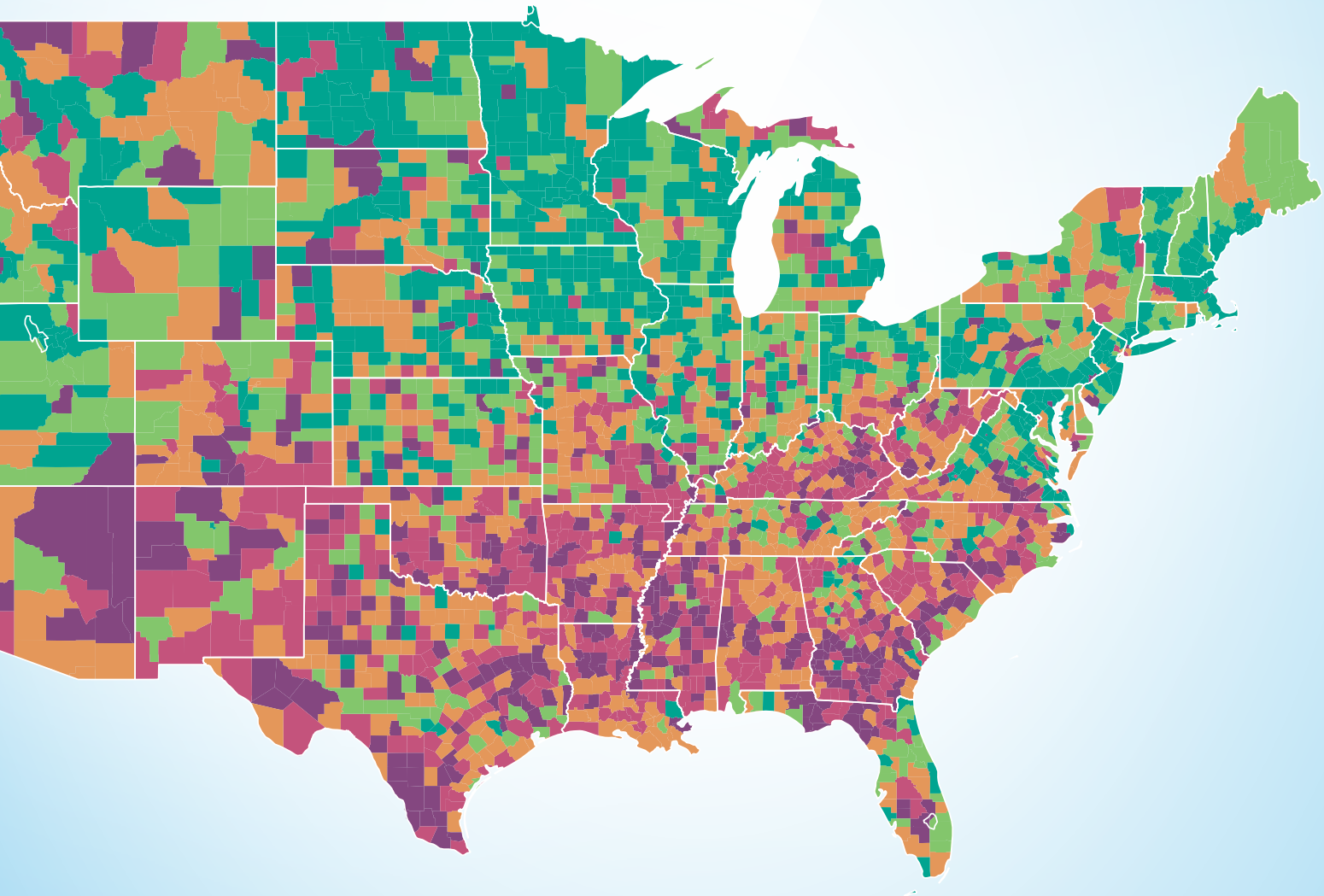
UNEQUAL ACCESS TO CREDIT

The Hidden Impact of Credit Constraints



FEDERAL RESERVE BANK *of* NEW YORK

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PROJECT OVERVIEW

1

Access to credit is an asset for individuals to pursue economic opportunity and enhance financial security. Aggregated across residents and viewed collectively, it becomes a lens on a community's financial well-being and resiliency to shocks.[1] However, access to credit must be measured carefully if it is to be an accurate lens, and useful to inform community development policy and practice.

Typically, access to credit is gauged by the relative size of the formal credit economy–the percent of residents in the community with a credit file and score, which allows them access to mainstream credit products and services. Unfortunately, credit constraints that limit access are rarely incorporated in measures even though they are a high concern in policy conversations about residents' ability to obtain credit products at fair terms when they choose.[2] Therefore, outcomes that constrain residents' ability to borrow at choice need to be incorporated into measures of community credit health and well-being.

Since access to mainstream credit products does not equal the ability to obtain credit at choice, measures such as the share of residents in, or not in, the formal credit economy are incomplete when assessing credit health. They omit individuals who are in the formal credit economy but may have derogatory information in their credit files such as low credit scores, poor debt payment histories, or over-utilized credit lines, among other considerations.[3] Although a part of the formal credit economy, they may find it difficult to borrow for opportunity or to weather emergencies when they choose to.[4] Evidence of credit constraints and financial insecurity are well documented; a recent survey found that 17% of U.S. adults are not able to pay all of their current month's bills in full, and another 12% of adults would be unable to pay their current month's bills if they also had an unexpected $400 expense.[5]

When the impact of credit constraints is omitted from the discussion, communities may seem to be more credit healthy or credit secure than warranted. Indeed, communities with high concentrations of residents with no or low ability to obtain credit at choice–the 'credit insecure' communities–may even be missed when assessing community needs and consequently receive less policy and programmatic attention than otherwise. The importance of incorporating and measuring credit constraints accurately is particularly relevant when assessing the well-being of low- and middle-income communities where limited savings, uneven income flow, and liquidity constraints are an everyday stressor for many residents.[6]

1 See https://www.newyorkfed.org/medialibrary/media/outreach-and-education/CommunityCredit-2014-BookofSummaryCharts.pdf for a discussion of the conceptual framework that makes this connection.

2 For example, see Report on the Economic Well-Being of U.S. Households in 2018, May 2019 https://www.federalreserve.gov/consumerscommunities/files/2018-report-economic-well-being-us-households-201905.pdf

3 This list are just some examples; there might be other considerations.

4 We are not suggesting that such credit constraints are imprudent or unwarranted.

5 See https://www.federalreserve.gov/consumerscommunities/files/2018-report-economic-well-being-us-households-201905.pdf, p.2

6 See Jonathan Morduch and Rachel Schneider, The U.S. Financial Diaries, and all the research at https://www.usfinancialdiaries.org/issue

To address the information gap, we create a new tool, the *Credit Insecurity Index*. The index uses the Community Credit analytical framework and indicators to examine credit health at the community level.[7] We combine several credit-limiting outcomes into a single score for each community to gauge 'credit insecurity' or lack of access to credit at choice within that community.[8] Using severity tiers, the scores scale relative credit insecurity, across place and over time, in America during 2005–18.

The Credit Insecurity Index, and other Community Credit tools, were created to empower community stakeholders with more accurate and nuanced evidence. At a minimum, the analytics are useful to gauge a community's credit health. However, credit data are also used for non-credit applications that affect individuals' economic well-being more broadly. For example, pre-employment checks typically include a credit check before a job offer is made. Credit scores are often used to qualify individuals for preferential insurance rates, waive utility deposits, and obtain advantageous telecommunications packages. There is even evidence that some individuals vet the credit-worthiness of potential life partners before making serious commitments.[9] For these reasons among others, credit is an asset that individuals need to safeguard since it affects their overall economic well-being and financial resiliency like other assets. As such, the asset-like properties of credit make it a lens on a community's well-being.

Credit data are attractive for community development analysis given their timeliness, relatively high accuracy, and 'big data' coverage and statistical properties. Typically, the well-being of underserved communities is assessed using measures (such as income and wealth), which unfortunately are available with a considerable lag or not at all, especially at the micro-geography levels that are of interest to practitioners. In contrast, there is a commercial incentive for credit data to be accurate and timely. Firms and other organizations who subscribe to credit bureau services require accurate information to make business decisions that will affect their operations and profitability. Undoubtedly, errors occur in credit files, which consumers are encouraged to monitor and correct. Nevertheless, credit data are among the more accurate and convenient sources of information available for big data analysis.

The Credit Insecurity Index can deepen our understanding of circumstances that affect our communities. In this report, we document the resiliency of communities to recover from the 2007 financial crisis and subsequent economic recession. However, other applications are possible. For example, index scores also measure a community's potential resiliency if subject to a natural disaster or to adapt to the challenges of climate change; high scores suggest less capacity to adapt or to recover without assistance. The index is also useful to assess the impact of policy actions such as investments in Opportunity Zones and ensuing improvements in community well-being.

7 See publicly available data on New York Fed webpage https://www.newyorkfed.org/data-and-statistics/data-visualization/community-credit-profiles/index.html#overview

8 The index is the sum of the share of the adult population not in the formal credit economy plus a simple average of credit-limiting outcomes of those in the formal credit economy.

9 See Jane Dokko, Geng Li, and Jessica Hayes, "Credit Scores and Committed Relationships," Series 2015-081, Board of Governors of the Federal Reserve System, 2015 available at http://dx.doi.org/10.17016/FEDS.2015.081

Community stakeholders may use the Credit Insecurity Index in several ways. The scores allow readers to quantify the impact of credit constraints on their community, and to situate their local experience within the broader national context of place and history. Specifically, the scores sort communities on a credit insecurity scale and identify communities with persistent credit insecurity over time. The scores aid decision-making on how and where to allocate resources among communities, and to ensure that planned resources are sufficient to the scale and nature of the challenge being targeted. The scores can benchmark the impact of new or additional investments in communities over time by examining pre- and post-intervention community conditions. Lastly, the index is complementary to other indicators in the community development tool kit. For example, credit insecurity index analytics may be cross-tabulated to indicators of race and ethnicity, poverty and education to enrich the policy discussion and broaden the menu of appropriate responses.

Given the breadth of the project, the evidence is presented in five analytical papers and each is a separate lens on how credit constraints depress access to credit and contribute to financial insecurity. The first analytical paper, *Credit Insecurity Index Framework*, discusses credit insecurity and presents the conceptual framework for the index and its value as an indicator of well-being and financial stability. The next two papers, *The Credit Insecurity Landscape in 2018 and Credit Insecurity Trends*, characterize credit insecurity, over time and place, in America. The fourth paper, *Evidence of Progress in Credit Insecurity*, presents evidence of progress—where credit is on an improving trajectory—and evidence of communities that are mired in persistent credit insecurity. The last analytical paper, *Policy and Practice for Credit Insecurity*, reviews the evidence to inform the policy and practice discussion of community well-being.

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CREDIT INSECURITY INDEX FRAMEWORK

2

In this paper, we describe why the Credit Insecurity Index measures credit health more accurately, and how it is calculated from several Community Credit sub-components. We also introduce a typology of severity tiers, which is used to sort communities by distress and to compare and contrast local credit conditions and histories. Lastly, we present index scores side-by-side with human capital, financial well-being, demographic and diversity indicators to allow readers to compare the scores, for each severity tier, with familiar measures of well-being and distress.

TAKEAWAY: **Credit constraints matter when assessing the credit health of a community. By omitting their impact, over half of the credit insecurity problem that communities actually contend with, may be missed, and policy and practice may fall short relative to the severity of the need.**

Using Credit to Understand Community Well-Being

Using credit data to measure the credit health of individuals is a familiar application. In the Community Credit framework, we go one step further by using credit data to assess the financial health of a community.

For individuals, credit is a tool to tap future resources for use today. Used prudently, it supports wealth-building, enhances financial security, and provides a buffer for unforeseen emergencies. Given the widespread use of financial data in modern economic life, credit behaviors also affect access to broader economic opportunities. For example, the ability to access credit at choice may allow residents to start a business or invest in education and training to build skills. In contrast, individuals who are not in the formal credit economy—that is, those without credit files or credit scores—may find it difficult to obtain a loan at all or on favorable credit terms. In addition, negative credit information may cause them to lose job opportunities, to pay higher insurance rates, find it difficult to rent housing, or to encounter other economic hurdles.

For communities, residents with access to credit at choice are not only personally better off, they are also a source of strength for communal credit health and resiliency. When viewed collectively, residents' aggregated ability to access credit is a gauge of their community's credit health. Communities with higher concentrations of individuals with access to credit are better off, all things being equal, than communities with lower concentrations in their potential to pursue upward economic mobility and show resiliency to recover from unexpected adversities.[10]

10 See Raj Chetty, et al., Where is the land of Opportunity? The Geography of Intergenerational Mobility in the United States , The Quarterly Journal of Economics, Volume 129, Issue 4, November 2014, Pages 1553–1623, https://doi.org/10.1093/qje/qju022

However, access to credit must be measured carefully if it is to be an effective lens on community health to inform policy and practice. Unfortunately, credit constraints are rarely incorporated directly in measures of access to credit. Simple measures, such as the share of residents not in the formal credit economy, omit individuals who are in the formal credit economy but are unlikely to obtain a loan because of negative information in their credit files—such as low credit scores, poor debt payment histories, or fully utilized credit lines, among other considerations.[11] Such individuals are part of the formal credit economy, given that they have institutional access to mainstream credit products and services, yet they may find it difficult to borrow to pursue opportunity or meet emergencies.[12]

Consequently, the impact of credit constraints is likely under-measured yet is of high concern to policy-makers and practitioners. All too often, the needs of communities with high concentrations of residents with no or low access to credit at choice—the 'credit insecure' communities—may be under-appreciated and under-resourced. This concern may be particularly acute when assessing the credit health of low- and middle-income communities where limited savings, uneven income flow, and liquidity constraints are an everyday challenge for many residents.[13]

Credit Insecurity Index: Conceptual Components

The first step is to distinguish conceptually between administrative access to credit products and services and the ability to borrow at choice.[14] While credit data measure the former, individuals seek the latter as a financial asset to build financial security and for economic opportunity.[15] This distinction is foundational to how we measure the impact of credit constraints.

A method was needed to parse the institutional access to credit data by the likelihood of individuals obtaining funding at their choice. We use an attributes or hedonic index, which is particularly useful when quality differences are being measured rather than units of goods and services.[16] In brief, we combine multiple credit-limiting outcomes within the community into a single place-based score of community credit insecurity, which gauges credit health and financial well-being.

More specifically, we use the Community Credit framework described in *Community Credit: A New Perspective on America's Communities* to create the Credit Insecurity Index.[17] The following diagram illustrates the index approach.

11 These are just some examples; there are others.

12 We are not suggesting that such credit constraints are imprudent or unwarranted.

13 See the U.S. Financial Diaries Research Project at https://www.usfinancialdiaries.org/issue

14 That is, to borrow an amount at terms and timing of one's own choosing.

15 See An Invisible Finance Sector: How Households Use Financial Tools of Their Own Making, https://www.usfinancialdiaries.org/issue3-informal

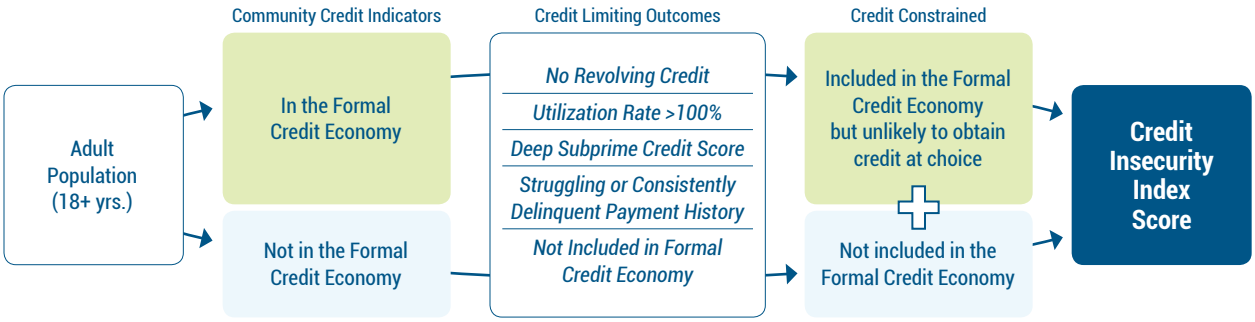
16 Hedonic modeling was first articulated by Kelvin J. Lancaster in A New Approach to Consumer Theory, available at https://www.jstor.org/stable/pdf/1828835.pdf?refreqid=excelsior%3Af53eac637d7c6ba8bac6a7391b050bed.

Modern examples include the Index of Economic Freedom by the Heritage Foundation (https://www.heritage.org/index/book/methodology) and the Freedom of the World Index by the Frasier Foundation, Cato Institute, and the German people. In both instances, freedom scores are derived from multiyear qualitative and quantitative data from global sources of qualities that attest to freedom in a country. The country scores are tracked and compared across the globe and time.

For details, see James Gwartney, Robert Lawson, and Joshua Hall, *Freedom of the World* reports (Vancouver: Fraser Institute). See also Joshua Hall and Robert Lawson, "Economic Freedom of the World: An Accounting of the Literature," *Contemporary Economic Policy* 32, no. 1 (2014): 1–19.

17 These ideas are discussed in detail in *Community Credit: A New Perspective on America's Communities*, Federal Reserve Bank of New York, 2014.

Credit Insecurity Index



In the Community Credit framework, the adult population (18+ years) in the community is divided into two subgroups—those with a credit file and credit score and those without. The two groups are measured by the 'Included' and the 'Not Included' indicators, respectively, and each group contributes to credit insecurity in a different way. A decade's worth of these data are available at the New York Fed website under Community Credit.[18]

By definition, residents without a credit file or a credit score are not connected to mainstream credit institutions and are likely to rely on friends, family, or alternative lenders, who may have either limited lending capacity or be a more expensive source of funds than mainstream financial lenders. By not being in the formal credit economy, these residents are likely to face hurdles in their efforts to seek credit from mainstream credit institutions and to access economic opportunities as discussed earlier.[19]

Credit insecurity in a community may also derive from adults who are in the formal credit economy but have credit histories or items on their credit files that make them higher credit risks. To account for credit-constraining outcomes among residents in the formal credit economy, we apply other Community Credit indicators as credit attributes to quality-adjust the "Included" indicator for credit insecurity.

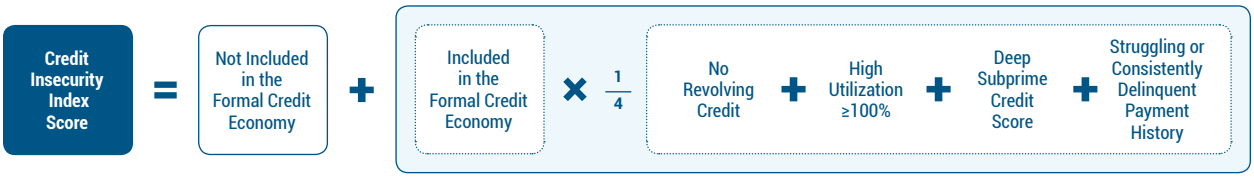
18 https://www.newyorkfed.org/data-and-statistics/data-visualization/community-credit-profiles#overview

19 The first step in obtaining credit from mainstream credit channels is to establish a credit presence in the form of a credit file and credit score. Responsible credit providers play a key role in helping individuals access affordable funding, especially when the alternatives may be high-cost lenders. High-cost debt is known to exacerbate a household's financial problems.

Credit Insecurity Scores: A Numerical Example on How to Calculate

The Credit Insecurity Index is the sum of two Community Credit indicators: Not Included and Included, quality-adjusted to capture credit outcomes that make it unlikely for residents to obtain credit at choice.

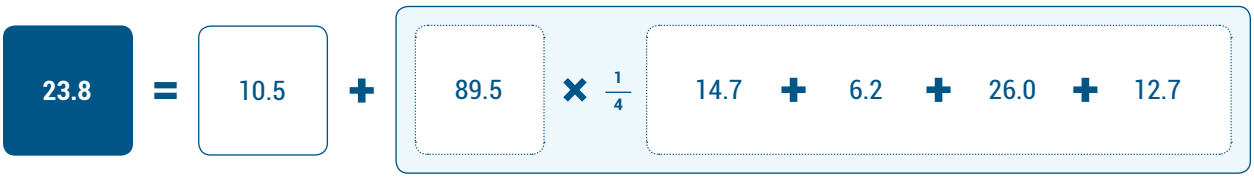
Credit Insecurity Index Components



The first element of the index score represents adult residents not included in the formal credit economy; by definition, they are not connected to mainstream credit institutions and are likely to rely on non-traditional sources for their credit needs as noted previously. The Community Credit data indicate that 10.5% of U.S. adults were not included in the formal credit economy as of the fourth quarter of 2018.

The second element of the index score represents adults who are in the formal credit economy but have credit histories or items in their credit files that mark them as higher credit risks. While there are various ways to select this group, we focused on the following credit-limiting outcomes: 1) individuals without a revolving credit product, 2) individuals who have fully- or over-utilized their credit limits, 3) individuals with "deep subprime" credit scores (i.e., an Equifax Credit Risk score of 580 or less), and 4) residents with blemished payment histories (i.e., chronically delinquent or severely overdue on payments during the past five quarters on any debt obligation). We give equal weight to each of these credit attributes in the index. The data indicate that this source of credit insecurity adds another 13.3 points to the Credit Insecurity Index score for the U.S. for the fourth quarter of 2018.

U.S. Credit Insecurity Index Calculation, 2018 Q4



Source: FRBNY Consumer Credit Panel/Equifax

Combining the two sources (10.5 plus 13.3), the Credit Insecurity Index score for the U.S. was 23.8 as of the fourth quarter of 2018. In other words, just under half of the credit insecurity in America is due to adults who are not in the formal credit economy, while a little over half is due to credit outcomes that make it difficult for individuals in the formal credit economy to access credit at choice for economic opportunity.

Higher index scores indicate that a community is *more credit constrained*, *or credit insecure*, than communities with lower scores. In other words, higher index scores identify communities with a larger share of residents who are unlikely to obtain credit at choice for resiliency or opportunity than communities with lower index scores.

Another way to interpret the index is as follows. If credit insecurity in the U.S. were due solely to adults not connected to mainstream credit institutions, then the Credit Insecurity Index score would be 10.5. However, negative credit outcomes also limit access to credit; in 2018, they caused the U.S. index score to more than double. Access to credit within a community was eroded by adverse credit outcomes for its adult residents, as well as by the presence of adults who are not in the formal credit economy. Altogether, credit insecurity doubled in the U.S. when metrics incorporated the impact of credit constraints.

Since the scores are consistently measured quantities, communities may be compared with each other, and be benchmarked to the U.S., states and counties, and over time. To gauge relative severity, the distribution of scores is sorted into severity tiers, from a low severity tier called "credit-assured" to a high severity tier called "credit-insecure."

Once we calculate an index score, the community is sorted into one of the five mutually exclusive tiers of relative severity shown in the following table:

Typology of Severity Tiers for the Credit Insecurity Index

Credit Insecurity Index Tier	Description	Associated Score Range
Credit-Assured Tier	index score falls into the best-performing tier	<19
Credit-Likely Tier	index score falls into the second-best-performing tier	19–23
Mid-Tier	index score falls into the middle-performing tier	24–28
Credit-At-Risk Tier	index score falls into the second-worst-performing tier	29–35
Credit-Insecure Tier	index score falls into the worst-performing tier	≥36

The index score and severity tier are two ways to characterize the impact of credit constraints on a community's credit health. Details on the credit-limiting outcomes are provided in the Methodology paper.

Credit Insecurity Index Scores Align with Economic Indicators of Well-Being

As a test-of-concept exercise, we compared Credit Insecurity Index scores with measures of well-being frequently used by community development stakeholders. The following table presents economic indicators for U.S. counties, where data are available, grouped by the severity tiers of the Credit Insecurity Index as of the fourth quarter of 2018.[20] We present three clusters of economic indicators—Demographics and Diversity, Human Capital, and Financial Well-Being.

20 For more on the risks of borrowing from family members, see https://www.cnbc.com/2019/04/02/taking-a-loan-from-family-is-risky-for-both-lender-and-borrower.html.

Economic Indicators for U.S. Counties Grouped by Credit Insecurity Index Tiers, 2018 Q4

2018 Q4		Demographics and Diversity Indicators						Human Capital Indicators		Financial Well-Being Indicators			
Credit Insecurity Index Tiers	Number of counties	% of U.S. adult pop.	% change in adult pop., 2007–2018	% of pop. in rural counties	% of pop. that is non-white	% of pop. that is Black or African American*	% of pop. that is Hispanic or Latino	% of adults w/o HS diploma	% of adults (16+) not in workforce	Avg. of median household income ratios**	% of U.S. adult pop. below poverty level	% of formal credit economy with a subprime credit score	% of adult pop. not in the formal credit economy
Credit-Assured Counties (<19)	685	26.4	10.9	10.0	26.8	6.1	10.9	8.9	33.6	1.03	9.4	22.3	5.0
Credit-Likely Counties (19–23)	611	23.7	12.2	11.4	32.5	10.1	13.2	10.9	36.1	0.94	13.2	28.4	9.0
Mid-Tier Counties (24–28)	717	30.6	12.5	11.3	46.4	14.0	24.0	14.7	37.2	0.90	16.1	34.0	11.8
Credit-At-Risk Counties (29–35)	643	14.4	11.3	23.2	47.3	18.8	22.0	16.7	38.9	0.83	19.5	39.5	15.5
Credit-Insecure Counties (≥36)	426	5.0	9.7	36.1	54.6	25.2	21.6	18.6	44.3	0.74	24.9	44.4	24.2
U.S.	–	–	11.7	14.2	38.5	12.3	17.6	12.8%	36.6	–	14.6	30.5	10.5

**The percentage of the population that is Black or African American listed under the Not Hispanic or Latino classification in the U.S. Census 2013–17 5-Year American Community Survey.*
***The average of ratios of the county median household income to its state median household income.*

Sources: FRBNY Consumer Credit Panel/Equifax, U.S. Census Population Estimates Program, U.S. Census 2013–17 5-Year American Community Survey

Overall, the credit insecurity scores align with other markers of economic well-being and distress. 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. For example, while 27% of the population in the credit-assured counties is non-white, 58% of the population in the credit-insecure counties is non-white.

The financial well-being indicators for the credit-insecure tier of counties show that one in four adult residents is not in the formal credit economy and that those in it have credit-quality issues such as low credit scores. As a result, many residents in these communities are unlikely to obtain loans easily at choice. Without access to mainstream credit institutions, residents will need to rely on alternative sources such as friends, family, pawnbrokers, and others who may be high cost and have limited capacity to lend.[21] Numerous studies have described the cycle of costly debt that many households cannot escape. Yet, such families are most in need of funding for emergencies since studies have documented that they often have little to no savings.[22]

21 For more on the risks of borrowing from family members, see https://www.cnbc.com/2019/04/02/taking-a-loan-from-family-is-risky-for-both-lender-and-borrower.html.

22 See The U.S. Financial Diaries: https://www.usfinancialdiaries.org/ and also see the various reports and research produced by ALICE: https://www.unitedforalice.org/all-reports

Practical Applications of the Credit Insecurity Analytics

All too often, experts are well versed in local issues but are unable to benchmark how their community compares with the larger ecosystem of the nation or other communities. The index analytics, presented in the following papers, provide a common set of facts to quantify how communities compare with one another. The scores place communities on a single spectrum across geography and time to better identify, describe, and compare the American credit experience.

Each paper presents the evidence in a comprehensive and multilayered way—at the national, state, and county levels—using annual time-series data for 2005 through 2018. Since the sample period encompasses the Great Recession and the subsequent credit recovery, we use 2007, 2012, and 2018 as benchmark years to examine credit insecurity under varying macroeconomic environments, and to gauge progress over time.

The evidence is presented to be accessible to the non-technical reader. The data maps are designed to conveniently identify the most credit insecure communities, to inform resource choices among competing communities and goals, and to guide where new or additional investments could generate the greatest impact.

No particular policy actions or goals are advocated; the analytics provide evidence on the impact of credit constraints on credit health, which can help frame policy questions more accurately, monitor progress, and evaluate social impacts over time and among communities.

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The views expressed here are those of the authors and do not necessarily reflect those of the Federal Reserve Bank of New York or the Federal Reserve System..

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CREDIT INSECURITY SNAPSHOT, 2018 Q4

3

In this paper, we use the Credit Insecurity Index to identify the broad contours of financial health of American communities as of the fourth quarter of 2018. We provide a snapshot of scores for the U.S., all 50 states and most of the country's 3,142 counties for this period. Each score reflects access to credit at choice to pursue economic opportunity and build financial well-being in a community. Higher scores reflect more credit insecurity and worse credit health, and vice versa.

TAKEAWAY: The impact of credit constraints on credit health varies considerably across communities. Underlying the national credit insecurity score of 23.8 points, there is wide heterogeneity of credit conditions at the state and county levels in America. Altogether, 426 U.S. counties are identified as in the most severe credit insecurity tier. Another 643 counties are identified as in the second most severe tier. Geographically, there is some clustering of credit-insecure counties in the south and south-west regions of the country.

About the Credit Insecurity Index

The Credit Insecurity Index combines multiple credit-limiting outcomes into a single score to gauge 'credit insecurity' or lack of access to credit at choice for a community. The first component of the score is the relative size of the not-included in the formal credit economy or the share of residents not having a credit file or score. The second component is the size of the formal credit economy adjusted to reflect outcomes that limit borrowing at choice such as having no revolving credit products, fully utilized credit lines, a low credit score, or a poor repayment history. We calculate a score for the U.S., all 50 states and most of the 3,142 counties using the following formula.

Credit Insecurity Index Components

$$\text{Credit Insecurity Index Score} = \text{Not Included in the Formal Credit Economy} + \text{Included in the Formal Credit Economy} \times \frac{1}{4}\left(\text{No Revolving Credit} + \text{High Utilization} \geq 100\% + \text{Deep Subprime Credit Score} + \text{Struggling or Consistently Delinquent Payment History}\right)$$

Since the scores are consistently measured quantities, communities may be compared with each other, on a severity scale, from the lowest severity called "credit-assured" to the highest severity called "credit-insecure."

Credit Insecurity Severity Tiers

LEAST CREDIT INSECURE → MOST CREDIT INSECURE

CREDIT-ASSURED TIER	CREDIT-LIKELY TIER	CREDIT MID-TIER	CREDIT-AT-RISK TIER	CREDIT-INSECURE TIER
Index Score range: <19	Index score range: 19–23	Index score range: 24–28	Index score range: 29–35	Index score range: ≥36

Credit Insecurity in the U.S. as of 2018 Q4

The evidence shows that access to credit at choice is significantly lower, and credit insecurity is materially higher, when credit constraints are incorporated into the analytics.

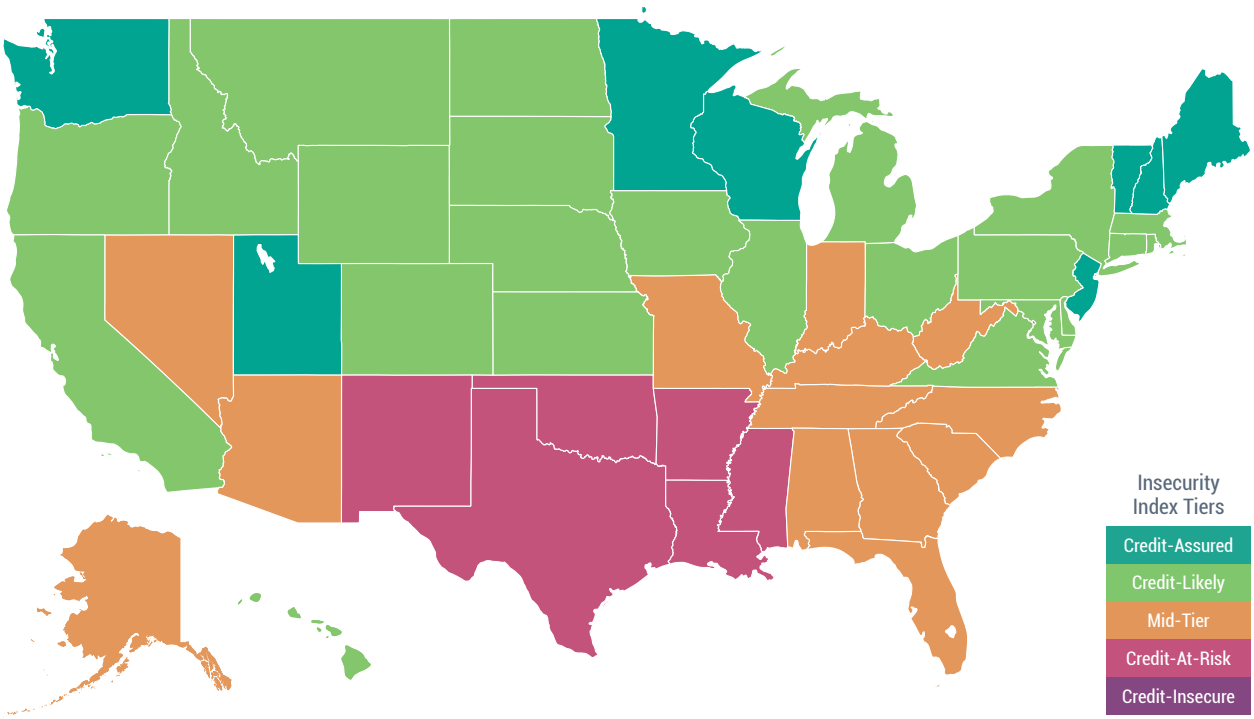
The Credit Insecurity Index score for the U.S. as of the fourth quarter of 2018 is 23.8 points. A familiar measure of credit insecurity—those not in the formal credit economy—is 10.5 points, which amounts to 26.5 million U.S. adults. The measure of credit insecurity more than doubles, from 10.5 points to 23.8 points, as of the fourth quarter of 2018, when credit-constraining outcomes for those in the formal credit economy are explicitly taken into account. For context, a score of 23.8 is the equivalent of 60.4 million U.S. adults unlikely to access credit at choice.

Credit Insecurity across the U.S. States as of 2018 Q4

The micro data show that credit health varies among communities. Underlying the national score of 23.8 points, the range of county scores (from 5.5 to 74.4 points) suggests a wide heterogeneity of credit conditions across states and counties in 2018.

A regional pattern emerges in the following map with the most severely credit-constrained states located in the southern portions of the nation. The credit insecurity index for states in the New England region shows communities to be less credit constrained, falling within the least severe credit-assured tier, and are able to access credit for opportunity with greater ease when compared to other regions.

Map of Credit Insecurity Index by State as of 2018 Q4



Source: FRBNY Consumer Credit Panel/Equifax

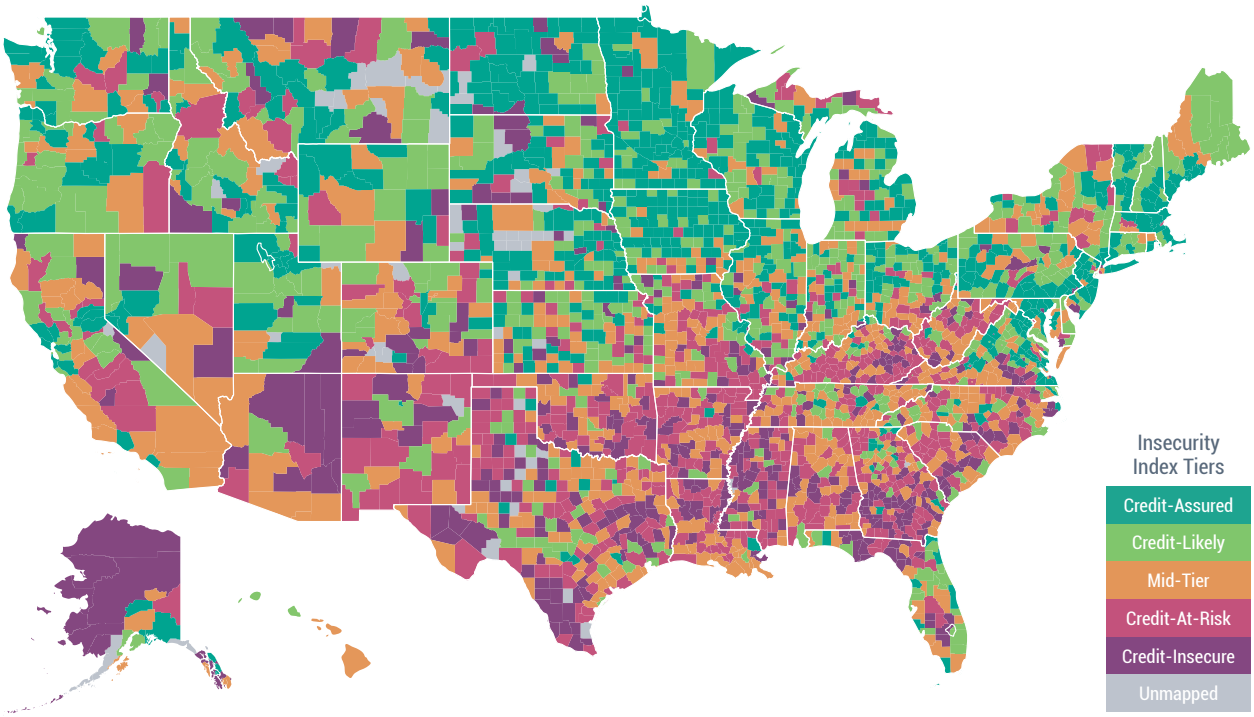
Among states in 2018, Mississippi ranked as the most credit-insecure in the nation. Arkansas, Texas, Louisiana, and Oklahoma ranked as the next most credit insecure states. In contrast, states ranked as the least credit insecure are New Hampshire, Minnesota, Vermont, New Jersey and Maine.

Credit Insecurity among U.S. Counties in 2018 Q4

The credit insecurity landscape is more complex at the county level. The following map shows the Credit Insecurity Index scores for most of the 3,142 U.S. counties as of the fourth quarter of 2018. Our threshold for calculating county-level measures is a sample minimum of 50 observations per county, which represents a minimum of 1,000 adult residents. Consequently, 60 counties are unmapped and not included in this analysis. For 2018, we analyze 3,082 counties.

A regional pattern at the county level is more nuanced than for states because credit-insecure counties exist in states with low overall index scores.

Map of Credit Insecurity Index Scores by County as of 2018 Q4

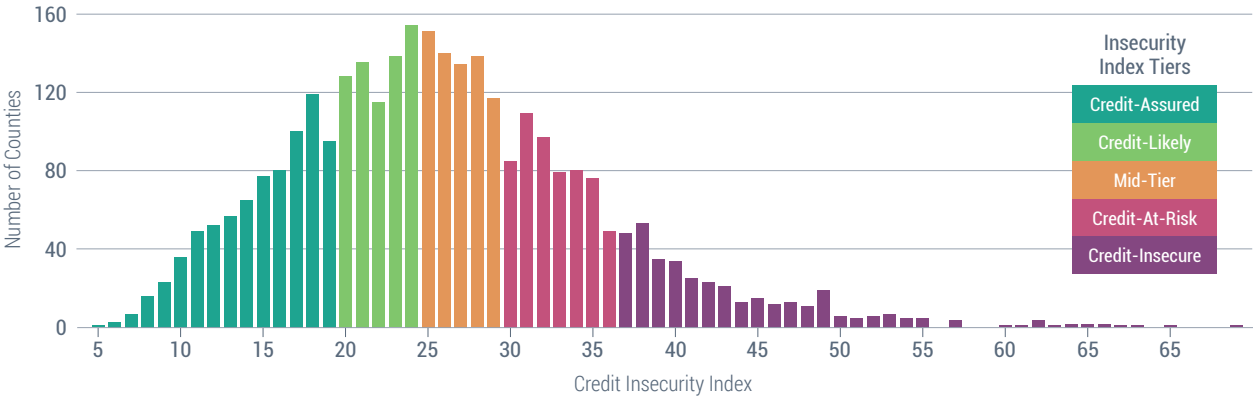


Source: FRBNY Consumer Credit Panel/Equifax

The following histogram shows the distribution of scores for U.S. counties, color-sorted by the five tiers of severity, as of the fourth quarter of 2018.[23]

23 Puerto Rico has 46 counties that rank among the weakest performers. We do not discuss them in this report since their dynamics may be different from those of the mainland states and counties.

Credit Insecurity Index Histogram for U.S. Counties as of 2018 Q4

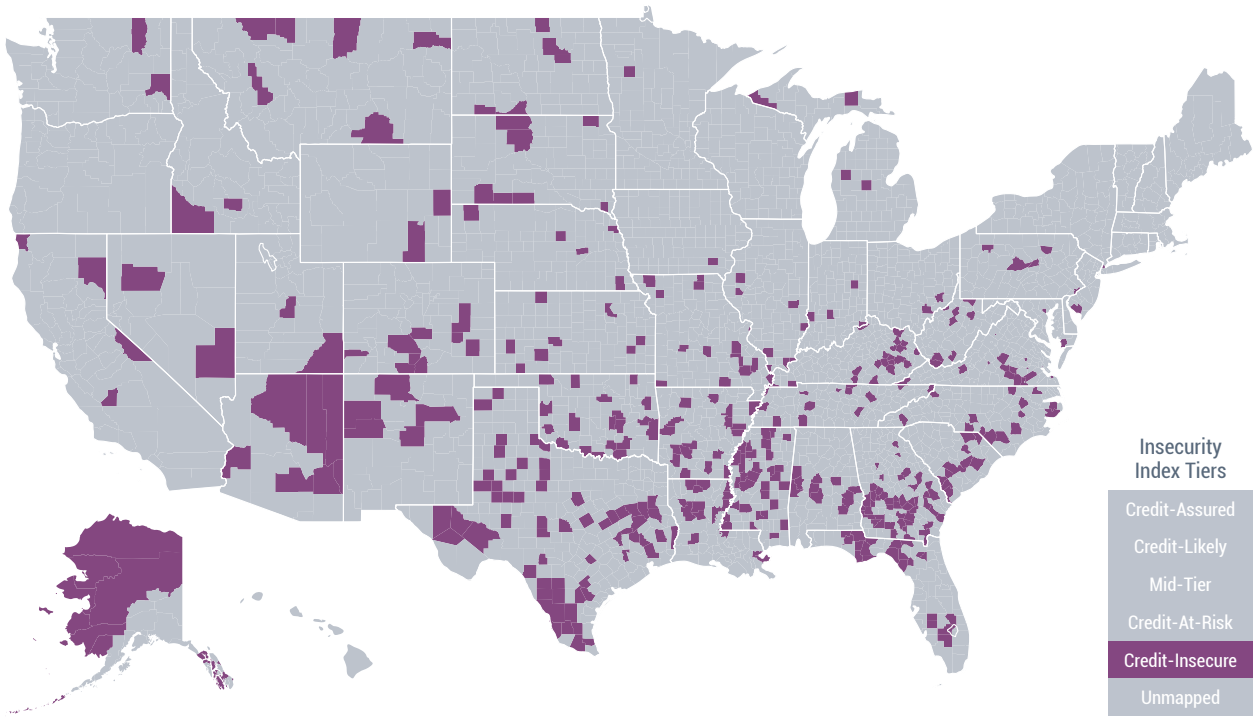


Source: FRBNY Consumer Credit Panel/Equifax

To identify regional concentrations of credit insecurity at the county level, we highlight counties in the two most severe tiers, the credit-insecure and the credit-at-risk tiers, in the following two maps. The credit-insecure tier is the group most in need; the credit-at-risk tier counties may be in transition in their credit trajectories, whether positively or negatively.[24]

Altogether, 426 U.S. counties are sorted into the most severe, credit-insecure, tier. They are indicated in the following map. Many are clustered in the south and south-west regions of the country.

Map of Counties Identified as in the Credit-Insecure Tier as of 2018 Q4



Source: FRBNY Consumer Credit Panel/Equifax

24 Mobility in credit insecurity is discussed in a later paper.

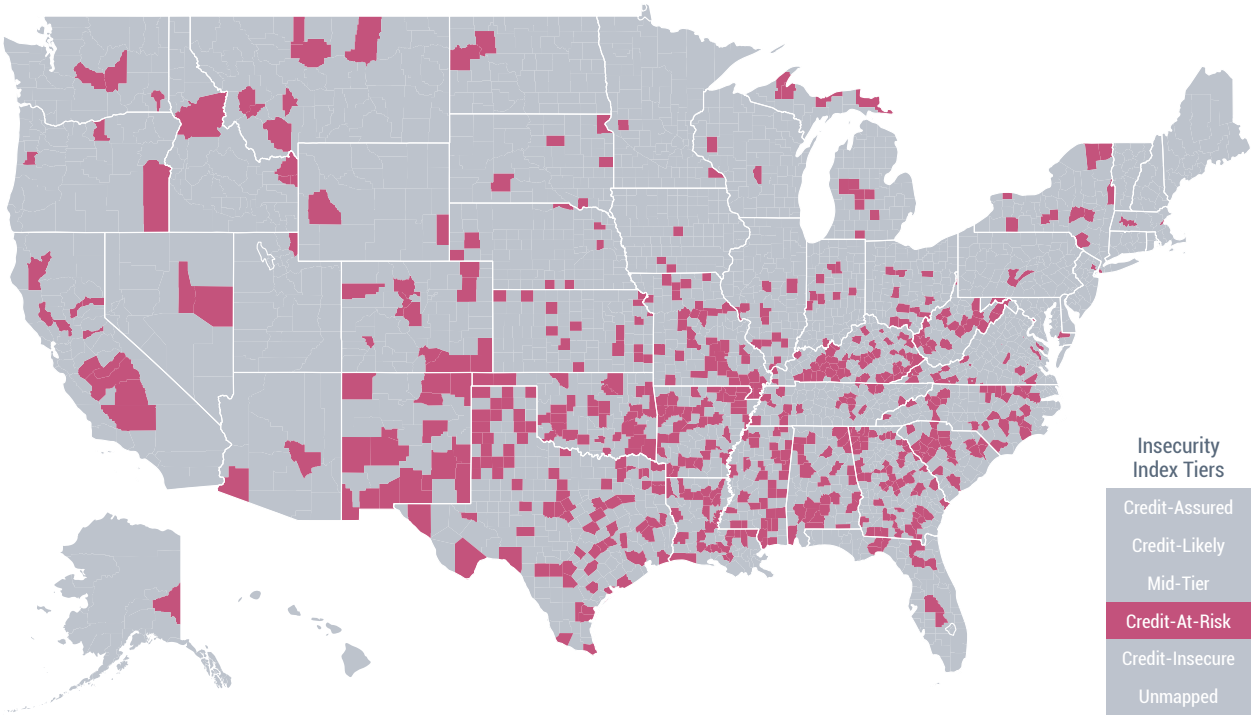
The fifty counties scoring highest in credit insecurity as of the fourth quarter of 2018 are shown in the following table.

50 Most Credit-Insecure Counties in the U.S. as of 2018 Q4

County/State	State	Credit Insecurity Index Score
Aleutians West Census Area	Alaska	74.4
Todd County	South Dakota	70.5
North Slope Borough	Alaska	68.3
Kusilvak Census Area	Alaska	67.3
Crowley County	Colorado	66.8
Oglala Lakota County	South Dakota	66.1
Stewart County	Georgia	66.0
Telfair County	Georgia	65.2
Concho County	Texas	65.0
Wheeler County	Georgia	64.3
Lake County	Tennessee	63.8
Garza County	Texas	62.7
Sioux County	North Dakota	62.6
Northwest Arctic Borough	Alaska	62.2
Calhoun County	Georgia	62.0
Lafayette County	Florida	61.1
Glades County	Florida	60.6
Yukon-Koyukuk Census Area	Alaska	57.5
Bethel Census Area	Alaska	57.3
Dooly County	Georgia	57.1
Newton County	Texas	57.1
San Juan County	Utah	55.6
Radford City	Virginia	55.6
Gilmer County	West Virginia	55.6
Bent County	Colorado	55.4
La Salle County	Texas	55.1
West Feliciana Parish	Louisiana	54.8
Frio County	Texas	54.6
Reeves County	Texas	54.5
Tallahatchie County	Mississippi	54.4
Apache County	Arizona	54.4
Walker County	Texas	54.0
Dillingham Census Area	Alaska	54.0
Union County	Florida	53.6
Harrisonburg City	Virginia	53.5
Marion County	Georgia	53.4
Johnson County	Georgia	53.2
Greensville County	Virginia	53.1
East Carroll Parish	Louisiana	52.8
Pershing County	Nevada	52.7
Lincoln County	Arkansas	52.7
Macon County	Georgia	52.5
Yazoo County	Mississippi	52.4
La Paz County	Arizona	52.1
Charlton County	Georgia	51.9
Saguache County	Colorado	51.7
Tattnall County	Georgia	51.7
Jenkins County	Georgia	51.5
Corson County	South Dakota	51.1
Quitman County	Mississippi	51.0

The following map indicates the second most insecure tier counties. Altogether, 643 counties are sorted into the credit-at-risk tier as of the fourth quarter of 2018. Again, there is a pattern of some regional clustering.

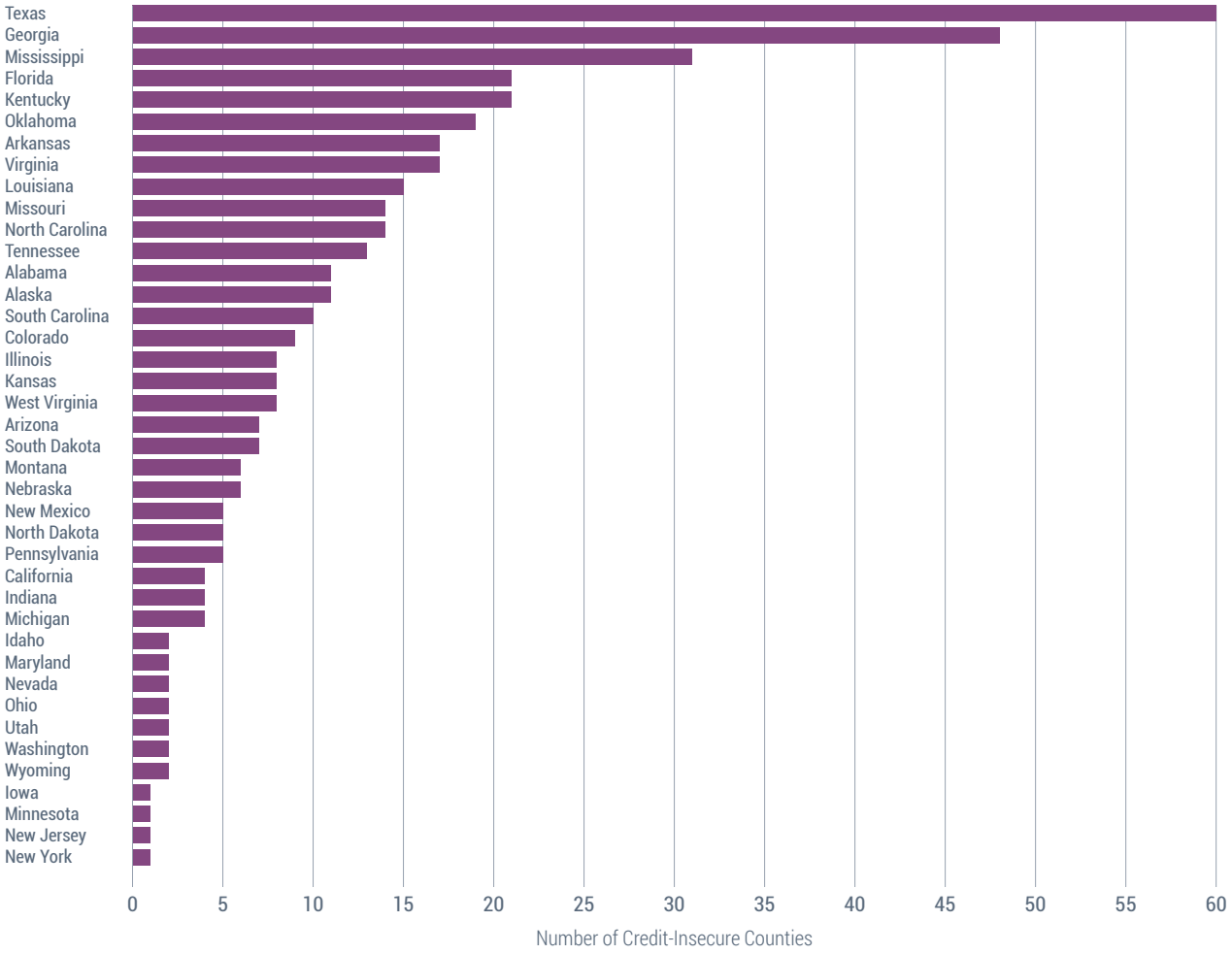
Map of Counties in the Credit-At-Risk Tier as of 2018 Q4



Source: FRBNY Consumer Credit Panel/Equifax

Another way to understand geographic clustering is to view the distribution of credit-insecure counties by state. In the following chart, the geographic distribution of the most credit-insecure (score ≥36) counties by state is shown as of the fourth quarter of 2018.

Number of Counties in Each State Scored as Credit-Insecure as of 2018 Q4

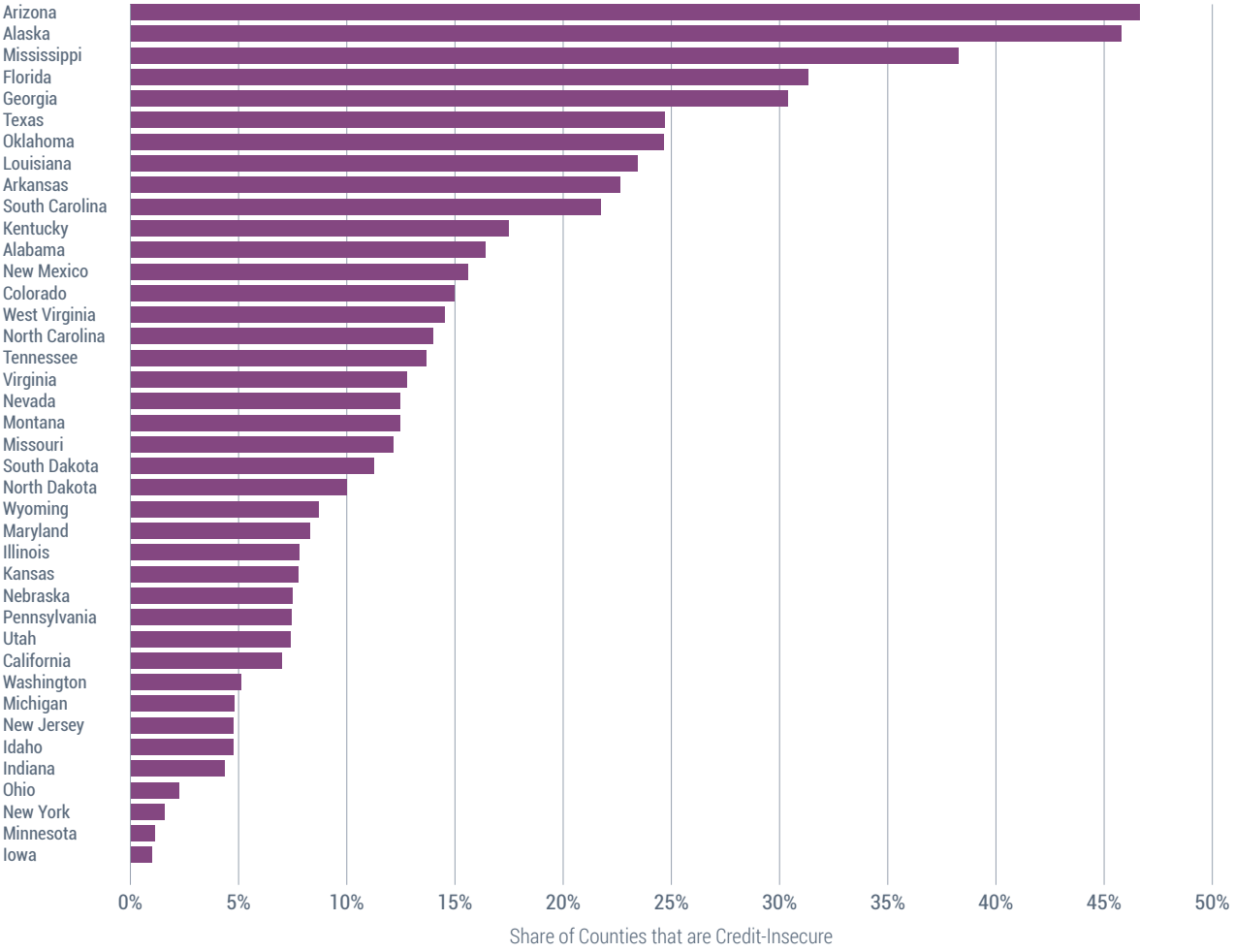


Source: FRBNY Consumer Credit Panel/Equifax

Texas has the largest number of counties in this tier (60), which account for 8.8% of Texas's adult population, followed by Georgia and Mississippi. In contrast, Connecticut, Delaware, Hawaii, Maine, Massachusetts, New Hampshire, Oregon, Rhode Island, Vermont, and Wisconsin have no credit-insecure counties. As such, these states are not shown in the chart for visual ease.

However, some states have more counties than others, which affects how to think about regional concentrations of credit insecurity. In the following chart, the share of counties in each state that is scored as credit-insecure is shown.

Share of Counties in Each State That Are Scored as Credit-Insecure as of 2018 Q4

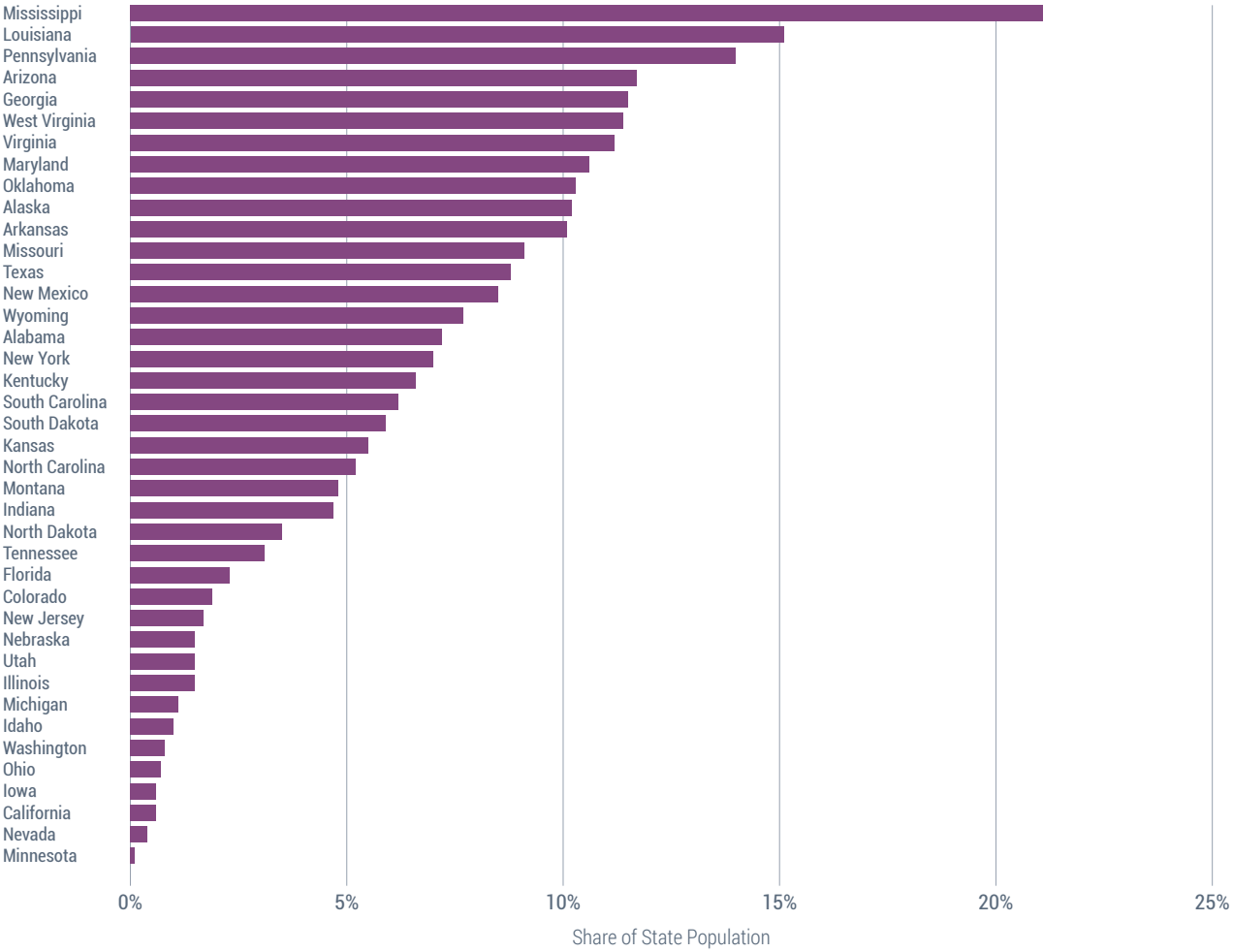


Source: FRBNY Consumer Credit Panel/Equifax

Texas, for example, has more counties than any other U.S. state. If concentration is measured as a share of the total number of counties, then Texas drops from the top position to number six. Instead, Arizona is at the top of the list with the largest share of its counties in the credit-insecure tier (46.7%), which account for 11.7% of Arizona's adult population. Meanwhile, Minnesota and Iowa remain at the bottom of the list with the fewest shares of counties in the credit-insecure tier.

Also, some counties have larger populations than others; the share of the state population residing in credit-insecure counties is another metric of impact and is presented in the chart on the following page. By this metric, Mississippi ranks number one, followed by Louisiana and Pennsylvania. Viewed by share of adult population, Texas now ranks thirteenth highest and Arizona ranks fourth highest.

Share of State Population Residing in Counties Scored as Credit-Insecure as of 2018 Q4



Source: FRBNY Consumer Credit Panel/Equifax

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The views expressed here are those of the authors and do not necessarily reflect those of the Federal Reserve Bank of New York or the Federal Reserve System..

UNEQUAL ACCESS TO CREDIT

CREDIT INSECURITY TRENDS

4

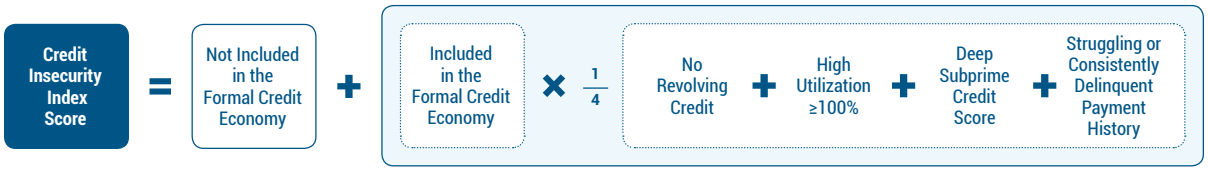
In this paper, we use the Credit Insecurity Index to identify key trends in credit insecurity during 2005 to 2018, a period that experienced a variety of credit conditions including a financial crisis, the Great Recession, and subsequent credit recovery. This period is an informative lens on how credit health and financial security respond, at various levels of community, to macro forces pulling at the economy.

TAKEAWAY: The impacts of credit constraints vary with macroeconomic conditions. The index shows a pro-cyclical pattern with a lag during 2005 to 2018 when the U.S. economy suffered major economic disruptions and a recovery. Access to credit for opportunity was depressed in the nation and most communities during the financial crisis and recession through 2012. Unfortunately, the credit recovery, as of the fourth quarter of 2018, remains below 2007 levels of credit health for the U.S. as a whole and for many counties.

About the Credit Insecurity Index

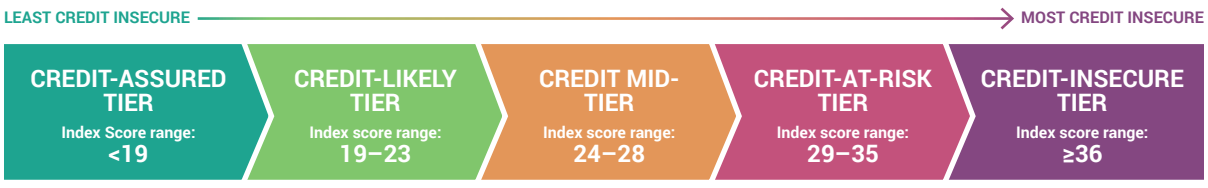
The Credit Insecurity Index combines multiple credit-limiting outcomes into a single score to gauge 'credit insecurity' or lack of access to credit at choice for a community. The first component of the score is the relative size of the not-included in the formal credit economy or the share of residents not having a credit file or score. The second component is the size of the formal credit economy adjusted to reflect outcomes that limit borrowing at choice such as having no revolving credit products, fully utilized credit lines, a low credit score, or a poor repayment history. We calculate a score for the U.S., all 50 states and most of the 3,142 counties using the following formula.

Credit Insecurity Index Components



Since the scores are consistently measured quantities, communities may be compared with each other, on a severity scale, from the lowest severity called "credit-assured" to the highest severity called "credit-insecure."

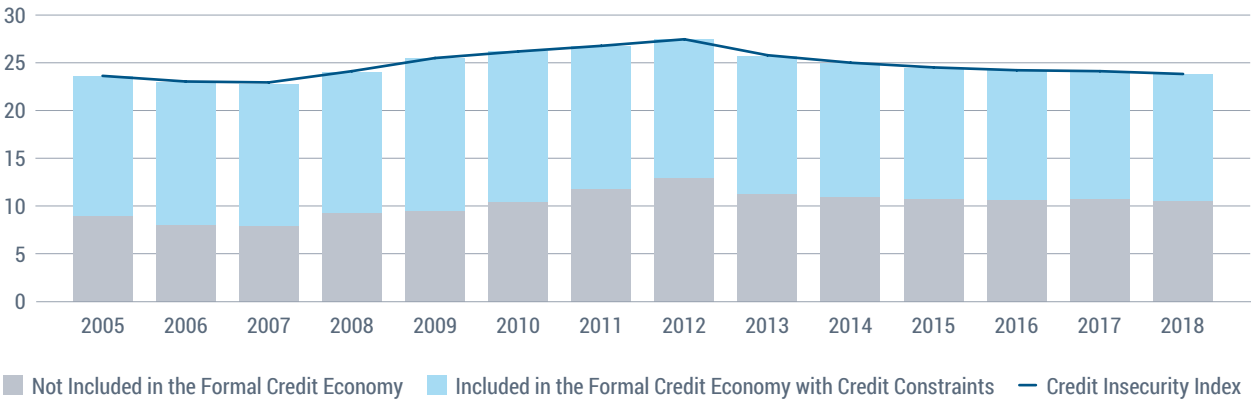
Credit Insecurity Severity Tiers



Credit Insecurity in the U.S. from 2005 to 2018

The following chart shows the 2005–18 history of credit insecurity for the U.S. and its two component drivers—the share of adult residents Not Included in the formal credit economy and impact of credit constraints on residents who are in the formal credit economy but have credit outcomes that make it unlikely for them to obtain a loan at their choice on affordable terms.

U.S. Credit Insecurity Index between 2005 and 2018



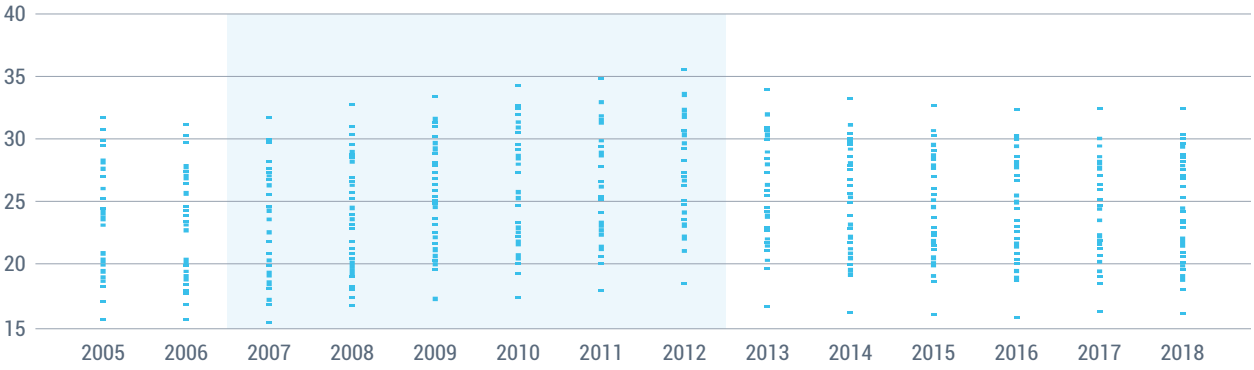
Source: FRBNY Consumer Credit Panel/Equifax

The index shows improving credit health for the U.S. leading up to 2007, followed by a worsening through 2012. While credit insecurity improved after 2012, as of the fourth quarter of 2018 it remains above the 2007 level by 0.9 points. In other words, a full recovery of U.S. credit insecurity relative to 2007 has not yet been achieved.

Credit Insecurity among States from 2005 to 2018

The pro-cyclical pattern is also apparent at the state level. In the chart below, the range of scores for U.S. states is shown by year. Note how the distribution range shifts higher between 2007 and 2012 and shifts lower thereafter. This shift mimics the U.S. pattern seen in the previous chart.

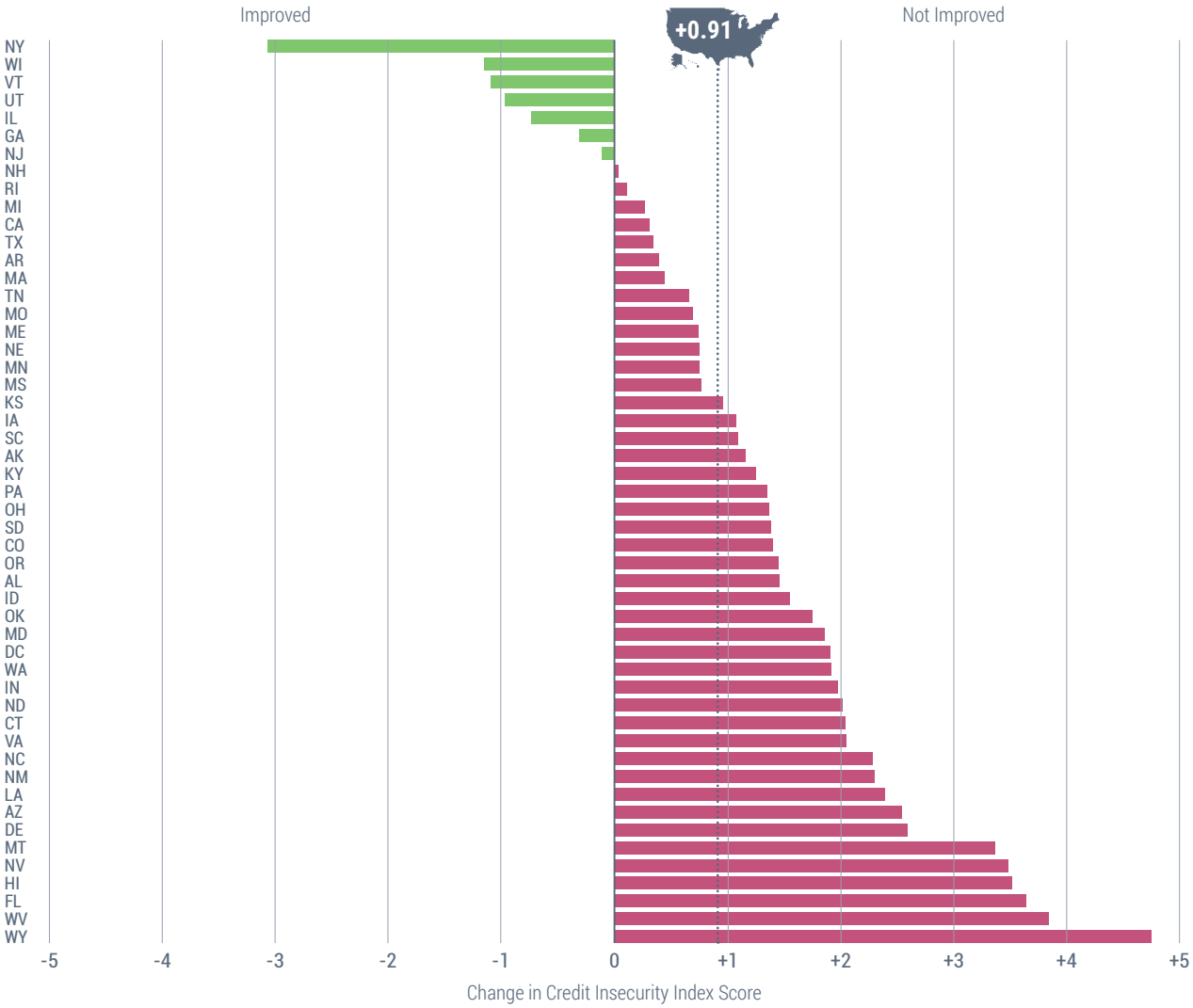
Credit Insecurity Index by State from 2005 to 2018



Source: FRBNY Consumer Credit Panel/Equifax

The chart below shows the change in the index score by state between 2007 and 2018.

Post-Financial Crisis Change in Credit Insecurity Index Score by State between 2007 and 2018



Source: FRBNY Consumer Credit Panel/Equifax

Among the 50 states, New York had the best 2007 to 2018 improvement (-3.1 points) and its recovery was considerably stronger than that of the U.S. (+0.9 points) for the same time period.[25] Wisconsin, Vermont, and Utah also improved better than their 2007 level of credit health (by about 1 point).

States with near zero values on the chart, such as New Hampshire and New Jersey, are examples of states that achieved a full recovery to their 2007 level of credit health.

Unfortunately, states such as Wyoming (+4.7 points) had the weakest 2007 to 2018 recovery in the nation. Other states with similarly incomplete recoveries (+3 to +4 points) are West Virginia, Florida, Hawaii, Nevada and Montana.

25 Recall that lowering the credit insecurity score is an improvement in credit health. The U.S. score in 2018 is still 0.9 points above its 2007 value, which means that the U.S. is still more credit insecure in 2018 relative to 2007.

Credit Insecurity among U.S. Counties from 2007 to 2018

U.S. counties show a similar overall pattern of post-2007 deterioration and recovery in credit insecurity. The following table shows the distribution of counties by index severity tiers and associated shares of the U.S. adult population for the three benchmark years of 2007, 2012, and 2018.

Distribution of U.S. Counties and their Share of the Adult Population by Credit Insecurity Index Tiers in 2007, 2012, and 2018

	Number of Counties			Share of U.S. Adult Population		
Credit Insecurity Index Tiers	2007	2012	2018	2007	2012	2018
Credit-Assured Counties (<19)	777	397	685	32.9%	12.9%	26.4%
Credit-Likely Counties (19–23)	696	515	611	23.5%	20.8%	23.7%
Mid-Tier Counties (24–28)	641	698	717	25.0%	25.6%	30.6%
Credit-At-Risk Counties (29–35)	585	797	643	13.7%	28.8%	14.4%
Credit-Insecure Counties (≥36)	379	675	426	5.0%	11.9%	5.0%
Total counties*	3,078	3,082	3,082	100%	100%	100%

**Given our minimum sample size requirement of 50 observations per county, some counties are not included in the calculation; hence, the total number of counties analyzed varies from the U.S. total of 3,142 counties.*

Source: FRBNY Consumer Credit Panel/Equifax

The net credit deterioration in the U.S. at the county level between 2007 and 2018 is apparent in two ways. First, examine the deterioration from 2007 to 2012 and the subsequent recovery from 2012 to 2018. During the deterioration phase, the total number of counties in the two weakest tiers—credit-insecure and credit-at-risk—increased from 964 to 1,472, or from 31% to 48% of all counties. In terms of affected populations, the rise was from 18.7% of U.S. adults in 2007 to 40.7% in 2012, a more than doubling of levels. During the recovery phase of 2012–18, the number of counties in the worst two tiers declined to 1,069 and the share of U.S. adults residing in these counties fell from 40.7% to 19.4%.

A second way to examine the deterioration is to compare 2018 to the start of the financial crisis in 2007; this comparison is less positive overall. In 2018, there were 105 more counties in the two most severe tiers than in 2007, with an associated increase in U.S. adult residents, by 0.7 percentage points. These data are more evidence that the U.S. credit recovery is incomplete in 2018 relative to 2007.

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EVIDENCE OF PROGRESS IN CREDIT INSECURITY

5

In this paper, we use the Credit Insecurity Index to benchmark mobility or changes in accessing credit for opportunity and resiliency. From a policy perspective, both change and no change are of interest. Communities experiencing improvement are worth examining to identify "best strategies and practices." Communities showing deterioration are candidates for intervention to arrest and even reverse their negative trajectories. No change is equally important because credit insecurity has persisted in these communities for over a decade; these places are mired on the wrong side of the divide in access to credit for opportunity and resiliency.

Since progress, or lack thereof, may be measured in various ways, we use two markers of credit mobility—migration among index severity tiers, and a change in the index score—at three benchmark points in time—2007 and 2012 as economic turning points, and 2018 as the present—from which to assess the direction and magnitude of change.

TAKEAWAY: The evidence suggests that progress is infrequent and credit insecurity is persistent. From 2007 to 2018, the overall distribution of counties shifted towards greater credit insecurity with 22.6%, or 825, of counties experiencing tier downgrades. Among the majority (58.2% or 1,790) of counties that remained in their 2007 severity tiers, 286 counties remained in the most severe credit insecurity tier. Put differently, counties that remained in the two most credit insecure tiers are the home for 11.5% of the U.S. adult population. Even during the recovery period of 2012–18 when the entire nation was improving, credit-insecure counties were more likely to have a weaker-than-U.S. progress trajectory than other tiers.

About the Credit Insecurity Index

The Credit Insecurity Index combines multiple credit-limiting outcomes into a single score to gauge 'credit insecurity' or lack of access to credit at choice for a community. The first component of the score is the relative size of the not-included in the formal credit economy or the share of residents not having a credit file or score. The second component is the size of the formal credit economy adjusted to reflect outcomes that limit borrowing at choice such as having no revolving credit products, fully utilized credit lines, a low credit score, or a poor repayment history. We calculate a score for the U.S., all 50 states and most of the 3,142 counties using the following formula.

Credit Insecurity Index Components

Credit Insecurity Index Score = Not Included in the Formal Credit Economy + Included in the Formal Credit Economy × $\frac{1}{4}$ (No Revolving Credit + High Utilization ≥100% + Deep Subprime Credit Score + Struggling or Consistently Delinquent Payment History)

Since the scores are consistently measured quantities, communities may be compared with each other, on a severity scale, from the lowest severity called "credit-assured" to the highest severity called "credit-insecure."

Credit Insecurity Severity Tiers

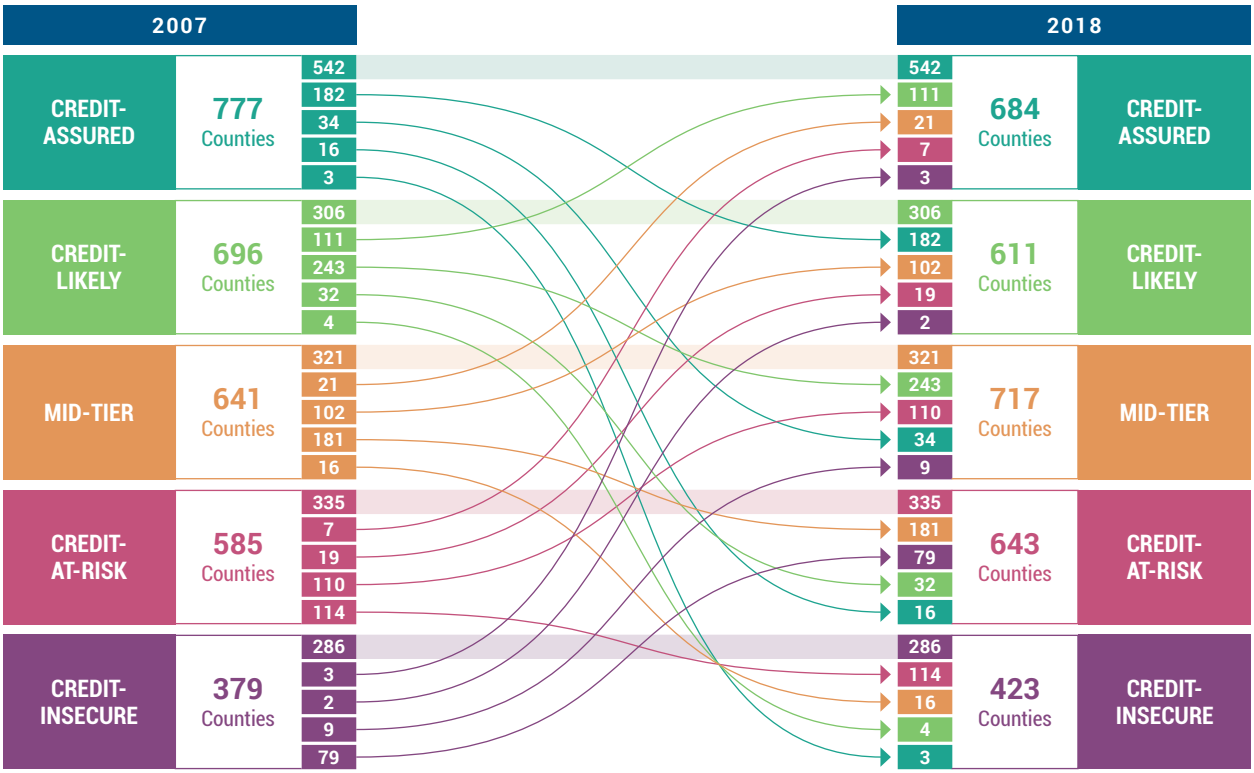
LEAST CREDIT INSECURE → MOST CREDIT INSECURE

CREDIT-ASSURED TIER	CREDIT-LIKELY TIER	CREDIT MID-TIER	CREDIT-AT-RISK TIER	CREDIT-INSECURE TIER
Index Score range: <19	Index score range: 19–23	Index score range: 24–28	Index score range: 29–35	Index score range: ≥36

Credit Mobility Viewed as Migration between Index Severity Tiers from 2007 to 2018

The first approach to understanding progress is to examine mobility, or lack thereof, between severity tiers. In practice, the flow of tier upgrades and downgrades by counties between 2007 and 2018 was quite active, as illustrated in the chart below where each severity tier is assigned a distinct color. The broad horizontal bands represent counties whose severity tiers remained unchanged. The curved bands depict the flow of upgrades and downgrades between severity tiers.

County Migration between Credit Insecurity Index Tiers from 2007 to 2018



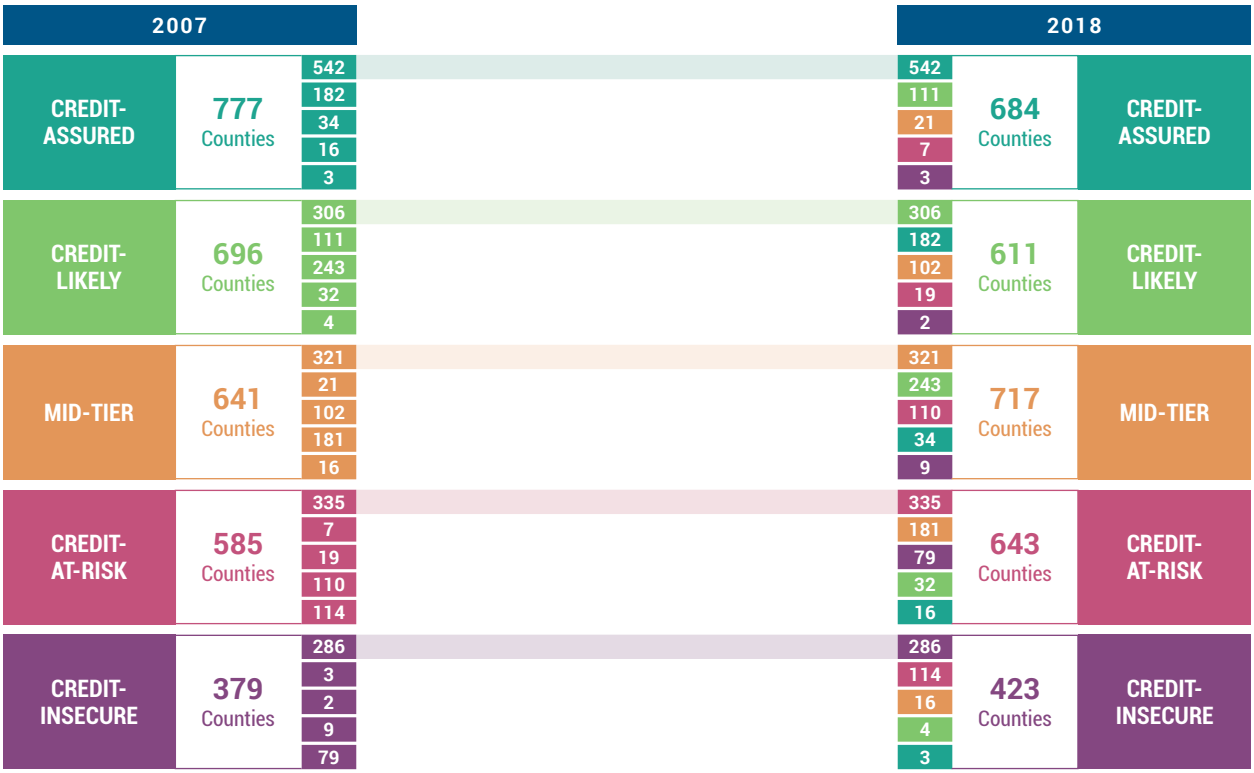
3,078 counties had sufficient data in 2007 and 2018, and are therefore included in this analysis.

Counties without Tier Migration

The first pattern to notice is that most counties remained in their original 2007 severity tier. From 2007 to 2018, 1,790 counties remained in their credit tier and account for 172.8 million people, or 68.1%, of the total U.S. adult population. While counties with the least credit insecurity maintained their ability to access credit for economic opportunity and resiliency, the history is discouraging for counties in the worst two severity tiers where a lack of access to credit for opportunity persisted over the decade.

- **Credit-Assured and Credit-Likely Counties:** Compositionally, 542 counties remained in the best performing, credit-assured, tier while 306 counties remained in the second best, credit-likely, tier. Altogether, these counties are the home of 51.0 million adults or 20% of the U.S. adult population.
- **Credit Mid-Tier Counties:** An additional 321 counties remained in the credit mid-tier, and are the home of another 25.5 million adults or 10% of the U.S. adult population.
- **Credit-At-Risk and Credit-Insecure Counties:** Unfortunately, 286 counties remained in the worst tier and 335 counties remained in the second worst tier during 2007–18. Together, these counties are the home of another 29.2 million adults or 11.5% of the U.S. adult population. This history of non-improvement identifies communities with entrenched credit insecurity. Examples are Bronx County, New York; Philadelphia County, Pennsylvania; and Hidalgo County, Texas among other examples.[26]

Counties without Tier Migration from 2007 to 2018



3,078 counties had sufficient data in 2007 and 2018, and are therefore included in this analysis.

26 No significance should be attached to the examples cited in the text; other counties could have been mentioned. We wished to provide concrete examples of counties to illustrate the point and make the numbers real.

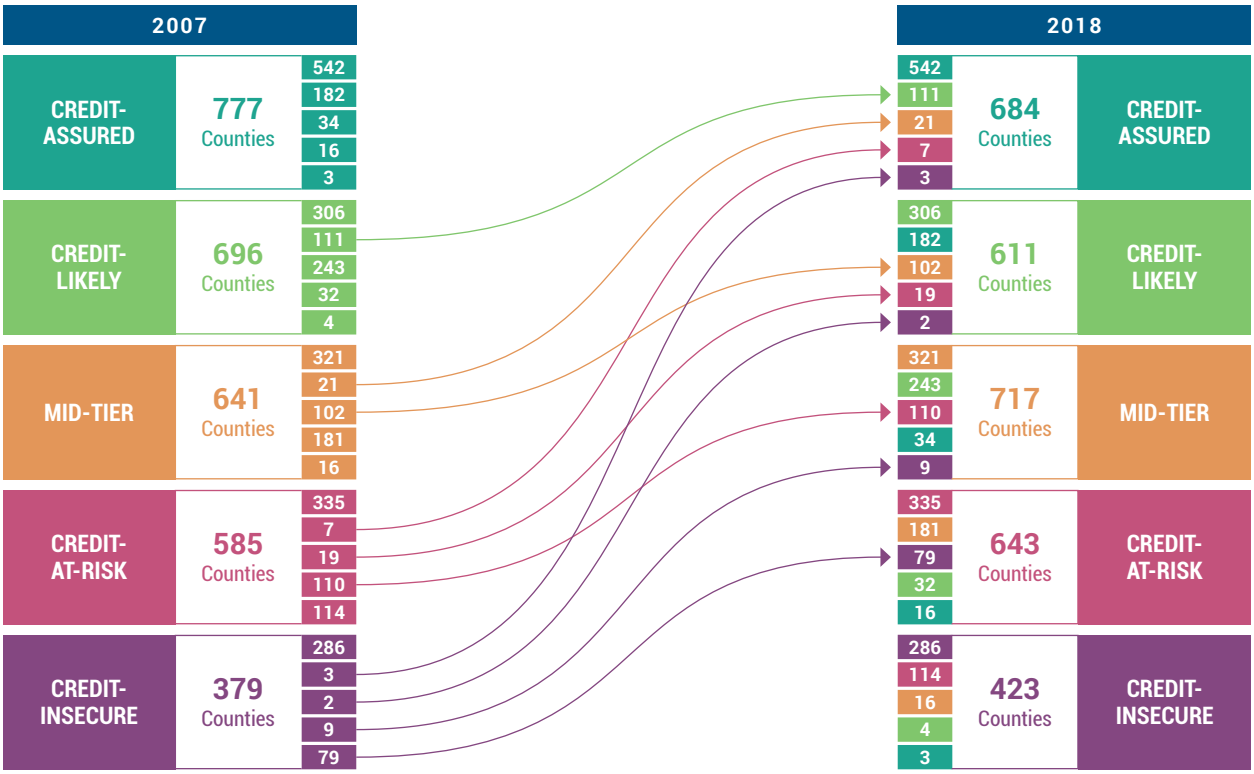
Counties That Upgraded to an Improved Severity Tier

The second striking pattern is that all severity tiers experienced inflows and outflows, confirming that communities change over time, even counties in the most severe credit insecurity tiers. From 2007 to 2018, 463 counties experienced an upgrade in credit tier, which account for 23.5 million people, or 9.2%, of the total U.S. adult population.

The distribution of counties that showed tier improvement was as follows:

- **Credit-Assured and Credit-Likely Counties:** Among the upgrades, 111 counties moved from the credit-likely to the credit-assured tier. An additional 154 counties upgraded to one of the two best tiers from a lower tier (mid-tier, credit-at-risk, or credit-insecure). All together, these counties are the home of 10.5 million adults or 4.1% of the U.S. adult population. Examples of considerable improvement are Franklin County in Vermont and Lee County in Georgia, which moved three levels from the at-risk tier to the credit-assured tier.
- **Credit Mid-Tier Counties:** Meanwhile, 102 counties were upgraded from mid-tier to the second-best credit-likely tier and 21 counties upgraded two levels to the best-performing credit-assured tier. All together, these counties are the home of 5.1 million adults or 2.0% of the U.S. adult population. Examples of one-tier and two-tier upgrades are Hamilton County, Ohio and Lincoln County, North Carolina, respectively.
- **Credit-At-Risk and Credit-Insecure Counties:** All together, 150 counties upgraded out of the two worst tiers, and are the home of 10.0 million adults or 3.9% of the U.S. adult population. Examples of upgrades are Queens County, New York and Burnet County, Texas. Particularly noteworthy are the three counties that upgraded from the worst tier to the best severity tier during the period: Sheridan County, Kansas, Wheeler County, Oregon, and Rock County, Nevada.

Counties That Upgraded to an Improved Severity Tier from 2007 to 2018



3,078 counties had sufficient data in 2007 and 2018, and are therefore included in this analysis.

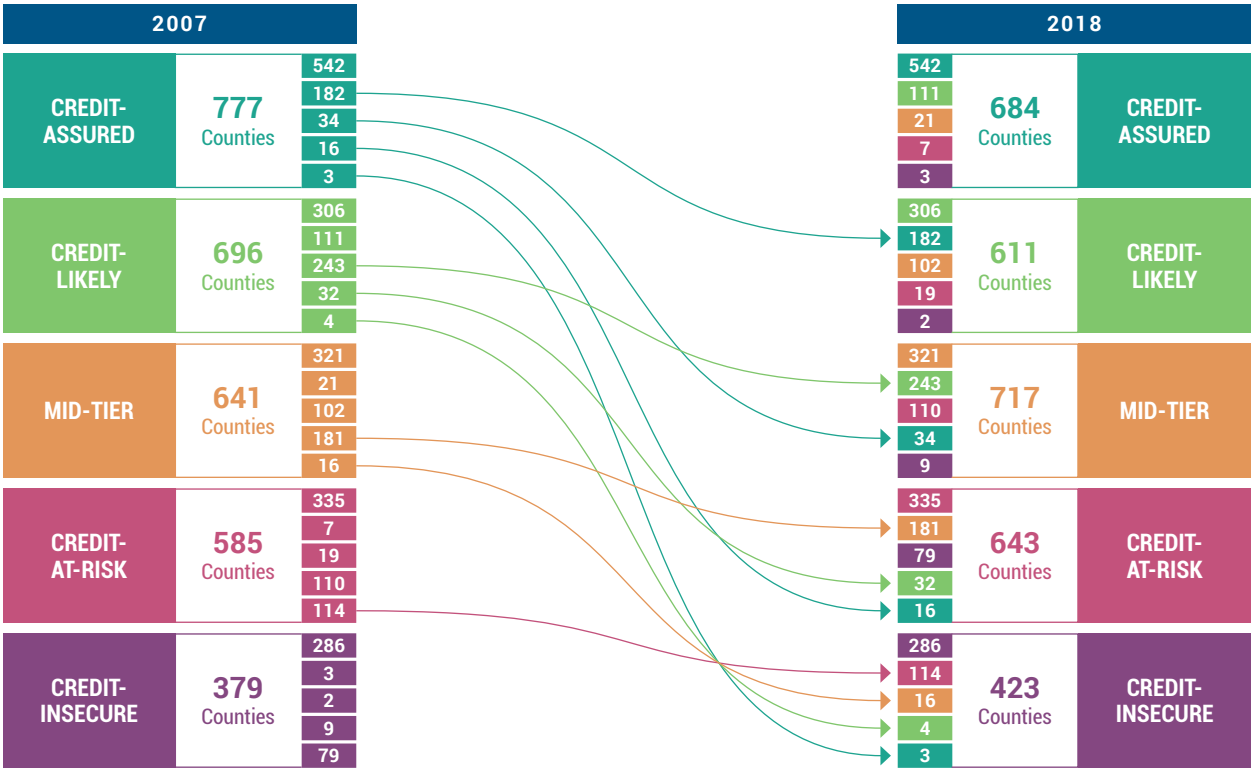
Counties That Downgraded to a Worse Severity Tier

From 2007 to 2018, 825 counties experienced a downgrade in credit severity tier, which account for 57.5 million people, or 22.6%, of the total U.S. adult population.

The distribution of counties that showed tier deterioration is as follows:

- **Credit-Assured and Credit-Likely Counties:** Among the downgrades, 332 counties dropped from one of the top two tiers to a lower tier (mid-tier, credit-at-risk, or credit-insecure). All together, these counties are the home to 22.4 million adults or 8.8% of the U.S. adult population. An example of considerable deterioration is Greenlee County, Arizona, which declined from the best-performing tier in 2007 to the worst performing tier in 2018. The two other counties with a similar performance are Jefferson County, Iowa and Lincoln County, Idaho.
- **Credit Mid-Tier Counties:** Unfortunately, 181 counties were downgraded one tier level and 16 counties were downgraded two tier levels from mid-tier. All together, these counties are the home of another 11.3 million adults or 4.4% of the U.S. adult population. Examples of one-tier and two-tier downgrades are Mobile County, Alabama, and Rio Arriba County, New Mexico, respectively.
- **Credit-At-Risk and Credit-Insecure Counties:** Unfortunately, 114 counties were downgraded one level from at-risk to credit-insecure. All together, these counties are the home of another 3.8 million adults or 1.5% of the U.S. adult population. Examples of the downgrades are Richmond City, Virginia, and Pinal County, Arizona.

Counties That Downgraded to a More Severe Tier from 2007 to 2018

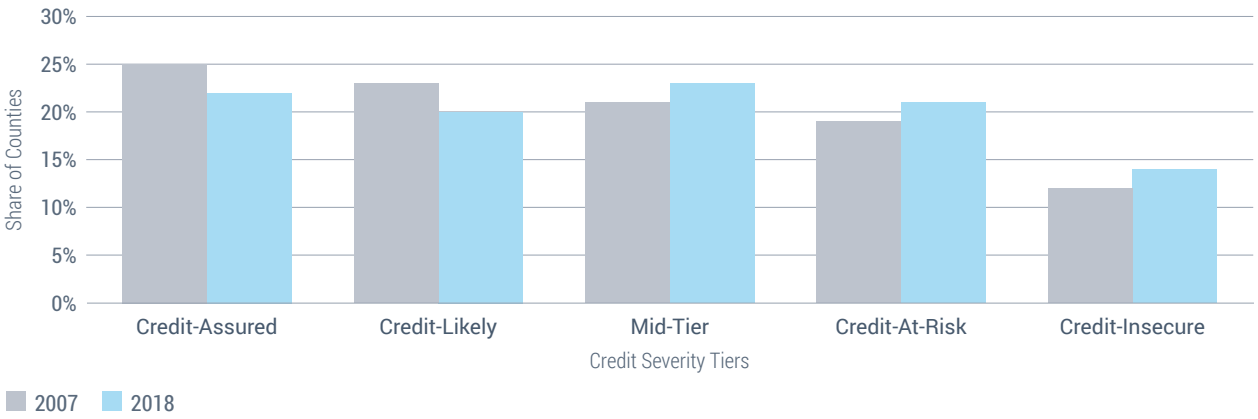


3,078 counties had sufficient data in 2007 and 2018, and are therefore included in this analysis.

The Net Impact of Tier Migration

Note that the distribution of counties by severity tier has shifted towards greater credit insecurity in 2018 as compared to 2007.

Distribution of Counties' Severity Tiers, 2007 and 2018



On net, the share of counties with the best credit health, identified as "credit-assured" and "credit-likely," declined from 48% of all U.S. counties in 2007 to 42% in 2018. This shrinkage of the best severity tiers reflects the incomplete recovery in credit security reported for the U.S. Some of the downward movement was towards the mid-tier. On net, counties with mid-tier credit insecurity scores increased in share from 21% of all U.S. counties in 2007 to 23% in 2018. All together, these counties are the home of 77.6 million adults or 30.6% of the U.S. adult population. And some of the downward shift was to the most distressed tiers. On net, the share of counties in the bottom two credit insecurity tiers rose from 31% of all U.S. counties in 2007 to 35% in 2018. All together, these counties are the home of another 49.1 million adults or 19.3% of the U.S. adult population.

Mobility Viewed as a Change in Index Scores from 2012 to 2018

While a tier upgrade may not have been achieved, a community may nevertheless be on an improving trajectory. To examine this possibility, we use the lens of a net change in index scores between 2012 and 2018 as an alternative gauge of credit mobility. As 2012 was the low point in the post-crisis cycle for most counties and the nation as a whole, improvement since then—from 2012 to 2018—is the most optimistic window for benchmarking progress. Counties failing to show progress during this interval, when the nation as a whole was improving, were not proportionately up-lifted by the broader national recovery.

To assess the strength of post-2012 trajectories, we selected a decrease of 3.7 points—the change in the U.S. insecurity score between 2012 and 2018—as a benchmark value.[27] In the following table, we sorted counties into three groups: 1) those showing a trajectory stronger than the U.S. by more than 0.5 points; 2) those showing a trajectory similar to the U.S. with scores within +/- 0.5 points; and 3) those showing a trajectory weaker than the U.S. by more than 0.5 points. Data for 3,082 counties that meet our minimum size threshold of 50 observations, are presented in the table.[28]

27 In other words, U.S. credit insecurity score decreased by 3.7 points during 2012–18, since lower scores mean improved credit security.

28 The total number of counties analyzed (3,082) for this calculation is less than the total number of counties in the U.S. (3,142). We use a minimum of 50 credit records within a county as a threshold for calculating county-level measures; hence, counties with fewer observations are not included in this analysis.

Credit Mobility by Strength of County Index Score Change from 2012 to 2018

Credit Insecurity Index Tier in 2018	Number of Counties by Strength of Score Change between 2012 and 2018		
	Stronger than the U.S. Score Change (difference from U.S. value by <-0.5 points)	**Similar to the U.S. Score Change** (within -0.5 to 0.5 points of U.S value)	**Weaker than the U.S. Score Change** (difference from U.S. value by >0.5 points)
Credit-Assured Counties (<19)	208	98	379
Credit-Likely Counties (19–23)	168	108	335
Mid-Tier Counties (24–28)	202	110	405
Credit-At-Risk Counties (29–35)	182	99	362
Credit-Insecure Counties (≥36)	113	55	258
Total	873	470	1,739

Source: FRBNY Consumer Credit Panel/Equifax

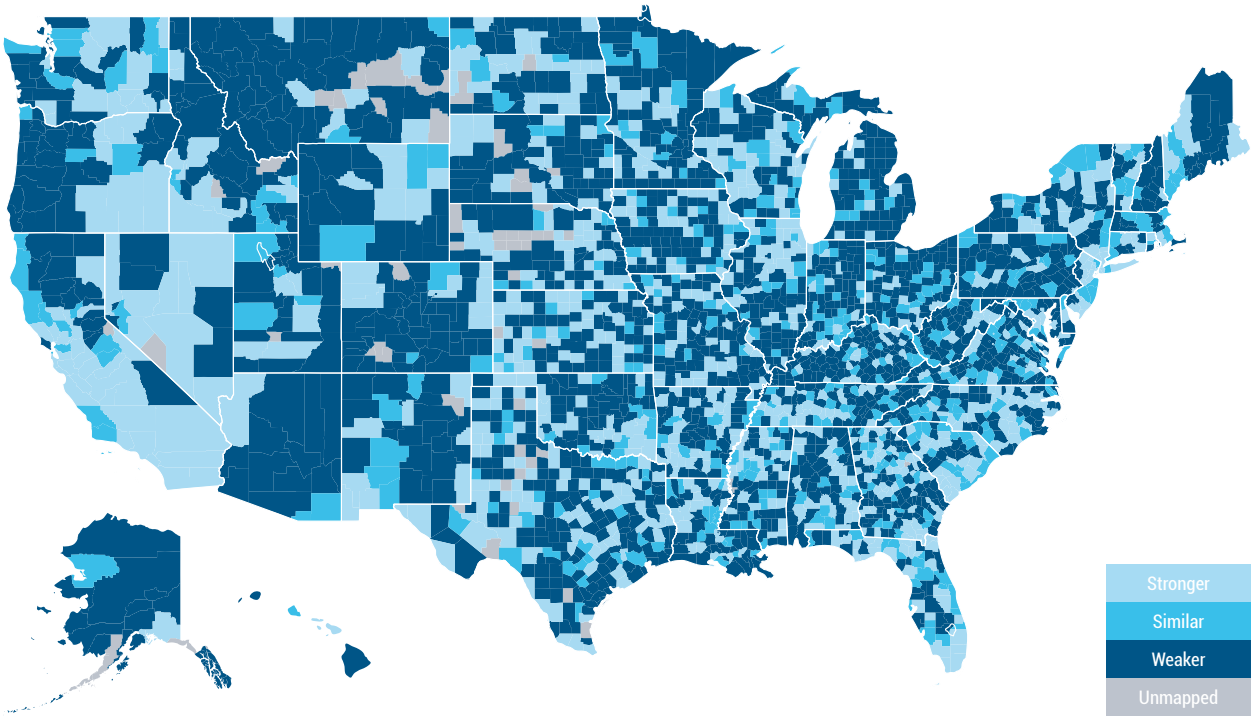
Fortunately, 28% of counties (or 873 counties) had a stronger trajectory than the U.S.; in other words, the recovery in these counties was stronger than that of the nation. While the best severity tiers had the most counties with stronger-than-U.S. recoveries, somewhat surprisingly, the other severity tiers also shared proportionately. For example, 28% of all counties experienced a stronger-than-U.S. recovery while the participation rate by each tier ranged from 27% for the 113 credit-insecure counties to 30% for the 208 credit-assured counties. The 113 credit-insecure counties are candidates to have their emerging credit strength nurtured with the right policy response. Examples of such counties are Philadelphia County, Pennsylvania, Bronx County, New York, and Baltimore City, Maryland, to name just a few.

Unfortunately, the credit-insecure counties are over-represented in the weaker-than-U.S. recovery group. They comprise 61% of this group while the other severity tiers comprise 55% to 56%. Examples of credit-insecure counties with weaker-than-U.S. trajectories are Norfolk City, Virginia, Centre County, Pennsylvania, and Monroe County, Indiana to name a few.

The recovery experience of the at-risk tier counties, on a proportionate basis, was similar to the distribution of all 3,082 counties analyzed. Examples of the at-risk counties with weaker-than-U.S. recoveries are Oklahoma County, Oklahoma, Polk County, Florida, and Bell County, Texas to name a few.

The following map identifies counties classified by score change during 2012–18. The group labeled "weaker" are the 1,739 counties where credit insecurity recovery during 2012–18 was weaker than that for the U.S. by more than 0.5 points. Bear in mind that weaker recoveries do not imply credit distress; 379 credit-assured counties and 335 credit-likely counties had weaker-than-the-U.S. trajectories but remained in the best severity tiers in 2018.

Map of Counties by Credit Insecurity Index Score Change from 2012 to 2018



Source: FRBNY Consumer Credit Panel/Equifax

Lastly, the following table presents Credit Insecurity Index scores, and the change in values for the benchmark periods, for several well-known counties across the country. Bear in mind that negative values indicate improved credit insecurity within the county relative to the benchmark year.

Change in Credit Insecurity Index Score for Select Counties

County	Credit Insecurity Index Score, 2018	Index Score Change, 2007–2018	Index Score Change, 2012–2018
St. Louis County, Missouri	16.0	2.0	-2.3
King County, Washington	17.1	2.8	-2.4
Baltimore city, Maryland	18.6	3.8	-2.8
Erie County, New York	19.6	2.0	-2.5
Monroe County, New York	19.7	0.3	-4.2
Los Angeles County, California	24.4	-1.6	-6.6
Cook County, Illinois	24.9	-1.7	-6.3
Miami-Dade County, Florida	26.5	-0.2	-8.6
Maricopa County, Arizona	26.7	1.8	-1.9
Milwaukee County, Wisconsin	28.8	-0.3	-3.4
Essex County, New Jersey	29.3	-1.2	-6.2
Shelby County, Tennessee	30.7	2.0	-3.6
District of Columbia, District of Columbia	30.8	1.6	-3.4
Bexar County, Texas	31.0	2.3	-3.3
Kings County, New York	31.7	-9.6	-10.7
Montgomery County, Alabama	33.4	2.4	-2.9
Dallas County, Texas	33.5	-1.8	-4.5
Philadelphia County, Pennsylvania	36.6	-0.5	-4.5
Bronx County, New York	40.7	-5.6	-10.1

Source: FRBNY Consumer Credit Panel/Equifax

Notice that all of these counties improved during the national recovery period of 2012–18. However, several counties—St. Louis, Missouri, King County, Washington, Baltimore City, Maryland, Erie County, New York, Monroe County, New York, Maricopa County, Arizona, Shelby County, Tennessee, Washington D.C., Bexar County, Texas, and Montgomery County, Alabama—have experienced an incomplete recovery relative to 2007.

In other words, readers must consider both initial conditions and score change when assessing progress. For example, King County, Washington has an adult population of 1.8 million and is the home of the City of Seattle. It is sorted as credit-assured or credit-likely during the entire 2005–18 period, even though it was adversely affected by the financial crisis and recession, and has not fully recovered to its 2007 level of credit insecurity.

In contrast, at the bottom of the table is Bronx County, New York, one of New York City's five boroughs and with an adult population of about 1.1 million. During 2005–18, it is consistently sorted as credit-insecure even though it experienced a reasonably strong recovery and has surpassed its 2007 level of credit insecurity.

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POLICY AND PRACTICE FOR CREDIT INSECURITY

6

The Credit Insecurity Index was inspired by conversations with community development professionals. They highlighted the information gap; the diagnostic importance of trajectories to understand which direction communities are headed; and the utility of summary descriptors to focus and further the policy conversation. In this paper, we review credit insecurity as both a challenge and an opportunity for policy and practice. Both asset- and credit-oriented organizations will find the analytics useful since access to credit is an asset for wealth-building, and credit is a financial tool to manage liquidity needs. Experts and community leaders may use the index scores to identify communities in need; to scale the relative severity of need; and to benchmark the impact of new or additional investments in communities over time by examining pre- and post-intervention community conditions. They have the necessary local knowledge to apply the analytics to policy questions and to evaluate social impacts over time and across communities. No particular policy actions or goals are advocated.

About the Credit Insecurity Index

The Credit Insecurity Index uses the Community Credit framework[29] where access to credit is a financial asset for economic opportunity and resiliency. Consumer credit data are aggregated to examine credit health and economic well-being within a community. Missing from traditional analytics was the impact of credit constraints on a community's credit health. Yet, access to credit is an asset and indicator of community well-being only if individuals can borrow amounts at reasonable terms when they so choose. Constraints on the ability to borrow at choice diminishes access to credit as a financial asset and widens the opportunity gap in communities.

The Credit Insecurity Index was designed to score and scale the relative impact of credit constraints on communities. It combines several credit-limiting outcomes from the Community Credit framework into a single score to measure 'credit insecurity' or lack of access to credit at choice within a community.[30] The scores are sorted into severity tiers to scale relative credit insecurity, across place and over time, in America during 2005–18.

A natural question is how the index scores compare with credit scores, which are widely used in research and practice to characterize communities. While both types of scores are summary measures, there are several differences worth noting. First, a credit score is a descriptor of an individual whereas the Credit Insecurity Index score is a descriptor of a community or group of individuals, typically identified by location or place.

29 See https://www.newyorkfed.org/data-and-statistics/data-visualization/community-credit-profiles/index.html#overview

30 The index is the sum of the share of the adult population not in the formal credit economy plus a simple average of credit-limiting outcomes of those in the formal credit economy.

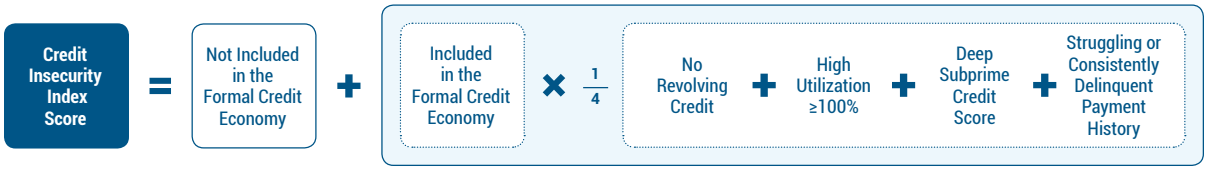
To describe a community, often the median value is presented when credit scores are used. Such an approach is equivalent to characterizing a community by the individual with the median credit score. In contrast, the Credit Insecurity Index score computes the credit outcomes of a representative sample of all the individuals in a community; it is based on a weighted average of all actual credit-limiting outcomes, not the outcomes of an individual resident.

The purpose and inputs into the insecurity index and credit scores are also different. While the formulae underlying credit scores vary and are proprietary, the Credit Insecurity Index formula is as follows and also discussed in the Methodology paper.

About the Credit Insecurity Index

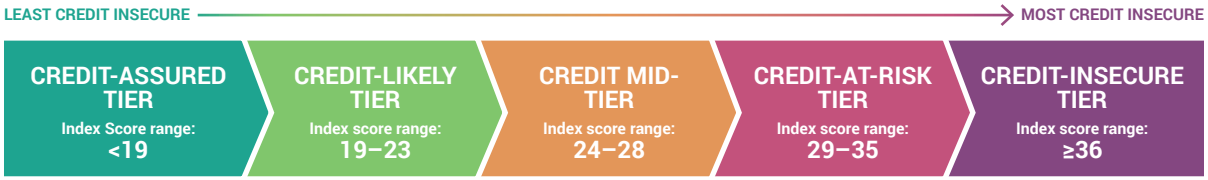
The Credit Insecurity Index combines multiple credit-limiting outcomes into a single score to gauge 'credit insecurity' or lack of access to credit at choice for a community. The first component of the score is the relative size of the not-included in the formal credit economy or the share of residents not having a credit file or score. The second component is the size of the formal credit economy adjusted to reflect outcomes that limit borrowing at choice such as having no revolving credit products, fully utilized credit lines, a low credit score, or a poor repayment history. We calculate a score for the U.S., all 50 states and most of the 3,142 counties using the following formula.

Credit Insecurity Index Components



Since the scores are consistently measured quantities, communities may be compared with each other, on a severity scale, from the lowest severity called "credit-assured" to the highest severity called "credit-insecure."

Credit Insecurity Severity Tiers



While credit scores have various commercial applications, they were designed to assess an individual's ability to repay their debt obligations. A credit score is computed using a variety of factors that may differ among credit rating organizations. The Credit Insecurity Index score is designed to capture constraints on a community's ability to access credit at choice based on five familiar credit measures; it is a measure of a burden on a community. Note that low credit scores are an element in the Credit Insecurity Index score since they lower the ability to borrow at choice.

Observations for Policymakers

The evidence presented in this collection of papers can inform community development policy and practice in several ways:

The Credit Insecurity Index measures the impact of credit constraining outcomes in a community; it is an efficient way to identify communities in distress and to size the magnitude of relative need. The index scores measure the prevalence of credit outcomes that collectively constrain access to credit at choice in a community. Numerical magnitudes matter in that larger scores denote higher credit insecurity. The scores assess the extent to which credit constraints impact their community. Empirical evidence confirms that credit constraints are a consequential barrier to credit health and economic well-being in America's communities. In general, scores of credit insecurity double when constraints are incorporated, than when not. In other words, omitting the impact of credit constraints from the analysis is akin to missing half of the credit access problem.

Specifically, the credit insecurity score for the U.S. more than doubles, from 10.5 points to 23.8 points, as of the fourth quarter of 2018.[31] For context, a simple measure of credit insecurity is 10.5 which amounts to 26.5 million U.S. adults not in the formal credit economy. When credit-constraining outcomes of those in the formal credit economy are explicitly taken into account, it is as if a total of 23.8%, or about 60.4 million U.S. adults, lack access to credit at choice.

The index provides fresh information to empower community stakeholders with their decision-making. Absent the insecurity index, some communities with access-to-credit challenges might be missed. Asset strength of other communities would be over-estimated, and likely found lacking, when called upon in times of macroeconomic need or national disasters.

Policymakers may use the scores in a dashboard or other applications as an indicator of credit insecurity, to identify communities in need, and to match resources to the size of the challenge.

Index scores, by design, enable an apples-to-apples comparison among communities, and situate local experience within the broader national context of place and history. Often, experts are well versed in local issues but are unable to benchmark local conditions to the larger ecosystem of their communities or the nation. The scores place communities on a single spectrum across geography and time, to better identify, describe, and compare communities. Heat maps highlight the prevalence and regional placement of credit insecurity in the national landscape. The index analytics provide a common set of facts to quantify how communities compare; to inform resource choices among peers and competitors, and goals; and to identify where new or additional investments would generate the greatest impact.

For example, the evidence shows that most communities were adversely affected by the financial crisis and subsequent recession. The scores allow communities to assess whether their impact was larger, or smaller, than that of peers or the nation. For example, Wyoming experienced the weakest 2007–18 recovery of any state while New York experienced the strongest. Or, focusing just on the 2012–18 recovery, we identify counties that experienced a weaker or stronger recovery than the nation.

31 As of the fourth quarter of 2018, 10% of the U.S. adult population did not have a credit file and credit score. Credit constraints add to this value to result in a Credit Insecurity Index measure of 24.

The index scores sort and rank communities by the relative severity of needs for policy opportunity and resource decisions. Communities are sorted by scores into severity tiers, with the highest scores placing a community in the most insecure tier. The tiers draw attention to the highest-needs communities in the nation for policymakers and others. Communities in the two most severe tiers—credit-at-risk and credit-insecure—are communities where credit constraints are most severely limiting access to credit for economic opportunity and resiliency. For example, Mississippi ranks as the most credit-insecure state in the nation. Arkansas, Texas, Louisiana, and Oklahoma were ranked as the next most credit insecure. In contrast, New Hampshire, Minnesota, Vermont, and New Jersey have the lowest scores for the credit insecurity index.

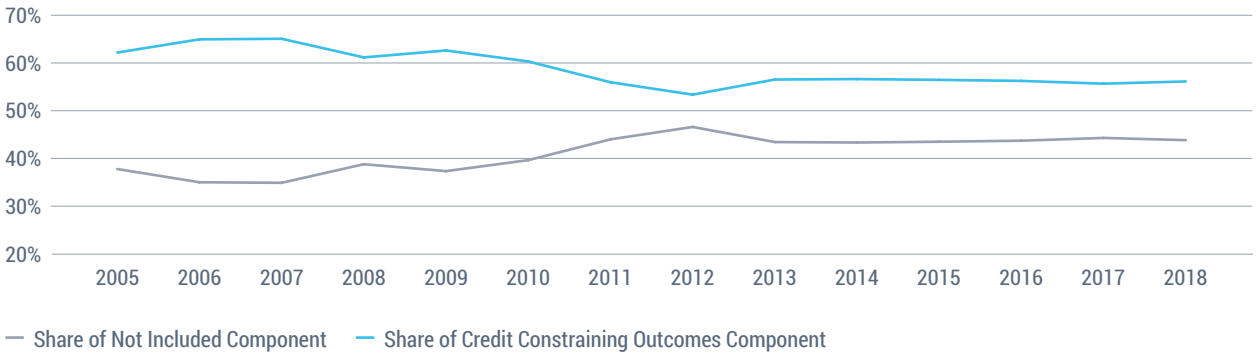
Index scores can track progress in credit insecurity over time, and identify communities with persistent insecurity. Since the sample period encompasses the financial crisis, the Great Recession, and the subsequent credit recovery, we use 2007, 2012, and 2018 as benchmark years to examine community access to credit under varying macroeconomic environments and to gauge progress.

Index scores sort communities on a credit insecurity scale, and the historical analysis allows stakeholders to identify those with persistent credit insecurity. As such, the scores can aid decision-making on how and where to allocate resources among communities, and to ensure that planned resources are sufficient to the scale and nature of the challenges being targeted.

Policymakers and practitioners may find it valuable to incorporate information on local patterns of progress, or lack thereof, to target and size their policy response. The mobility analytics are useful to inform such strategizing and evaluation of decisions. For example, the data identify communities that are persistently in the most severe insecurity tier during 2007–18, and counties that are on positive trajectories since 2012. Once social investments are undertaken, post-intervention results may be compared with pre-intervention conditions to gauge progress.

The index uncovers credit insecure communities that might be overlooked if credit constraints were not incorporated into measures of credit health. To appreciate this point, we refer back to a chart from the earlier paper on credit insecurity trends. The Credit Insecurity Index has two major drivers of credit insecurity: 1) a lack of connections to mainstream financial institutions, and 2) credit outcomes that diminish the likelihood of obtaining funding at choice. In the following chart and table, we present each component as a share of the index score.

The Shares of the Two Components of the Credit Insecurity Index, U.S. 2005–2018



The Shares of the Two Components of the Credit Insecurity Index, U.S. 2005–2018

Year, Q4	Share of the Credit Insecurity Index Score due to the Not Included Component	Share of the Credit Insecurity Index Score due to the Credit Constraining Outcomes Component
2005	37.7%	62.3%
2006	34.9%	65.1%
2007	**34.7%**	**65.3%**
2008	38.8%	61.2%
2009	37.3%	62.7%
2010	39.6%	60.4%
2011	44.1%	55.9%
2012	**46.8%**	**53.2%**
2013	43.6%	56.4%
2014	43.5%	56.5%
2015	43.6%	56.4%
2016	43.9%	56.1%
2017	44.5%	55.5%
2018	**44.0%**	**56.0%**

Source: FRBNY Consumer Credit Panel/Equifax

Notice that at the national level, credit constraints on individuals in the formal credit economy are a larger contributor to the score than being Not Included in the formal credit economy, even though both vary over time with macroeconomic and financial conditions. Also note that both components are moving closer over time as the contribution of non-inclusion rises while the contribution of credit constraining outcomes falls. As of the fourth quarter of 2018, non-inclusion contributed to 44% of the credit insecurity score for the U.S. while credit constraining outcomes contributed the remaining 56%. On net, while the impact of credit constraints remains below its pre-financial-crisis level of 65.3%, the impact of individuals Not Included in the formal credit economy and not having a credit file and score remains elevated.

County-Level Decomposition Analysis

A similar decomposition may be calculated for counties. Focusing on the 1,069 counties that are in the two most credit insecure tiers as of the fourth quarter of 2018, several patterns emerge. Without the index, 1) some counties would be missed as being credit insecure because the dominant driver of insecurity is credit constraining outcomes within the community, not non-inclusion; 2) credit insecurity in some counties would be understated because the impacts of credit constraining outcomes were omitted; and 3) credit insecurity in some counties would be overstated or falsely identified. Such relative comparisons can help guide resource allocation choices by policymakers and practitioners.

Note that for all 1,069 counties in the bottom two index ranges, credit insecurity would be under-measured if only the non-inclusion component was used to measure access to credit. The under-measurement varies across counties.

These three types of misidentification are discussed on the following pages.

Counties That Might Be Missed When Identifying Severe Credit Insecurity

If we used non-inclusion in the formal credit economy as the sole filter of limited access to credit, then the 168 counties in the following table would be missed when identifying communities with severe credit insecurity. The dominant driver of credit insecurity in these 168 counties is constraining credit outcomes within the community, not non-inclusion. The eight counties at the top of the table such as Holmes County, Humphreys County, and Coahoma County, Mississippi through to Petersburg City, Virginia are examples where credit constraining outcomes are severe enough to sort these counties into the most severe credit insecurity tier. Other counties that might be overlooked without the index are identified below.

Counties That Might Be Missed When Identifying Severe Credit Insecurity, 2018 Q4

County/State	Credit Insecurity Index, 2018 Q4	Credit Constraining Outcomes Component	Not Included in Formal Credit Economy Component
Holmes County, Mississippi	41.1	30.6	10.5
Humphreys County, Mississippi	38.5	32.7	5.7
Coahoma County, Mississippi	38.4	28.7	9.7
Hampton County, South Carolina	38.3	28.6	9.7
Sharkey County, Mississippi	37.4	31.9	5.5
Brooks County, Texas	36.6	36.6	0.0
Orangeburg County, South Carolina	36.4	27.2	9.2
Petersburg City, Virginia	36.2	25.5	10.7
Choctaw County, Oklahoma	35.7	25.4	10.3
Noxubee County, Mississippi	35.7	32.1	3.6
Clay County, Mississippi	35.4	26.0	9.4
Pemiscot County, Missouri	35.4	25.1	10.3
Leflore County, Mississippi	35.3	32.8	2.5
Wolfe County, Kentucky	35.3	24.3	11.0
Washington County, Georgia	35.2	25.9	9.3
Wayne County, Mississippi	35.1	24.8	10.3
Screven County, Georgia	35.1	24.3	10.8
Richland Parish, Louisiana	35.0	24.5	10.5
Wilkinson County, Georgia	35.0	25.5	9.5
Simpson County, Mississippi	34.8	24.2	10.6
Wilcox County, Alabama	34.8	31.8	3.0
Hinds County, Mississippi	34.7	25.4	9.3
Kleberg County, Texas	34.7	27.3	7.3
Jefferson County, Mississippi	34.5	32.4	2.2
Magoffin County, Kentucky	34.4	23.6	10.9
McCurtain County, Oklahoma	34.4	23.7	10.7
Treutlen County, Georgia	34.4	27.1	7.3
Dillon County, South Carolina	34.3	29.1	5.2
Hockley County, Texas	34.3	24.1	10.2
Tunica County, Mississippi	34.3	34.3	0.0
Sumter County, Georgia	34.0	24.9	9.2
Cook County, Georgia	33.9	23.1	10.7
Ben Hill County, Georgia	33.9	28.1	5.7
Emanuel County, Georgia	33.8	28.2	5.7
Chickasaw County, Mississippi	33.8	24.0	9.8
Emporia city, Virginia	33.8	25.4	8.4
Knox County, Kentucky	33.5	22.6	11.0
Montgomery County, Alabama	33.4	22.9	10.5
Troup County, Georgia	33.3	23.0	10.3
Avoyelles Parish, Louisiana	33.3	23.8	9.5
Vance County, North Carolina	33.3	23.1	10.2
Washington Parish, Louisiana	33.2	23.5	9.6
Adair County, Oklahoma	33.1	27.0	6.1
Concordia Parish, Louisiana	33.1	26.6	6.5
Evangeline Parish, Louisiana	33.1	22.5	10.6
Starr County, Texas	33.1	26.2	6.9

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County/State	Credit Insecurity Index, 2018 Q4	Credit Constraining Outcomes Component	Not Included in Formal Credit Economy Component
Decatur County, Georgia	32.8	26.1	6.6
Franklin Parish, Louisiana	32.7	25.0	7.7
Tate County, Mississippi	32.7	22.5	10.3
Clinch County, Georgia	32.7	26.7	6.0
Escambia County, Alabama	32.6	22.7	9.9
Barnwell County, South Carolina	32.5	28.0	4.6
Washington County, Mississippi	32.5	29.1	3.4
Harlan County, Kentucky	32.5	23.7	8.8
Dunklin County, Missouri	32.5	23.5	8.9
Gray County, Texas	32.5	22.7	9.7
Tift County, Georgia	32.4	21.9	10.5
Bibb County, Georgia	32.4	24.1	8.3
Letcher County, Kentucky	32.2	22.3	9.9
Crittenden County, Arkansas	32.1	24.0	8.1
Desha County, Arkansas	32.1	23.9	8.2
Stephens County, Texas	32.1	22.2	9.9
San Augustine County, Texas	32.1	22.9	9.1
Fairfield County, South Carolina	32.0	26.0	6.0
Deaf Smith County, Texas	32.0	25.1	6.9
Conecuh County, Alabama	32.0	25.3	6.7
Gonzales County, Texas	31.9	22.7	9.2
Logan County, West Virginia	31.8	22.4	9.4
Navarro County, Texas	31.7	23.5	8.2
Bertie County, North Carolina	31.7	22.0	9.7
Butler County, Missouri	31.6	22.2	9.4
Mayes County, Oklahoma	31.6	20.7	10.9
Lowndes County, Alabama	31.5	30.8	0.8
Franklin County, Alabama	31.5	21.5	9.9
Jackson Parish, Louisiana	31.4	20.9	10.6
Talladega County, Alabama	31.4	23.7	7.8
Atascosa County, Texas	31.4	24.0	7.4
Lamb County, Texas	31.4	23.0	8.4
Webster County, West Virginia	31.4	22.2	9.2
Chester County, South Carolina	31.3	26.1	5.2
Pike County, Mississippi	31.3	26.7	4.6
Darlington County, South Carolina	31.3	24.5	6.8
Whitley County, Kentucky	31.3	20.7	10.6
Jim Wells County, Texas	31.2	28.6	2.6
Harrison County, Texas	31.2	20.9	10.3
Monroe County, Arkansas	31.2	25.9	5.3
Montgomery County, Mississippi	31.1	25.7	5.4
Vinton County, Ohio	31.1	20.9	10.2
Richmond County, North Carolina	31.0	23.3	7.7
Carter County, Kentucky	31.0	20.6	10.5
Hopewell city, Virginia	31.0	23.6	7.3
Abbeville County, South Carolina	31.0	20.3	10.7
Newberry County, South Carolina	31.0	21.5	9.5
Campbell County, Tennessee	30.9	23.0	7.9
Marion County, South Carolina	30.9	28.6	2.3
Clarke County, Alabama	30.9	25.9	4.9
Murray County, Oklahoma	30.9	20.1	10.8
Lawrence County, Kentucky	30.8	22.6	8.2
Jackson County, Alabama	30.8	20.5	10.3
Lincoln County, Georgia	30.8	19.8	11.0
Stephens County, Oklahoma	30.8	20.7	10.1
Dallam County, Texas	30.7	24.9	5.8
Webster Parish, Louisiana	30.7	24.2	6.5
Shelby County, Tennessee	30.7	21.3	9.4
Dyer County, Tennessee	30.6	21.7	8.9
Scioto County, Ohio	30.5	19.7	10.8
Calhoun County, Texas	30.4	20.3	10.2

Continued on next page

County/State	Credit Insecurity Index, 2018 Q4	Credit Constraining Outcomes Component	Not Included in Formal Credit Economy Component
Colleton County, South Carolina	30.4	25.5	4.9
Hutchinson County, Texas	30.4	22.8	7.6
Ward County, Texas	30.4	26.3	4.1
Halifax County, North Carolina	30.3	23.6	6.7
Randolph County, Alabama	30.3	21.8	8.5
Marion County, Texas	30.3	23.2	7.0
Ouachita Parish, Louisiana	30.3	21.7	8.6
Nevada County, Arkansas	30.2	21.4	8.8
Chilton County, Alabama	30.1	20.7	9.4
Hill County, Texas	30.1	20.6	9.5
Newton County, Georgia	30.0	22.8	7.2
Chambers County, Alabama	30.0	23.1	6.9
Chaves County, New Mexico	29.9	19.8	10.2
Early County, Georgia	29.9	29.9	0.0
Twiggs County, Georgia	29.9	25.0	4.9
Pushmataha County, Oklahoma	29.9	20.9	9.0
Boone County, West Virginia	29.9	20.0	9.9
Polk County, Georgia	29.9	22.7	7.2
Leslie County, Kentucky	29.9	25.2	4.7
East Baton Rouge Parish, Louisiana	29.9	19.8	10.1
Bowie County, Texas	29.9	21.7	8.1
Lowndes County, Mississippi	29.8	21.0	8.9
Muskogee County, Oklahoma	29.8	23.4	6.5
Harrison County, Mississippi	29.8	20.5	9.3
Spalding County, Georgia	29.8	22.2	7.6
Caddo Parish, Louisiana	29.7	22.5	7.2
Stoddard County, Missouri	29.7	19.2	10.5
Russell County, Alabama	29.6	23.5	6.1
Angelina County, Texas	29.6	22.0	7.6
Upshur County, Texas	29.6	19.7	9.9
Garrard County, Kentucky	29.6	19.4	10.2
Cochran County, Texas	29.6	29.6	0.0
Delta County, Texas	29.5	21.1	8.5
Laurens County, South Carolina	29.5	24.2	5.3
Lea County, New Mexico	29.5	23.0	6.5
Florence County, South Carolina	29.5	23.7	5.8
Greenwood County, South Carolina	29.5	20.7	8.7
Owen County, Kentucky	29.4	18.9	10.6
St. Helena Parish, Louisiana	29.4	29.4	0.0
Lawrence County, Alabama	29.4	20.4	9.0
Marion County, Alabama	29.4	20.9	8.5
Rhea County, Tennessee	29.4	20.0	9.4
McNairy County, Tennessee	29.4	18.7	10.7
Brown County, Texas	29.3	21.5	7.8
Pottawatomie County, Oklahoma	29.3	20.6	8.7
Thomas County, Georgia	29.2	20.6	8.6
Bell County, Texas	29.2	21.3	7.9
Pulaski County, Illinois	29.2	19.3	9.9
Christian County, Kentucky	29.2	20.6	8.6
Uvalde County, Texas	29.1	24.4	4.7
Pearl River County, Mississippi	29.1	19.3	9.8
Mobile County, Alabama	29.1	21.7	7.4
Appling County, Georgia	29.1	23.8	5.3
Amite County, Mississippi	29.1	24.0	5.1
Floyd County, Kentucky	29.1	24.3	4.8
Newton County, Mississippi	29.1	23.6	5.5
Bath County, Kentucky	29.0	24.8	4.2
Luna County, New Mexico	29.0	19.4	9.6
Geneva County, Alabama	29.0	19.9	9.1
Bienville Parish, Louisiana	29.0	29.0	0.0
Sequatchie County, Tennessee	29.0	18.7	10.3

Source: FRBNY Consumer Credit Panel/Equifax

Counties Where the Severity Is Likely to Be Understated without the Index

The credit insecurity for the following 38 counties is likely to be understated without the index analytics. The Credit Insecurity Index, by including the impacts of detrimental credit outcomes for individuals in the formal credit economy, includes these communities as in the most credit insecure tier.

Credit-Insecure Counties Where Adverse Credit Outcomes Are Dominant, 2018 Q4

County/State	Credit Insecurity Index, 2018 Q4	Credit Constraining Outcomes Component	Not Included in Formal Credit Economy Component
Jim Hogg County, Texas	45.5	30.8	14.7
Terry County, Texas	41.9	28.1	13.8
Lee County, South Carolina	41.6	26.6	15.0
Marlboro County, South Carolina	41.6	27.8	13.8
Holmes County, Mississippi	41.1	30.6	10.5
Greene County, Alabama	40.7	29.3	11.4
Bamberg County, South Carolina	40.2	27.1	13.1
Dougherty County, Georgia	40.0	25.2	14.9
Williamsburg County, South Carolina	39.3	28.1	11.2
Humphreys County, Mississippi	38.5	32.7	5.7
Coahoma County, Mississippi	38.4	28.7	9.7
Hampton County, South Carolina	38.3	28.6	9.7
Lauderdale County, Tennessee	38.1	25.0	13.2
Mississippi County, Arkansas	38.1	23.8	14.3
Seminole County, Oklahoma	38.0	24.0	14.0
Dallas County, Alabama	37.7	26.6	11.1
Jasper County, Mississippi	37.6	24.1	13.4
Clayton County, Georgia	37.4	26.2	11.2
Sharkey County, Mississippi	37.4	31.9	5.5
Edgecombe County, North Carolina	37.3	24.2	13.1
Bolivar County, Mississippi	37.1	25.9	11.2
Randolph County, Georgia	36.9	23.6	13.3
Chesterfield County, South Carolina	36.9	23.4	13.5
Catahoula Parish, Louisiana	36.9	22.1	14.8
Jefferson County, Georgia	36.6	24.7	11.9
Brooks County, Texas	36.6	36.6	0.0
Scotland County, North Carolina	36.6	23.2	13.4
Jeff Davis County, Georgia	36.6	22.8	13.8
Clarendon County, South Carolina	36.6	24.9	11.7
Copiah County, Mississippi	36.5	22.8	13.7
Orangeburg County, South Carolina	36.4	27.2	9.2
Breathitt County, Kentucky	36.3	23.2	13.1
Clay County, Georgia	36.3	22.4	13.9
Webb County, Texas	36.2	22.3	13.9
Petersburg city, Virginia	36.2	25.5	10.7
Covington County, Mississippi	36.2	23.1	13.0
Bryan County, Oklahoma	36.1	21.8	14.3
Lee County, Kentucky	36.0	23.0	13.1

Source: FRBNY Consumer Credit Panel/Equifax

Counties Where the Severity Is Likely to Be Overstated without the Index

Lastly, there are 417 counties, identified in the table below, where the traditional Not Included filter is likely to overstate the credit insecurity challenge; their distress levels, relative to other counties, are not extremely severe.

For example, Grayson County, Virginia has an insecurity score of 35.5, which places it in the second worst, credit-at-risk, severity tier. However, the traditional Not Included component of 23.7 would identify it as a county that has among the worst access to credit. The difference in severity classifications is because Grayson County has a significant non-inclusion problem; however, residents in the formal credit economy are doing well. Overall, Grayson has a less severe insecurity challenge than other counties analyzed and sorted into the worst, credit-insecure, severity tier.

Counties Where Credit Insecurity Is Less Severe than Traditionally Measured, 2018 Q4

County/State	Credit Insecurity Index, 2018 Q4	Credit Constraining Outcomes Component	Not Included in Formal Credit Economy Component
Monroe County, Mississippi	36.0	20.3	15.7
Sevier County, Arkansas	36.0	15.7	20.3
Pitt County, North Carolina	36.0	16.2	19.8
Calhoun County, West Virginia	35.9	16.5	19.5
Casey County, Kentucky	35.9	19.5	16.4
Haines Borough, Alaska	35.9	6.1	29.8
White Pine County, Nevada	35.8	9.4	26.5
Tuscaloosa County, Alabama	35.8	16.1	19.8
Blaine County, Oklahoma	35.8	18.0	17.8
Idaho County, Idaho	35.8	9.4	26.4
Delaware County, Oklahoma	35.8	19.5	16.3
Chouteau County, Montana	35.8	6.1	29.7
Hart County, Kentucky	35.8	16.0	19.7
Jackson County, South Dakota	35.7	14.8	21.0
Baker County, Florida	35.7	16.9	18.9
New Madrid County, Missouri	35.7	19.1	16.6
Catron County, New Mexico	35.7	10.8	24.9
Wayne County, Kentucky	35.7	19.3	16.4
Mecosta County, Michigan	35.7	11.3	24.4
DeKalb County, Alabama	35.5	18.7	16.9
Johnson County, Arkansas	35.5	14.3	21.2
Suffolk County, Massachusetts	35.5	9.0	26.5
Grayson County, Virginia	35.5	11.8	23.7
Liberty County, Montana	35.5	6.5	28.9
Saluda County, South Carolina	35.5	18.6	16.9
Robertson County, Kentucky	35.4	20.4	15.0
Socorro County, New Mexico	35.4	20.3	15.1
East Feliciana Parish, Louisiana	35.3	19.8	15.6
Yell County, Arkansas	35.3	18.8	16.5
Lincoln County, West Virginia	35.3	18.9	16.4
Lipscomb County, Texas	35.3	15.7	19.6
Fredericksburg city, Virginia	35.3	13.6	21.6
Charlottesville city, Virginia	35.3	7.9	27.4
Braxton County, West Virginia	35.3	15.6	19.7
Tippecanoe County, Indiana	35.3	10.8	24.5
Wayne County, Nebraska	35.2	8.6	26.6
Lauderdale County, Mississippi	35.2	19.2	16.1
Butts County, Georgia	35.2	18.5	16.7
Caswell County, North Carolina	35.2	15.3	19.9
Fayette County, West Virginia	35.2	16.9	18.3
Baca County, Colorado	35.1	9.9	25.3
Weakley County, Tennessee	35.1	16.9	18.2

Continued on next page

County/State	Credit Insecurity Index, 2018 Q4	Credit Constraining Outcomes Component	Not Included in Formal Credit Economy Component
Gilliam County, Oregon	35.1	11.1	24.0
Greene County, Illinois	35.1	14.4	20.7
Lowndes County, Georgia	35.1	19.7	15.4
Edgefield County, South Carolina	35.1	19.1	16.0
Washita County, Oklahoma	35.0	17.8	17.2
Edmonson County, Kentucky	35.0	14.8	20.2
Fulton County, Arkansas	35.0	13.5	21.4
Madera County, California	35.0	12.5	22.4
Richmond County, Virginia	34.8	15.8	19.0
Wise County, Virginia	34.8	16.4	18.4
Glascock County, Georgia	34.7	19.2	15.5
Cherokee County, Alabama	34.7	17.4	17.3
Baraga County, Michigan	34.7	8.2	26.6
Grimes County, Texas	34.7	17.3	17.3
Otero County, New Mexico	34.7	15.2	19.5
McIntosh County, Oklahoma	34.6	18.1	16.5
Jasper County, Georgia	34.6	15.7	18.9
Perry County, Arkansas	34.6	16.2	18.4
Marshall County, Oklahoma	34.6	19.4	15.2
Crawford County, Georgia	34.5	17.3	17.2
Livingston County, Missouri	34.5	12.8	21.7
Yuma County, Arizona	34.5	12.9	21.6
Wyandotte County, Kansas	34.4	17.8	16.6
Texas County, Missouri	34.4	13.3	21.1
Medina County, Texas	34.4	17.3	17.1
Dickenson County, Virginia	34.4	16.4	18.0
Sierra County, California	34.4	5.4	29.0
Fannin County, Texas	34.4	17.7	16.7
Madison County, Idaho	34.4	7.0	27.3
Tucker County, West Virginia	34.3	12.2	22.1
Washington County, Colorado	34.3	10.7	23.7
Whitfield County, Georgia	34.3	14.9	19.4
Lincoln County, Oklahoma	34.3	18.8	15.5
Granite County, Montana	34.3	9.1	25.2
Randolph County, West Virginia	34.3	16.9	17.3
Morgan County, Ohio	34.3	12.7	21.5
Hudspeth County, Texas	34.2	14.2	20.1
Sampson County, North Carolina	34.2	17.6	16.7
Stevens County, Minnesota	34.2	5.1	29.1
Tompkins County, New York	34.2	7.4	26.8
Randolph County, Illinois	34.2	11.6	22.6
Trinity County, California	34.2	7.6	26.5
Alachua County, Florida	34.1	12.1	22.1
Champaign County, Illinois	34.1	10.6	23.5
Cheyenne County, Kansas	34.1	8.6	25.5
Madison County, Kentucky	34.1	15.4	18.7
Stafford County, Kansas	34.0	11.6	22.5
Cameron Parish, Louisiana	34.0	14.7	19.3
Calhoun County, Arkansas	34.0	18.1	15.9
Allegany County, New York	34.0	11.2	22.8
Leon County, Florida	34.0	13.5	20.6
Alcorn County, Mississippi	34.0	17.4	16.6
Oldham County, Texas	34.0	13.7	20.2
Douglas County, Kansas	33.9	9.5	24.5
Ritchie County, West Virginia	33.9	14.4	19.5
Story County, Iowa	33.9	8.2	25.7
Avery County, North Carolina	33.9	10.6	23.3
Throckmorton County, Texas	33.9	17.7	16.2
Lawrence County, Arkansas	33.9	18.1	15.8
Cortland County, New York	33.8	11.4	22.5
Phelps County, Missouri	33.8	14.5	19.3

Continued on next page

County/State	Credit Insecurity Index, 2018 Q4	Credit Constraining Outcomes Component	Not Included in Formal Credit Economy Component
Ouray County, Colorado	33.8	5.1	28.6
Metcalfe County, Kentucky	33.7	17.0	16.8
McKenzie County, North Dakota	33.7	10.8	22.9
Greene County, Arkansas	33.7	17.0	16.7
Deer Lodge County, Montana	33.7	11.2	22.5
Vigo County, Indiana	33.7	15.3	18.4
Douglas County, Missouri	33.7	12.9	20.8
Logan County, Illinois	33.6	13.8	19.7
Holmes County, Ohio	33.6	7.1	26.4
Van Buren County, Arkansas	33.6	15.4	18.2
Houghton County, Michigan	33.5	8.2	25.3
Brewster County, Texas	33.5	16.4	17.1
Dallas County, Texas	33.5	16.2	17.2
Marion County, Arkansas	33.4	14.1	19.3
Preston County, West Virginia	33.4	12.6	20.8
Harlan County, Nebraska	33.4	8.0	25.4
Custer County, Oklahoma	33.4	17.6	15.8
Pike County, Missouri	33.4	13.9	19.5
Logan County, Colorado	33.4	11.5	21.9
Decatur County, Iowa	33.3	12.5	20.8
Union County, New Mexico	33.3	14.7	18.6
Lumpkin County, Georgia	33.2	13.4	19.8
Todd County, Kentucky	33.2	17.9	15.3
Putnam County, Tennessee	33.2	14.7	18.5
Van Buren County, Tennessee	33.2	17.8	15.4
King and Queen County, Virginia	33.2	13.1	20.1
Stone County, Arkansas	33.2	15.1	18.1
Franklin County, Arkansas	33.1	17.1	16.0
Ripley County, Missouri	33.1	17.5	15.6
Mills County, Texas	33.0	15.3	17.7
Gratiot County, Michigan	33.0	11.6	21.4
Donley County, Texas	33.0	17.8	15.2
Perry County, Illinois	33.0	13.4	19.6
Harper County, Kansas	33.0	11.4	21.6
Huerfano County, Colorado	33.0	12.7	20.2
Logan County, Oklahoma	33.0	13.5	19.4
Hunt County, Texas	33.0	17.8	15.2
Butler County, Kentucky	33.0	17.8	15.1
Morrill County, Nebraska	32.9	10.5	22.3
Gilpin County, Colorado	32.9	6.0	26.9
Parke County, Indiana	32.9	13.4	19.4
Harnett County, North Carolina	32.9	14.8	18.0
Pendleton County, West Virginia	32.8	13.7	19.1
Goshen County, Wyoming	32.8	10.2	22.6
Decatur County, Kansas	32.8	7.1	25.6
Carroll County, Virginia	32.8	13.0	19.8
Faulk County, South Dakota	32.8	7.5	25.3
Kern County, California	32.7	14.3	18.4
McCormick County, South Carolina	32.7	15.9	16.8
Gilmer County, Georgia	32.7	13.1	19.6
Kiowa County, Oklahoma	32.7	17.7	15.0
Kittitas County, Washington	32.6	7.6	25.1
Jefferson County, Florida	32.6	15.8	16.8
Breckinridge County, Kentucky	32.6	16.5	16.1
Harris County, Texas	32.6	15.9	16.7
Ballard County, Kentucky	32.6	14.9	17.6
White County, Georgia	32.6	13.6	19.0
Phillips County, Montana	32.5	8.5	24.0
Lyon County, Kansas	32.5	12.6	20.0
Hart County, Georgia	32.5	17.2	15.3
Camden County, Missouri	32.5	12.6	19.8

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County/State	Credit Insecurity Index, 2018 Q4	Credit Constraining Outcomes Component	Not Included in Formal Credit Economy Component
Boone County, Missouri	32.4	11.4	21.0
Hays County, Texas	32.4	12.5	19.9
Grand County, Colorado	32.4	5.7	26.8
Faulkner County, Arkansas	32.4	15.6	16.8
Bland County, Virginia	32.3	11.2	21.2
White County, Arkansas	32.3	16.6	15.7
Roanoke city, Virginia	32.3	17.1	15.2
Audrain County, Missouri	32.3	16.8	15.5
Cumberland County, Virginia	32.3	16.8	15.5
Hancock County, Mississippi	32.3	16.3	16.0
Montgomery County, Arkansas	32.3	12.4	19.8
Madison County, Arkansas	32.3	14.2	18.1
Washington County, Arkansas	32.3	13.7	18.6
Cass County, Indiana	32.2	14.8	17.5
Bon Homme County, South Dakota	32.2	7.7	24.5
Scotland County, Missouri	32.2	9.3	22.9
Meigs County, Ohio	32.2	16.5	15.7
Granville County, North Carolina	32.1	14.4	17.7
Wicomico County, Maryland	32.0	15.1	16.9
Polk County, Missouri	31.9	14.2	17.8
Sullivan County, Missouri	31.9	12.7	19.2
Pickens County, South Carolina	31.9	14.5	17.4
Person County, North Carolina	31.9	15.6	16.3
Graham County, North Carolina	31.9	14.9	16.9
Craig County, Virginia	31.9	14.7	17.1
Franklin County, Texas	31.9	16.8	15.0
Oglethorpe County, Georgia	31.8	14.8	17.0
Ellsworth County, Kansas	31.8	13.6	18.2
Polk County, Arkansas	31.8	14.6	17.2
Southampton County, Virginia	31.8	14.4	17.4
Brookings County, South Dakota	31.8	8.2	23.5
Atchison County, Kansas	31.7	15.2	16.5
Branch County, Michigan	31.7	12.6	19.1
Kings County, New York	31.7	9.9	21.8
Merced County, California	31.7	13.5	18.2
Summit County, Colorado	31.6	5.3	26.4
Sullivan County, New York	31.6	12.8	18.9
Colfax County, Nebraska	31.6	9.8	21.8
Greene County, Georgia	31.6	15.2	16.4
Hardin County, Ohio	31.6	14.1	17.6
Coke County, Texas	31.6	13.5	18.1
Warren County, Kentucky	31.6	14.2	17.4
Yuba County, California	31.6	12.8	18.8
Gila County, Arizona	31.6	12.5	19.1
Park County, Colorado	31.5	6.5	25.1
Henry County, Virginia	31.5	15.6	15.9
Tulare County, California	31.5	15.1	16.4
Madison County, Ohio	31.5	12.4	19.1
Broadwater County, Montana	31.5	7.8	23.7
Southeast Fairbanks Census Area, Alaska	31.5	8.1	23.3
Miami County, Indiana	31.4	15.6	15.9
Huntingdon County, Pennsylvania	31.4	11.3	20.1
Chippewa County, Michigan	31.3	11.3	20.0
Ingham County, Michigan	31.3	12.0	19.3
Union County, Iowa	31.3	11.8	19.5
Bond County, Illinois	31.3	11.8	19.5
Dade County, Georgia	31.3	15.6	15.6
Malheur County, Oregon	31.3	15.2	16.0
Sublette County, Wyoming	31.2	7.5	23.7
Grundy County, Missouri	31.2	12.4	18.8
Sharp County, Arkansas	31.2	15.2	16.1

Continued on next page

County/State	Credit Insecurity Index, 2018 Q4	Credit Constraining Outcomes Component	Not Included in Formal Credit Economy Component
Greenwood County, Kansas	31.2	11.8	19.4
Lake County, Colorado	31.2	10.7	20.5
Shelby County, Kentucky	31.2	13.1	18.1
Rio Blanco County, Colorado	31.2	9.4	21.7
Schoharie County, New York	31.1	10.6	20.4
Meade County, Kentucky	31.1	15.9	15.2
Franklin County, North Carolina	31.0	15.9	15.1
Roberts County, South Dakota	30.9	12.5	18.5
Morgan County, West Virginia	30.9	14.6	16.3
Hampshire County, West Virginia	30.9	14.1	16.8
Hampshire County, Massachusetts	30.8	7.4	23.4
Fremont County, Idaho	30.8	10.0	20.8
Doniphan County, Kansas	30.8	13.7	17.1
Johnson County, Illinois	30.8	13.1	17.7
District of Columbia, District of Columbia	30.8	11.6	19.2
Orleans County, New York	30.8	12.4	18.4
Fresno County, California	30.8	13.8	17.0
Garfield County, Washington	30.8	7.6	23.1
Harrison County, Missouri	30.7	12.5	18.2
Cannon County, Tennessee	30.7	14.7	16.1
Allegany County, Maryland	30.7	13.5	17.1
Franklin County, New York	30.7	11.8	18.9
Goliad County, Texas	30.7	14.2	16.5
Barry County, Missouri	30.6	15.0	15.6
Ionia County, Michigan	30.6	12.2	18.3
Woods County, Oklahoma	30.4	15.4	15.1
Lake County, California	30.4	12.6	17.8
Yolo County, California	30.4	8.6	21.8
Putnam County, Indiana	30.3	13.3	17.0
Rush County, Kansas	30.3	13.7	16.6
Rooks County, Kansas	30.3	8.9	21.5
Scott County, Virginia	30.3	14.5	15.7
Newaygo County, Michigan	30.2	13.1	17.1
Boyd County, Nebraska	30.2	7.3	23.0
Morgan County, Missouri	30.2	13.7	16.4
Alger County, Michigan	30.1	10.5	19.6
Fayette County, Kentucky	30.1	12.6	17.4
Pope County, Arkansas	30.0	14.7	15.3
Maries County, Missouri	30.0	14.5	15.6
Brooke County, West Virginia	30.0	14.1	15.8
Eureka County, Nevada	29.9	5.9	24.0
Rich County, Utah	29.9	8.9	21.1
Amador County, California	29.9	8.4	21.5
Teton County, Idaho	29.9	7.8	22.1
Cimarron County, Oklahoma	29.9	12.7	17.2
Allen County, Kansas	29.8	12.5	17.3
Perry County, Indiana	29.8	12.0	17.8
Otsego County, New York	29.8	9.8	20.0
Burke County, North Carolina	29.7	14.6	15.1
Madison County, Montana	29.7	6.5	23.2
Clinton County, New York	29.7	11.6	18.1
Calhoun County, Illinois	29.7	8.9	20.8
Highlands County, Florida	29.7	13.3	16.4
Juniata County, Pennsylvania	29.6	9.7	20.0
Benton County, Oregon	29.6	6.8	22.8
Orange County, North Carolina	29.6	7.7	21.8
Wakulla County, Florida	29.5	13.2	16.4
Webster County, Nebraska	29.5	8.5	21.0
Larue County, Kentucky	29.5	13.4	16.0
Montcalm County, Michigan	29.5	13.7	15.7
Alexander County, North Carolina	29.4	13.3	16.1

Continued on next page

County/State	Credit Insecurity Index, 2018 Q4	Credit Constraining Outcomes Component	Not Included in Formal Credit Economy Component
Winona County, Minnesota	29.4	8.4	21.0
Dunn County, Wisconsin	29.4	8.4	21.0
Washington County, New York	29.4	11.7	17.7
Grant County, Washington	29.3	12.3	17.0
Montgomery County, Illinois	29.3	13.6	15.8
Kimball County, Nebraska	29.3	11.8	17.5
Mountrail County, North Dakota	29.2	14.0	15.2
Neosho County, Kansas	29.1	13.5	15.7
Hamilton County, Illinois	29.1	13.6	15.5
Madison County, North Carolina	29.1	13.3	15.8
Adams County, Wisconsin	29.1	9.9	19.2
Buena Vista County, Iowa	29.0	12.3	16.7
Hamilton County, Kansas	29.0	11.8	17.1
Alleghany County, North Carolina	28.9	9.7	19.3
Cherry County, Nebraska	28.9	8.3	20.6
Columbia County, Pennsylvania	28.9	10.8	18.1
Gunnison County, Colorado	28.9	5.3	23.6
Crawford County, Michigan	28.8	13.6	15.2
Page County, Iowa	28.7	12.2	16.6
De Baca County, New Mexico	28.7	11.2	17.5
Greene County, New York	28.7	11.6	17.1
Jefferson County, Oregon	28.7	13.3	15.4
Lyman County, South Dakota	28.7	12.4	16.2
Transylvania County, North Carolina	28.6	11.0	17.6
Lyon County, Kentucky	28.6	11.0	17.6
Yates County, New York	28.6	11.5	17.1
Johnson County, Iowa	28.5	8.2	20.3
Durham County, North Carolina	28.5	12.2	16.3
Graham County, Kansas	28.5	11.2	17.3
Schuyler County, Illinois	28.5	13.4	15.1
Jackson County, Wisconsin	28.5	11.5	17.0
Beltrami County, Minnesota	28.4	11.5	16.9
Dawson County, Montana	28.4	9.0	19.4
Clark County, Kansas	28.4	9.9	18.5
Travis County, Texas	28.4	11.2	17.2
Beaverhead County, Montana	28.4	7.9	20.4
Custer County, Nebraska	28.3	8.9	19.4
Bandera County, Texas	28.3	11.7	16.7
Floyd County, Virginia	28.3	10.4	17.8
Johnson County, Missouri	28.2	13.1	15.2
Morton County, Kansas	28.2	12.4	15.8
Pamlico County, North Carolina	28.2	12.1	16.0
Wahkiakum County, Washington	28.2	8.5	19.7
Highland County, Virginia	28.1	8.3	19.8
Tehama County, California	28.1	13.1	15.0
McPherson County, South Dakota	28.1	9.6	18.5
St. Lawrence County, New York	28.1	12.5	15.6
Clark County, Missouri	28.1	9.9	18.1
New Hanover County, North Carolina	28.1	11.6	16.4
Crawford County, Iowa	28.0	12.5	15.5
Delaware County, New York	28.0	10.5	17.5
Forest County, Wisconsin	28.0	11.4	16.6
Latah County, Idaho	27.9	8.8	19.1
Butte County, California	27.9	11.6	16.3
Jewell County, Kansas	27.9	7.8	20.1
Snyder County, Pennsylvania	27.9	10.3	17.6
Davison County, South Dakota	27.8	10.1	17.8
Trego County, Kansas	27.8	11.6	16.3
Sanborn County, South Dakota	27.8	7.2	20.7
Santa Barbara County, California	27.7	9.4	18.3
Hawaii County, Hawaii	27.7	10.1	17.6

Continued on next page

County/State	Credit Insecurity Index, 2018 Q4	Credit Constraining Outcomes Component	Not Included in Formal Credit Economy Component
San Miguel County, Colorado	27.7	5.3	22.4
Carbon County, Wyoming	27.6	12.1	15.5
Polk County, North Carolina	27.6	9.7	17.8
Blue Earth County, Minnesota	27.5	9.0	18.5
Chaffee County, Colorado	27.5	6.5	21.0
LaGrange County, Indiana	27.5	10.7	16.8
Watonwan County, Minnesota	27.4	10.8	16.6
Grays Harbor County, Washington	27.4	12.3	15.1
Waldo County, Maine	27.3	12.1	15.2
DeKalb County, Illinois	27.3	11.9	15.4
Sitka City and Borough, Alaska	27.3	7.4	19.9
Aitkin County, Minnesota	27.2	9.0	18.2
Barber County, Kansas	27.1	10.6	16.5
Monterey County, California	27.1	10.9	16.2
Humboldt County, California	27.0	10.5	16.5
Denver County, Colorado	26.9	9.6	17.3
Pine County, Minnesota	26.9	11.4	15.5
Modoc County, California	26.8	10.8	16.0
Matanuska-Susitna Borough, Alaska	26.7	9.7	17.0
Indiana County, Pennsylvania	26.7	11.4	15.4
Adams County, Idaho	26.6	7.9	18.8
Moody County, South Dakota	26.6	9.7	17.0
Hudson County, New Jersey	26.6	11.2	15.4
Dixon County, Nebraska	26.6	9.9	16.7
Livingston County, New York	26.3	9.7	16.7
Buffalo County, Nebraska	26.3	9.7	16.6
Eagle County, Colorado	26.3	6.5	19.8
Ellis County, Kansas	26.3	10.2	16.1
Gregory County, South Dakota	26.2	8.9	17.4
Iron County, Utah	26.2	10.5	15.6
Deuel County, Nebraska	26.2	7.3	18.8
Grant County, Wisconsin	26.1	9.1	17.0
Garfield County, Colorado	26.1	9.6	16.6
Routt County, Colorado	26.1	5.4	20.7
Davis County, Iowa	26.1	10.5	15.5
Ketchikan Gateway Borough, Alaska	26.0	8.3	17.7
Big Horn County, Wyoming	26.0	9.3	16.6
Washtenaw County, Michigan	25.9	8.8	17.1
Boundary County, Idaho	25.9	10.6	15.3
Butte County, South Dakota	25.8	10.8	15.1
Custer County, South Dakota	25.8	8.4	17.4
Archuleta County, Colorado	25.8	8.2	17.6
Daniels County, Montana	25.7	8.7	17.0
McCone County, Montana	25.5	6.4	19.2
Kodiak Island Borough, Alaska	25.5	6.1	19.4
Butte County, Idaho	25.4	10.1	15.4
Plumas County, California	25.3	8.5	16.8
Waushara County, Wisconsin	25.3	10.2	15.1
Marquette County, Michigan	24.9	9.7	15.2
Collier County, Florida	24.9	9.1	15.8
La Plata County, Colorado	24.9	9.0	15.9
San Luis Obispo County, California	24.8	7.9	16.9
Sumter County, Florida	24.7	6.9	17.9
Queens County, New York	24.6	9.2	15.4
Teton County, Montana	24.4	8.0	16.3
Nicollet County, Minnesota	24.3	9.0	15.3
Pitkin County, Colorado	24.3	5.1	19.2
Spink County, South Dakota	24.2	8.2	16.0
Beaver County, Utah	24.1	8.0	16.2
Pierce County, Wisconsin	24.0	7.6	16.4

Continued on next page

County/State	Credit Insecurity Index, 2018 Q4	Credit Constraining Outcomes Component	Not Included in Formal Credit Economy Component
Barnes County, North Dakota	23.9	8.8	15.1
Valley County, Idaho	23.8	6.6	17.3
Clear Creek County, Colorado	23.8	7.9	15.9
Hutchinson County, South Dakota	23.5	6.4	17.1
Kenai Peninsula Borough, Alaska	23.4	7.9	15.6
Cache County, Utah	23.0	7.9	15.1
Custer County, Idaho	22.7	5.2	17.4
Sioux County, Iowa	22.6	7.4	15.1
Keweenaw County, Michigan	22.5	6.9	15.6
San Juan County, Washington	21.5	6.0	15.5

Source: FRBNY Consumer Credit Panel/Equifax

Differences among counties by index components suggest ways to target policy and practice to local credit conditions. Even though communities may have the same insecurity score, their issues may be different. These differences may be used to target policy actions for greater impact. To illustrate this point, in the following table are four counties, each with the insecurity index score of 38.0, yet with differing underlying credit conditions and policy challenges.

Example of Counties with Same Index Scores but Different Underlying Conditions and Policy Challenges

County/State	Credit Insecurity Index, 2018 Q4	Credit Constraining Outcomes Component	Not Included in Formal Credit Economy Component
Seminole County, Oklahoma	38.0	24.0	14.0
Estill County, Kentucky	38.0	20.5	17.5
Alamosa County, Colorado	38.0	12.8	25.2
Toole County, Montana	38.0	9.6	28.4

For example, both Alamosa County, Colorado and Toole County, Montana experience severe non-inclusion from the formal credit economy. Policies, programs and product innovations that help connect residents to mainstream credit institutions and bring them into the formal credit economy are important to reducing credit insecurity. These counties might also need innovative credit products that meet residents' needs and assist them with wealth building through the appropriate use of credit.

In contrast, both Seminole County, Oklahoma and Estill County, Kentucky are examples of counties where the policy and practice mix might tilt towards credit-building efforts since detrimental credit outcomes are identified as more important here than in Alamosa and Toole Counties. Hence, a tilt towards credit education, credit counseling, and credit remediation programs may support individuals who are in the formal credit economy but unlikely to obtain funding at choice because of their credit outcomes.

More research is needed before policy suggestions and program interventions may be identified; these examples illustrate how the index might be useful for policymakers and practitioners.

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7 CREDIT INSECURITY INDEX METHODOLOGY

The Credit Insecurity Index uses the Community Credit framework,[32] where access to credit is a financial asset for economic opportunity. Consumer credit data are aggregated to examine credit health and economic well-being within a community. The index is an attributes index, which is particularly useful when differences in quality matter. The index combines several Community Credit indicators as quality adjustments to the base indicators, 'Included' and 'Not Included,' from the Community Credit paradigm, to measure the impact of credit constraints within the community.

Data Sources

Several data sources were used for this project.

For the U.S., state, and county adult population values needed to calculate the Included and Not-Included measures, we use population estimates provided by the U.S. Census Bureau's Population Estimates Program (PEP).

The economic indicators presented in this paper are sourced from the U.S. Census Bureau's 2013–2017 5-Year American Community Survey.

The credit data are from the FRBNY Consumer Credit Panel/Equifax (CCP), which consists of detailed Equifax credit report data for a unique longitudinal quarterly panel of individuals and households. The panel is a five percent nationally representative sample of all individuals with a social security number and a credit report. All information is anonymized. Data are available quarterly, though year-end (Q4) values are used to calculate the index scores.[33]

To avoid small sample problems, we exclude from the analysis counties with fewer than 50 observations in the CCP as of the fourth quarter of 2018. As a result, we do not present information for 60 of the 3,142 Census-identified counties and equivalents in the U.S.

Credit Insecurity Index

The Credit Insecurity Index focuses on the adult population that is credit constrained, that is, unlikely to obtain credit at their choice to manage emergencies, to take advantage of opportunities or to invest in one's future. A community with a larger share of credit-constrained individuals is less credit secure and resilient than is a community with a smaller share.

32 See https://www.newyorkfed.org/data-and-statistics/data-visualization/community-credit-profiles/index.html#overview

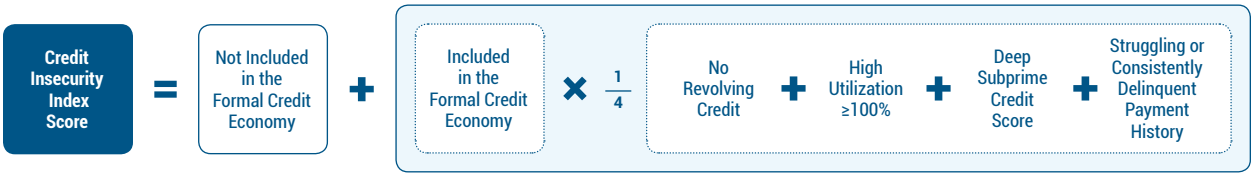
33 For more information about the CCP, see the Federal Reserve Bank of New York Staff Report, *An Introduction to the FRBNY Consumer Credit Panel.*

Credit constraints may arise for different reasons. One is that adult residents may have no credit files or credit scores with a major national credit bureau. These residents are not connected to mainstream lending institutions and are identified as 'Not Included' in the formal credit economy of the Community Credit paradigm. The second reason is that individuals may be 'Included' in the formal credit economy but have credit histories or items on their credit files that pose hurdles to obtaining credit in amounts and reasonable terms when they choose.

The Credit Insecurity Index combines various Community Credit indicators to parse the impact of credit constraints. The following diagram illustrates the relationship between the 'Included' and the 'Not Included' indicators, and the four additional indicators that comprise the quality adjustment outcomes.

The index value is the sum of the 'Not Included' indicator plus the quality-adjusted 'Included' in the formal credit economy indicator as illustrated below.

Credit Insecurity Index Components



The first component of the index is the Not Included indicator from the Community Credit paradigm. It measures the share of adult residents without a credit file or a credit score with one of the major national credit bureaus, which are the source of our data. This group is not in the mainstream formal credit economy.

The second component of the index is a quality-adjustment of the Included indicator by the four following credit outcomes:

i. No Revolving Credit—The share of the formal credit economy without a revolving credit product.

ii. Deep Subprime Credit Scores—The share of the formal credit economy with an Equifax Credit Risk Score of 580 or less.

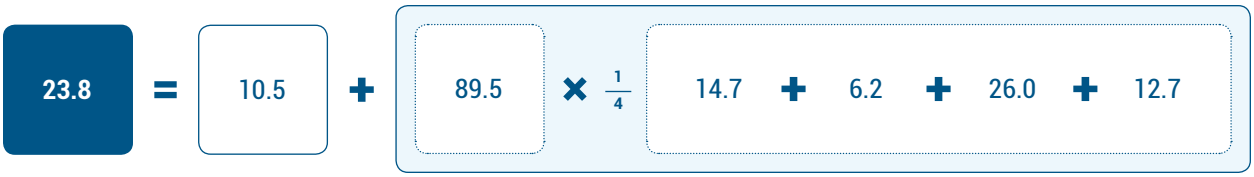
iii. High Utilization—The share of the formal credit economy with revolving credit utilization rates of at least 100 percent.

iv. Struggling or Consistently Delinquent Payment History—The share of the formal credit economy with payment histories that were frequently or consistently overdue[34] during the past five quarters.

We use equal weights to average the four quality-adjustment outcomes so that the overall index is not biased toward any one outcome. While the outcomes undoubtedly interact, the net impact of the interaction is unclear. Hence, we use a simple average for transparency; however, other weighting options are possible and would produce different index values. Index values are point-in-time measures but capture resident outcomes over at least the prior year.

34 We define overdue as being 60 or more days overdue on a payment.

Numerical Example of Credit Insecurity Index, U.S. 2018 Q4



Source: FRBNY Consumer Credit Panel/Equifax

Combining the two sources (10.5 plus 13.3), the Credit Insecurity Index score for the U.S. was 23.8 as of the fourth quarter of 2018. In other words, just under half of the credit insecurity in America is due to adults who are not in the formal credit economy, while a little over half is due to credit outcomes that make it difficult for individuals in the formal credit economy to access credit at choice for economic opportunity and resiliency.

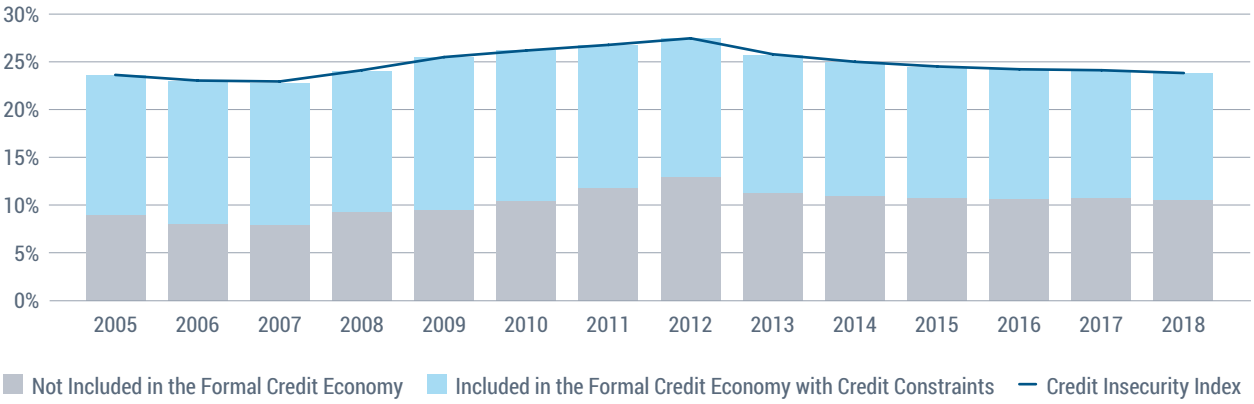
Index values are interpreted a little differently than the Community Credit indicators. An attractive feature of the original Community Credit indicators is the one-to-one correspondence between credit outcomes and population shares. For example, an indicator value of 89.5 is interpreted as 89.5% of residents or individuals in the formal credit economy experienced that credit outcome. That one-to-one equivalence does not hold for the index scores *because a person may have some credit outcomes but not others*.

In the numerical calculation above, if credit insecurity in the U.S. were due solely to adults not connected to mainstream credit institutions, then the Credit Insecurity Index score would be 10.5. However, negative credit outcomes also limited access to credit; in 2018, it was as if the equivalent of 13.3% of adult U.S. residents were in the formal credit economy but had credit histories and outcomes that made it hard for them to access credit at choice. In other words, access to credit within a community was eroded by the presence of adults who are not in the formal credit economy as well as by adverse credit outcomes among residents in the formal credit economy. All together, credit insecurity more than doubled in the U.S. when metrics incorporated the impact of credit constraints.

The index score is a relative measure of the collective impact of credit constraints on a community, over time and geographies, rather than the actual size of the community's credit attributes. *Higher index score values* indicate that a community is *more credit constrained*, or *credit insecure*, than communities with lower scores.

Time series data for the index are shown below for 2005–18.

U.S. Credit Insecurity Index, 2005–2018



Source: FRBNY Consumer Credit Panel/Equifax

The Credit Insecurity Index for the U.S. fell from 23.6 in the fourth quarter of 2005 to a low of 22.9 in the fourth quarter of 2007; it subsequently rose in the aftermath of the financial crisis to a high of 27.5 in the fourth quarter of 2012 and has since declined to its current value.

Since the scores are consistently measured quantities, communities may be compared with each other and over time. Once we calculate an index score, a community score is sorted into one of the five mutually exclusive tiers of relative severity shown in the following table. To gauge relative severity, the distribution of scores is sorted into five value ranges, or severity tiers, from a low severity tier called "credit-assured" to a high severity tier called "credit-insecure." Severity tiers are useful to benchmark conditions and to ease comparisons over time and place. The tier breaks were determined as approximate quintiles of county index scores for 2005–18. The index score and severity tier are two ways to characterize the impact of credit constraints on a community's credit health.

Typology of Severity Tiers for the Credit Insecurity Index

Credit Insecurity Index Tier	Description	Associated Score Range
Credit-Assured Tier	index score falls into the best-performing tier	<19
Credit-Likely Tier	index score falls into the second-best-performing tier	19–23
Mid-Tier	index score falls into the middle-performing tier	24–28
Credit-At-Risk Tier	index score falls into the second-worst-performing tier	29–35
Credit-Insecure Tier	index score falls into the worst-performing tier	≥36

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8

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