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Food Insecurity, Racial Diversity, and Reservation Land: Relationships with the Credit Security Index

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Initiative for Native Nation Revitalization

Occasional Paper Series

Winter 2022. Paper 1

Food Insecurity, Racial Diversity, and Reservation Land: Relationships with the Credit Security Index

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Project Summary

The Fair Housing Act and the Equal Credit Opportunity Act prohibit banks from discriminating based on race, gender, national origin, and other protected categories. Are these laws enough to mitigate the multigenerational impacts of discrimination experienced by these communities? To address this question, this project examined whether unequal access to credit persists in communities on or adjacent to Indian reservations, communities with high levels of racial diversity, and communities where women are a greater percentage of the population than men.

While credit is often framed as a means for individuals to make purchases and investments (e.g., in a home, business, education, car, etc.) affordable by paying for them over time, for households facing income instability, credit may be one of the only resources available to purchase basic needs, including food. To investigate the possibility that unequal access to credit may threaten families' ability to feed themselves, this project also examined whether access to credit may be linked to food insecurity.

We drew on the Credit Security Index (CSI), which the Federal Reserve Bank of New York developed to identify the communities that are the most vulnerable to prolonged economic hardships. The CSI provides county level scores that measure which communities are most at risk, based on data representing the percentage of individuals in each county who are engaged in the formal credit economy, their credit scores, and other factors. Counties with high CSI scores are the most credit vulnerable.

We conducted statistical analysis to measure whether higher CSI scores are associated with 1) the presence of reservation land, 2) racial diversity, 3) communities with more women than men, and 4) very high food insecurity. Our results suggest:

1. Food insecurity is associated with county credit vulnerability.
2. Racial diversity is associated with county credit vulnerability.
3. Counties with a higher density of women than men are more likely to have credit vulnerability.
4. Nationwide, reservation land is not associated with county credit vulnerability. However, this relationship may still exist for reasons explained below, including (but not limited to) the geographic isolation faced by many rural tribes. Further research is necessary.

Background

The importance of achieving equality in credit access cannot be understated. However, research suggests that unequal access to credit persists despite state and federal laws intended to prevent it. In the first national study on the subject, the Department of Treasury's 2001 Report of The Native American Lending Study, found that the inability to use reservation trust land as collateral, lack of financial institutions on or near reservations, and banks' inability to understand tribal governments were among several factors leading Native American communities to have extremely limited access to credit. Twenty years later, the Federal Reserve continues to call for financial regulators to work towards ensuring that Native communities have equal access to credit (Brainard 2021). Recently, Howell et al (2021) found that racial discrimination in lending persists, especially at small banks in regions with high levels of racial animus. Similarly, Lederer et al (2021) found women continue to face discrimination when applying for loans. Howell et al and Lederer et al provide evidence that individuals applying for loans may continue to face discrimination based on race and gender. Are these forms of discrimination and other factors limiting equal access so widespread that they can increase a county's credit vulnerability?

The Credit Security Index provides a unique opportunity to examine whether the discrimination these individuals face, along with other inequities affecting these communities, may be significant enough to impact county credit vulnerability. By determining if reservation land and racial and gender diversity have measurable relationships with CSI scores, this project aimed to establish whether disparities in protected categories' access to credit are so widespread that they increase county credit vulnerability.

The repercussions of credit vulnerability affect the wider economy as well as the ability for families and communities to meet their basic needs. High CSI scores may mean that a community is more at risk for prolonged economic downturns. For individuals in these communities, limited access to credit may mean fewer opportunities for home, education, and business investments needed to grow wealth. Credit vulnerability may also mean a family is unable to respond to financial hardships and to afford the daily expenses needed to manage a household. A foundational expense for every household is the ability to provide food. By examining the potential for a link that exists between CSI scores and food insecurity, our goal is to demonstrate whether credit insecurity may be an urgent issue, contributing to hunger.

Taken together, the two questions investigated by this project explore how CSI scores can be both a lens for measuring whether historically marginalized populations continue to experience widespread inequities in accessing credit, and how these inequities may affect the most basic need of any household – the ability to put food on the table.

Methods

Before the Federal Reserve Bank of New York developed the CSI, there was no effective measurement for the credit vulnerability of communities. In “In Unequal Access to Credit: The Hidden Impact of Credit Constraints” Federal Reserve Bank of New York finds that, “Compared with other counties, the credit-insecure and the credit-at-risk counties are often rural, have lower median income ratios and higher poverty rates, more unemployed workers, a less educated talent pool, and higher African-American and Hispanic shares of the population” (10). Their report provides an important starting point by identifying some of the common attributes of credit vulnerable counties. This project built on that report by using predictive statistics (regression analysis) to investigate whether reservation land, racial diversity, and gender have a measurable relationship with county CSI scores.

To measure the relationship between reservation land and CSI scores, we used Geographic Information Systems (GIS) to overlay a map of reservation lands (sourced from the National Geospatial Data Set, maintained by ESRI GIS Services) over a map of counties. Through this overlay, we created a dataset where each county is identified with either a ‘1’ for including reservation land or ‘0’ for not including. We added the CSI scores for each county to the dataset and removed the 60 counties that did not receive a CSI score. We ran a regression analysis with CSI score and a 0-1 dummy variable for reservation land.

To measure the relationship between racial diversity and CSI scores, we included Census data from the American Community Survey to our dataset. To measure racial diversity, we calculated the portion of each county that identifies as Hispanic, Non-White, or both. We ran a regression analysis with CSI score and county Hispanic or Non-White percentage. To measure the relationship between gender and CSI scores, we applied data from the American Community Survey. We ran a regression analysis with CSI score and the percentage of county that identifies as female.

Feeding America’s “Map the Meal Gap” study provides estimates for food insecurity in each county. Its model incorporates variables (including poverty rates, disability status, and unemployment) to predict the percentage of each county that is food insecure by type of food insecurity. “Map the Meal Gap” provides estimates for both low food security (reduced quality, variety, or desirability of diet) and very low food security (defined by disrupted eating patterns and reduced food intake). We ran a regression analysis with CSI score and county percentage that experiences very low food security.

Results

Figure 1 represents the map created from the overlay of reservation land and county CSI scores.

2018 Federal Reserve Q4 Credit Insecurity Index Scores

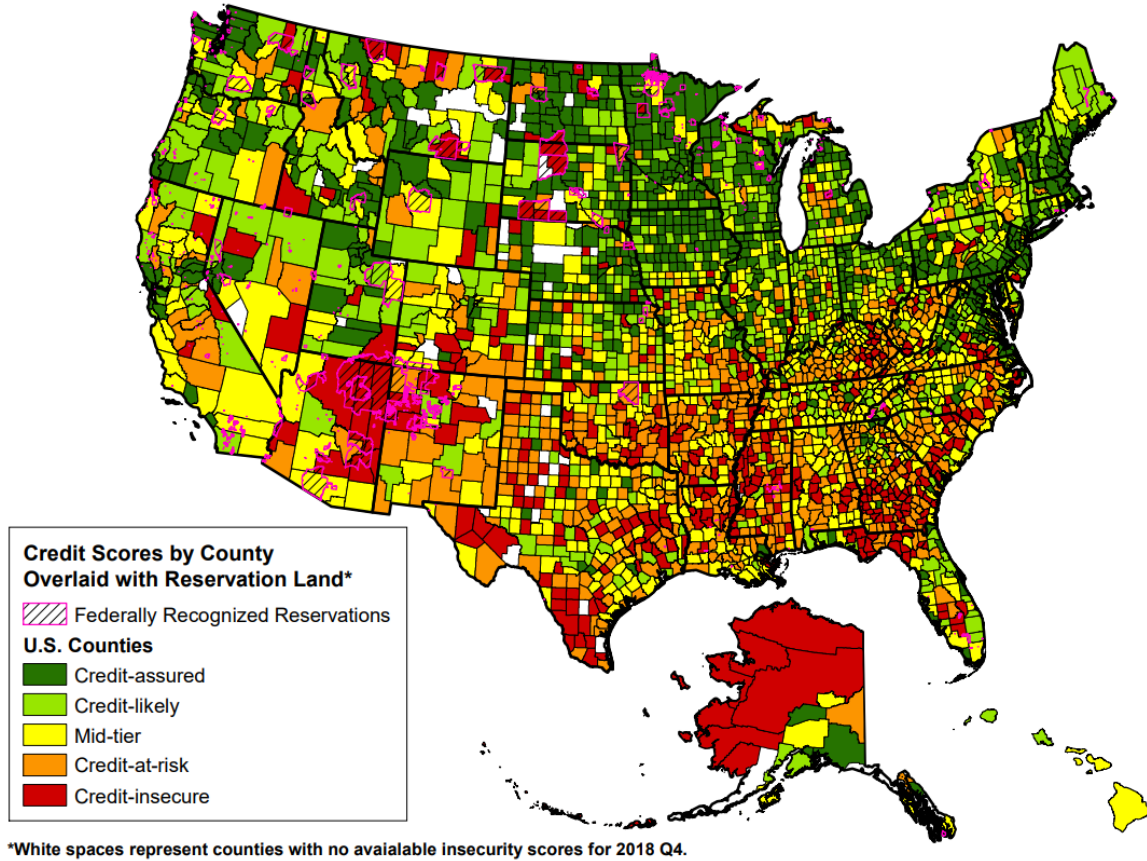


Figure 1

Figure 2 represents the results of our regression analysis of CSI scores and reservation land.

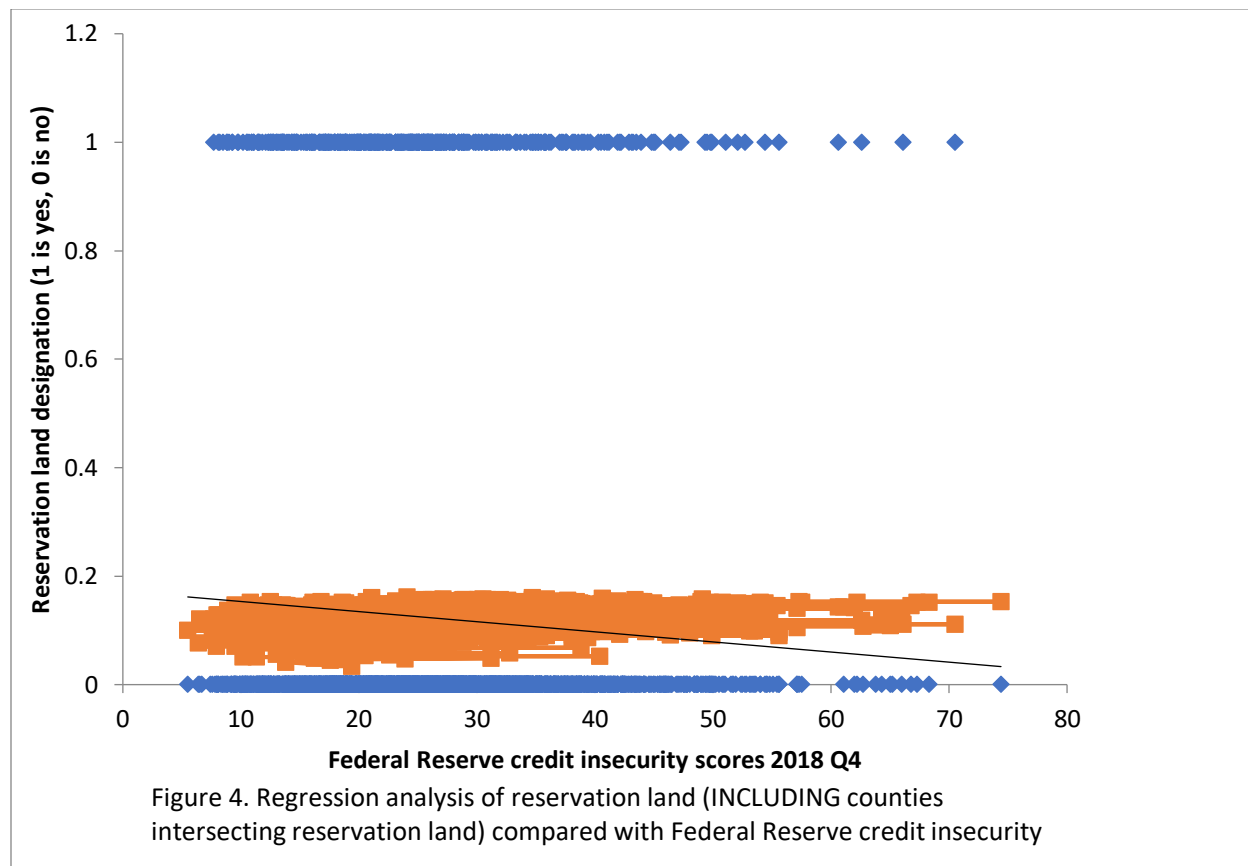


Figure 2

The correlation (R) is 0.053, suggesting there is no relationship between reservation land and CSI score. The R-squared is .002, suggesting that only 0.2% of the variation in CSI scores can be accounted for by variations in reservation land. The P-value is greater than .05, indicating that there is no connection between reservation land and CSI score.

After reflecting on the lack of relationship in this data, we examined the overlay map and found that regional variations could obscure our results. Because the CSI data is at the county level, counties are our unit of analysis. However, counties have wide variations in size across the country. Counties in the eastern U.S. tend to be smaller than counties in the west. The additional number of counties in the makes a county-level analysis skewed to overrepresent the east. Most reservation land, however, is in the west.

To account for this potential bias, we ran another regression analysis using one region (North Dakota, South Dakota, and Montana) with a high concentration of reservation land. Figure 3 represents the results of our regression analysis.

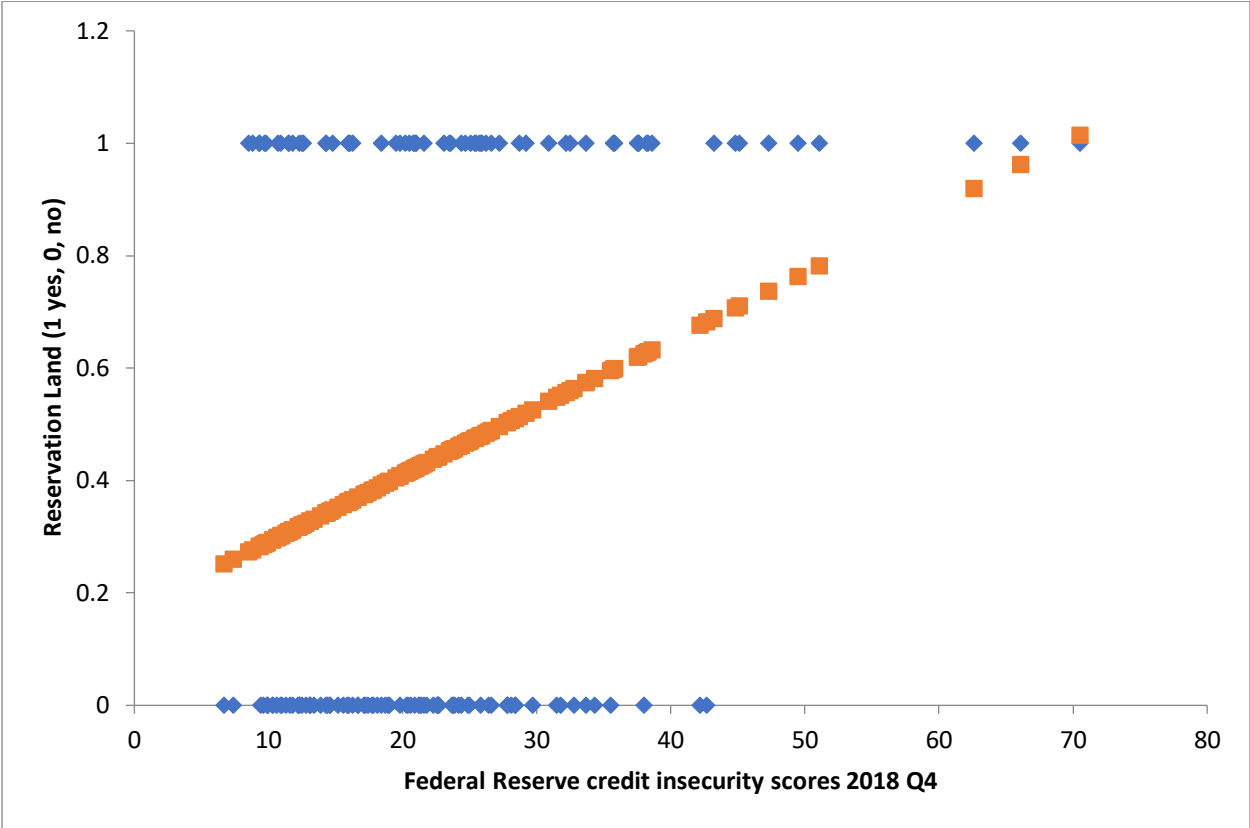


Figure 3

The correlation (R) is 0.27, suggesting there is a low to moderate relationship between reservation land in the selected region and CSI score. The R-squared is .075, suggesting that 7.5% of the variation in CSI scores can be accounted for by variations in reservation land. P-value is less than .05, indicating that within this region there is a measurable relationship between reservation land and CSI score.

Figure 4 represents our regression of racial diversity and CSI score.

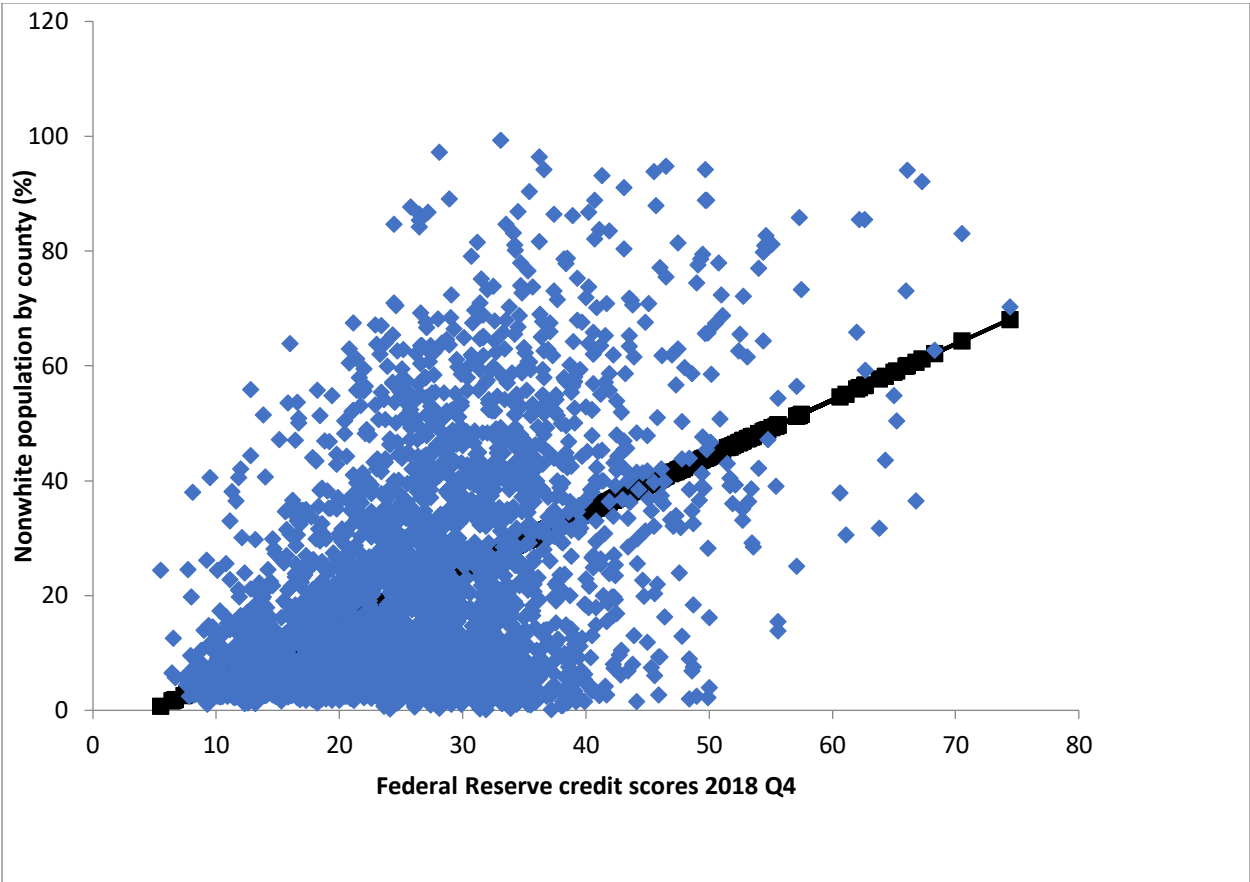


Figure 4

The correlation (R) is 0.46, suggesting a moderate direct relationship between nonwhite population and CSI score. The R-squared is .218, suggesting that 21.8% of the variation in CSI scores can be accounted for by variations in racial diversity. P-value is less than .05, indicating that there is a measurable relationship between racial diversity and CSI score.

Figure 5 represents our regression of gender diversity and CSI score.

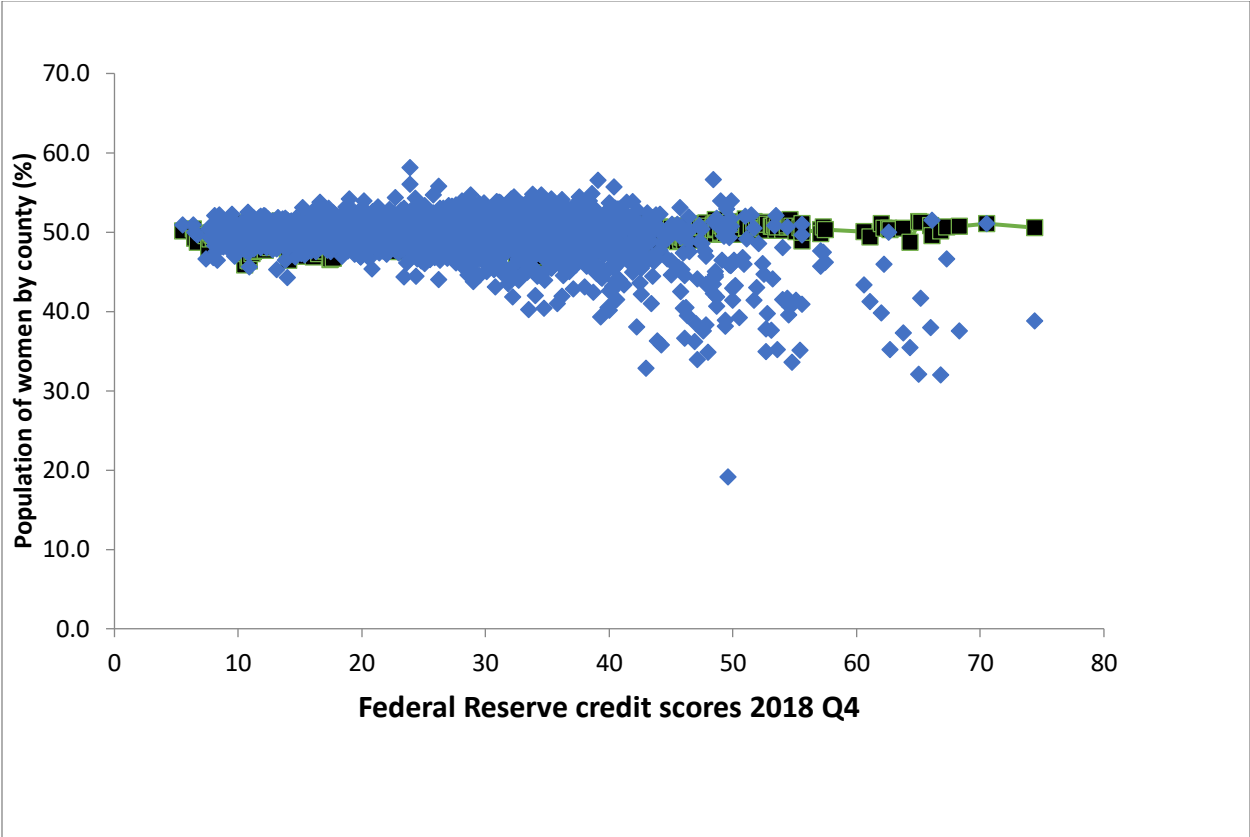


Figure 5

The correlation (R) is 0.339, suggesting a moderate relationship between the percentage of a county that identify as female and CSI score. The R-squared is .115, suggesting that 11.5% of the variation in CSI scores can be accounted for by variations in gender diversity. P-value is less than .05, indicating that there is a measurable relationship between gender diversity and CSI score.

Figure 6 represents Map the Meal Gap's county-level data of food insecurity.

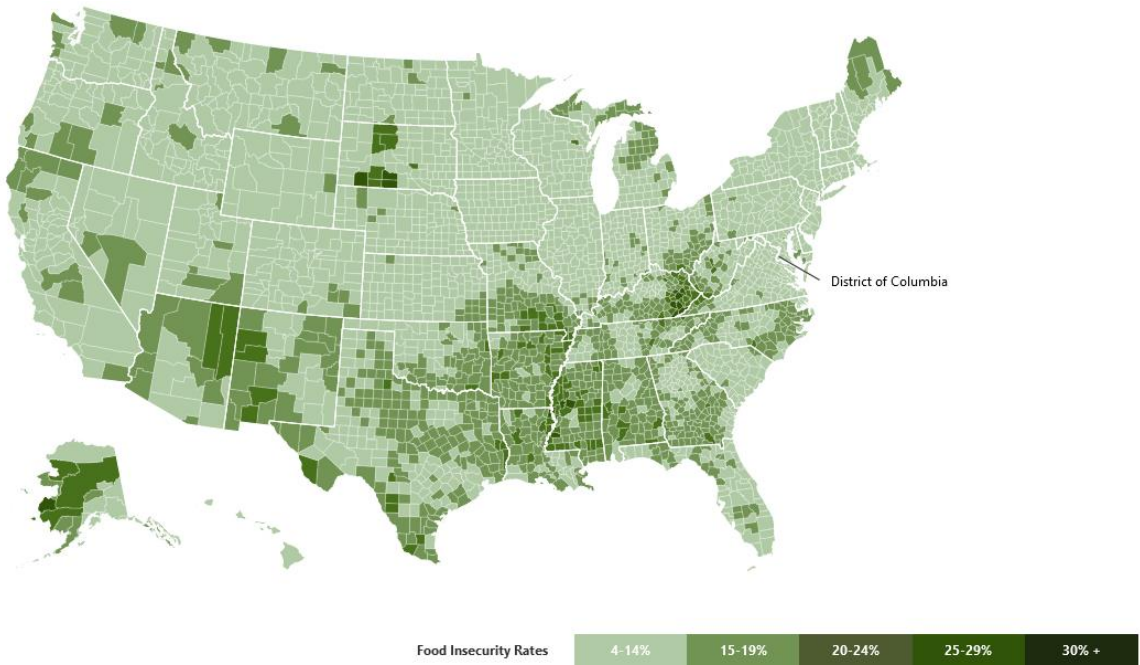


Figure 6

Food insecurity tends to be higher in the south and west.

Figure 7 represents our regression of very low food security and CSI score.

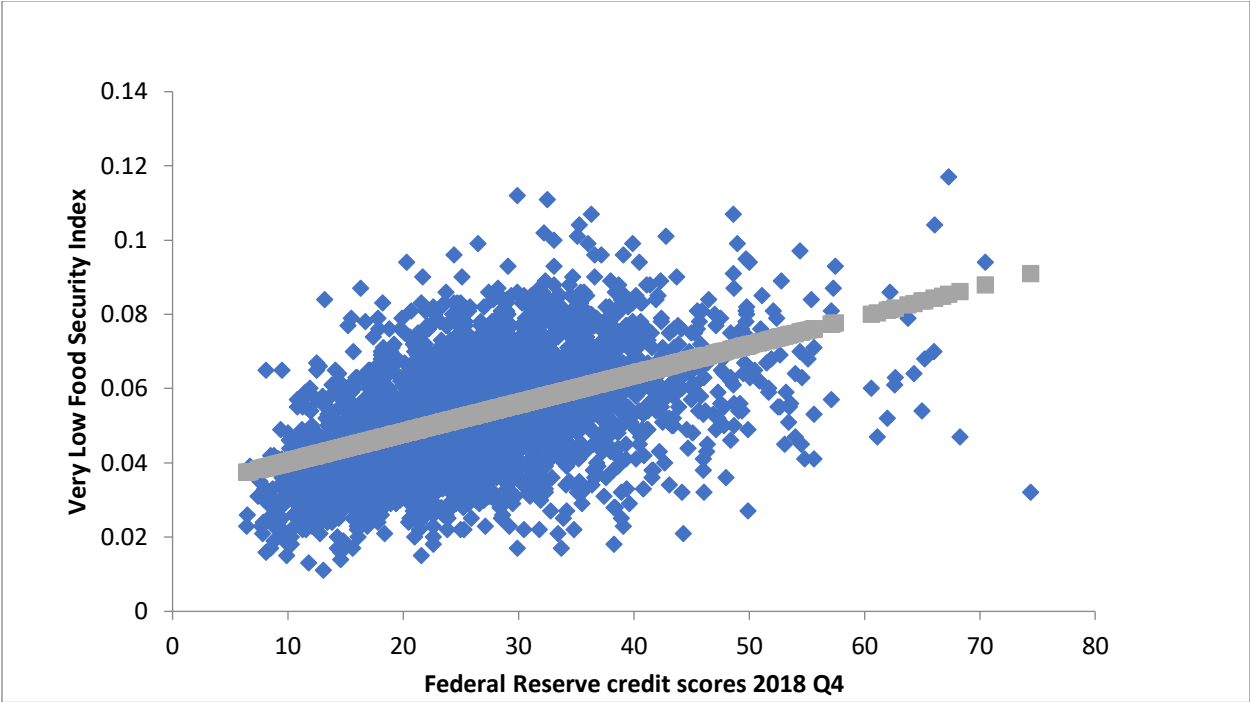


Figure 6

The correlation (R) is 0.482, suggesting a moderate direct relationship between the population of very low food insecurity and CSI score. The R-squared is .232. P-value is less than .05, indicating there is a measurable relationship between very low food insecurity and CSI score.

Analysis

Our results suggest that CSI scores reflect broader historical inequities. While CSI scores, and the data used to calculate them, do not directly factor in racial diversity, the correlation between the two is significant. We found that 21.8% of the variability of CSI score may be explained by racial diversity. Likewise, gender also plays a significant role, potentially accounting for 11.5% of CSI variability. In other words, race and gender play significant and measurable roles in shaping CSI scores. Broader historical and structural inequities result in these demographic factors having a significant impact on communities' credit vulnerability. The relationship between race, gender, and CSI score warrants further study.

Nationwide, reservation land does not have a measurable relationship to county CSI score. However, it may be that the county is not the appropriate unit for analysis when analyzing reservation land. CSI scores may skew results toward the eastern U.S., where there are more counties and fewer reservations. Results from one region, North and South Dakota and Montana, suggest that in some especially remote regions there may be a relationship between reservation land and CSI score. Future research could investigate the relationship further and might be able to identify a more appropriate unit of analysis.

Finally, very low food security has a significant relationship to CSI score. Counties with high levels of credit vulnerability are likely to have a larger share of residents experiencing very low food security. While the correlation is significant, our project does not establish a causal link. Further research is necessary to determine the extent to which credit vulnerability contributes very low food security, or if both are the result of higher levels of poverty.

Conclusion

Our results may add further evidence that existing laws do not ensure equal access to credit. By examining county-level CSI scores, our project built on studies that found examples of individuals from protected categories facing discrimination. Our project found the barriers to credit facing protected categories may be so significant, and so widespread, that they impact aggregate CSI scores at the county level. In other words, **not only do racial and gender inequities in credit persist, but they persist to the extent that they may impact a community's overall capacity to respond to economic downturns.**

Researchers and policy makers should not assume that a "color-blind" or "gender-blind" approach can sufficiently address the needs of credit vulnerable communities; nor should they assume that attempts to control credit cost will benefit those who are already vulnerable to credit insecurity. Public policies, and the research that informs them, should take into consideration that past and present racial and gender discrimination may have measurable impacts on a community's access to credit. Policies that ignore the intergenerational impacts of discrimination may not be sufficient to address present-day inequities in access to credit.

While our project does not demonstrate a nationwide trend of reservation land impacting county CSI scores, it does provide reason to believe that these impacts may exist. As historically marginalized populations, Native communities may experience barriers similar to racially diverse communities. Moreover, they face additional challenges, including the inability to use reservation land as collateral and the lack of banks on or near reservations. CSI scores may not be an adequate indicator of the impact of reservation land on credit vulnerability because CSI is measured at the county level. Notwithstanding these limitations, in at least one region, reservation land does have a measurable relationship to CSI scores. Further research is necessary to identify an alternative measure for community credit vulnerability that accounts for the unique political geography of Indian reservations.

During his first week in office, President Biden issued the Memorandum for Tribal Consultation and Strengthening Nation-to-Nation Relationships, which directs executive departments and agencies to engage in "regular, meaningful, and robust consultation with Tribal officials in the development of Federal Policies that have Tribal implications". Nation-to-nation consultation on banking and consumer financial protection policies would honor native nation sovereignty. Nation-to-nation consultation could ensure that banking policies successfully address the challenges facing Native communities' access to credit.

Finally, our results suggest that increased access to credit may be an urgent need for many households facing food insecurity. We found a significant correlation between credit vulnerability and very low food security. Our methods do not provide a direct causal link, but the strength of the correlation warrants further investigation into whether a link exists. Policy makers and researchers should consider the possibility that credit vulnerability and food insecurity do not exist in isolation from each other. If future research finds a causal connection between the two, then policies addressing food insecurity must also consider unequal access to credit and vice versa.

References:

Biden, Joseph (2021). Memorandum on Tribal Consultation and Strengthening Nation-to-Nation Relationships. Memorandum for the Heads of Executive Departments and Agencies. January 26, 2021.

Brainard, Lael (2021). Financial Inclusion and Economic Challenges in the Shadow of the Pandemic: A Conversation with Tribal Leaders. Fed Listens: Roundtable with Oklahoma Tribal Leaders, Oklahoma City, Oklahoma. Board of Governors of the Federal Reserve System.

Federal Reserve of New York (2019). Unequal Access to Credit: The Hidden Impact of Credit Constraints.

Feeding America (2021). Map the Meal Gap. <https://map.feedingamerica.org/>

Howell, S., Kuchler, T., Snitkof, D., Stroebel, J. and Wong, J., (2021). Racial Disparities in Access to Small Business Credit: Evidence from the Paycheck Protection Program. NBER Working Paper.

Lederer, Anneliese, Oros S., Bone S., Christensen G., and Williams, J (2021). Lending Discrimination within the Paycheck Protection Program. National Community Reinvestment Coalition.

U.S. Department of Treasury (2001). The Report of the Native American Lending Study. Community Development Financial Institutions Fund.