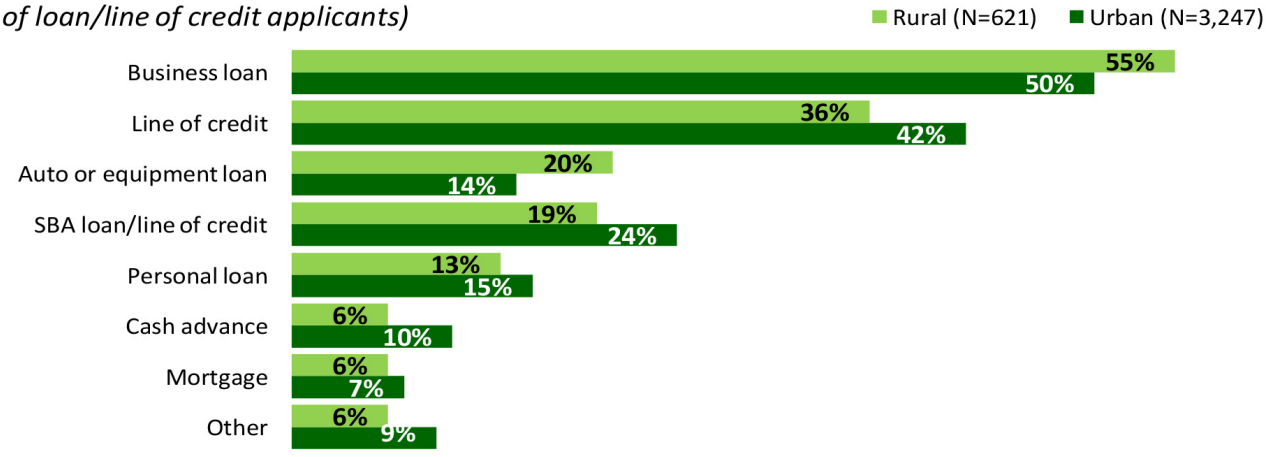


FIGURE 15: LOAN AND LINE OF CREDIT PRODUCTS[i] SOUGHT
(% of loan/line of credit applicants)



i *Respondents could select multiple options.*

Source: Small Business Credit Survey, Federal Reserve Banks

Different factors influenced where urban and rural small employer firms applied for financing. Rural small employer firms were much more likely to choose a lender based on an existing relationship and less likely to be concerned about the speed at which they received a decision or the flexibility of the product (see Figure 16). These differing preferences likely impacted their lender choice for loans and lines of credit.[21] Small employer firms in rural areas were much more likely to submit a credit application to a small bank and less likely to submit a credit application to a large bank or an online lender (see Figure 17).

FIGURE 16: FACTORS[i] INFLUENCING WHERE FIRMS APPLIED
(% of applicants)

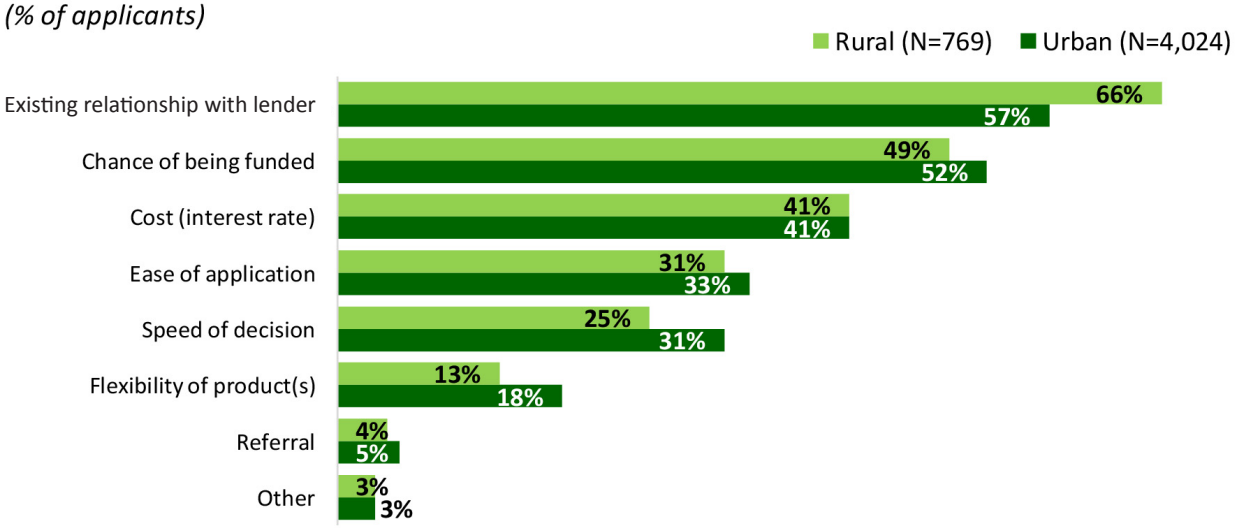
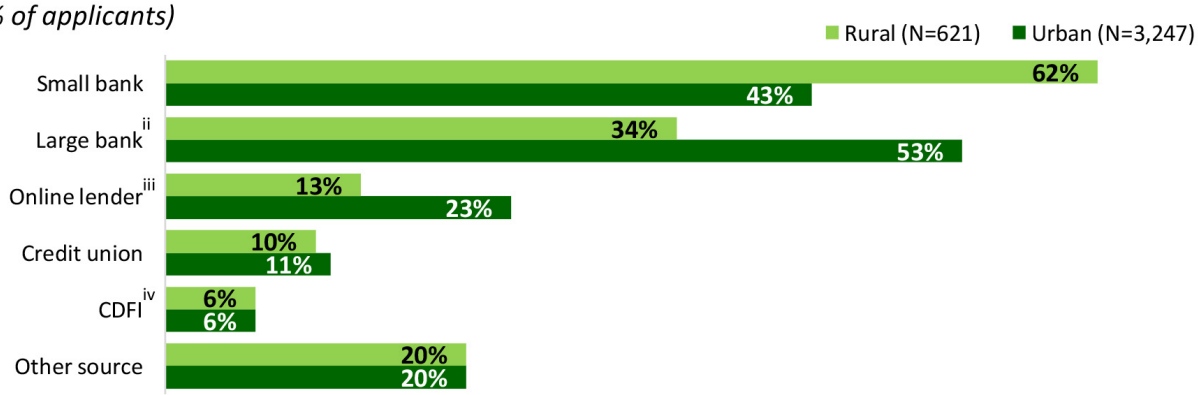


FIGURE 17: APPLICATION RATES BY CREDIT SOURCE
(% of applicants)



i *Respondents could select multiple options.*
ii *Respondents were provided a list of large banks (those with at least $10B in total deposits) operating in their state.*
iii *'Online lenders' are defined as nonbank alternative and marketplace lenders, including Lending Club, OnDeck, CAN Capital, and PayPal Working Capital.*
iv *Community development financial institutions (CDFIs) are financial institutions that provide credit and financial services to underserved markets and populations.*

[21] In the 2016 SBCS Report on Employer Firms, a long wait on a credit decision was a much more common reason for dissatisfaction with banks than with online lenders. Firms who applied to small banks were more likely to report that their existing relationship with the lender impacted where they applied (66 percent of small bank applicants versus 56 percent of applicants who applied elsewhere).

Source: Small Business Credit Survey, Federal Reserve Banks

Without controlling for differing characteristics, small employer firms located in rural areas were more likely to be approved for financing than those located in urban areas (see Figure 18). Over half of rural small employer firms that applied for financing were approved for the full share they were seeking, compared to 38 percent of urban small employer firms.

However, much of this disparity may be due to the aforementioned differing attributes between urban and rural small employer firms. For example, rural small employer firms are less likely to report experiencing a financial difficulty in the prior 12 months. They also tend to have lower credit risk as measured by their self-reported credit score and longer credit histories.

Additionally, a firm's proximity to small banks appears to be important. Small employer firms located in rural areas tend to have greater access to small banks. A geospatial analysis at the zip code level shows that, on average, half of all bank branches located in rural zip codes are associated with banks that have total assets less than or equal to $10 billion, and are thus classified as small banks. In urban zip codes, 25 percent of bank branches are small bank branches (see Figure 19). This proximity increases the likelihood that a rural small employer firm applies to a small bank. Rural small employer firms are 20 percent more likely to apply to a small bank than urban small employer firms, even when differing firm characteristics and lender preferences are controlled for.[22]

The higher concentration of small banks in rural areas also helps explain higher approval rates among rural small employer firms. Once the share of banks in a respondent's zip code is controlled for, along with differing firm characteristics and lender preferences, urban and rural small employer firms have similar success obtaining financing.[23]

FIGURE 18: TOTAL FINANCING RECEIVED[i]

(% of applicants)

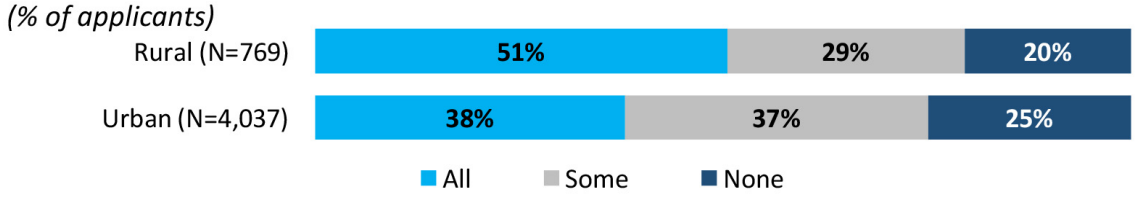
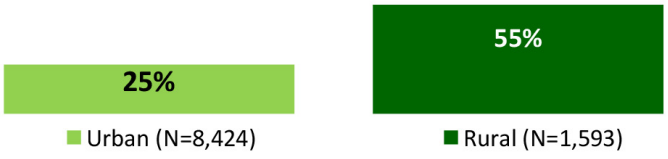


FIGURE 19: SHARE OF SMALL BANKS[ii] **IN RESPONDENT'S ZIP CODE**

(% of employer firms)



Source: Statistics on Depository Institutions, Federal Deposit Insurance Corporation and 2016 SBCS.

i *Share of financing received across all types of financing. Response option 'unsure' excluded from chart*
ii *The Federal Deposit Insurance Corporation (FDIC) defines banks with $10B or less in total assets as small.*

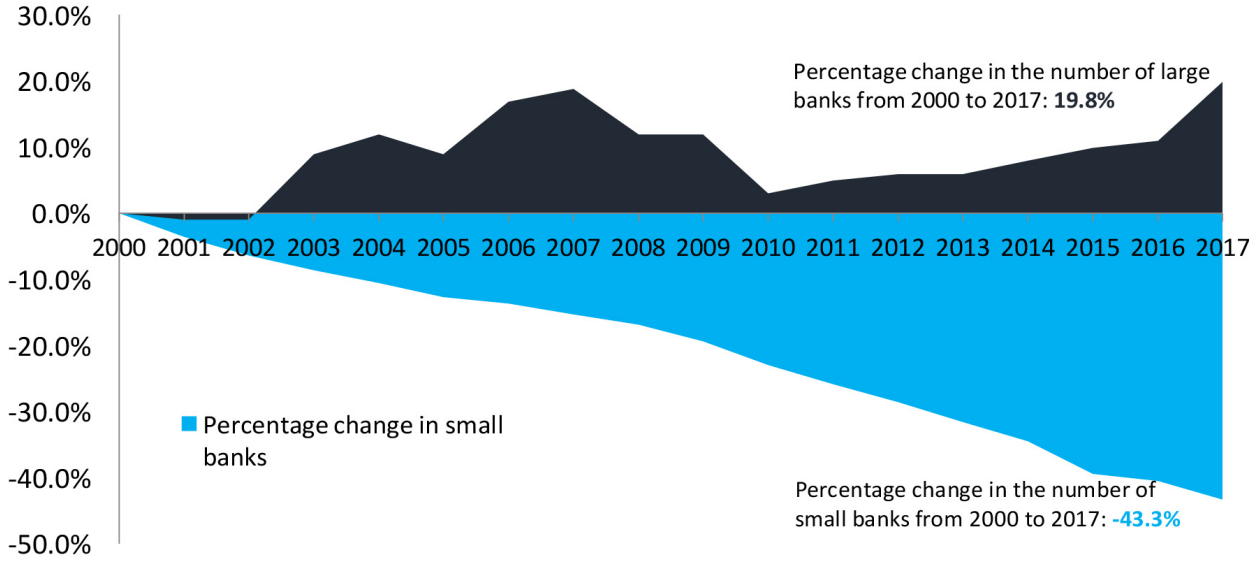
[22] See "Regression of Small Bank Application Decision" located in the Appendix for full details.
[23] See "Regression of Financing Approval Index" located in the Appendix for full details.

Source: Small Business Credit Survey, Federal Reserve Banks

CREDIT IMPLICATIONS OF SMALL BANK CONSOLIDATION

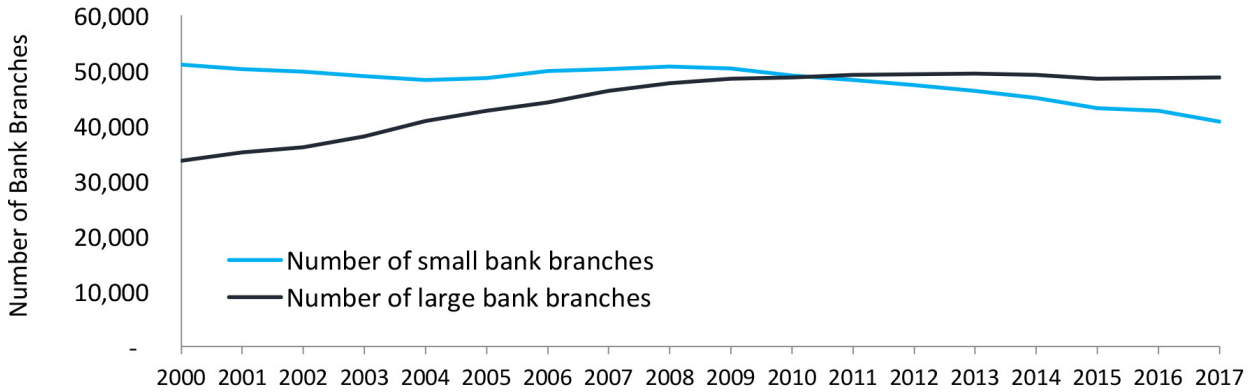
Data from the Small Business Credit Survey has consistently made evident the important role that small banks play in providing small business access to credit.[24] Small bank concentration in rural areas appears to be an important contributing factor that allows rural small employer firms to more readily access credit than their urban counterparts. However, the number and market share of small banks and small bank branches have generally been declining over time (see Figures 20 and 21). This small bank decline may have credit implications for small businesses and may be an important consideration for policymakers when crafting rules or regulations that could disproportionately impact small banks.

FIGURE 20: PERCENTAGE CHANGE IN LARGE AND SMALL[i] BANKS



Source: Statistics on Depository Institutions 2000-2017, Federal Deposit Insurance Corporation.

FIGURE 21: NUMBER OF LARGE AND SMALL[i] BANK BRANCHES



Source: Statistics on Depository Institutions 2000-2017, Federal Deposit Insurance Corporation.

i *The Federal Deposit Insurance Corporation (FDIC) defines banks with $10B or less in total assets as small and those with greater than $10B in total assets as large.*

[24] Approval rates were higher at small banks than large banks in both the 2016 SBCS Report on Employer Firms and the 2015 SBCS Report on Employer Firms.

Source: Small Business Credit Survey, Federal Reserve Banks

CONCLUSION

The SBCS provides strong evidence that rural small employer firms, on average, have different business characteristics and credit experiences than urban firms. While urban firms are younger and more dynamic, rural small employer firms are older and more financially stable. As evidence of their relative financial stability, a greater share of rural small employer firms reported credit scores consistent with being low credit risk. Additionally, rural small employer firms are less likely to experience financial challenges than their urban counterparts. Data from the SBCS also indicate that rural small employer firms can more readily obtain financing than urban small employer firms, which is explained in part by their differing firm characteristics and in part by the higher concentration of small banks in rural areas. The trending decline in the number of small banks and their branches may negatively impact credit accessibility for rural small employer firms, which may be an important consideration for policies related to small banks.

While this report demonstrates the importance of small banks for rural small business access to credit, additional research remains necessary to fully understand that relationship and the potential impact of small bank consolidation on rural small employer firms. For instance, future research may investigate potential shifts in the sources that serve rural small employer firms if small bank consolidation continues. Small business lending done under the Community Reinvestment Act is dominated by large banks and is currently lower in rural areas than in urban areas.[25] Furthermore, a relatively small percentage of rural small employer firms currently apply for financing through online lenders. If small bank consolidation continues, it is possible that rural small employer firms may increasingly apply for financing through large banks and online lenders. However, in very rural areas the lack of broadband access[26] may make it more difficult for credit officers at large banks to use remote databases that allow for credit modeling approaches to lending. Finally, because of transparency issues with online lending, there may be policy considerations for improving the financial education of borrowers more broadly.[27] Future research in the rural small business lending space may want to monitor these trends, the challenges they present, and assess any policies that impact the lending environment for small businesses.

[25] Rupasingha & Wang (2017) find that counties with higher income adjusted CRA lending generally have higher rates of business growth, and that CRA lending tends to be lower in rural counties than urban counties. See also Small Business Lending in the Fifth District, Federal Reserve Bank of Richmond 5th District Footprint, (November 2016).

[26] See Rural America At A Glance: 2017 Edition (2017), U.S. Department of Agriculture.

[27] The most common reasons for dissatisfaction with online lenders in the 2016 SBCS were lack of transparency and high interest rates, a combination that could potentially lead to a surprisingly amount of debt. For example, a 2015 focus group study done by the Cleveland Fed highlighted the confusion of merchant cash advance products that present prepayment terms as a 'buy rate' instead of showing a traditional annual percentage rate.

Source: Small Business Credit Survey, Federal Reserve Banks

APPENDIX

REGRESSION[28] OF FINANCING APPROVAL INDEX[29]

Geographic Location	Coefficient[30]	t	P>t
A rural firm compared to an urban firm	-0.01[31]	-0.15	0.88
Credit Risk			
A medium credit risk firm compared to a low credit risk firm	-0.73	-10	0
A high credit risk firm compared to a low credit risk firm	-0.99	-7.73	0
Age of Business			
A 3-5 year old firm compared to a 0-2 year old firm	-0.15	-1.02	0.311
A 6-10 year old firm compared to a 0-2 year old firm	-0.08	-0.64	0.522
An 11-15 year old firm compared to a 0-2 year old firm	0.05	0.46	0.645
A 16-20 year old firm compared to a 0-2 year old firm	0.01	0.11	0.911
A 21+ year old firm compared to a 0-2 year old firm	0.14	1.37	0.177
Industry of Business			
A firm in the service industry compared to a firm in the goods industry	0.00	0.09	0.931
Revenue Size of Firm			
A $100k to $1M revenue firm compared to a <$100K revenue firm	0.09	0.82	0.414
A $1M to $10M revenue firm compared to a <$100K revenue firm	0.33	2.62	0.011
A >$10M revenue firm compared to a <$100K revenue firm	0.42	2.48	0.016
Profitability			
A profitable firm compared to one operating at a loss or breaking even	0.25	3.76	0
Primary Source of Business Funding			
A firm that primarily uses owner's personal funds compared to a firm that relies mostly on retained earnings	-0.38	-5.13	0
A firm that primarily uses external financing compared to a firm that relies mostly on retained earnings	0.26	3.22	0.002
Race\Ethnicity of Owner(s)			
A firm primarily owned and operated by someone of a minority race or ethnicity compared to a white non-Hispanic owned and operated firm	-0.23	-3.19	0.002
Amount Requested			
A firm that applied for $25k-$100K compared to a firm that applied for <$25K	-0.06	-0.78	0.44
A firm that applied for $100K-$250K compared to a firm that applied for <$25K	-0.28	-2.53	0.014
A firm that applied for $250K-$1M compared to a firm that applied for <$25K	-0.36	-2.71	0.009
A firm that applied for >$1M compared to a firm that applied for <$25K			
Small Bank Concentration (SBC) in respondents zip code			
A firm in a zip code with 25-49% SBC compared to a firm with less than 25% SBC	-0.01	-0.2	0.843
A firm in a zip code with 59-74% SBC compared to a firm with less than 25% SBC	0.25	2.62	0.011
A firm in a zip code with 75%+ SBC compared to a firm with less than 25% SBC	0.32	2.85	0.006
Constant	2.96	23.45	0

[28] Estimated using Ordinary Least Squares.
[29] The Financing Approval Index ranges from 1 (received none) to 4 (received all).
[30] Average difference in Financing Approval Index (holding fixed all other factors in regression).
[31] When the share of small banks in the respondents' zip code is omitted from the model, the coefficient is 0.14, indicating rural small employer firms received a slightly higher share of the amount they requested compared to urban firms

Source: Small Business Credit Survey, Federal Reserve Banks

APPENDIX

REGRESSION[32] OF SMALL BANK APPLICATION DECISION[33]

Geographic Location	Coefficient	t	P>t
A rural firm compared to an urban firm	0.19	4.85	0.00
Credit Risk			
A medium credit risk firm compared to a low credit risk firm	-0.03	-1.16	0.25
A high credit risk firm compared to a low credit risk firm	0.02	0.48	0.63
Age of Business			
A 3-5 year old firm compared to a 0-2 year old firm	-0.05	-0.99	0.32
A 6-10 year old firm compared to a 0-2 year old firm	0.05	1.17	0.25
An 11-15 year old firm compared to a 0-2 year old firm	0.02	0.36	0.72
A 16-20 year old firm compared to a 0-2 year old firm	0.08	1.68	0.10
A 21+ year old firm compared to a 0-2 year old firm	0.04	0.76	0.45
Industry of Business			
A firm in the service industry compared to a firm in the goods industry	-0.01	-0.38	0.71
Revenue Size of Firm			
A $100k to $1M revenue firm compared to a <$100K revenue firm	0.01	0.32	0.75
A $1M to $10M revenue firm compared to a <$100K revenue firm	0.01	0.36	0.72
A >$10M revenue firm compared to a <$100K revenue firm	-0.02	-0.37	0.72
Profitability			
A profitable firm compared to one operating at a loss or breaking even	-0.03	-0.95	0.35
Primary Source of Business Funding			
A firm that primarily uses owner's personal funds compared to a firm that relies mostly on retained earnings	0.09	2.35	0.02
A firm that primarily uses external financing compared to a firm that relies mostly on retained earnings	0.00	0.02	0.99
Race\Ethnicity of Owner(s)			
A firm primarily owned and operated by someone of a minority race or ethnicity compared to a white non-Hispanic owned and operated firm	-0.04	-1.01	0.32
Amount Requested			
A firm that applied for $25k-$100K compared to a firm that applied for <$25K	0.09	1.85	0.07
A firm that applied for $100K-$250K compared to a firm that applied for <$25K	0.20	4.09	0.00
A firm that applied for $250K-$1M compared to a firm that applied for <$25K	0.24	4.27	0.00
A firm that applied for >$1M compared to a firm that applied for <$25K	0.23	3.39	0.00
Factors affecting where firm applied			
Relationship with lender	0.08	2.81	0.01
Cost or price of credit	0.01	0.41	0.68
Flexibility of products offered	-0.05	-1.47	0.15
Speed of decision	0.05	1.51	0.14
Ease of applying	-0.04	-1.59	0.12
Chance of being approved	0.00	0.09	0.93
Constant	0.25	3.45	0.00

[32] Estimated using Ordinary Least Squares.
[33] The small bank decision equals 1 if the firm applied to a small bank for a loan or line of credit, 0 if they applied elsewhere. Firms who applied for financing other than loans and lines of credit are not included in this regression.

Source: Small Business Credit Survey, Federal Reserve Banks

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[34] For a full list of partners, please see the 2016 SBCS Report on Employer Firms.
[35] Many others helped with the survey project as whole including the Community Affairs Officers of the Federal Reserve and representatives from the U.S. Department of the Treasury, U.S. Small Business Administration, the Association for Enterprise Opportunity (AEO), and The Aspen Institute.

Source: Small Business Credit Survey, Federal Reserve Banks

METHODOLOGY

DATA COLLECTION

The Small Business Credit Survey (SBCS) uses a convenience sample of establishments. Businesses are contacted by email through a diverse set of organizations that serve the small business community.[36] Prior SBCS participants and small businesses on publicly available email lists[37] are also contacted directly by one of the Federal Reserve Banks. The survey instrument is an online questionnaire that typically takes 6 to 12 minutes to complete, depending upon the intensity of a firm's search for financing. The questionnaire uses question branching and flows based upon responses to survey questions. For example, financing applicants receive a different line of questioning than nonapplicants. Therefore, the number of observations for each question varies according to how many firms receive and complete a particular question.

WEIGHTING

A sample for the SBCS is not selected randomly; thus, the SBCS may be subject to biases not present with surveys that do select firms randomly. For example, there are likely small employer firms not on one of our contact lists and this may lead to a noncoverage bias.

We control for potential biases by weighting the sample data so that the weighted distribution of firms in the SBCS matches the distribution of the small (1 to 499 employees) firm population in the United States by number of employees, age, industry, and geographic location (census division and urban or rural location). We collaborate with the National Opinion Research Center (NORC) in order to calculate these weights. The data used for weighting come from data collected by the U.S. Census Bureau.[38] While weighting the data makes the sample considerably more representative of the small firm population, the SBCS is still potentially affected by nonresponse bias, something that should be taken into consideration when interpreting the results.

CREDIBILTY INTERVALS

The analysis in this report is aided by the use of credibility intervals. Where there are large differences in estimates between types of businesses, we perform additional checks on the data to determine whether the difference appears significant. The results of these tests help guide our analysis and help us decide what ultimately is included in the report. In order to determine whether a difference is significant, we develop credibility intervals using a balanced half-sample approach.[39] Because the SBCS does not come from a probability-based sample, the credibility intervals we develop should be interpreted as model-based measures of deviation from the true national population values.[40] Ninety-five percent credibility intervals for key statistics are listed in Table 1. More granular results with smaller observation counts will generally have larger credibility intervals.

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[36] For a full list of partners, please see the 2016 SBCS Report on Employer Firms.

[37] System for Award Management (SAM) Entity Management Extracts Public Data Package, Small Business Association (SBA) Dynamic Small Business Search (DSBS), state-maintained lists of certified disadvantaged business enterprises (DBEs), state and local government Procurement Vendor Lists , state and local government-maintained lists of small or disadvantaged small businesses, a list of veteran-owned small businesses maintained by the Department of Veterans Affairs.

[38] Age of firm data come from the 2014 Business Dynamics Statistics. Industry, employee size, and geographic location data are from the 2014 County Business Patterns. We use data from the Center for Medicare and Medicaid Services to classify a business's zip code as urban or rural. In subsequent reports, we will compare businesses by the gender and race of the owner(s). When we do this, we will also weight the data by demographic data collected in the 2012 Survey of Business Owners.

[39] Wolter, (2007), Introduction to Variance Estimation.

[40] AAPOR, (2013), Task Force on Non-probability Sampling.

Source: Small Business Credit Survey, Federal Reserve Banks

Table 1: Credibility Intervals for Key Statistics in the 2016 Report on Rural Small Employer Firms

	Rural Small Employer Firms		Urban Small Employer Firms	
	Percent	Credibility Interval	Percent	Credibility Interval
Share low credit risk[1]	71.2%	+/-4.0%	63.5%	+/-1.7%
Share not experiencing financial challenges[2]	44.8%	+/-4.1%	37.9%	+/-1.1%
Share with outstanding debt	72.0%	+/-3.4%	70.4%	+/-1.3%
Share growing[3]	23.3%	+/-2.4%	29.7%	+/-1.3%
Share approved for full amount of financing	50.5%	+/-1.0%	37.5%	+/-1.3%
Small bank application rate[4]	61.6%	+/-5.8%	42.8%	+/-2.4%

Table Notes:

1 Self-reported business credit score or personal credit score, depending on which is used to obtain financing for their business. If the firm uses both, the higher risk rating is used. 'Low credit risk' is a 80-100 business credit score or 720+ personal credit score. 'Medium credit risk' is a 50–79 business credit score or a 620–719 personal credit score. 'High credit risk' is a 1–49 business credit score or a < 620 personal credit score.

2 The share that did not report any of the following financial challenges during the prior 12 months: Purchasing inventory to fulfill contracts; Making debt payments; Meeting operating expenses; Credit availability or acquiring funds for expansion

3 *Growing firms are defined as firms that expanded their workforce and had an increase in revenues from approximately the second half of 2015 through the second half of 2016 and that did not anticipate declines in their workforce numbers from approximately the second half of 2016 through the second half of 2017.*

4 *Small banks are defined as banks with less than $10B in total deposits.*

Source: Small Business Credit Survey, Federal Reserve Banks