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Mapping the Native CDFI Industry: Insights from a New Survey

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Abstract

We present the most extensive mapping to date of the U.S. Native Community Development Financial Institution (NCDFI) industry, based on a comprehensive new survey that we developed and administered to 49 certified and emerging NCDFIs. The survey uncovers key industry practices that reflect the distinctive concerns and cultures of the Native communities served by the NCDFIs. We explore the diversity of the NCDFI industry in terms of age, size, and geography, as well as strategic goals, risk assessment practices, and main perceived challenges and opportunities. Using cluster analysis, we identify and characterize four distinct NCDFI profiles and compare these NCDFI profiles based on product offerings, development services, and organizational practices. Our analysis illuminates both fundamental differences and important commonalities among organizations that play a crucial role in expanding access to credit, fostering entrepreneurship, and enhancing housing in Native communities.

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1 Introduction

Native communities have historically had limited access to credit, which has resulted in a disproportionately high incidence of thin credit files (missing credit scores due to insufficient credit history) and low average credit scores (Dimitrova-Grajzl et al., 2015), a high number of unbanked households, and relative financial insecurity (Federal Deposit Insurance Corporation, 2021). A 2021 survey shows that approximately one in four Native households is considered underbanked; this is relative to one in ten White households (Federal Deposit Insurance Corporation, 2021).[1] American Indian reservations lack proximity to financial institutions, and there is a general scarcity of mainstream financial services both on and near these areas, with corresponding adverse effects for economic development in Indian Country (Jorgensen and Akee, 2017). One solution to the problem of the credit supply gap has been the emergence of Native Community Development Financial Institutions (NCDFIs).

NCDFIs serve low- to moderate-income communities and other economically distressed areas that lack full access to traditional financial services (Kokodoko, 2015). NCDFIs predominantly (although not exclusively) serve American Indian, Alaska Native, and Native Hawaiian borrowers. Many operate on tribal lands, such as federal Indian reservations and Hawaiian Home Lands, and are managed by tribal citizens. NCDFIs can be for-profit or not-for-profit, but all have a social and educational mission rather than for-profit-only mission. NCDFIs vary in practices and objectives. However, one common thread across most NCDFIs is that they design their services with local culture and relationships in mind. For example, they resort to culturally relevant examples in offering financial workshops and embrace community-specific characteristics when designing financial products (Dimitrova-Grajzl et al., 2025).

Given the increasing importance of NCDFIs in filling credit supply gaps, promoting economic development, and enhancing financial stability in Indian Country, it is critical to establish a thorough quantitative overview of the NCDFI industry. To the best of our knowledge, such a depiction of the industry currently does not exist. This is the research gap we fill with this paper. We design and implement a detailed survey of NCDFIs and utilize the collected survey data to provide the most comprehensive mapping of the NCDFI industry to date.

In this work, we focus exclusively on loan funds—the predominant type of NCDFIs.[2] Loan funds are mission-driven nondepository institutions that provide financing and development services to businesses, organizations, and individuals in Native communities. Compared to depository institutions, loan funds tend to face different regulatory requirements.

Our survey is not the first survey that includes NCDFIs. Unlike existing surveys, however, it was designed to collect detailed information from all known NCDFIs, irrespective of whether they are certified or belong to an operating trade network. In addition, our

[1] Note that the FDIC's definition of underbanked has varied from survey to survey, preventing the comparison of underbanked results over time. Additionally, the FDIC did not define 'underbanked' or refer to this term in its 2019 How America Banks: Household Use of Banking and Financial Services. Nevertheless, the 2019 survey discusses household use of nonbank financial transaction services, such as nonbank money orders, check cashing, and remittances; bill payment services; and use of website or app to send or receive money inside the U.S.

[2] Some NCDFIs are also organized as credit unions, banks, and bank holding companies.

questions cover a wide range of topics not covered by existing surveys, including the ways in which NCDFIs assess client risk and how they perceive organizational success. Thus, our survey is the most comprehensive survey specifically focused on NCDFIs.[3]

Drawing on the collected survey data, we provide the most complete mapping of the NCDFI industry to date. These data reveal several common approaches of NCDFIs —such as avoiding punitive risk management strategies, significant offerings of credit counseling and training, and innovative ways of risk assessment in an environment with limited credit histories. The analysis also reveals shared challenges of NCDFIs, including capital constraints and staffing difficulties and shared significant potential to cover unmet needs if afforded more capital.

At the same time, the survey data capture considerable diversity in the NCDFI industry and highlight the distinctiveness of the surveyed organizations. Using cluster analysis, we identify and characterize four key clusters of NCDFIs: Urban, Established, High Volume, and Next Stage. We shed light on the heterogeneity of product and service offerings, organizational practices, and the challenges and opportunities across these clusters.

By providing a comprehensive mapping of the NCDFI industry, this paper contributes to the growing literature on understanding the opportunities and challenges of providing credit and capital in Indian Country broadly (e.g., Jorgensen and Taylor, 2015; Community Development Financial Institutions Fund, 2001; Mushinski and Pickering, 1996; Jorgensen and Akee, 2017; Listokin et al., 2017; Parker, 2012; Wellhausen et al., 2017). We also add to the emerging scholarship on the role of CDFIs, and specifically NCFIs, in enhancing financial inclusion (e.g., Kokodoko, 2017, 2015; Dimitrova-Grajzl et al., 2022, 2023, 2024; Appleyard, 2011; Benjamin et al., 2004).

The paper proceeds as follows. Section 2 provides the methodology for the survey that generated the data for our analysis. Section 3 draws on the survey results to characterize NCDFIs in terms of geography, age, and size. Section 4 provides information on key strategic goals of NCDFIs and the products and services they offer to meet these strategic goals. Section 5 examines the NCDFI credit evaluation and risk management process. Section 6 explores the perceived successes and challenges of NCDFIs. Section 7 explores the heterogeneity and diversity of NCDFIs using cluster analysis. Section 8 concludes.

2 Methodology

Most NCDFIs have lean staffing, and thus each person performs many tasks in the organization. The small staff of NCDFIs often does not have much spare capacity outside of

[3] Our survey differs from and complements other CDFI datasets in the following way. First, Opportunity Finance Network (OFN), a financial intermediary that connects investors with CDFIs, conducts an annual member survey and produces a report that offers trend analysis on member activity, performance, and activity over time. However, not all NCDFIs are members of this network. Second, the CDFI survey of the Federal Reserve Bank of Richmond collects quantitative and qualitative measures of how CDFIs serve their customers and communities and how they meet their organizational needs. That survey used a convenience sample of CDFIs from throughout the country, including 26 NCDFIs, regardless of their certification status. Third, Oweesta's NCDFI financial & lending performance report is based on data collected from reporting required by participants in Oweesta's loan portfolio. Finally, the CDFI Fund collects data from the required performance progress report of its awardees.

performing core operations and ensuring regulatory compliance. Consequently, they have limited free time to participate in a long and complex survey, with ours as one among many that they are asked to complete.

To ease that issue and ensure smooth data collection, we laid the groundwork for this research several years ago with the goal of designing a survey that would be customized and well-informed while minimizing the amount of completion time. The effort kicked off in 2021 with a series of listening sessions with NCDFIs. We used those listening sessions to develop a list of interview questions for one-on-one virtual interviews with the leaders of 46 NCDFIs in 2022. Qualitative interviews helped us design the quantitative survey instrument, which we administered online in 2023. The survey questionnaire is included in Appendix Section B.

Our goal was to create a census of NCDFI loan funds. The survey was open to all NCDFI loan funds regardless of certification status. For this reason, we reached out to all certified NCDFIs at the time (52 total) as well as a number of emerging NCDFIs. In total, we sent the survey to 73 NCDFIs. The dataset contains 39 certified loan funds; thus, our sample represents 75% of the certified NCDFI population. The dataset also contains data for 10 emerging (not yet certified) loan funds. Given that we capture a large fraction of the population, we view the resulting descriptive analysis as representative of the NCDFI loan funds industry as a whole.

We designed the survey instrument to collect a wide range of information on NCDFIs, including size, target communities, types of development services and loan products, credit evaluation techniques, organizational goals and challenges, and methods used to measure success. We expected the survey to take approximately one hour to complete, and, according to our metadata, the median respondent did have the survey open for one hour. One response per organization was accepted. Respondents who gave their informed consent to participate in the survey could still choose to opt out of individual questions. All respondents who completed the survey received a one-time payment of $100 as a gesture of appreciation for their time.

Our sample inclusion criteria entailed two main conditions: we included respondents who, first, completed at least a quarter of the survey, and second, answered questions about financial data or provided financial statements directly to the research team via email. Of all organizations invited to participate, 49 were included in our final sample: 31 completed the entire survey, while 18 answered a portion of the survey.

3 Diversity of NCDFIs: Geography, Experience, and Size

A significant majority (94%) of NCDFIs in our sample operate as nonprofit organizations, and almost three-quarters (73.5%) are independent entities rather than tribally owned. Despite the commonalities in operational structure across NCDFIs, our survey responses highlight significant variation in terms of geographic location, experience, size, and internal structure.

In terms of geographic location, NCDFIs are distributed throughout the U.S. Figure

1 shows the fraction of NCDFIs serving each Census Bureau-defined geographic division.[4] The largest number of NCDFIs operate in the Pacific, Mountain, and West North Central divisions, which matches the geographic locations of a large number of American Indian reservations in the United States. Half of the organizations are, in fact, headquartered on reservations, while one-third (32.7%) are located in urban areas. Notably, these categories are not mutually exclusive, but there is minimal overlap between them in our sample. The majority (69%) of the NCDFIs in our sample operate only in one census division; 10% operate in two divisions, and 2% operate in three divisions. Four NCDFIs operate throughout the country, and five did not answer the question.

The average age of NCDFIs in our sample is 15.5 years.[5] The oldest participating NCDFI opened in 1952, and the youngest opened in 2023, suggesting a wide range of experience in the industry.[6] Although NCDFIs are small on average, they exhibit large differences in the number of employees, number of loan clients, and portfolio size. The average portfolio size of NCDFIs is $5.7 million, with a standard deviation of $6.5 million.[7] Figure 2 shows the distribution of the portfolio sizes of NCDFIs in the dataset.

Our survey responses also reveal diversity in credit reporting: 60% of NCDFIs report to at least one credit bureau, and 45% report to two or three. 39% of NCDFIs report to Equifax, 45% to Experian, and 55% to Transunion. The choice of credit bureau might partially depend on the geographic coverage of the credit bureaus. 80% of NCDFIs use one of two main loan service systems —The Exceptional Assistant (TEA) or DownHome Loan Manager. Both systems provide loan management software for nontraditional lenders. Approximately 80% of all NCDFIs report that they are satisfied with their loan servicing system.

4 Strategic Goals, Financial Products, and Development Services

Further reflecting the industry's diversity, NCDFIs report a wide range of strategic goals, financial products, and development services. Figure 3 presents the strategic goals of NCDFIs in our sample.[8] The top three strategic goals most frequently selected by NCDFIs include encouraging Native entrepreneurship (67%), investing in Native communities (51%), and fostering financial inclusion in Native communities (39%). The other two commonly selected goals are to provide equitable lending practices (35%) and to improve the housing market in Native communities (29%).

NCDFIs draw on their strategic goals to tailor the design of services and to guide the

[4]There are eight Census Bureau-defined geographic divisions: Pacific, Mountain, West North Central, West South Central, South Atlantic, New England, Mid-Atlantic, and East South Central.

[5]Figure A1 in the Appendix provides more detailed information.

[6]All but one of the participating NCDFIs were established after 1990.

[7]It should be noted that our top-coded category for this question was $20 million +, which might be under-reporting the average portfolio size.

[8]We utilized the information that we gathered from the interview stage of our work to formalize our survey question on strategic goals. We asked respondents to select their top three strategic goals from a list of goals that were mentioned during the interview stage of data collection.

selection of products they offer.[9] 96% of NCDFIs indicated that they offer more than one type of loan, with the majority offering two or three types. 73% of NCDFIs provide micro loans and 65% provide business loans; this is in line with the aim of encouraging Native entrepreneurship. 69% of NCDFIs provide consumer loans, which help ensure financial inclusion and promote economic activity in the local communities. To meet their strategic goal of improving the housing market in Native communities, 29% provide mortgage loans and (business) real estate loans. 39% provide home improvement loans. Some NCDFIs work with the U.S. Department of Housing and Urban Development (HUD) Section 184 loans, which are exclusively designed for tribal citizens.[10]

Figure 4 shows the percent of NCDFIs that issue a particular type of loan. Note that the selections plotted in this figure are not mutually exclusive: one of the NCDFIs offers all seven loan types, and two report that they do not offer any of the loans we asked about (this could be driven by the fact that they are nascent NCDFIs and have not launched their loan program yet). Most NCDFIs specialize in two or three types of loans: 4% offer one loan type only; 29% offer two loan types; 33% offer three loan types; 14% offer four loan types; 6% offer five loan types; and 8% offer six loan types. Figure A5 in the Appendix shows the distribution of the loan amounts by loan type. Most loan types exhibit a bimodal distribution of loan amounts.[11]

In addition to offering financial products, NCDFIs offer a range of development services. Most of these are geared toward financial empowerment. Figure 5 shows the share of NCDFIs offering each different type of development service. Again, these categories are not mutually exclusive.[12] Business technical assistance is offered by 84% of NCDFIs, and credit counseling or financial education is offered by 82% of NCDFIs.

Not only is there variation across NCDFIs in the types of development services offered, but NCDFIs also differ in the decision about whether to require loan clients to take up development services and, if so, the adopted programs. Among the NCDFIs that offer credit counseling or financial education, approximately 35% usually require it as a precondition for a loan, 39% sometimes require it, and 27% never require it (for more, see Appendix Section C.4).

Within this same subsample that offers credit counseling and financial education, 50% rely on the program Building Native Communities: Financial Skills for Families, a financial education curriculum that is developed and co-owned by First Nations Development Institute and Oweesta Corporation. 18% rely on a customized program developed by the NCDFI

[9] Dimitrova-Grajzl et al. (2024) outline a number of ways that NCDFIs tailor their loans to local conditions – e.g., for housing loans, some NCDFIs do not require mortgage insurance, or offer lower interest rates, down payment support, as well as mortgage reinstatement loans that support anti-displacement efforts. Some NCDFIs offer personal loans to support traditional ceremonies, tribal enterprise loans, loans aimed at loggers or fishermen or agricultural endeavors, and loans for artists that consider artwork as collateral (Dimitrova-Grajzl et al., 2024).

[10] Section 184 loans are available to tribal citizens, both inside and outside Indian Country. Section 184A loans are available to Native Hawaiians inside and outside Hawaii.

[11] The bimodal distribution could partly be driven by censoring the values at the high end. We note that there appears to be bunching at the left tail for many of the loan types, which is consistent with high demand for low-value loans, but the values at the right tail might be more evenly distributed if plotted past $300,000.

[12] 81.6% of our respondents offer more than one of the development services we included in the survey: 34.7% offer two; 28.6% offer three; 16.3% offer four; and 2% offer five.

itself, and 30% rely on a range of other programs or a combination of programs. Some other programs mentioned include HUD counseling, the FDIC Money Smart Program, Credit when Credit is Due, and Balance Track, among others.

Among NCDFIs that offer customized credit counseling or financial education, 43% make these customized programs available for others to purchase or use. Among the NCDFIs that offer business technical assistance, the vast majority provide this service only when needed to help support the client and the business (83%), whereas a minority of these NCDFIs require specific classes (17%). If business technical assistance is required, the median number of hours of training required is 8, the mean is 11.9, and the maximum is 24. In the subsample of NCDFIs that offer business technical assistance, 16% use the Indianpreneurship Program and 57% report that they would like to launch additional programs such as down payment assistance programs, youth financial education, the Streetwise MBA program, post-homeownership programming, financial literacy curriculum for agriculture, and the HUD Certified Homebuyer Training.

5 Credit Evaluation Process and Risk Management Practices

5.1 Measures used in the Underwriting Process

A key distinction between NCDFIs and conventional lenders is the approach of NCDFIs to assessing creditworthiness. Conventional lending, whether for residential, consumer, or business purposes, typically relies on hard data, such as credit scores, to make credit decisions. Although credit scores are not always the sole determinant of underwriting in conventional lending, they provide the key input into the process. However, credit scores may be absent or provide unreliable signals of creditworthiness, particularly in an environment where individuals and businesses have limited access to credit. To address this challenge, many NCDFIs adopt a more comprehensive approach to credit evaluation. In their underwriting process, they consider a variety of factors, including credit scores and income, but also community-specific information, to assess creditworthiness and risk of loss.

Figure 6 shows the various inputs that NCDFIs rely on in the underwriting process, including the client's character, commitment to business, engagement with the lender, and attendance of financial literacy class. Some of these dimensions are self-explanatory. We elaborate on two dimensions that might require further explanation—character of the client and commitment to business.[13] These two measures are based on relationship lending and soft information. The former is a practice that relies on repeated borrower-lender interactions and focuses on trust-building, shared community values, and cultural alignment (e.g., Berger and Udell, 1995, 2006). The latter is a type of information that is context-specific and subjective in nature, often forming the basis of relationship lending (Liberti and Petersen, 2019).

Almost all NCDFIs report that they consider hard information-based measures such as

[13] Dimitrova-Grajzl et al. (2025) provide an example of two proprietary measures reflecting character and commitment to business.

income and payment history on previous loans (again, see Figure 6). Interestingly, only 67% collect credit scores, while 78% use soft information-based measures of a client's character. 61% and 67% of NCDFI respondents report using client engagement information and a client's commitment to business information, respectively, to assess repayment prospects. Even among NCDFIs that rely heavily on hard information to assess risk, a substantial minority (39%) report that they consider some of the new developments in credit scoring, such as trended data (35%), measures of consumer resilience (17%), and consumer-permissioned data (9%).[14]

NCDFIs may also accept different forms of collateral for loans.[15] This practice allows the NCDFI to offer loans without being heavily dependent on credit scores (Dimitrova-Grajzl et al., 2025). For example, in the event of the termination of an employee's contract, the NCDFI can use the employee's personal leave days to pay off the loan. 28% of respondents report that they accept tribal distribution payments.[16] 11% of respondents report that they use artwork as collateral. 9% use personal leave as collateral.

5.2 Loan Risk Management Practices

NCDFIs report that they attempt to help everyone who seeks out their services (Dimitrova-Grajzl et al., 2025). When a client is not ready to borrow, NCDFIs will often work with that client to get them to loan readiness through financial education classes and guidance. When a potential client is seeking a product or service that the NCDFIs cannot provide, they refer the client to their partner organizations. The survey results reveal that a small but nontrivial fraction of NCDFIs (11%) did not reject any loan applicants in the year before the survey responses were collected. Most (61% of respondents) report that they turned down some but less than 10% of applicants; 28% rejected at least 10% of loan applications.

The approaches that NCDFIs use for risk management are unique to each institution, but the common theme is that they tend to rely on nonpunitive measures. We asked respondents to indicate what actions they would take for a loan that was 30-90 days delinquent: 80% state that they send a notice to the borrower; 72% conduct a phone interview; and 28% report that they conduct an in-person interview. In terms of loans that are 90+ days delinquent, the survey results suggest that it is uncommon for NCDFIs to send the loan to a collection agency. In contrast, it is very common to restructure loans (91% sometimes or always do).

[14] Trended data for example may involve looking at how debt balances have been growing or shrinking over time. Consumer-permissioned data might involve getting permission from users to access data like utility or rent payments. Measures of consumer resilience might involve measuring resilience to economic downturns. Note that NCDFIs may rely on one or more of these measures, as they are not mutually exclusive.

[15] The interviews that we used to inform our survey highlighted several unique practices in this respect – the use of tribal distribution payments, personal leave pay, and artwork as collateral for loans. We used the survey to investigate the frequency of these practices.

[16] Tribal distribution payments refer to: "net monetary revenues of other forms of value that are paid directly from sources such as land gaming activities, land claim court settlements and are distributed to members of some Native Nations." According to one interviewee, their NCDFI provides a three-tier consumer loan program. The first tier offers loans up to $4,000; the second tier offers loans up to $8,000; and the third tier offers loans up to $12,000. While the second two tiers are "dependent on whether people have gainful employment at different levels," tier one "tends to be [attractive for] people who use their gaming dividend for repayment. ... Having the option to pledge dividend payments for those kinds of loans really accommodates those low-income borrowers (Interview 42)" (Dimitrova-Grajzl et al., 2025).

Survey responses also shed light on how much time lapses before action is taken on a delinquent loan. Figure 7 shows that NCDFIs have comparatively quick reaction times. The majority do not wait more than 30 days to take action; 28% contact the borrower between 1 and 14 days after a loan becomes delinquent.

6 Perceived Challenges and Successes

6.1 Successes

NCDFIs frequently track client outcomes beyond loan performance. The heterogeneous methods they use offer insight into how NCDFIs define client success. The majority monitor changes in debt (73%), credit scores (70%), and income (64%). Nearly half track changes in behavior (45%) and access to conventional lenders (43%). A smaller group (about 7%) tracks changes in clients' networks.

We asked NCDFIs to rate their success on a range of measures on a scale of 1 (least successful) to 10 (most successful). The results show that most NCDFIs consider their work to be successful in the following dimensions: increasing financial literacy (average score 7.3), encouraging economic activity (7.2), contributing to community development (7.8), and obtaining grants (7.9). Dimensions that received lower average scores (but are still in the "success range") are providing a variety of consumer products (6.4) and supporting Native culture (6.5).

Figure 8 reports the correlations between the perceived successes of NCDFIs. The figure shows that many of the success measures are highly and positively correlated, including encouraging economic activity and contributing to community development. These correlations suggest that supporting NCDFI success in one area is likely to support NCDFI success in another. For example, although we do not know the mechanism, we know from the survey responses that there is a link between facilitating the establishment of small businesses in the communities served by NCDFIs and supporting Native culture/arts.

6.2 Challenges

NCDFIs experience a range of challenges (see Figure 9). Previous research has suggested that a major and recurring challenge facing NCDFIs is obtaining sufficient capital for both operations and lending (Dimitrova-Grajzl et al., 2025). The results of this survey provide further support for this claim: 52% of the respondents report that scarce capital has been one of the biggest challenges for their organization. Because of capital constraints, lending has been substantively curtailed in communities served by NCDFIs. Among those NCDFIs that report being constrained by capital, 39% report that they would be able to lend more than three times what they currently offer if not constrained by capital; 28% report that they could lend two to three times more than they are currently; 33% report that they could lend twice as much.

NCDFIs currently obtain funding through a variety of sources. Figures 10 and 11 show the top sources of operational and lending funds, respectively. The CDFI Fund, which is part of the U.S. Department of Treasury, is the key source of both operational funds and lending funds. Most of the NCDFIs in our sample that accessed these funds report being moderately satisfied with the programs. On a scale of 1-10 (with 1 being very unsatisfied and 10 very satisfied), the average level of satisfaction with the CDFI Fund Technical Assistance Grant and the CDFI Fund Financial Assistance Grant was 7.3 and 7.7, respectively. The second key source of both operational and lending funds are nonregulated financial institutions. Included in this group are other NCDFIs, NCDFI intermediaries, non-NCDFIs, and harder-to-categorize entities (e.g., nonfinancial institutions that partner with lenders and coalitions of Native organizations) working to enhance financial capacity in Native communities.

Despite the importance of accessing capital, not all NCDFI challenges stem from a lack of capital. Another significant challenge, reported by 52% of the respondents, is the hiring of staff (see Figure 9). Interestingly, there is a weak negative correlation (-0.046) between the probability of respondents selecting 'scarce capital' as one of the biggest obstacles and the probability of them selecting 'hiring staff' (see Figure 12). This correlation is not statistically significant, but it implies that the problem of hiring staff is effectively decoupled from the problem of scarce capital. There are several possible explanations. One is that NCDFIs operating in small communities that struggle to find trained staff can still obtain financing to meet the needs of their relatively small pool of prospective borrowers. Or perhaps NCDFIs that lack capital are not trying as intensively to hire. Another possibility is that the issue of hiring and retaining staff may be driven by industry salaries.

Other important challenges reported by NCDFIs (see Figure 9) include donor lack of awareness (39% report this as a challenge), (potential) client lack of awareness (37%), infrastructure (28%), and geographic location (26%). A nontrivial number of NCDFIs also report that funder requirements present a challenge (24%). This aligns with responses to our question about the high cost of complying with federal regulations. On a scale of 1-10, with 1 indicating extremely low cost and 10 indicating extremely high cost, 11% of the respondents selected 10, and the average of all the respondents was 6.2 (with a standard deviation of 2.3).

In terms of barriers to providing programs, NCDFIs most commonly point to limited financial resources (68%) and limited staffing (57%). We also asked NCDFIs to identify the main obstacles for their clients to access credit: 22% identified insufficient collateral, 20% indicated low credit scores, and 13% selected insufficient income. We also asked whether predatory lending is a significant problem in the communities served by NCDFIs: 70% of the respondents indicated in the affirmative.

7 Exploring Heterogeneity in the NCDFI Industry

Native communities are diverse and, as explored in the preceding sections, so are the NCDFIs serving them. However, there is little empirical evidence on the relationship between the characteristics and performance of CDFIs, Native or non-Native (Swack et al., 2012). Segmenting NDCFIs based on key sources of diversity facilitates a deeper analysis of the products, services, and practices of NCDFIs. The resulting analysis can help develop funding and public policy strategies that take into account the diversity within the NCDFI industry. Grouping similar NCDFIs together may help facilitate inter-organization sharing of practices adapted for communities with similar needs. It can also help reveal gaps in the markets where certain types of NCDFIs are operating, possibly facilitating targeted funding support.

To group the NCDFIs in our sample, we conduct hierarchical cluster analysis (HCA) in combination with principal component analysis (PCA). We provide a high-level description of our methods in Section 7.1, with further details in Appendix Section D. We present the results of the cluster analysis in Section 7.2. In Section 7.3, we relate the clusters to various indicators of NCDFI performance.

7.1 Cluster Analysis Methodology

We first perform PCA to reduce the dimensionality of the dataset and put structure on the common characteristics of NCDFIs. We initially chose 19 variables that capture administrative/operational details (e.g., age), geography (e.g., urban or reservation), and loan products offered.[17] We present descriptive statistics summarizing those measures in Table A3 in the Appendix. We reduced the set of 19 variables to eight on the basis of the standard sampling adequacy tests (see Appendix Section D). We then perform PCA on the smaller set of NCDFI characteristics. The first three principal components identified by the PCA have eigenvalues greater than one and together explain 66% of the total variability in the data (see Figure A7 in the Appendix).

Next, we perform HCA using the PCA results to cluster NCDFIs based on their component-defined characteristics. We propose grouping NCDFIs into four distinct clusters. Based on a qualitative assessment of the characteristics of each cluster, grouping NCDFIs into four clusters specifically provides the most meaningful associations within groups.[18] We implement HCA using the first three PCA components. The dendrogram in Figure A8 shows the sequence in which NCDFIs are partitioned into clusters. Section 7.2 proceeds with a description of the clusters.

7.2 NCDFI Clusters

Table 1 provides a summary of the mean characteristics of the four NCDFI clusters.[19] Figure 13 shows how select characteristics correlate with the clusters.[20] In what follows, we briefly describe each cluster and justify the label we assigned to it.

[17]The initial list of 19 measures was compiled based on earlier analysis pointing to key sources of heterogeneity (see Sections 3-6). With only 49 observations in the dataset, we had to exclude some potentially relevant variables from the PCA in order to ensure the matrix was full rank. Variables that lacked internal variation or variables that exhibited multicollinearity were excluded.

[18]Also, if we were to retain five clusters, one of those clusters would have only one observation.

[19]Note that two observations from our initial sample drop out of the cluster analysis because they are missing information on portfolio size, which is one of the variables that went into the PCA. We are left with a sample size of 47.

[20]Tables A4-A6 present correlations in table form for a more comprehensive set of characteristics and outcomes.

NCDFIs in Cluster 1 are entirely located off reservation, with 93% in an urban area. We, accordingly, refer to the NCDFIs in this cluster as Urban. There are 14 NCDFIs in this cluster. The corresponding NCDFIs are small as measured by their number of loan clients, which is 31 on average, the smallest number of any cluster. 71% of them issue business loans, 43% issue consumer loans, 57% issue micro loans, and 36% issue real estate loans. All NCDFIs in this cluster are independent and substantially less likely than other clusters to report to credit bureaus (36%).

NCDFIs in Cluster 2 have been in existence the longest, having 27 years of experience on average. We, accordingly, refer to the NCDFIs in this cluster as Established. There are eight NCDFIs in this cluster. Congruent with their longevity, all are certified. The average portfolio size in this cluster is $13 million, which is greater than any other cluster. NCDFIs in this cluster provide business loans (63%), micro loans (63%), and consumer loans (50%), with some (13%) also offering real estate loans. 50% of these NCDFIs are located on a reservation and 25% are located in an urban area. They have on average 10 full-time equivalent employees, which is large relative to two of the other clusters.

NCDFIs in Cluster 3 have on average 12 full-time equivalent employees and serve on average 763 loan clients (both greater than NCDFIs in any other cluster). With its relatively large size, the average NCDFI in Cluster 3 also issues more consumer loans (in number and amount) than the average NCDFI from any other cluster. We accordingly refer to NCDFIs in this cluster as High Volume. There are four NCDFIs in this cluster. They are spread across the U.S.: one serves the entire country, one serves the South, and two serve the West. They are all certified, and all but one report to a credit bureau (more than any other cluster). The majority (75%) are tribally owned. They provide a variety of loan types: 50% provide business loans, 100% provide consumer loans, and 50% provide micro loans. 25% provide real estate loans, but none provide multifamily loans.

NCDFIs in cluster 4 are young, with an average age of 13 years, which is the youngest in all clusters. We, accordingly, refer to the NCDFIs in this cluster as Next Stage. There are 21 NCDFIs in this cluster. They have only four full-time equivalent employees on average, which is the fewest of any cluster. Only 71% of them are currently certified. They tend to focus on consumer loans, with only 62% providing business loans but 91% providing consumer loans and 91% providing micro loans. Few of them are partners ofa Small Business Development Center (SBDC) (38%), and they have a relatively small portfolio ($3.1 mill on average). 91% are on a reservation, and only 5% are in an urban area.

Figure 14 displays the four NCDFI clusters projected onto the first two principal components, which together explain 52% of the total variance, and includes 90% confidence ellipses.[21] This figure demonstrates that, while most of the clusters exhibit some overlap, there is also some separation between them. The NCDFIs in the Urban cluster, for example, do not appear to share many of the characteristics of the NCDFIs in the other clusters. Conversely, the Established and Next Stage NCDFIs exhibit more overlap.

[21] Confidence ellipses represent uncertainty in the distribution of data points along the first two principal components.

7.3 Heterogeneity in Products, Services, and Practices by NCDFI Cluster

In this section, we shed light on the relationship between cluster-implied characteristics and NCDFI performance. Using NCDFIs as units of observation, we calculate a series of bivariate (Pearson) correlations between an indicator for NCDFI cluster membership and various measures of NCDFI products, services, and practices.

We first examine differences in the products (Figure 15) and development services (Figure 16) associated with different NCDFI clusters. We find that, relative to other NCDFIs, Established NCDFIs, a cluster associated with experience and longevity, tend to extend more mortgage loans and home improvement loans, both in terms of the probability of issuing these types of loans (extensive margin) and the unconditional loan amounts (intensive margin). This is perhaps not surprising given the complexities of lending on reservations, where 50% of the NCDFIs in the Established cluster are located. The High Volume and Next Stage NCDFIs, on the other hand, engage in more consumer lending, both at the extensive and intensive margins. Next Stage NCDFIs also display a higher likelihood of issuing microloans. This suggests that newly formed NCDFIs may be more likely to divide up their relatively small portfolios into smaller-sized loans, although the average number of microloans issued in a year by Next Stage NCDFIs is only 7.8 (see Table 1). The Urban cluster shows elevated, although insignificantly so, business lending.

In terms of development services, we observe some unexpected differences across NCDFI clusters (Figure 16). Specifically, the development services offered within each cluster do not always align with the types of loan products that are commonly issued by NCDFIs in that cluster. For instance, even though NCDFIs in the Established cluster issue more home improvement and mortgage loans, they are no more likely to offer homeownership counseling. Instead, the NCDFIs in the High Volume cluster are associated with a higher probability of offering both homeownership counseling and real estate technical assistance even though they are not more likely to issue real estate loans. There are several possible explanations for this seeming inconsistency: NCDFIs may be more likely to provide development services for loan clients interested in products that are atypical for the markets where they operate; there could be demand for loan products even when there is no supply; or NCDFIs may offer training first to build capacity for loans before beginning to issue those loans. Belonging to the Established, High Volume, and Next Stage NCDFIs clusters is positively associated with credit counseling. The correlation is especially large for the Next Stage NCDFIs, which also show a greater likelihood of sometimes or usually requiring technical assistance.

The patterns we observe in risk mitigation strategies suggest that the Next Stage cluster may be more likely to require counseling as a means to improve the probability of loan repayment. The relationships plotted in Figure 17 tell a story of how an organization's ability to absorb risk is positively correlated with the age of the organization. The NCDFIs in the Established cluster are more likely to not turn down any loans and less likely to send loans to a collection agency once they are 90+ days delinquent. NCDFIs in the Established cluster are also significantly more likely to consider soft information-based measures of risk such as commitment to business, client engagement, character score, financial class attendance, and payment history. This suggests that mature NCDFIs may have enhanced flexibility to incorporate more holistic strategies for assessing client risk.

The relationships between NCDFI cluster and perceived successes shed further light on differences between Established and Next Stage NCDFIs (see Figure 18). NCDFIs in the Next Stage cluster have more self-reported success in providing product variety, whereas NCDFIs in the Established and Urban clusters report less success in this area. One possible explanation is that a wider variety of products may be necessary to attract new clients to an organization that has only recently entered the market. Another explanation could be that the Next Stage NCDFIs have access to blueprints or information from the Established NCDFIs and thus benefit more from past experience in the industry. On the other hand, NCDFIs in the Established cluster have more self-reported success in encouraging economic activity and promoting financial literacy. These successes may be attributable to some of the characteristics of the older NCDFIs, such as the relatively large portfolio size, although the survey data do not allow us to identify the exact mechanism.

NCDFIs in the Established and Next Stage clusters also report experiencing different challenges and barriers to implementing programs (see Figure 19). As expected, the NCDFIs in the Established cluster are less likely to report that awareness of their services and products is a major challenge, whereas the opposite is true for the NCDFIs in the Next Stage cluster. Limited resources are not a major program barrier for Next Stage NCDFIs, but banking regulations and federal government bureaucracy are. The NCDFIs in the Next Stage cluster also report infrastructure as challenging. For NCDFIs in the High Volume cluster, perhaps counterintuitively given their large size but resonating with the notion that they participate in wider markets, general awareness of the NCDFI is reported as being a critical challenge.

8 Concluding Remarks

A central implication of our analysis is that the NCDFI loan funds industry exhibits considerable diversity: NCDFIs do not come in one mold. While many are young, some are well-established. Most are headquartered on reservations, yet some operate in urban areas. They vary in scale, with most small in staff and portfolio size, though some are quite large. The majority are independent, but several are tribally owned. They provide a variety of loan types and development services.

However, our analysis also reveals fundamental commonalities across the NCDFIs: most offer some type of credit counseling or training, consider various types of information in risk assessment, and face capital constraints. In addition, while NCDFI approaches to risk management are unique to each organization, all NCDFIs tend to be supportive and non-punitive toward their clients, once again underscoring the important community-focused nature of the industry.

NCDFI activities are broad and far-reaching but face common challenges at the CDFI level. Indeed, the results of our survey show that supporting NCDFI success in one area is likely to support NCDFI success in another area. One important challenge is insufficient access to capital, with the majority of our respondents pointing to scarce capital as a binding constraint on their lending. This finding supports previous reports that highlight the substantial opportunity for meeting unmet demand for NCDFI services (U.S. Commission on Civil Rights, 2003; United States Government Accountability Office, 2019; Office of the Comptroller of the Currency, 2013). At the same time, the survey data reveal that not all NCDFI challenges stem from a lack of access to capital, and challenges are often context-specific.

The analysis presented in this paper deepens the understanding of an industry that has had an outsized impact on financial inclusion within Native communities. At the same time, it provides systematic data-based insights relevant to policymakers and practitioners focused on financial development in Indian Country.

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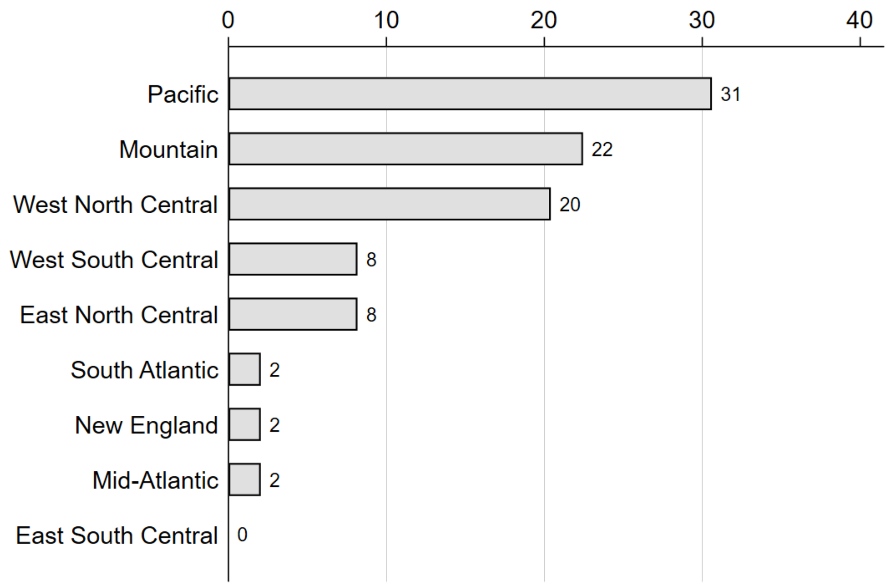
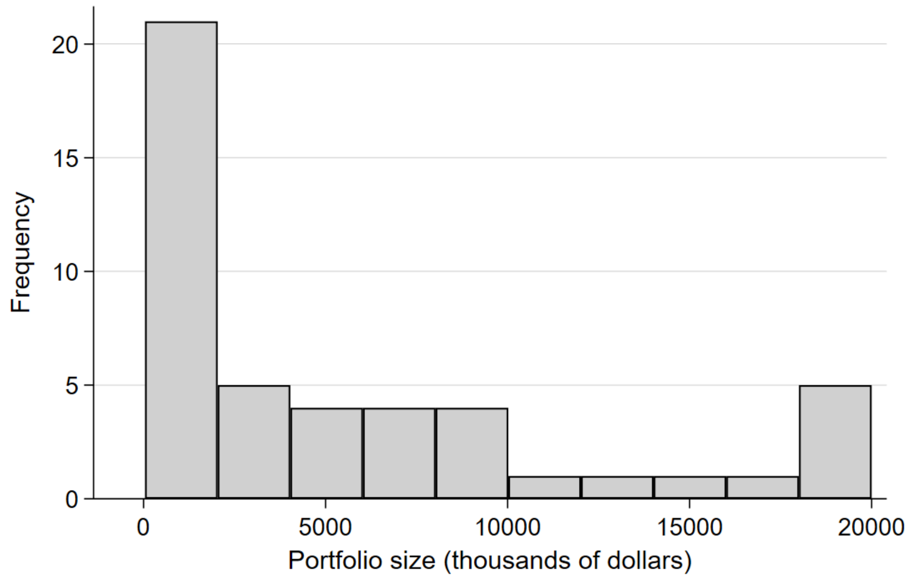
Figure 1: NCDFI Spatial Distribution



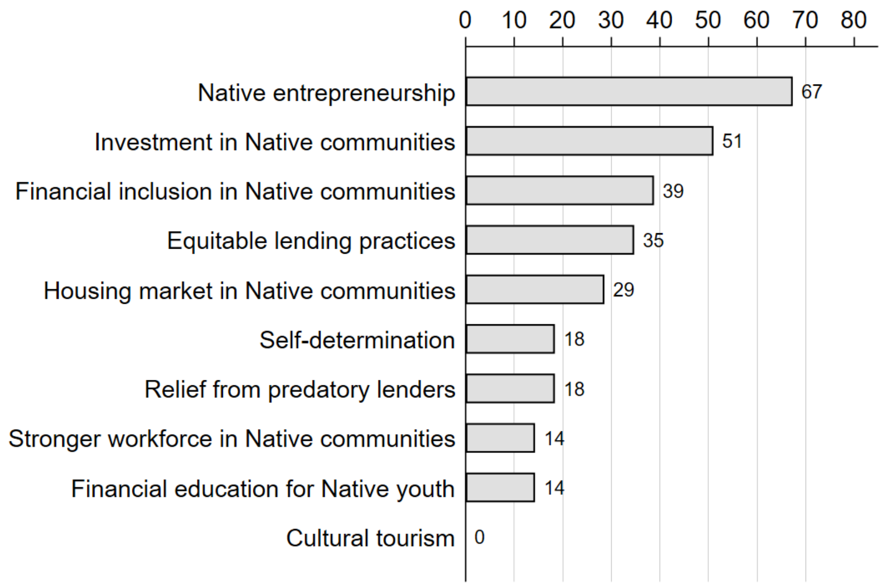
Note: Respondents were asked to indicate the state(s) they serve. NCDFIs can serve more than one division. We grouped states into Census Bureau-defined divisions (https://www2.census.gov/geo/pdfs/maps-data/maps/reference/us_regdiv.pdf).

Figure 2: Distribution of NCDFI portfolio size



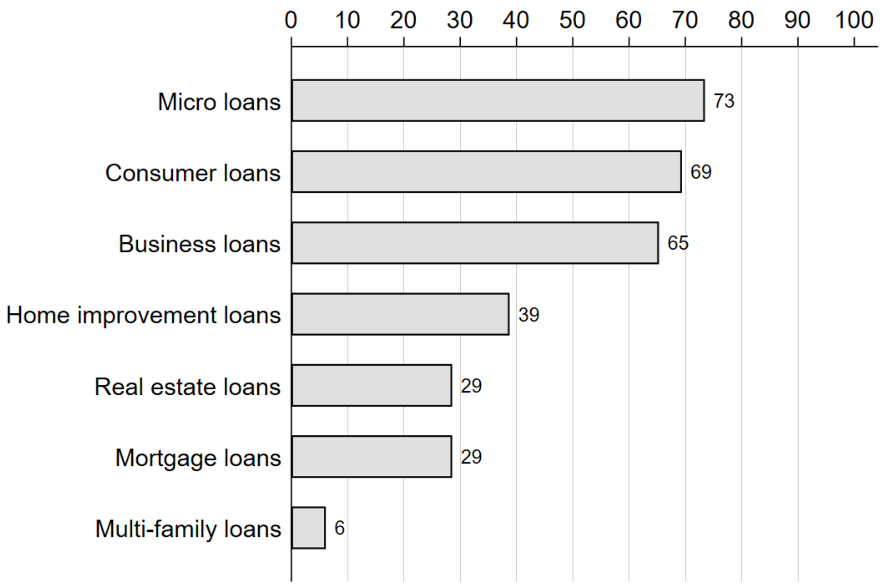
Note: Portfolio size is top-coded at “20,000,000+” and bottom-coded at “40,000.” 10.6% of respondents selected $20,000,000 and 4.3% of respondents selected $40,000.

Figure 3: NCDFI strategic goals



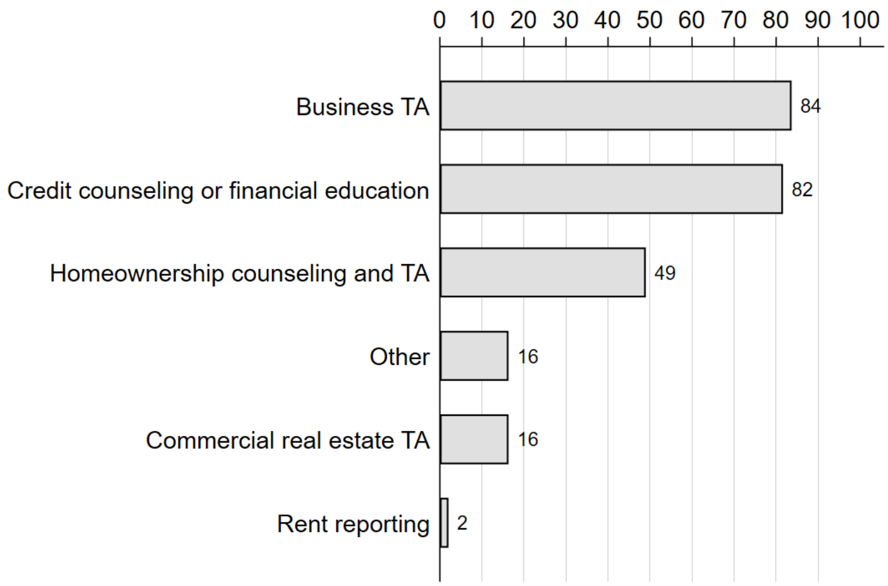
Note: NCDFIs were asked to select their top three strategic goals. This figure shows the percent of NCDFIs that selected each option as one of their top three.

Figure 4: NCDFI loan products



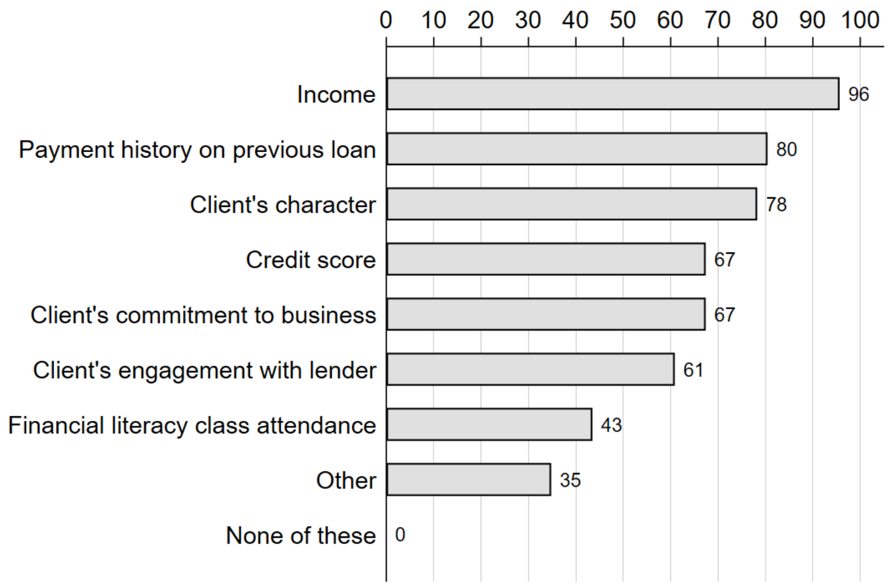
Note: NCDFIs were asked to select all the loan products they issue. This figure shows the percent of NCDFIs that selected each loan type. Several clarifications about how to distinguish loan types were provided. These appear in Section A. For example, a mortgage loan is for the purchase of a primary residence, whereas a real estate loan is for office, retail, manufacturing, or community facility space. A micro loan is less than $50,000 and issued to enterprises with fewer than five employees.

Figure 5: Development services offered



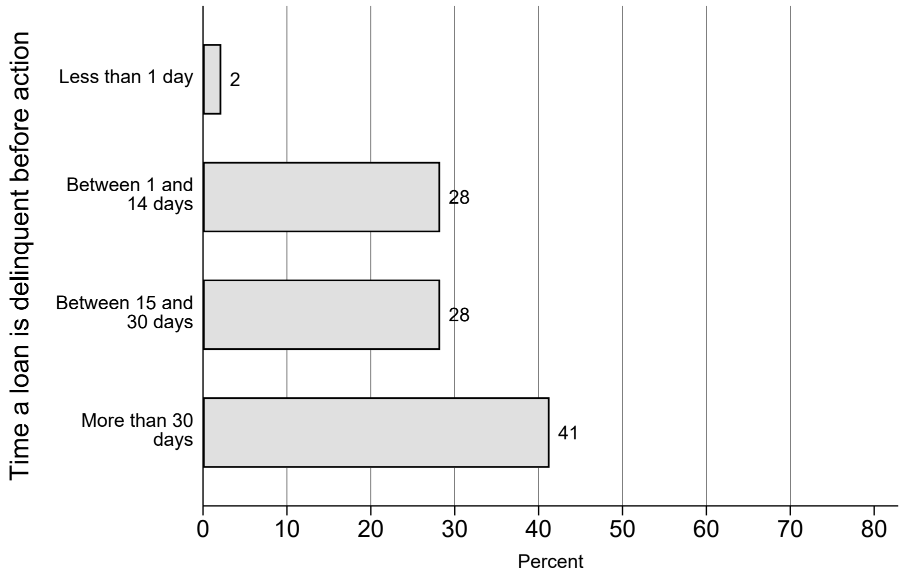
Note: This figure shows the percent of respondents that offer each type of development service listed. The categories are not mutually exclusive. TA stands for technical assistance. Business TA does not include credit counseling and financial education. Credit counseling is a service designed to help applicants improve their financial health, build credit, and manage debt. Rent reporting is the process of reporting a renter's payment history to credit bureaus, allowing applicants to build or improve their credit scores by having their on-time rent payments reflected in their credit reports.

Figure 6: Information NCDFIs use to assess repayment prospects



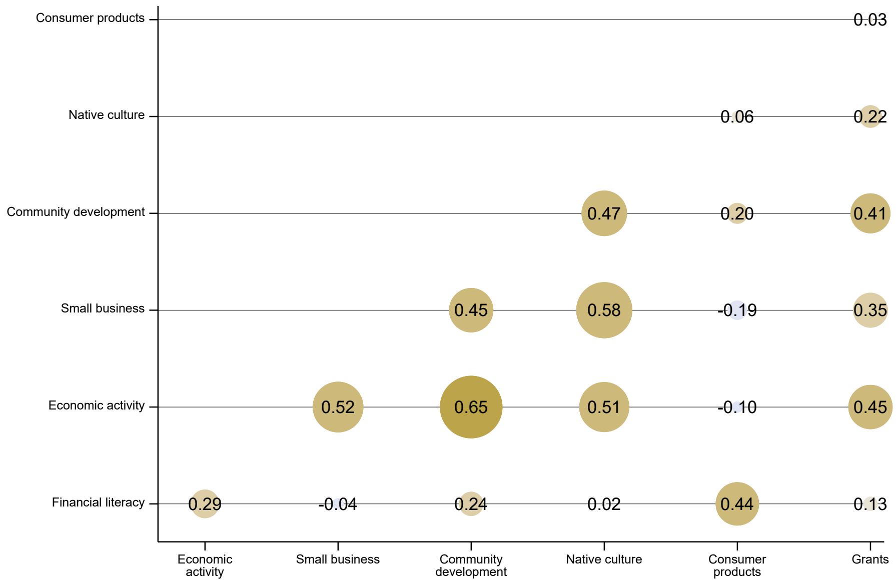
Note: We asked survey respondents what factors they consider when assessing the repayment prospects of a loan before the deal is closed. This figure shows the percent of respondents that selected each one of the options. Unless "none of these" is selected, the categories are not mutually exclusive.

Figure 7: Length of time loans remain delinquent



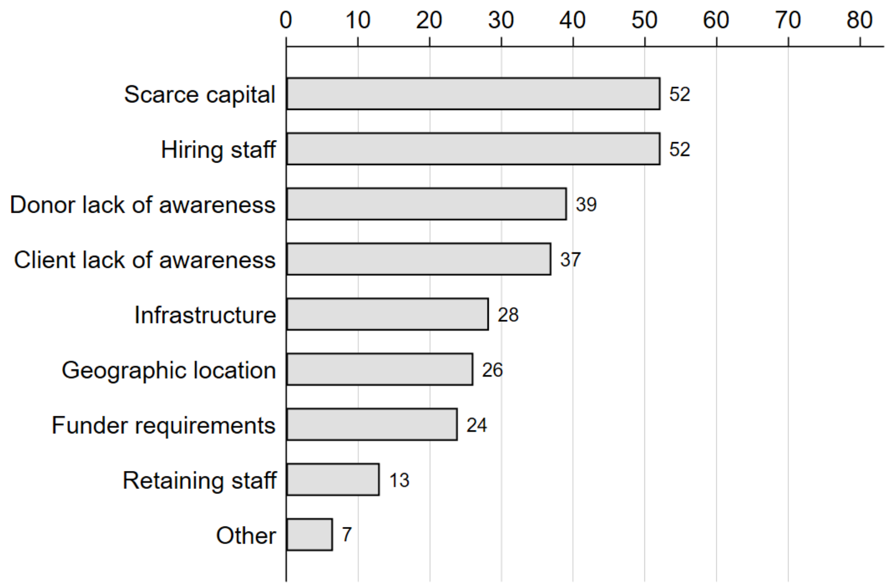
Note: We asked respondents to select the category that best represents the number of days a loan is delinquent before their NCDFI pursues action.

Figure 8: Correlogram of NCDFI successes



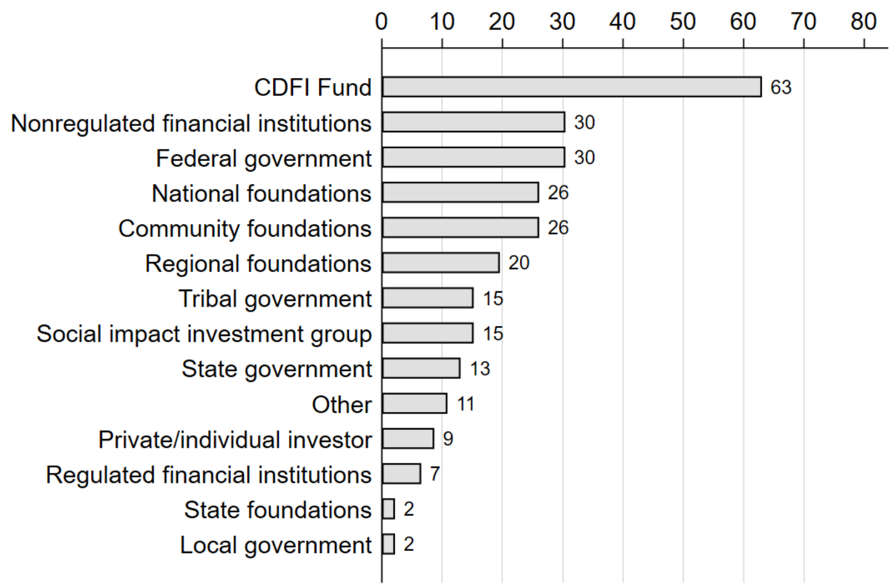
Note: Respondents were asked to rate, on a scale of 1-10, how successful their NCDFI had been at the activities on the y- and x-axes. This figure shows the correlations between those self-assessments. Gray bubbles indicate negative correlations; brown bubbles indicate positive. The size of the bubble corresponds to the strength of the correlation. The full text of the answer options: providing a variety of consumer products, Supporting Native culture/arts, Contributing to community development, Facilitating the establishment of small businesses in the community that you serve, Encouraging economic activity in the communities that you serve; Providing a variety of consumer products; Obtaining grants; and increasing financial literacy in the community that you serve.

Figure 9: Biggest challenges



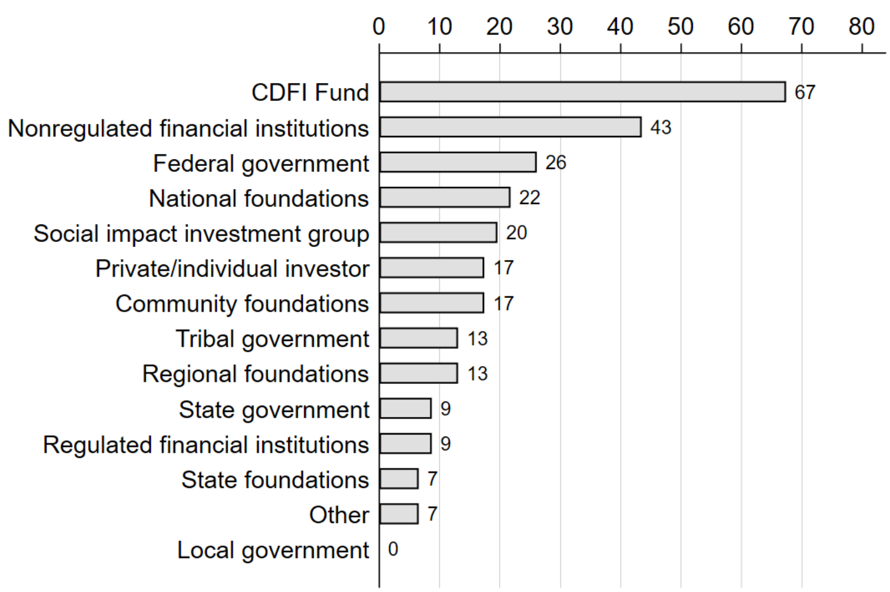
Note: Figure shows percent of respondents that selected each category as one of their biggest challenges. Categories are not mutually exclusive.

Figure 10: Top sources of operational funds



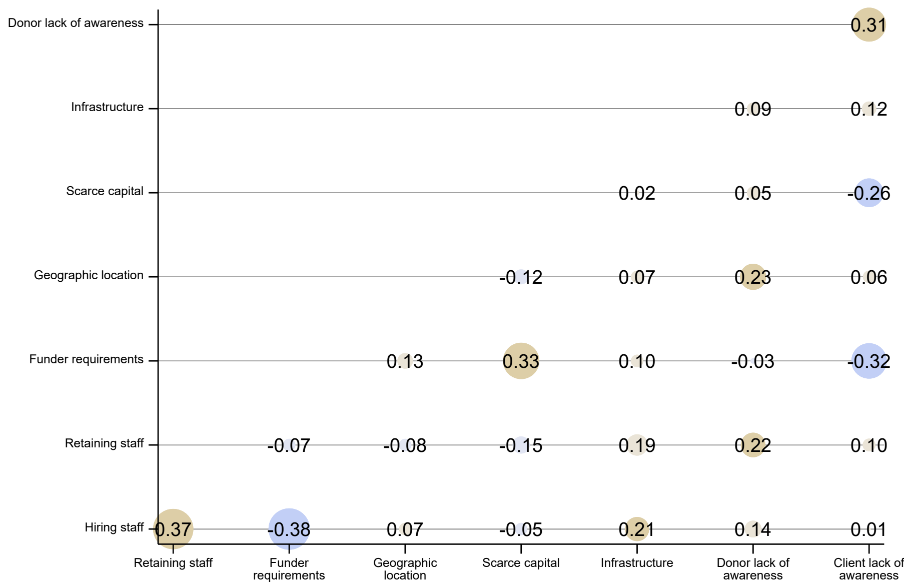
Note: Figure shows percent of respondents that selected each option as one of their top three sources of operational funds. Note that the Federal government category excludes the CDFI Fund, as the CDFI Fund is a federal program.

Figure 11: Top sources of lending funds



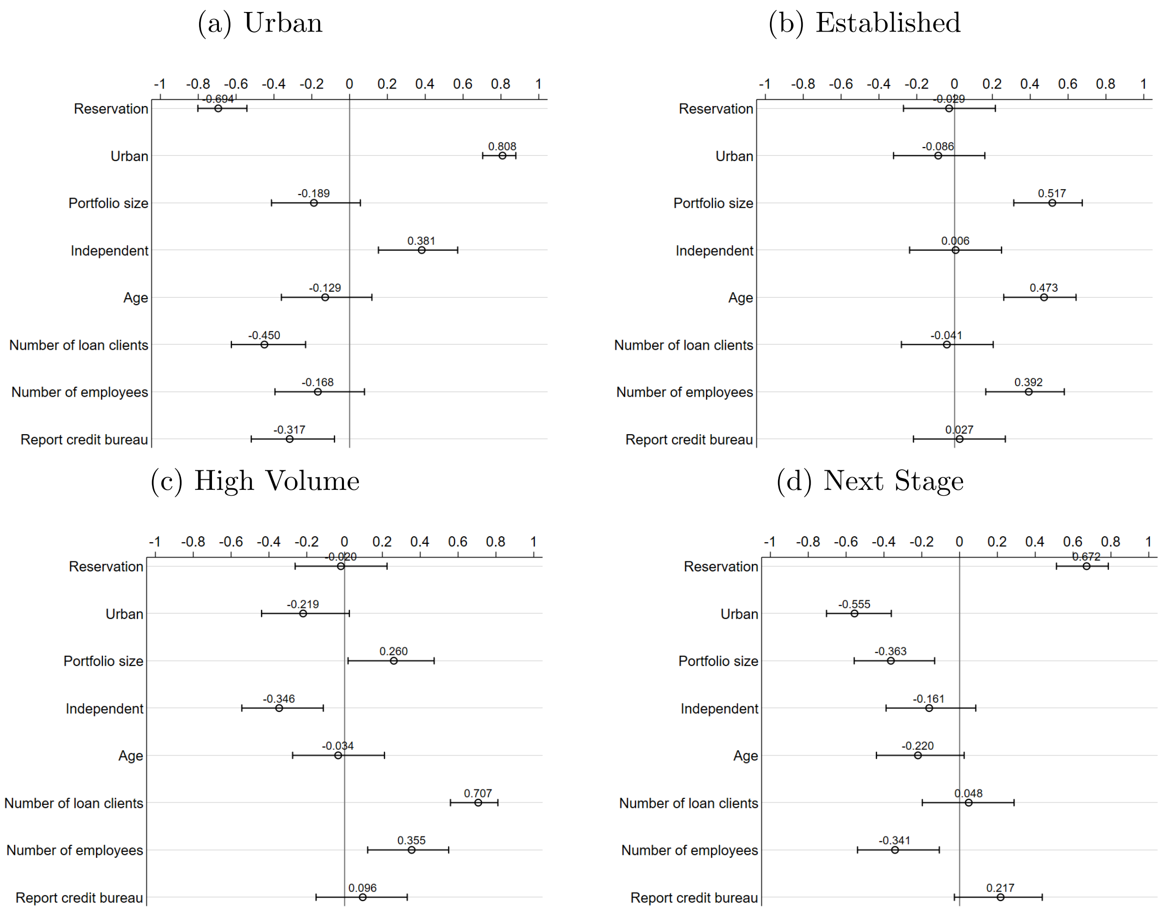
Note: Figure shows percent of respondents that selected each option as one of their top three sources of lending funds.

Figure 12: Correlogram of NCDFI challenges



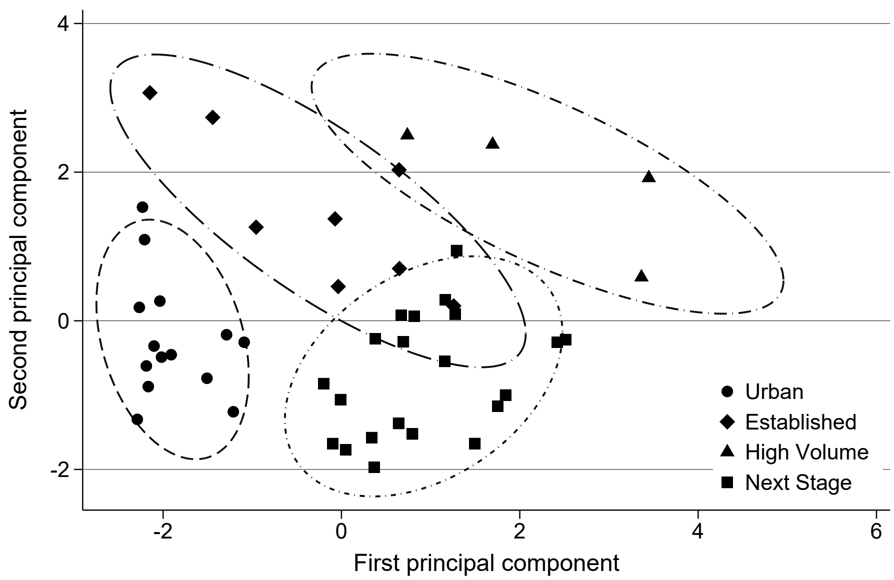
Note: Figure shows the correlations between the probability of selecting each item as one of their NDCFI's top three challenges. Gray bubbles indicate negative correlations; brown bubbles indicate positive. The size of the bubble corresponds to the strength of the correlation.

Figure 13: Correlations between NCDFI cluster and NCDFI characteristics



Note: Pearson correlations and 90% confidence intervals are shown.

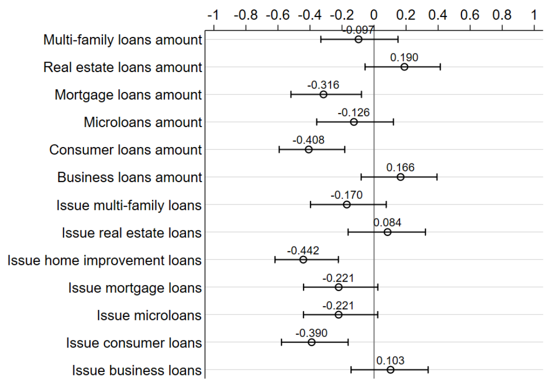
Figure 14: Distance between NCDFI clusters



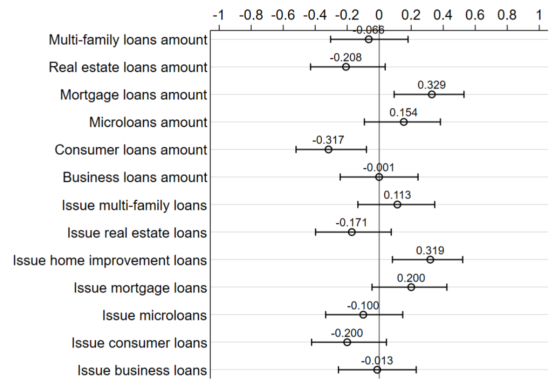
Note: This figure shows the position of each NCDFI cluster on principal components 1 and 2 and 90% confidence ellipses for each of the four clusters.

Figure 15: Correlations between NCDFI cluster and NCDFI products

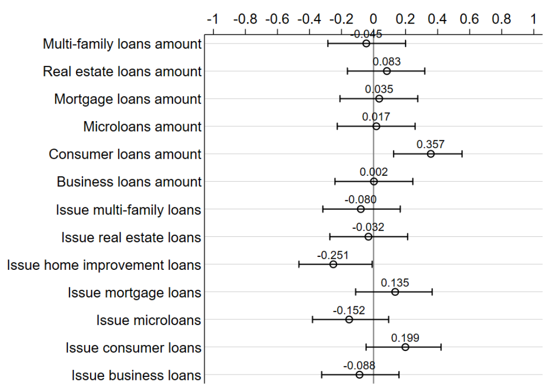
(a) Urban



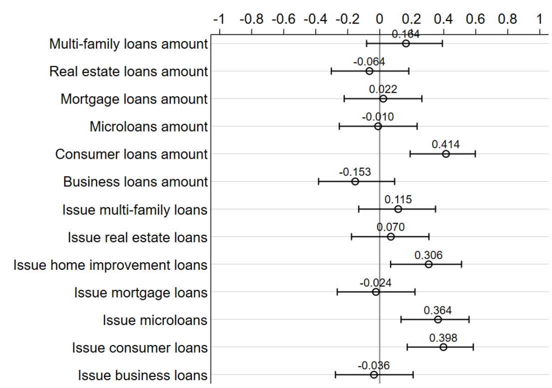
(b) Established



(c) High Volume

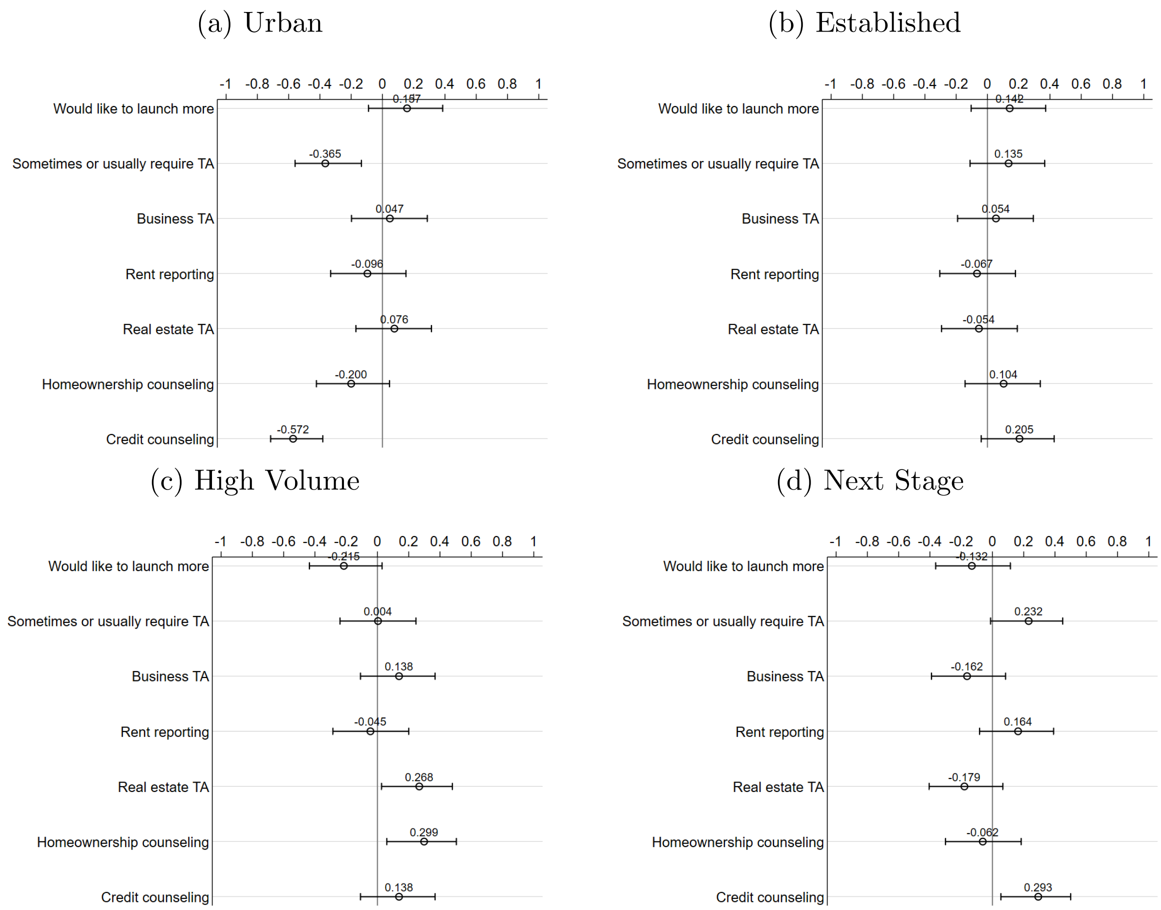


(d) Next Stage



Note: Pearson correlations and 90% confidence intervals are shown.

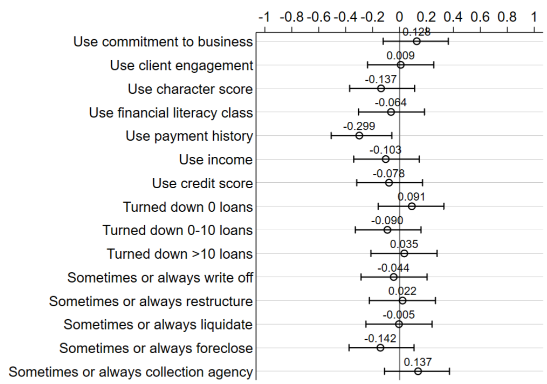
Figure 16: Correlations between NCDFI cluster and NCDFI development services



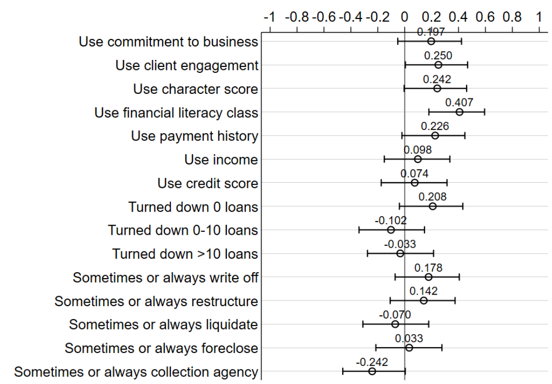
Note: Pearson correlations and 90% confidence intervals are shown.

Figure 17: Correlations between NCDFI cluster and risk mitigation strategies

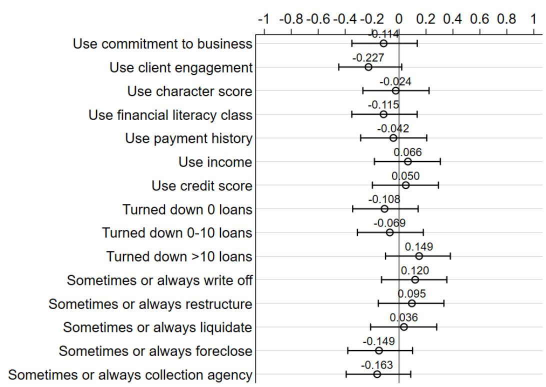
(a) Urban



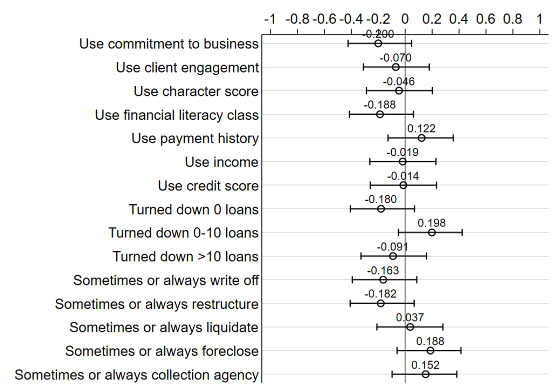
(b) Established



(c) High Volume

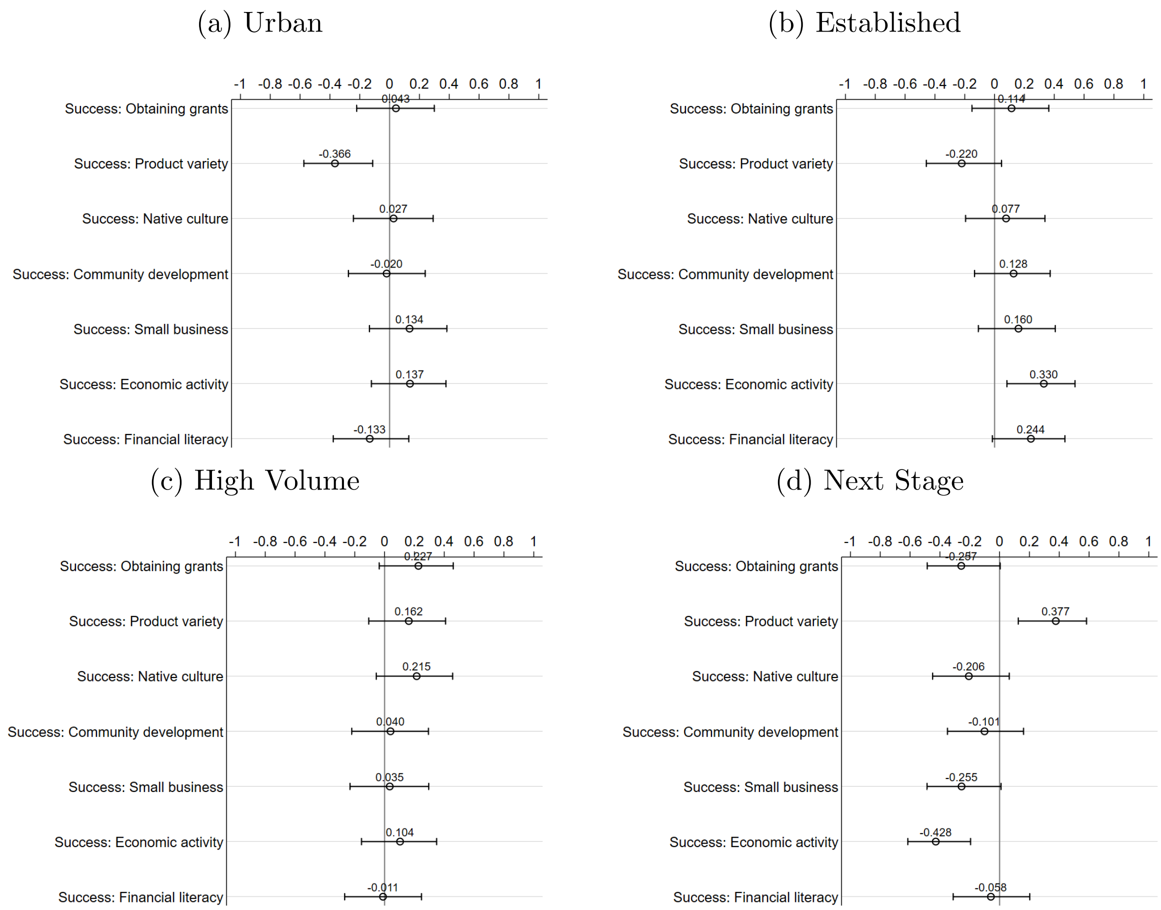


(d) Next Stage



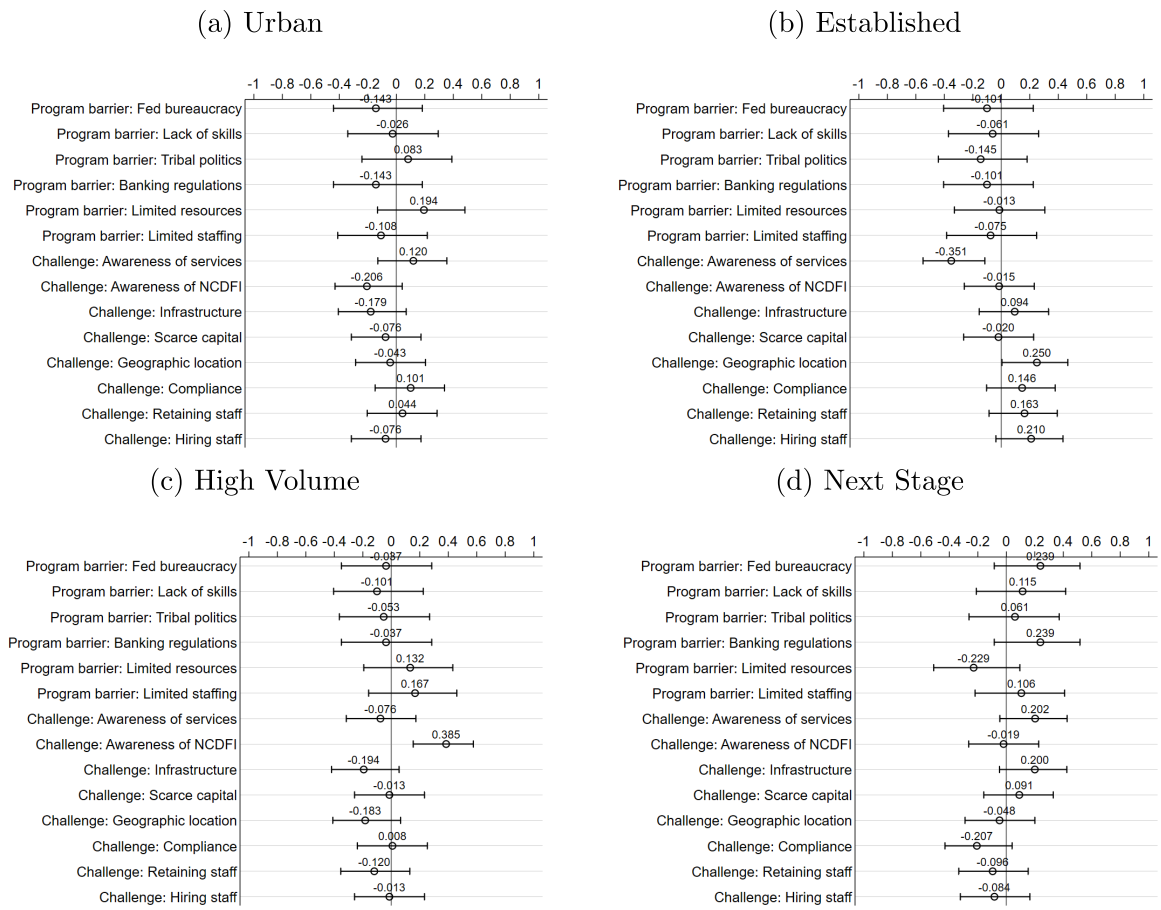
Note: Pearson correlations and 90% confidence intervals are shown.

Figure 18: Correlations between NCDFI cluster and NCDFI reported successes



Note: Pearson correlations and 90% confidence intervals are shown.

Figure 19: Correlations between NCDFI cluster and NCDFI reported challenges



Note: Pearson correlations and 90% confidence intervals are shown.

Table 1: NCDFI mean characteristics by cluster

Variable	Urban	Established	High Volume	Next Stage
Report to a credit bureau	0.357	0.625	0.75	0.714
Number of credit bureaus	0.929	1.625	2	1.524
Number of full-time employees	4.571	10.25	11.75	3.952
Number of loan clients	30.857	177.125	763	212.19
Certified	0.714	1	1	0.714
Age of CDFI in years	13.286	27.125	14.25	12.762
Independent	1	0.75	0.25	0.667
Partners with SBDC	0.571	0.5	0.5	0.381
On reservation	0	0.5	0.5	0.905
In an urban area	0.929	0.25	0	0.048
Northeast	0	0.125	0	0.048
Midwest	0.286	0.125	0	0.429
South	0	0.125	0.5	0.095
West	0.571	0.25	0.5	0.476
Entire country	0.143	0.25	0.25	0
Business loans	0.714	0.625	0.5	0.619
Consumer loans	0.429	0.5	1	0.905
Micro loans	0.571	0.625	0.5	0.905
Mortgage loans	0.143	0.5	0.5	0.286
Real estate loans	0.357	0.125	0.25	0.333
Multi-family loans	0	0.125	0	0.095
Portfolio size (thousands of dollars)	3,873	13,025	11,185	3,139
Business loans number	8.643	19.875	14.25	2.81
Business loans amount	184.286	148.75	150	125.286
Consumer loans number	10.929	20.25	100	62
Consumer loans amount	63.857	54.25	300	206.619
Microloans number	4	4.75	5.25	7.81
Microloans amount	47.5	107	75.5	67.857
Mortgage loans number	0.143	9	2.5	6.429
Mortgage loans amount	22.286	168	94.5	83.571
Real estate loans number	0.429	0.125	2.75	0.476
Real estate loans amount	76.857	0.125	75	39.762
Multi-family loans number	0	0.125	0	0.095
Multi-family loans amount	0	0.125	0	10.762
Observations	14	8	4	21

Notes: SBDC is the Small Business Development Centers. Mortgage loans are mortgage and home improvement loans. The number and amount of loans are not conditional on issuing that type of loan at all, meaning that zeros are included in the averages. When indicating where they operate, respondents could select multiple states, which is why the Census regions do not necessarily add up to 1 for each cluster.

Appendix

A Definitions

This section provides the same definitions of loan types that were provided to survey respondents.

- **Business loans**: Financing to for-profit and nonprofit businesses with more than five employees OR in an amount greater than $50,000 for a purpose that is not connected to the development (including construction of new facilities and rehabilitation/enhancement of existing facilities), management, or leasing of real estate
- **Consumer loans**: A consumer loan is a personal (secured or unsecured) loan to one or more individuals for health, education, emergency, credit repair, debt consolidation, or other consumer purposes. Personal loans for business purposes should be identified as Business loans and personal loans for home improvement or repair should be identified as Housing loans
- **Micro loans**: Financing to a for-profit or nonprofit enterprise that has five or fewer employees (including the proprietor) with an amount no more than $50,000 for a purpose that is not connected to the development (including construction of new facilities and rehabilitation/enhancement of existing facilities), management, or leasing of real estate
- **Mortgages**: Loan is for the purchase of a primary residence
- **Home improvement loans**: Loan is for the renovation or improvement of an owner-occupied home
- **Real estate loans**: Loan is for pre-development financing, construction or permanent financing, or acquisition without rehabilitation of office, retail, manufacturing, or community facility space. Includes mixed-use real estate that combines both commercial and residential use
- **Multi-family loans**: Loan is for pre-development financing, or construction of multi-family housing

B Survey Instrument

Start of Block: Introduction

Q1 Introduction and informed consent

End of Block: Introduction

Start of Block: Size, loan servicing system, credit bureau reporting, and strategic goals

Q2 What is the name of your Native CDFI? (NCDFI)

____

Q3 Do you report to credit bureaus?

- Yes
- No

Q4 What credit bureau do you report to? (select all that apply)

- Equifax
- Experian
- Transunion

Q5 What loan servicing system do you use?

____

Q6 Are you satisfied with it?

- Yes
- No

Q7 Why are you not satisfied with your loan servicing system?

____

Q8 How many full-time employees (or the equivalent thereof) do you currently have? (e.g., two half-time employees would equal one full-time employee)

▼ 1 ... 100+

Q9 Approximately how many loan clients do you currently have?

▼ 1 ... 1000+

Q10 Please select the top three strategic goals of your organization:

- ▢ Improving financial education of Native youth
- ▢ Increasing investment in Native communities
- ▢ Enhancing financial inclusion in Native communities
- ▢ Encouraging cultural tourism
- ▢ Encouraging Native entrepreneurship
- ▢ Providing relief from predatory lenders
- ▢ Promoting a stronger workforce in Native communities
- ▢ Promoting equitable lending practices
- ▢ Advancing self-determination
- ▢ Expanding the housing market in Native communities
- ▢ Other, specify ____

End of Block: Size, loan servicing system, credit bureau reporting, and strategic goals

---

Start of Block: Development services

Q11 Which of the following development services do you offer? (select all that apply)

- ☐ Credit counseling or financial education
- ☐ Homeownership counseling and technical assistance
- ☐ Commercial real estate technical assistance
- ☐ Rent reporting
- ☐ Business technical assistance (not including credit counseling and financial education)
- ☐ Other, specify ____

Q12 You indicated that you offer credit counseling or financial education for clients (training, in short). Is training ever a precondition for a loan?

- ○ Yes, training is usually required as a precondition for a loan.
- ○ Yes, training is sometimes required as a precondition for a loan.
- ○ No, training is never required as a precondition for a loan.

Q13 Which of the following options best describes your situation concerning the training of clients?

- ○ We assign clients to training, and clients never request training.
- ○ We never assign clients to training, but it is available to them upon request.
- ○ Sometimes we assign clients to training and sometimes clients request the training.

Q14 Approximately how often do clients turn down participation in training? Please provide your best guess, even if you don't have the exact number.

- ○ Never
- ○ Sometimes, but no more than 25% of the time
- ○ More than 25% but no more than 50% of the time
- ○ More than 50% but no more than 75% of the time
- ○ More than 75% of the time

Q15 Do you use any of the following programs for your training classes?

- ○ Building Native Communities Financial Skills for Families
- ○ Your Money Your Goals: Focus on Native American Toolkit
- ○ A customized program developed by your NCDFI
- ○ Other, specify ____

Q16 You indicated that you use a customized program for financial education classes/training. What is the name of the program?

____

Q17 Is your customized program for financial education classes/training available for others to purchase or use?

◯ Yes

◯ No

Q18 You indicated that you offer business technical assistance. Do you require clients to take a formal business skills training class that you and others offer (in-person or virtual) or do you provide this service only if needed?

◯ We provide this service only when it is needed to help support the client and the business.

◯ We require a specific class offered by our NCDFI.

◯ We require a specific class offered by a third party.

Q19 How many hours of business skills training do you typically require?

▼ 1 ... 110+

Q20 Do you use the Indianpreneurship Program for your training classes?

◯ Yes

◯ No

Q21 Are there programs you aspire to launch/provide but have not been able to?

◯ Yes

◯ No

Q22 Which programs do you aspire to launch?

____

Q23 What prevents your NCDFI from providing the programs? (select all that apply)

☐ Limited staffing

☐ Limited financial resources

☐ Banking regulations

☐ Tribal politics

☐ Lack of necessary skills

☐ Federal government bureaucracy

☐ None of the above (Please specify)

____

End of Block: Development services

Start of Block: Loan products

Q24 Which of the following loan products do you offer?

☐ We do not currently offer any loan products.

☐ Business loans (Clarification: Financing to for-profit and nonprofit businesses with more than five employees OR in an amount greater than $50,000 for a purpose that is not connected to the development (including construction of new facilities and rehabilitation/enhancement of existing facilities), management, or leasing of real estate).

☐ Consumer loans (Clarification: A consumer loan is a personal (secured or unsecured) loan to one or more individuals for health, education, emergency, credit repair, debt consolidation, or other consumer purposes. Personal loans for business purposes should be identified as Business loans and personal loans for home improvement or repair should be identified as Housing loans).

☐ Micro loans (Clarification: Financing to a for-profit or nonprofit enterprise that has five or fewer employees (including the proprietor) with an amount no more than $50,000 for a purpose that is not connected to the development (including construction of new facilities and rehabilitation/enhancement of existing facilities), management, or leasing of real estate.)

☐ Home mortgages (Clarification: Loan is for the purchase of a primary residence.)

☐ Home improvement loans (Clarification: Loan is for the renovation or improvement of an owner-occupied home.)

☐ Real estate loans for businesses (Clarification: Loan is for predevelopment financing, construction or permanent financing, or acquisition without rehabilitation of office, retail, manufacturing, or community facility space. Includes mixed-use real estate that combines both commercial and residential use).

☐ Multi-family loans (Clarification: Loan is for predevelopment financing, or construction of multi-family housing.)

☐ Other, specify ____

Q25 Approximately how many business loans have you issued in the past year?

▼ 1 ... 100+

Q26 What is the total amount of business loans issued in the past year?

▼ $1,000 ... $300,000+

Q27 Approximately how many consumer loans have you issued in the past year?

▼ 1 ... 100+

Q28 What is the total amount of consumer loans issued in the past year?

▼ $1,000 ... $300,000+

Q29 Approximately how many micro loans have you issued in the past year?

▼ 1 ... 100+

Q30 What is the total amount of micro loans issued in the past year?

▼ $1,000 ... $300,000+

Q31 Approximately how many mortgage and home improvement loans combined have you issued in the past year?

▼ 1 ... 100+

Q32 What is the total amount of mortgage and home improvement loans combined issued in the past year?

▼ $1,000 ... $300,000+

Q33 Approximately how many real estate loans for businesses have you issued in the past year?

▼ 1 ... 100+

Q34 What is the total amount of real estate loans for businesses issued in the past year?

▼ $1,000 ... $300,000+

Q35 Approximately how many multi-family loans have you issued in the past year?

▼ 1 ... 100+

Q36 What is the total amount of multi-family loans issued in the past year?

▼ $1,000 ... $300,000+

Q37 What is your portfolio size?

▼ $40,000 ... $20,000,000+

End of Block: Loan products

Start of Block: Client risk mitigation

Q38 Approximately how many loan applicants have you turned down in the past year? Please provide your best guess, even if you don't have the exact number.

- ○ None
- ○ Some, but less than 10%
- ○ Between 10% and less than 20%
- ○ At least 20%

Q39 What factors do you consider when assessing the repayment prospects of a loan before the deal is closed? (Select all that apply)

- ☐ Credit score
- ☐ Income
- ☐ Payment history on a previous loan
- ☐ Financial literacy class attendance/certificate
- ☐ Client's overall character
- ☐ Client's overall engagement with lender
- ☐ Client's commitment to business
- ☐ None of the above
- ☐ Other, specify ____

Q40 Do you collect data related to any of the following new developments in credit scoring?

- ☐ Trended data (for example, this might involve looking at how debt balances have been growing or shrinking over time)
- ☐ Consumer permissioned data (for example, this might involve getting permission from users to access data like utility payments or rent payments)
- ☐ Measures of consumer resilience (for example, this might involve measuring consumer resilience to economic downturns)
- ☐ None of the above

Q41 Do you accept any of the following as collateral for loans?

- ☐ Per capita payments (i.e. regular payments distributed by the tribe)
- ☐ Personal leave
- ☐ Artwork
- ☐ Other, specify ____

Q42 Does your organization have a written loan policy that you follow in the event of loan delinquency (i.e. when a borrower missed a payment)?

- ○ No
- ○ Yes

Q43 How long do you normally allow a loan to remain delinquent before taking some action? (Select the best option)

- ○ Less than 1 day
- ○ Between 1 and 14 days
- ○ Between 15 and 30 days
- ○ More than 30 days

Q44 Which of the following actions do you normally take for loans that are at least 30 days but less than 90 days delinquent? (Select all that apply)

- ▢ Send a notice or letter to the borrower.
- ▢ Conduct a phone interview with the borrower.
- ▢ Conduct an in-person interview with the borrower.
- ▢ Other, specify ____

Q45 Do you take any of the following actions for loans that are 90 or more days delinquent? (Select the best option for each action)

	Never	Sometimes	Always
Restructure the loan	○	○	○
Issue an intent to foreclose on the loan	○	○	○
Send the loan to a collection agency	○	○	○
Liquidate the collateral	○	○	○
Write off the loan	○	○	○

Q46 What other actions do you take for loans that are 90 or more days delinquent?

____

End of Block: Client risk mitigation

Start of Block: Challenges, successes, and target communities

Q47 What is the biggest obstacle for people to obtain credit in the communities that your NCDFI serves?

- Low credit scores
- Missing credit histories
- Relative absence of mainstream financial institutions
- Discrimination against Native borrowers
- Insufficient income
- Insufficient collateral
- There are no obstacles to obtain credit in the communities your NCDFI serves
- Other, specify ____

Q48 Is predatory lending a significant problem in the communities that you serve?

- Yes
- No

Q49 What are the biggest challenges for your NCDFI? (select all that apply)

- ☐ Hiring staff
- ☐ Retaining staff
- ☐ Compliance with funders' requirements
- ☐ Geographic location
- ☐ Scarce capital
- ☐ Infrastructure
- ☐ Lack of awareness of the work of the NCDFI by potential donors
- ☐ Lack of awareness of the services and products offered by the NCDFI
- ☐ Other, specify ____

Q50 How much more lending could you do if you weren't constrained by available capital?

- ○ Twice as much
- ○ Between 2-3 times more
- ○ Greater than 3 times more

Q51 Please select your NCDFI's top three sources of operational funds in 2022.

- ☐ Regulated financial institutions
- ☐ Nonregulated financial institutions (including intermediaries such as Oweesta and OFN)
- ☐ National foundations
- ☐ Regional foundations
- ☐ State foundations
- ☐ Community foundations
- ☐ CDFI Fund
- ☐ Tribal government
- ☐ Federal government (not CDFI Fund)
- ☐ State government
- ☐ Local government
- ☐ Social impact investment groups
- ☐ Private/individual investors
- ☐ Other, specify ____

Q52 Please rank these sources of operational funds with 1 being the most important. (Place each item in order of preference)

_______ Regulated financial institutions
_______ Nonregulated financial institutions (including intermediaries such as Oweesta and OFN)
_______ National foundations
_______ Regional foundations
_______ State foundations
_______ Community foundations
_______ CDFI Fund
_______ Tribal government
_______ Federal government (not CDFI Fund)
_______ State government
_______ Local government
_______ Social impact investment group
_______ Private/individual investors

Q53 Please select your NCDFI’s top three sources of lending funds in 2022:

- ▢ Regulated financial institutions
- ▢ Nonregulated financial institutions (including intermediaries such as Oweesta and OFN)
- ▢ National foundations
- ▢ Regional foundations
- ▢ State foundations
- ▢ Community foundations
- ▢ CDFI Fund
- ▢ Tribal government
- ▢ Federal government (not CDFI Fund)
- ▢ State government
- ▢ Local government
- ▢ Social impact investment groups

- [ ] Private/individual investors
- [ ] Other, specify ____

Q54 Please rank these sources of lending funds with 1 being the most important. (Place each item by order of preference)
_______ Regulated financial institutions
_______ Nonregulated financial institutions (including intermediaries such as Oweesta and OFN)
_______ National foundations
_______ Regional foundations
_______ State foundations
_______ Community foundations
_______ CDFI Fund
_______ Tribal government
_______ Federal government (not CDFI Fund)
_______ State government
_______ Local government
_______ Social impact investment group
_______ Private/individual investors

Q55 Which of the following do you use to track the outcomes of your clients? (select all that apply)

- [ ] Credit score changes
- [ ] Debt changes
- [ ] Behavior changes (e.g., education or employment changes)
- [ ] Access to conventional lenders
- [ ] Income changes
- [ ] Network changes

Q56 On the scale of 1-10, in your view, how successful has your NCDFI been at the following activities (1 is the least and 10 is the most successful)

	1	2	3	4	5	6	7	8	9	10	N/A
Increasing financial literacy in the community that you serve	○	○	○	○	○	○	○	○	○	○	○
Encouraging economic activity in the communities that you serve	○	○	○	○	○	○	○	○	○	○	○
Facilitating the establishment of small businesses in the community that you serve	○	○	○	○	○	○	○	○	○	○	○
Contributing to community development	○	○	○	○	○	○	○	○	○	○	○
Supporting Native culture/arts	○	○	○	○	○	○	○	○	○	○	○
Providing a variety of consumer products	○	○	○	○	○	○	○	○	○	○	○
Obtaining grants	○	○	○	○	○	○	○	○	○	○	○

Q57 On a scale of 1-10, how satisfied are you with the following federal funding programs? (1 is very unsatisfied and 10 is very satisfied; check N/A for the "other" statements for which you have no additional entries)

	1	2	3	4	5	6	7	8	9	10	N/A
CDFI Fund Technical Assistance Grant											
CDFI Fund Financial Assistance Grant											
SBA Community Navigator											
SBA Economic Injury Disaster Loans											
USDA Intermediary Relending Program											
USDA Rural Business Development Grants											
USDA Rural Innovation Stronger Economy Grants											
USDA other											
HUD Section 184 Indian Home Loan Guarantee Program											
EDA Revolving Loan Fund											
EDA Build Back Better											

EDA CARES Act											
Bureau of Indian Affairs Loan Insurance Program											
Native American Agricultural Fund											
Administration for Native Americans											
Minority Business Development Agency											
State Small Business Credit Initiative											
New Market Tax Credits											
Other											
Other											
Other											

Q58 On the scale of 1-10, how high is your organization's compliance and operational costs associated with federal regulations? (1 would indicate extremely low cost and 10 would indicate extremely high cost)

- ○ 1
- ○ 2
- ○ 3
- ○ 4
- ○ 5
- ○ 6
- ○ 7
- ○ 8
- ○ 9
- ○ 10

Q59 Would you be willing to share anonymized loan and borrower level data with the research team for the purpose of a quantitative analysis of the impact of NCDFIs on loan and borrower outcomes?

- ○ Yes
- ○ Maybe
- ○ No

End of Block: Challenges, successes, and target communities

Start of Block: General questions

Q60 What year was your NCDFI established?

▼ 1960 ... 2023

Q61 Is your NCDFI certified?

- ○ No
- ○ Yes

Q62 What year was your NCDFI most recently certified?

▼ 1960 ... 2023

Q63 Has your NCDFI ever lost its certification?

- ○ Yes
- ○ No

Q64 Was your NCDFI ever certified?

- ○ Yes
- ○ No

Q65 Which of the following best describes your NCDFI?

- ○ Independent
- ○ Tribally owned

Q66 Which of the following best describes your NCDFI?

- ○ For-profit
- ○ Nonprofit

Q67 Do you currently partner with Small Business Development Centers?

- ○ Yes
- ○ No

Q68 Please tell us why you do not currently partner with any Small Business Development Center.

____

Q69 Which of the following best describes the location of your NCDFI?

- ○ On a reservation, in a rural area.
- ○ On a reservation, in an urban area.
- ○ Not on a reservation, in a rural area.
- ○ Not on a reservation, in an urban area.

Q70 Which state or states does your NCDFI serve? (Hold the control key to select multiple states)

- ▢ Entire country
- ▢ Alabama
- ▢ Alaska
- ▢ Arizona
- ▢ Arkansas
- ▢ California
- ▢ Colorado
- ▢ Connecticut
- ▢ Delaware
- ▢ District of Columbia
- ▢ Florida
- ▢ Georgia
- ▢ Hawaii
- ▢ Idaho
- ▢ Illinois
- ▢ Indiana
- ▢ Iowa
- ▢ Kansas
- ▢ Kentucky

- [ ] Louisiana
- [ ] Maine
- [ ] Maryland
- [ ] Massachusetts
- [ ] Michigan
- [ ] Minnesota
- [ ] Mississippi
- [ ] Missouri
- [ ] Montana
- [ ] Nebraska
- [ ] Nevada
- [ ] New Hampshire
- [ ] New Jersey
- [ ] New Mexico
- [ ] New York
- [ ] North Carolina
- [ ] North Dakota
- [ ] Ohio
- [ ] Oklahoma
- [ ] Oregon

- ☐ Pennsylvania
- ☐ Puerto Rico
- ☐ Rhode Island
- ☐ South Carolina
- ☐ South Dakota
- ☐ Tennessee
- ☐ Texas
- ☐ Utah
- ☐ Vermont
- ☐ Virginia
- ☐ Washington
- ☐ West Virginia
- ☐ Wisconsin
- ☐ Wyoming

Q71 More specifically, which Native communities do you serve?

____

Q72 Lastly, we would like to collect some pertinent financial data. Are you willing to upload your financial statements?

- ○ Yes
- ○ No

Q73 Please complete the following table.

	Past fiscal year	Current fiscal year
Total portfolio at risk (at least 30 days delinquent)		
Total amount of loans charged off		
Total amount of loan loss reserves		
Total current assets		
Total assets		
Total gross loans outstanding		
Total available funds for lending		
Total current liabilities		
Total liabilities		

Total contributions/grants received		
Total revenues		
Total expenses		

Q74 Please upload your balance sheet statements for the past and current fiscal years.

Q75 Please upload your income statements for the past and current fiscal years.

End of Block: General questions

C Chartbook

This section provides additional statistics about the NCDFI industry, based on the responses from our survey.

C.1 Age of the Industry

Figure A1 shows the distribution of NCDFI age in years, ranging from brand-new to one outlier at 71 years of age.

C.2 Geographic Coverage

Different loan types are approximately equally likely to be offered in different parts of the country. Each panel of Figure A2 shows where the NCDFIs that issue certain loan types are headquartered. For example, Panel (a) shows that 25% of the NCDFIs that offer business loans are located in the West North Central division and 25% in the Pacific division. Panel (b) shows that 24% of the NCDFIs that offer consumer loans are located in the West North Central division and 32% in the Pacific division.

The loan amounts provided by NCDFIs do not differ substantively based on whether the NCDFI is located on a reservation. The largest on- versus off-reservation differences appear in the business loan amounts (which are higher, on average, on reservation), but even these differences are not statistically significant (See Table A1).

C.3 NCDFI Capacity

Here, we share insights into NCDFI capacity, both in terms of the number of people on staff at NCDFIs and the number of clients served by NCDFIs. The average number of full-time equivalent employees at NCDFIs is approximately six, but most NCDFIs have five or fewer employees (see Figure A3). On average, NCDFIs have 193 loan clients (see Figure A4). Two NCDFIs report having 1,000 or more.

C.4 Products and Services

The range of products and services offered by NCDFIs highlights the diversity of the industry. Table A2 presents descriptive statistics on the number and amounts of loans issued, disaggregated by loan type. Clearly, NCDFIs offer many different types of loan products, with consumer and business loans the most common. Figure A5 indicates that the loan amounts have a bimodal distribution for all loan types except multifamily loans. For most loan types, there is a lot of mass in the left tail and the right tail of the distribution. Business and real estate loans tend to be large, but, surprisingly, consumer loans tend to be larger than mortgage and home improvement loans.

In a separate analysis, we study where business lending specifically tends to take place. Approximately 53% of the NCDFIs that offer business loans are located on reservations in rural areas. At the same time, NCDFIs that offer business loans are better represented in urban areas than NCDFIs that do not offer business loans: 33% of NCDFIs that issue business loans are in urban areas relative to 28% of NCDFIs that do not issue business loans. This may suggest that business loan availability is related to access to markets. However, the results of a t-test suggest that the geographic differences between NCDFIs that issue business loans are not statistically significant.

We also study development services. 81% of NCDFIs provide some type of credit counseling or financial education. 74% of NCDFIs sometimes or usually require counseling or training prior to obtaining a loan (see Figure A6). The vast majority of NCDFIs (72%) report that they sometimes assign training but that clients sometimes request training. When an NCDFI assigns training, the client rarely turns it down (in less than 25% cases). Business skills training is a specific type of training that is offered by 84% of NCDFIs. Among those that offer business skills training, only 17% require it, and require 12 hours on average. 20% of those that offer any business skills training use the Indianpreneurship program in some capacity; 57% of NCDFIs report that they would like to launch additional programs.

D Cluster Analysis Methods

This section offers further details on the methods used in the cluster analysis, which is summarized in Section 7 of the main paper.

We first performed a principal component analysis (PCA) to reduce the dimensionality of the dataset, uncover patterns, and put structure on the characteristics of NCDFIs. The PCA applied orthogonal transformations of highly correlated characteristics into a set of linearly uncorrelated principal components.

We initially considered 19 measures for the PCA, collectively capturing important operational elements of the NCDFIs: administrative details (e.g., age, etc.), geography (e.g., urban or reservation), and types of loan products offered. We present descriptive statistics summarizing these measures in Table A3.[22] Then we performed a Kaiser-Meyer-Olkin (KMO) sampling adequacy test to reduce the initial set of variables. This test is used to determine whether certain variables are well suited for factor analysis. The closer to one, the higher the correlation; in other words, the test statistic reflects the proportion of variance among the variables that might be common variance. The variables shaded in gray in Table A3 had KMO values greater than or equal to 0.5. These are the ones included in the PCA, reducing the set from 19 to 8.

As shown in the scree plot (Figure A7), three principal components were found to have eigenvalues greater than one. These three components explain 66% of the total variability in the data, which is the combined variance of the eight measures used in the analysis. Using orthogonal rotation, we identified the highly correlated variables within each of these three components. The first principal component, which explains 32% of the overall variance, is associated with five variables: the number of loan clients, whether the NCDFI is independent, whether the NCDFI is on a reservation, whether the NCDFI is in an urban area, and the number of consumer loans provided.[23] The second principal component explains an additional 20% of the variance and is associated with the number of full-time employees on staff and portfolio size. The third principal component explains the remaining 14% of the variance and is associated only with the age of NCDFI.

Hierarchical Cluster Analysis (HCA) in combination with PCA enables a clustering of NCDFIs based on their component-defined characteristics. We can use the first three components from the PCA for hierarchical clustering. Each observation in the dataset was assigned

[22]Note that we necessarily had to restrict the selection of the initial set of characteristics in some way. With only 49 observations total, we needed to exclude some potentially relevant characteristics in order to ensure that the matrix was full-rank. Furthermore, variables that lacked internal variation or were perfectly correlated with other variables were excluded.

[23]Note that the first principal component is the linear combination of variables that maximizes variance.

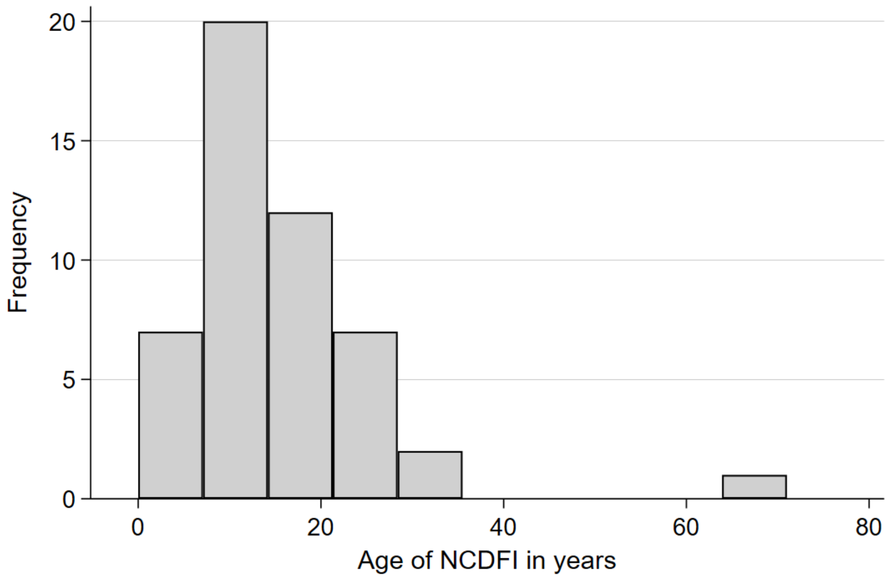
a score for each component – the score is effectively an index of the variables that comprise the component. These three scores were used to define the clusters.

We used Ward's computation method and Euclidean distance and retained four clusters. The decision to retain four clusters was a qualitative decision based on how the group compositions changed in response to changing the number of clusters. The dendrogram in Figure A8 shows the sequence in which the NCDFIs were partitioned into clusters.

E Cluster Characteristics

This section presents additional information about the relationships between the NCDFI groupings used in the main paper and NCDFI characteristics (Table A4), NCDFI practices (Table A5), and NCDFI perceived performance (Table A6).

Figure A1: Distribution of NCDFI age

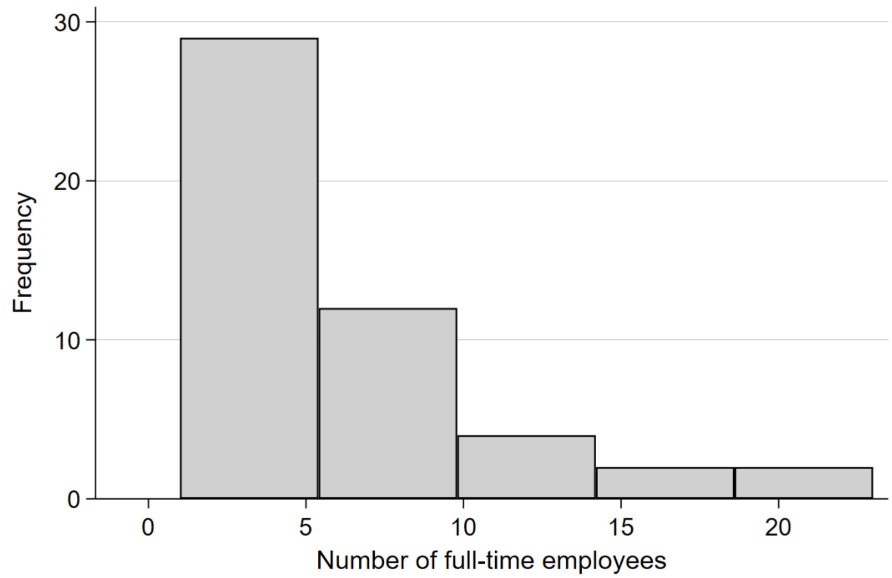


Note: The age of NCDFI is derived from the reported year the NCDFI was established.

Figure A2: Spatial distribution of loan products

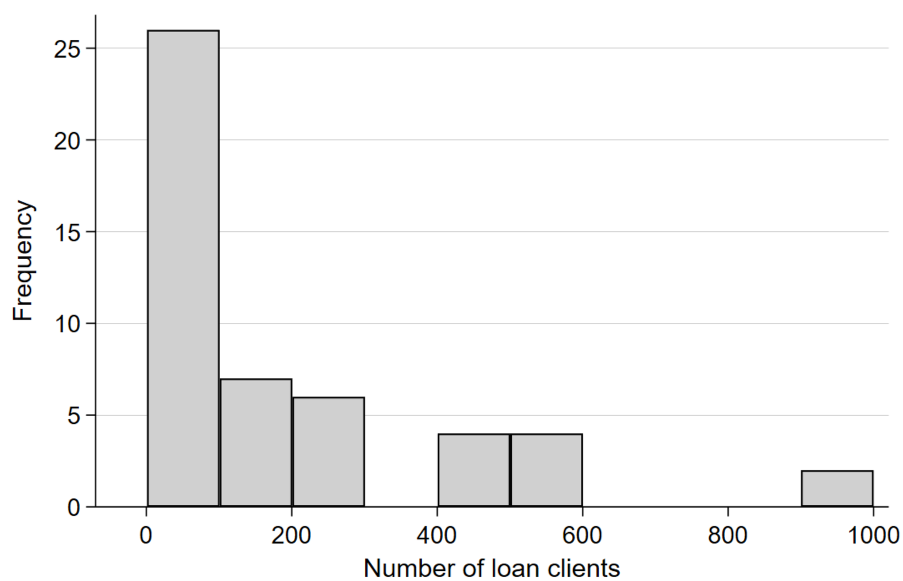
Note: NCDFIs are not limited to one division nor limited to one loan type.

Figure A3: Distribution of number of employees



Note: Number of full-time employees also includes full-time equivalent (e.g., two half-time employees would equal one full-time).

Figure A4: Distribution of number of loan clients

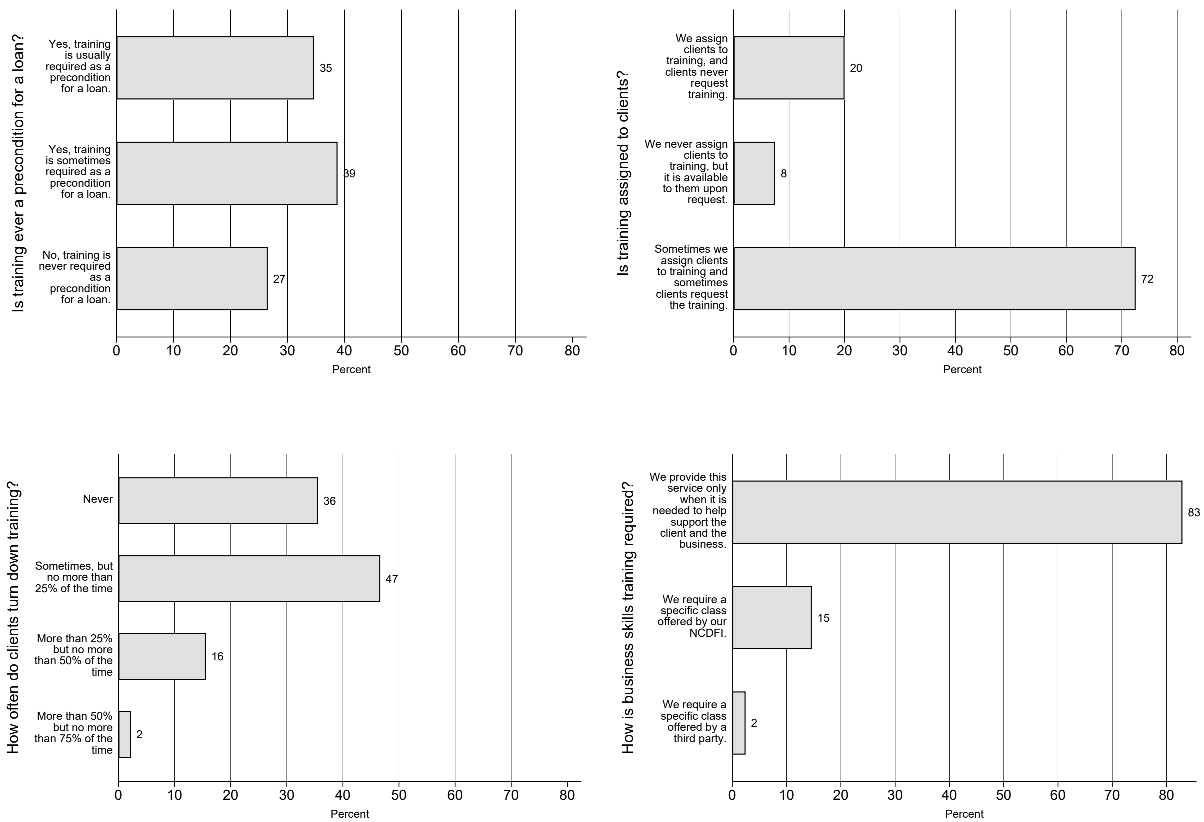


Note: This variable is top-coded at "1,000+." 4% (N=2) of respondents chose this category.

Figure A5: Loan amount distributions by loan type

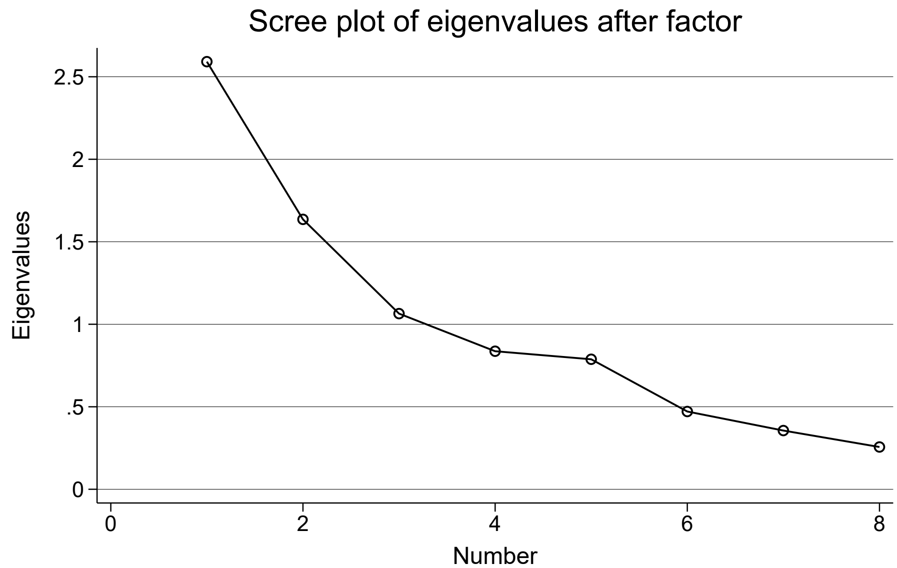
Note: Loan amounts were top-coded at $300,000 and bottom-coded at $1,000. Mortgage loan amounts are for mortgages and home improvement loans.

Figure A6: Training assignments and participation



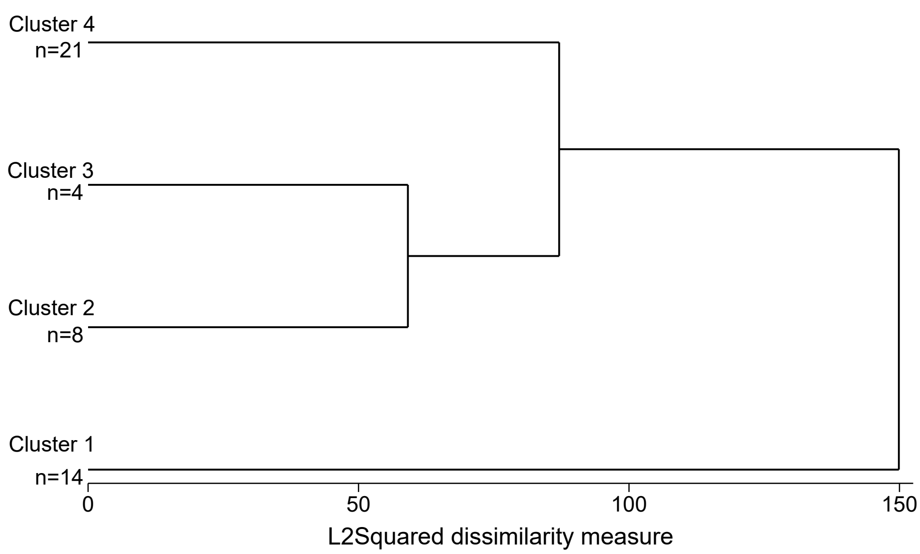
Note: Questions about NCDFI training assignments and client participation were only asked if the NCDFI indicated that they offer credit counseling or financial training. The question about business skills training requirements was only asked if the NCDFI indicated that they offer business skills training specifically.

Figure A7: Scree plot



Note: Scree plot of eigenvalues. The x-axis plots the principal component number, and the y-axis plots the value of the eigenvalue.

Figure A8: Dendrogram for cluster analysis



Note: This figure shows the sequence in which the NCDFIs were partitioned into four clusters based on the squared Euclidean distance between clusters.

Table A1: Volumes of loans by loan type, on and off reservations

Variable	(1) Mean on res	(2) Obs	(3) Mean off res	(4) Obs	(5) Diff in means (p-value)
Business loans amount	221.8	17	255.3	15	0.363
Consumer loans amount	214.7	22	189.5	12	0.528
Micro loans amount	97.9	21	91.7	13	0.889
Mortgage loans amount	168.1	14	179.4	8	0.846
Real estate loans amount	119.3	7	196.7	7	0.312
Multi-family loans amount	113.0	2	1.0	1	.

Notes: This table presents mean loan amounts and number of observations for each loan type, shown separately for NCDFIs located on a reservation (columns (1) and (2)) and off a reservation (columns (3) and (4)). Mortgage loans includes mortgage and home improvement loans.

Table A2: Loan products offered

Variable	Mean	Std dev	Min	Max	Obs
Number of business loans	12.7	19.9	1	100	32
Business loans amount	237.5	102.2	1	300	32
Number of consumer loans	60.9	37.7	3	100	34
Consumer loans amount	205.8	108.9	16	300	34
Number of micro loans	8.2	13.8	1	77	34
Micro loans amount	95.5	123.3	1	300	34
Number mortgage & home improvement loans	10.0	16.2	1	72	22
Mortgage & home improvement loans amount	172.2	126.0	1	300	22
Number of real estate loans	2.0	2.7	1	11	14
Real estate loans amount	158.0	137.9	1	300	14
Number of multi-family loans	1.0	0.0	1	1	3
Multi-family loans amount	75.7	129.3	1	225	3

Notes: This table presents descriptive statistics for characteristics of loan products offered. Loan amounts are in thousands of dollars and draw from the selected sample of NCDFIs that offer those particular products. In other words, zeros are not included in the averages.

Table A3: Measures considered for factor analysis

Variable	Min	Mean	Max	Std Dev	Obs
Number of credit bureaus	0.0	1.4	3.0	1.3	49
Number of full-time employees	1.0	5.7	23.0	5.0	49
Number of loan clients	1.0	192.5	1000.0	243.1	49
Certified	0.000	0.796	1.000	0.407	49
Age of CDFI in years	0.0	15.5	71.0	11.0	49
Independent	0.000	0.735	1.000	0.446	49
Portfolio size (thousands of dollars)	40.0	5,725.1	20,000.0	6,467.2	47
On reservation	0.000	0.531	1.000	0.504	49
In an urban area	0.000	0.327	1.000	0.474	49
Northeast	0.000	0.041	1.000	0.200	49
Midwest	0.000	0.286	1.000	0.456	49
South	0.000	0.102	1.000	0.306	49
West	0.000	0.449	1.000	0.503	49
Business loans amount (unconditional)	0.0	155.1	300.0	140.7	49
Consumer loans amount (unconditional)	0.0	142.8	300.0	131.6	49
Microloans amount (unconditional)	0.0	69.1	300.0	113.0	47
Mortgage loans amount (unconditional)	0.0	77.3	300.0	120.2	49
Real estate loans amount (unconditional)	0.0	45.1	300.0	101.7	49
Multi-fam loans amount (unconditional)	0.0	4.6	225.0	32.1	49

Notes: Rows shaded in grey satisfied the Kaiser-Meyer-Olkin test of sampling adequacy, i.e. had values greater than 0.5. These are the measures selected to be included in the principal component analysis. "Unconditional" measures include zeros for missing values. So, for example, the consumer loans amount for an NCDFI that does not issue consumer loans is 0, not missing. Mortgage loans are mortgage and home improvement loans.

Table A4: Correlations between NCDFI characteristics and clusters

Variable	Urban	Established	High Volume	Next Stage
Report to a credit bureau	-0.317	0.027	0.096	0.217
Number of credit bureaus	-0.233	0.075	0.136	0.081
Number of full-time employees	-0.168	0.392	0.355	-0.341
Number of loan clients	-0.450	-0.041	0.707	0.048
Certified	-0.116	0.235	0.159	-0.160
Age of CDFI in years	-0.129	0.473	-0.034	-0.220
Independent	0.381	0.006	-0.346	-0.161
Partners with SBDC	0.135	0.029	0.020	-0.157
On reservation	-0.694	-0.029	-0.020	0.672
In an urban area	0.808	-0.086	-0.219	-0.555
Northeast	-0.137	0.185	-0.064	0.023
Midwest	-0.017	-0.171	-0.199	0.257
South	-0.225	0.027	0.389	-0.032
West	0.135	-0.198	0.020	0.015
Entire country	0.077	0.211	0.142	-0.310
Business loans	0.103	-0.013	-0.088	-0.036
Consumer loans	-0.390	-0.200	0.199	0.398
Micro loans	-0.221	-0.100	-0.152	0.364
Real estate loans	0.084	-0.171	-0.032	0.070
Multi-family loans	-0.170	0.113	-0.080	0.115
Portfolio size (thousands of dollars)	-0.189	0.517	0.260	-0.363
Business loans num (unconditional)	0.008	0.300	0.103	-0.292
Business loans amount (unconditional)	0.166	-0.001	0.002	-0.153
Consumer loans num (unconditional)	-0.494	-0.243	0.413	0.407
Consumer loans amount (unconditional)	-0.408	-0.317	0.357	0.414
Microloans num (unconditional)	-0.104	-0.044	-0.017	0.138
Microloans amount (unconditional)	-0.126	0.154	0.017	-0.010
Mortgage loans number (unconditional)	-0.247	0.165	-0.055	0.134
Mortgage loans amount (unconditional)	-0.316	0.329	0.035	0.022
Real estate loans num (unconditional)	-0.064	-0.126	0.387	-0.063
Real estate loans amount (unconditional)	0.190	-0.208	0.083	-0.064
Multi-fam loans num (unconditional)	-0.170	0.113	-0.080	0.115
Multi-fam loans amount (unconditional)	-0.097	-0.066	-0.045	0.164

Notes: Mortgage loans are mortgage and home improvement loans.

Table A5: Correlations between NCDFI practices and clusters

Variable	Urban	Established	High Volume	Next Stage
Credit counseling	-0.572	0.205	0.138	0.293
Homeownership counseling and TA	-0.200	0.104	0.299	-0.062
Commercial real estate technical assistance	0.076	-0.054	0.268	-0.179
Rent reporting	-0.096	-0.067	-0.045	0.164
Business TA	0.047	0.054	0.138	-0.162
Sometimes or usually requires counseling	-0.365	0.135	0.004	0.232
Would like to launch additional programs	0.157	0.142	-0.215	-0.132
Sometimes or always collection agency	0.137	-0.242	-0.163	0.152
Sometimes or always forecloses	-0.142	0.033	-0.149	0.188
Sometimes or always liquidates	-0.005	-0.070	0.036	0.037
Sometimes or always restructures	0.022	0.142	0.095	-0.182
Sometimes or always writes off	-0.044	0.178	0.120	-0.163
Turned down >10 loan applicants	0.035	-0.033	0.149	-0.091
Turned down between 0-10 loan applicants	-0.090	-0.102	-0.069	0.198
Turned down 0 loan applicants	0.091	0.208	-0.108	-0.180
Uses credit score	-0.078	0.074	0.050	-0.014
Uses income	-0.103	0.098	0.066	-0.019
Uses payment history on a previous loan	-0.299	0.226	-0.042	0.122
Uses financial literacy class attendance/certificate	-0.064	0.407	-0.115	-0.188
Client's overall character	-0.137	0.242	-0.024	-0.046
Client's overall engagement with lender	0.009	0.250	-0.227	-0.070
Client's commitment to business	0.128	0.197	-0.114	-0.200

Notes: The first four rows show the probability that the given row was a selected choice for development services offered. The "sometimes or always" questions are about actions taken for delinquent loans. The time period for the questions related to turning down loans is the past year. The final seven rows show the probability that a given row was a selected choice for metric used in risk analysis.

Table A6: Correlations between NCDFI perceived performance and clusters

Variable	Urban	Established	High Volume	Next Stage
Success: Increasing financial literacy	-0.133	0.244	-0.011	-0.058
Success: Encouraging economic activity	0.137	0.330	0.104	-0.428
Success: Facilitating small business	0.134	0.160	0.035	-0.255
Success: Contributing to community development	-0.020	0.128	0.040	-0.101
Success: Supporting Native culture	0.027	0.077	0.215	-0.206
Success: Providing variety of products	-0.366	-0.220	0.162	0.377
Success: Obtaining grants	0.043	0.114	0.227	-0.257
Challenge: Hiring staff	-0.076	0.210	-0.013	-0.084
Challenge: Retaining staff	0.044	0.163	-0.120	-0.096
Challenge: Compliance with funder requirements	0.101	0.146	0.008	-0.207
Challenge: Geographic location	-0.043	0.250	-0.183	-0.048
Challenge: Scarce capital	-0.076	-0.020	-0.013	0.091
Challenge: Infrastructure	-0.179	0.094	-0.194	0.200
Challenge: Lack of awareness of NCDFIs	-0.206	-0.015	0.385	-0.019
Barrier: Lack of awareness of services/products	0.120	-0.351	-0.076	0.202
Barrier: Limited staffing	-0.108	-0.075	0.167	0.106
Barrier: Limited financial resources	0.194	-0.013	0.132	-0.229
Barrier: Banking regulations	-0.143	-0.101	-0.037	0.239
Barrier: Tribal politics	0.083	-0.145	-0.053	0.061
Barrier: Lack of necessary skills	-0.026	-0.061	-0.101	0.115
Barrier: Federal government bureaucracy	-0.143	-0.101	-0.037	0.239

Notes: The rows denoted with "Success" show correlations with the NCDFI's self-assessed success on a scale from 1-10. The rows denoted with "Challenge" show correlations with the probability that the given row was selected as one of the NCDFI's biggest challenges. The rows denoted with "Barrier" show correlations with the probability the given row was selected as a barrier to providing development services.