In Search of Rural
How Varying Definitions Shape Housing Research

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Abstract

However defined, rural areas in the US face significant and unique economic and housing challenges. Yet there is no standard definition of rural used in federal policy and no consensus definition used in housing research. In this paper, we show that the choice of rural definition can matter immensely for estimates of the size of the rural housing market, the demographic and housing composition of rural areas, and the magnitude of its housing challenges. With data from the US Census Bureau's 2019 American Community Survey 5-Year Estimates, we compare the housing characteristics of rural areas using eleven different definitions of rural. We categorize these definitions into four types—residual, character, perceptual, and policy—based on the primary purpose of defining rural. The size of the rural housing market in the US varies considerably with the definition and typology chosen, with estimates of the population living in rural areas ranging from a fraction (1.4 percent) to about one-third in 2019. This variation has important implications for the basic demographic and housing stock characteristics, as well as the extent of housing challenges, in rural areas. The magnitude and nature of housing challenges and realities in rural areas remain understudied phenomena. At a minimum, researchers examining rural areas should be intentional about the definition of rural they employ and, when possible, should consider how alternative definitions of rural might materially affect their findings.

Introduction

Rural areas in the US face significant and unique economic and housing challenges. While rural areas across the country are far from homogeneous, many rural areas suffer from a lack of economic activity and economic diversity, elevated poverty rates, overcrowding, inadequate housing, social isolation, food insecurity, and limited access to broadband internet, among other issues. Because of lower densities, larger distances to population centers, and limited public transportation infrastructure, households living in rural areas may also lack access to, or need to travel long distances to reach, grocery stores, hospitals, and other critical private and public services. In any case, millions of households live in rural areas, however defined, and numerous policies exist to serve these geographies specifically. As a result, how we define rural is important for identifying and understanding the challenges associated with living in rural areas, as well as for guiding policies and programs targeting rural communities. For researchers and policymakers, choosing an appropriate definition of rural should be guided not only by data availability, but also by the conditions of rurality that are most salient given the research or policy objectives.

However, researching housing challenges and characteristics in rural areas in the US is oftentimes complicated by a lack of "good data."[1] At times, data used in housing research cannot be disaggregated geographically at all. And when data are disaggregated geographically, they are often reported at the regional, state, or metro-area level, precluding analysis of rural housing trends. The characteristics of rural areas—lower density, lower physical connectivity, and more limited access to reliable internet—not only exacerbate the housing and economic challenges associated with living in rural areas, but they can also make data collection more difficult. With few people spread out over a broader area, traditional survey techniques can become more difficult, costly, and result in higher margins of error. Compounding these data collection issues, rural areas often contain more difficult-to-reach populations, including people who live on tribal lands or in informal settlements.

Even when these challenges are overcome, how to define rural remains a pervasive issue. There is no standard definition of rural used in federal policy and no consensus definition used in housing research. In fact, the US Census Bureau, Office of Management and Budget (OMB), and US Department of Agriculture (USDA) all publish different definitions of rural. These difficulties are compounded by the fact that rural is often defined by what it's not—rural space is the absence of urban space, or what's left over after accounting for urban areas. Indeed, perhaps the most common definition of rural used in

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[1] Corianne Payton Scally, Eric Burnstein, Matthew Gerken, and Evelyn Immonen, "In Search of 'Good' Data: Measuring Rural Prosperity," The Urban Institute, April 2020.

research comes from the OMB, which categorizes counties across the US into individual metropolitan areas. The balance of those counties—or micropolitan and non-core counties not considered part of any metro area—are frequently used as a proxy for rural. In its fact sheets showing the population, income, and demographics of rural populations by state, for example, the Economic Research Service (ERS) of the US Department of Agriculture (USDA) uses this non-metro definition of rural.[2]

Researchers of rural housing issues don't lack options, as there are many different definitions of rural at different levels of geography that have been created for different purposes. Cromartie and Bucholtz (2008) claim that federal agencies use more than two dozen definitions of rural.[3] The ERS features six different classifications of rural on its website alone, in addition to the non-metro definition often used by default.[4] The US Census Bureau additionally publishes a distinct definition of rural derived from its classification of urban areas. The Housing Assistance Council (HAC), a national advocate for rural housing, publishes its own definition meant to "establish a more precise measure of rural character."[5] There are numerous other definitions as well, including those based on perception and those used to guide housing policies and programs.

Limited research has been done comparing how different definitions of rural affect our understanding of the characteristics of rural places, and particularly how different definitions of rural could lead to contradictory or inconsistent findings in research on rural housing issues. The work that has been done in this area shows that the choice of rural definition can matter immensely.

Indeed, in their analysis of federal mortgage insurance programs, Park and Miller (2018) show that the US population living in rural areas can vary from 6 percent using the OMB definition of non-metro areas to 35 percent using a definition based on tracts eligible for rural housing financial assistance through the USDA Rural Housing Service.[6] Other estimates, including homeownership rates, home values, and household incomes, also vary with the definition chosen. Cromartie and Bucholtz (2008) examine just six plausible definitions used by federal agencies, finding that the share of the population in the US living in rural areas in 2000 varied from just 7 percent to nearly half (49 percent), with the average household income also ranging from $40,000 to $56,000.[7] In the public health field, Long,

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[2] See USDA ERS, "State Fact Sheets," https://www.ers.usda.gov/data-products/state-fact-sheets/.
[3] John Cromartie and Shawn Bucholtz, "Defining the 'Rural' in Rural America," USDA Economic Research Service, June 2008.
[4] The USDA lists these under "Rural Classifications": https://www.ers.usda.gov/topics/rural-economy-population/rural-classifications/
[5] Lance George, "HAC's Rural & Small Town Typology Database," Housing Assistance Council, January 2014.
[6] Kevin Park and Joshua Miller, "Mortgage Choice in Rural Housing," *Housing Policy Debate* 28, no. 3 (2018).
[7] Cromartie and Bucholtz. "Defining the 'Rural' in Rural America."

Delamater, and Holmes (2021) compare eight different definitions of rural, finding large differences in health care disparities between rural and urban areas that vary significantly with the definition used.[8] The authors similarly identify the census tracts with the most and least agreement across the eight definitions, finding substantial disagreement outside of primary population centers. Estimates of the rural population from the 2020 Decennial Census also range widely. About 46 million people lived in rural areas in 2020, according to a USDA report using the non-metro counties definition.[9] By contrast, the Census Bureau definition of rural based on density for the same data and year suggests that the rural population was over 66 million in 2020.[10]

In this paper, we more fully assess the extent to which the choice of rural definition matters for housing research, using consistent data across a range of geographies. Our study addresses the following research questions:

- What do different definitions of rural mean for the size of rural housing markets, both nationally and by state?
- What do these definitions of rural tell us about the demographic and housing stock characteristics, as well as the housing challenges, of rural areas?

To address these questions, we examine common definitions of rural to determine what each says about the size of the rural housing market and its characteristics. We replicate nine categorizations of rural areas at the county, zip code, census tract, and urban area levels, including variations for two of these definitions, resulting in a total of eleven definitions analyzed. For each definition, we merge data from the US Census Bureau's 2019 American Community Survey 5-Year Estimates and run descriptive statistics to show how the size of the rural housing market, its demographic and housing stock characteristics, as well as select housing challenges vary by the definition used. Using the same data allows us to make direct comparisons across all eleven definitions.

Our findings suggest that how you define and operationalize rural has significant and wide-ranging implications. The size of the rural housing market in the US varies considerably, depending on how rural is defined. Indeed, the population of the US living in rural areas ranged from a tiny fraction (1.4 percent) to about one-third of the nation's population in 2019. Beyond the population of rural

[8] Julianna Long, Paul Delameter, and George Holmes. "Which Definitions of Rurality Should I Use? The Relative Performance of 8 Federal Rural Definitions in Identifying Rural-Urban Disparities," *Medical Care* 59, no. 10 (2021).
[9] Elizabeth Dobis, Thomas Krumel, John Cromartie, Kelsey Conley, Austin Sanders, and Ruben Ortiz, "Rural America at a Glance: 2021 Edition," USDA Economic Research Service, November 2021.
[10] See the Census Bureau's 2020 Census Urban Areas Facts: https://www.census.gov/programs-surveys/geography/guidance/geo-areas/urban-rural/2020-ua-facts.html.

areas, basic demographic and housing stock characteristics, as well as the extent of housing challenges also varied considerably. For example, poverty rates in the rural US ranged from 11.7 percent all the way up to 16.7 percent. Depending on the definition chosen, rural poverty rates could be above or below the overall poverty rate in the US.

The extent and nature of housing challenges and realities in rural areas remain understudied phenomena, due in no small part to the lack of standard definitions. At minimum, when researching rural areas, researchers should be intentional about the definition of rural they employ, ensuring that it captures the aspects of rurality salient to their research. Definitions of rural that accentuate or capture only the downsides of rurality likely fail to capture the full range of human experience in rural areas. When possible, researchers should consider how alternative definitions of rural might materially affect their findings.

Defining Rural Areas

Defining rural in the US can be inherently challenging, given that rural areas encompass a vast and diverse array of geographies, physical characteristics, and people. The dictionary definition of rural is itself broad and open to interpretation: "of or relating to the country, country people or life, or agriculture."[11]

In this section, we discuss the different definitions of rural we use in this study and how we operationalize and categorize those definitions. We include a summary of the key elements of these rural definitions in **Table 1.** Bucholtz, Molfino, and Kolko (2020) categorize patterns of urbanization, including rural areas, into four categories: administrative, land-use, economic, and perceptual.[12] They define administrative categories along jurisdictional grounds, land-use categories based on characteristics such as density or the amount of impervious surface area, economic categories based on economic activity or integration, and perceptual categories based on how people describe their environment. But unlike urban spaces generally, rural areas are often defined by the absence of urban space, or as a residual after accounting for urban areas.

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[11] https://www.merriam-webster.com/dictionary/rural.
[12] Shawn Bucholtz, Emily Molfino, and Jed Kolko, "The Urbanization Perceptions Small Area Index: An Application of Machine Learning and Small Area Estimation to Household Survey Data," Working Paper, US Department of Housing and Urban Development, June 2020.

Table 1. Definitions of Rural

Source/Name	Label	Type	Geography	Rural Definition
Office of Management and Budget	OMB1	Residual	County	Counties that are located outside of metropolitan and micropolitan areas, which are counties or groups of counties with at least one urbanized area of 50,000 people or more for metropolitan areas (or 10,000-50,000 people for micropolitan areas) and adjacent territory with a high degree of integration.
	OMB2	Residual	County	Counties that are located outside of metropolitan areas, which are counties or groups of counties with at least one urbanized area of 50,000 people or more and adjacent territory with a high degree of integration.
US Census Bureau	Census	Residual	Urban Area	Block Groups that fail to meet the criteria for size, density, land cover, and adjacency needed to be urban by the Census definition.
USDA Rural-Urban Continuum Codes	RUCC	Character	County	Non-metro counties with an urban population under 2,500 people (using the Census definition), whether adjacent to a metro area or not.
Housing Assistance Council	HAC	Character	Tract	Tracts with under 16 housing units per square mile; or tracts with 16-64 housing units per square mile and a low degree of commuting to the metro core.
USDA Rural -Urban Commuting Areas	RUCA1	Character	Tract	Tracts with primary commuting flows to a tract outside an UA or UC.
	RUCA2	Character	Tract	Tracts with primary commuting flows to a tract outside an UA or UC; or tracts with a primary commuting flow to a small UC.
US Department of Housing and Urban Development	HUD	Perceptual	Tract	AHS (2017) asked respondents to define their neighborhood as urban, suburban, or rural; neighborhood characteristics associated with these perceptions were then used to predict the likelihood any given tract would be seen as rural.
Trulia	Trulia	Perceptual	ZCTA	Trulia asked respondents to define their neighborhood as urban, suburban, or rural; neighborhood characteristics associated with these perceptions were then used to predict the likelihood of any given zip code would be seen as rural.
Federal Housing Finance Agency	FHFA	Policy	Tract	Tracts outside metropolitan areas; or tracts within metropolitan areas that are outside a UA as defined by Census and have under 64 housing units per square mile.
USDA Eligibility for Section 502 Guaranteed Loan Program	USDA	Policy	Tract	Determined by population, metro area status, mortgage credit availability, and previous rural designation.

Building on this work, we sort definitions of rural areas into four categories: residual, character, perceptual, and policy. These categories of rural definitions are described in more detail below, but it's important to note that they can overlap considerably. With these categories, we attempt to consider the primary purpose or use of the definition (i.e., define an urban or metropolitan area, more accurately categorize rural places by placing rurality at the center of the categorization, define the parameters of a specific policy, etc.) but we recognize these categorizations are fungible.

Relatedly, the definitions themselves can overlap substantially and oftentimes build on one another. For example, the USDA RUCC definition of rural as operationalized for this study considers the commuting patterns of non-metro counties, building on the OMB definition of rural. Likewise, the USDA RUCA definition of rural borrows theoretical concepts and terminology from OMB in categorizing the rurality of census tracts based on commuting patterns. Additionally, FHFA defines census tracts as rural using a combination of the OMB (for tracts in non-metro counties) and RUCA (for tracts in metro area counties) definitions.

Lastly, there are other definitions of rural used in research and policymaking that are not considered in this study. Definitions are excluded for various reasons: because they overlap completely with another definition already used; because they primarily are meant to measure differences within rural areas (using some other definition of rural as a baseline); because we could not replicate the definition geographically or produce comparable estimates for those definitions; or because of some combination of these. The USDA County Typology codes, for example, consider the economic dependence of rural counties, using the OMB's definition of non-metro counties as a baseline. Additionally, the USDA Frontier and Remote Area codes categorize zip codes as rural based on population size and distance from urban areas. However, because this definition does not use the same zip code geographies (Zip Code Tabulation Areas or ZCTAs) used by the Census Bureau in its American Community Survey, we could not produce estimates for it comparable to those for our other definitions of rural. As a result, this research is not an exhaustive exploration of rural definitions. Instead, it examines and compares some commonly used definitions of rural.

Residual Definitions

Rural geographies are often defined in opposition to or by the absence of urban space—the territory left over after accounting for urban geographies. These definitions start by defining urban areas and consider any non-urban geography as rural. Residual definitions of rural are often used by researchers

and policymakers because of their broad availability and ubiquity in both urban and rural research. However, these definitions were not created with defining rural places in mind. One such definition is the US Census Bureau's Urban and Rural Classification, which is defined every 10 years following the Decennial Census. Census urban areas (and urban clusters) are identified based on census tract population density within places meeting certain population thresholds as well as adjoining territory with certain population density and land-use characteristics **(Figure 1).** Rural areas by the Census definition are those spaces not contained within an urban area. [13]

Figure 1. Residual Definitions: Rural Extent Under the Census and OMB Definitions
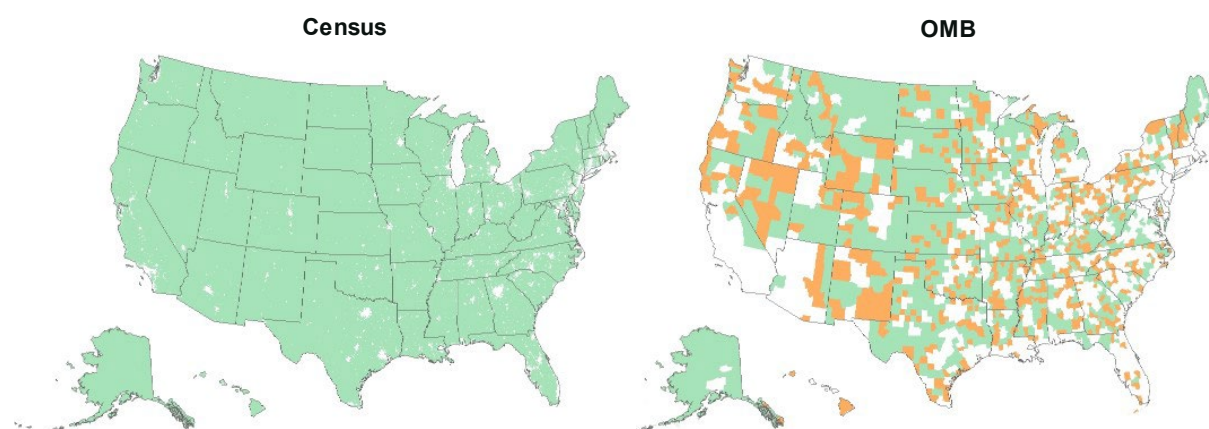
Note: Green indicates rural; on the OMB map, orange indicates the more expansive, micro-area-inclusive definition of rural.
Source: Author tabulations of US Census Bureau, 2019 American Community Survey 5-Year Estimates.

Likewise, the Office of Management and Budget (OMB) defines and identifies counties comprising Core-Based Statistical Areas, including Metropolitan Statistical Areas (metro areas) and Micropolitan Statistical Areas (micro areas). Metro areas contain at least one urbanized area with a population of at least 50,000 people and incorporate "adjacent territory with a high degree of social and economic integration as measured by commuting ties." Micro areas have the same characteristics but have a lower population threshold in urbanized areas of 10,000 people. While metro and micro areas can contain small towns and communities with rural characteristics within them, counties outside of

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[13] We use the 2010 definition of urban areas from the Census Bureau to allow for consistent estimates of rural across our definitions, including many of those defined prior to the 2020 Decennial Census. The 2020 definition of urban areas uses both a population density and a housing unit density threshold for the first time, and it eliminates urban clusters entirely, among other changes. For a full accounting of these changes, see https://www2.census.gov/geo/pdfs/reference/ua/Census_UA_CritDiff_2010_2020.pdf.

metro and micro areas are often used as a proxy for rural areas in research. In this paper, we consider two definitions of rural based on the OMB definitions: one for non-core counties that fall outside of metro and micro areas, and one for counties that fall outside of metro areas but include micro areas.

Character Definitions

Other definitions of rural start by explicitly identifying characteristics of rural areas, including population levels, household and population density, commuting times, and land-use patterns. These definitions center rural experiences and rurality more explicitly than residual definitions. Researchers and policymakers might favor these definitions when emphasizing specific aspects of rurality. We operationalize two definitions based on character from the USDA. The first is the definition used for Rural-Urban Continuum Codes (RUCC), which builds on the OMB classification of metro and non-metro counties. The RUCC definition further breaks down non-metro counties according to their degree of urbanization and adjacency to metro areas. According to the RUCC definition, non-metro counties are defined based on their urban population using the Census Bureau definition (urban population under 2,500; 2,500 to 19,999; 20,000 and over) and are then further subdivided based on whether or not the county is adjacent to a metro area **(Figure 2).** RUCC groups metro counties into three different categories and non-metro categories into six additional categories, but we consider counties to be rural if they have an urban population of less than 2,500, whether they are adjacent to a metro or not.[14]

This paper also operationalizes USDA's Rural-Urban Commuting Area (RUCA) codes as another character-based definition of rural. RUCA codes consider the population density and urbanization of a place. Like the RUCC definition, RUCA codes build on the Census Bureau definition as well as borrowing concepts from the OMB definition of core/non-core counties. RUCA codes differ by primarily considering commuting flows through metropolitan, micropolitan, and rural areas based on the percentage of commuters going into various sizes of urban areas and urban clusters. We operationalize two definitions of rural using the RUCA codes. The first considers census tracts rural where the primary commuting flow is to rural areas only.[15] The second considers census tracts rural where the primary commuting flow is to a rural area or small town.[16]

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[14] In the RUCC documentation, this comprises codes 8 and 9, a fairly restrictive definition of rural using the RUCC definition, creating a lower-bound estimate of rural in many cases. Note that the upper-bound estimate of rural according to the RUCC definition would include all non-metro counties, a definition of rural we operationalize elsewhere.

[15] Where RUCA codes equal 10.

[16] Where RUCA codes equal 7 to 10. An even more expansive definition could have encompassed tracts where the primary commuting flows were to micropolitan areas as well, but such a definition was not considered here.

Figure 2. Character Definitions: Rural Extent Under the HAC, RUCC, and RUCA Definitions
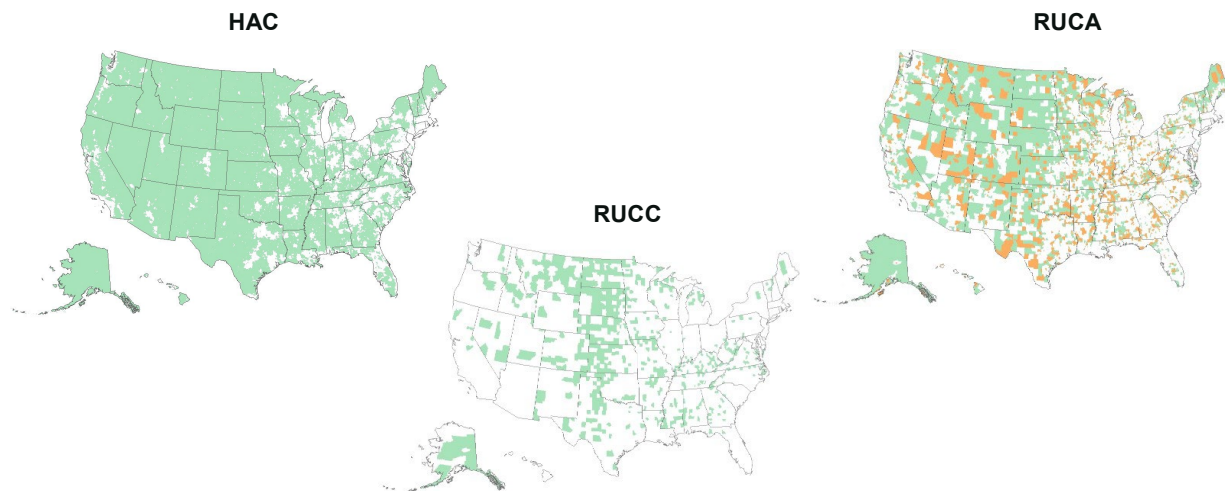
Note: Green indicates rural; on the RUCA map, orange indicates rural using the more expansive definition of rural, including counties with commuting flows to a rural area or small town.
Source: Author tabulations of US Census Bureau, 2019 American Community Survey 5-Year Estimates.

The final character definition we analyze comes from the Housing Assistance Council (HAC). HAC's Rural Area and Small Town Typology groups census tracts into rural, small-town, and various categories of urban (from exurban to urban) based on the housing unit density and commuting patterns of households in the census tract. For HAC, rural census tracts have fewer than 16 housing units per square mile, while small-town tracts have 16 to 64 housing units per square mile and a low degree of commuting to metropolitan areas (meaning their primary commuting flow is to micropolitan, small town, or rural census tracts). Following HAC,[17] we consider rural and small-town tracts combined to be rural.[18]

Perceptual Definitions

Some definitions of urban or rural space also consider resident perceptions of their neighborhoods, using the ways residents label their communities to identify rural areas. These perceptual indicators are

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[17] Housing Assistance Council, "Taking Stock: Rural People, Rural Places, Rural Housing," 2023, https://takingstockrural.org/taking-stock/.

[18] Where the HAC code equals 1 or 2. In their rural typology sold to researchers, HAC makes additional adjustments to some census tracts not otherwise noted in the technical documentation. Our analysis does not consider such adjustments, and instead compares the HAC definition as given using the documentation.

derived from surveys that ask respondents to describe their neighborhood as urban, suburban, or rural. Perceptual definitions then use the characteristics of the neighborhood (typically the zip code or census tract) that best predict how respondents classified their neighborhood and model the likelihood any given neighborhood would be classified as urban, rural, or suburban by respondents, given those characteristics. Researchers and policymakers might use perceptual definitions of rural when the ways in which residents view themselves are important.

The first perceptual definition considered in this study is from Trulia, which asked 2,008 adults in the US to describe their neighborhood. Trulia used more than twenty characteristics to predict the likelihood that a respondent would classify their zip code as urban, suburban, or rural, with density being the most important predictor. But other factors also mattered, including the size of the city, neighborhood income, age of the housing stock, and adjacency to higher-density zip codes. Trulia excludes zip codes with under one hundred households. In our research, a zip code is considered rural according to the Trulia definition if the predictive model determined that the probability a respondent would consider the zip code to be rural was greater than the probability a respondent would consider the zip code to be urban or suburban **(Figure 3).**

The second perceptual definition used in this research comes from HUD's Urbanization Perceptions Small Area Index, which leveraged the larger sample size of the 2017 American Housing Survey to ask over 55,000 respondents whether their neighborhood was urban, suburban, or rural. HUD researchers then used twenty-one neighborhood-level and two region-level variables to predict how households would describe their neighborhood at the census tract level.[19] HUD researchers used these variables to estimate the probability a household in a given tract would classify their neighborhood as urban, suburban, or rural, which was then applied to census tracts in the American Community Survey and controlled to AHS national estimates. In this study, census tracts are considered rural according to the HUD definition if the predictive model considered those tracts to be rural.

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[19] Variables at the census tract level include population and housing unit density, employee and business density, the median household income, and variables for the age and race/ethnicity of the population. Variables at the regional level were the population of the city (or Census designated place) and Census Division.

Figure 3. Perceptual Definitions: Rural Extent Under the Trulia and HUD Definitions
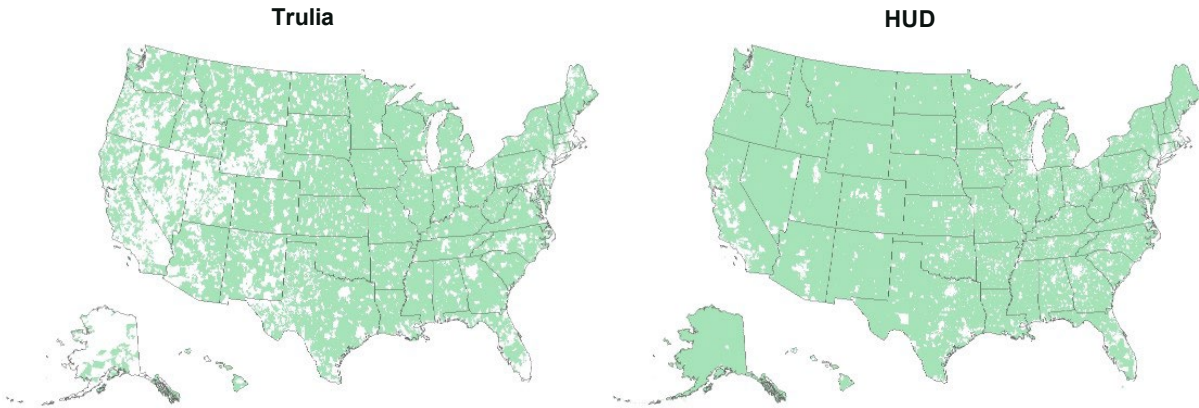
Trulia   **HUD**

Note: Green indicates rural.
Source: Author tabulations of US Census Bureau, 2019 American Community Survey 5-Year Estimates.

Policy Definitions

Lastly, other definitions of rural examined in this study are used primarily for policymaking or determining eligibility for specific federal programs. Researchers might use a policy definition when evaluating the effects or reach of a given policy or program. The Federal Housing Finance Agency (FHFA), as one example, established Fannie Mae and Freddie Mac's Duty to Serve, ensuring mortgage liquidity and investment capital is available to lower-income families in rural areas. Rural areas under the FHFA definition include census tracts in a non-metro county as well as tracts in a metro area that fall outside of the urbanized area and have a housing unit density of under 64 units per square mile **(Figure 4).** For this study, we use the 2021 FHFA definition of rural, which uses 2010 tract boundaries, because later versions use 2020 census tract definitions incomparable with most definitions of rural examined here.[20]

The second policy definition considered in this study is derived from census tracts defined as rural by the USDA for the Single-Family Housing Guaranteed Loan Program or the Section 502 Guaranteed Loan Program. The program partially guarantees loans made by approved lenders to qualifying households to enable households to buy homes in rural areas with zero down payment. Census tracts are defined as rural by the USDA based on population thresholds at the place level, metro

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[20] Our study does not consider FHFA's High-Needs rural counties.

area status, the availability of mortgage credit for low- and moderate-income families, and whether the tract was eligible as rural in prior years. This definition of rural is more expansive than the other definitions considered in this research.

Figure 4. Policy Definitions: Rural Extent Under the FHFA and USDA Definitions
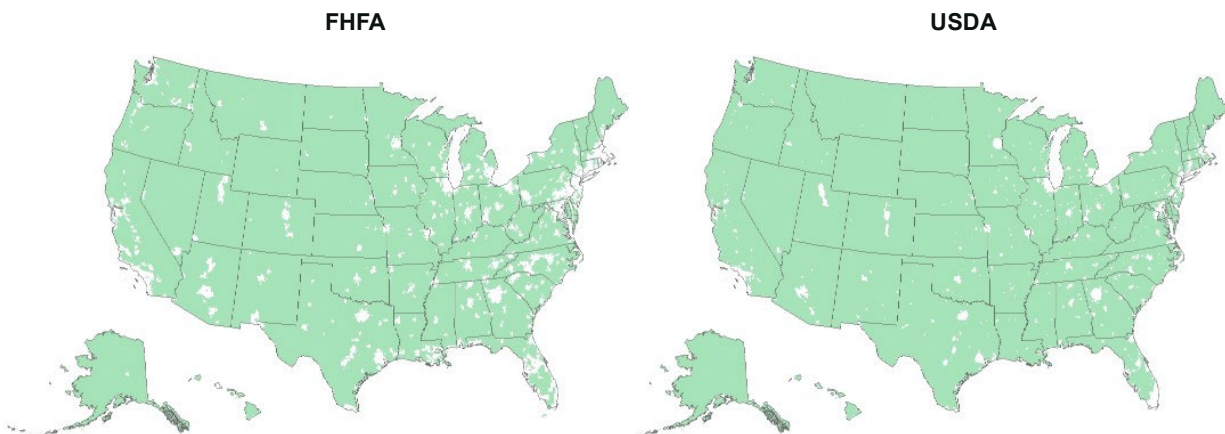
FHFA   USDA

Note: Green indicates rural.
Source: Author tabulations of US Census Bureau, 2019 American Community Survey 5-Year Estimates.

Data and Methods

To compare different definitions of rural used in this study, we first identified the geography (every county, tract, zip code, or urban area depending on the definition) considered rural by each definition. For most definitions, this involved downloading publicly available data files for the relevant geography containing a unique identifier (usually a FIPS code) and some indicator for how each geographic subunit was categorized. For the HAC definition, census tracts were identified as rural based on their characteristics using HACs stated methodology.

To create direct comparisons of the size of the rural housing market, and to create comparable estimates of the demographic and housing stock characteristics in rural areas, we use consistent data from the 2019 American Community Survey (ACS) 5-Year Estimates downloaded via Social Explorer for each geography. We use the 2019 data instead of more recent releases of the ACS because the definitions under study all use pre-2020 Census geographies, most notably Census tracts, which change every ten years following the release of the Decennial Census. At the time of publication, for example, USDA RUCA and RUCC codes had not been updated in the aftermath of the most recent Census, while

both the HUD and Trulia definitions were estimated at a point in time last decade. The American Community Survey is fielded annually by the US Census Bureau and contains numerous estimates of the US population relevant to this study, including population counts, poverty status, tenure, age of the housing stock, and more. The 5-year variant contains a sufficient sample size to produce estimates for every geography relevant to this study.

Variables from the ACS are then merged with the data files indicating rural for every geography and definition. Data mergers were executed and descriptive statistics tabulated using Stata 16. For the Census definition of rural, only estimates for urban areas and urban clusters are produced in the ACS. In other words, there are no corresponding estimates for rural areas using the Census definition for this study. To estimate totals (population and household counts, as well as shares) for the Census's rural definition, we calculate the relevant national total and subtract the equivalent estimate for urban areas and urban clusters. For this reason, we do not estimate medians or averages for the Census rural definition. Furthermore, because both zip codes and urban areas/urban clusters cross state lines, estimates using the Census and Trulia definitions of rural by state were also not calculated.

Results

The size of the rural housing market—nationally and by state—as well as the demographic and housing stock characteristics vary considerably depending on which definition is chosen. Likewise, the magnitude and pervasiveness of common housing challenges in rural areas, such as poverty, reliable internet access, and affordability, depend on the choice of definition.

Size of the Rural Housing Market Nationally

The population living in rural areas varies tremendously depending on how rural is defined. Across the eleven definitions analyzed for this study, the population living in rural areas ranges from just 4.7 million people using the RUCC definition to over 109.5 million people living in USDA eligible census tracts **(Table 2).** In other words, between a sliver (1.4 percent) and one-third (33.7 percent) of the nation's population lived in rural areas, depending on the definition used. On average across all eleven definitions, about 47.3 million people lived in rural areas in 2019, or about 14.6 percent of the population.

In general, definitions of rural defined by their characteristics have the smallest rural housing markets **(Figure 5).** In addition to the lowest total from the RUCC definition, just 9.7 million people lived in rural areas using the more restrictive RUCA definition. Expanding the RUCA definition of rural to include small towns, the population living in rural areas would grow to just 22.8 million. Meanwhile,

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34.1 million lived in rural areas according to HAC, the largest among the character definitions but still among the smallest across all definitions.

On the other end of the spectrum, policy definitions have the largest number of people living in rural areas. Tracts eligible for USDA Section 502 subsidies were home to more than 100 million people, while the FHFA's Duty to Serve tracts had the second-highest total at 74.2 million people living in rural areas.

Perceptual definitions also resulted in large rural populations. Fully 71.5 million people lived in rural areas according to Trulia's definition, even more than the 68.1 million who perceived they lived in urban areas **(Figure 6).** Based on the HUD definition, 67.0 million lived in rural areas, or just over one-fifth of the nation's population and below the 86.1 million people living in urban areas. By both definitions, the number of people who perceived themselves as living in rural areas was dwarfed by the number living in suburban neighborhoods, which was more than twice as high.

Residual definitions of rural areas vary most widely. The population living outside of metropolitan and micropolitan areas was just 18.2 million according to CBSA classifications from the OMB. When micropolitan areas are included as rural, the population count rises to 46.0 million. The Census Bureau's definition is the most widely encompassing of the residual methods, capturing 62.2 million people living in rural areas that fall outside of urban areas or urban clusters.

In addition to population variation, the size of the rural housing market varies dramatically along other dimensions depending on the definitions used. For example, the number of rural households ranges from 1.9 million under the RUCC definition up to 41.1 million if using the USDA policy definition. In terms of land area, rural areas comprise between 893,000 and 3.4 million square miles, or between one-quarter and 97 percent of the nation's land mass. Given the large share of land classified as rural under each definition, population density remains low across all methods for defining rural. Indeed, the number of people per square mile ranges from 5 to 32, all well below the 92 people per square mile nationally and far below the population density in corresponding urban areas.

Table 2. Size of the Rural Housing Market by Definition

| Characteristic | Residual | | | Character | | | | Perceptual | | Policy | | Rural Summary | | | US |
	OMB1	OMB2	Census	RUCC	HAC	RUCA1	RUCA2	HUD	Trulia	FHFA	USDA	Min	Max	Mean	Overall
Number (Millions)															
Land Area (Sq miles)	1.8	2.5	3.4	0.9	3.0	1.7	2.1	3.2	2.3	3.3	3.4	0.9	3.4	2.5	3.5
Housing Units	9.6	22.7	29.2	2.7	16.6	5.5	11.9	31.0	33.3	35.1	49.3	2.7	49.3	22.5	137.4
Households	7.2	17.9	23.5	1.9	12.8	3.8	8.9	25.2	27.1	28.3	41.1	1.9	41.1	18.0	120.8
Population	18.2	46.0	62.2	4.7	34.1	9.7	22.8	67.0	71.5	74.2	109.5	4.7	109.5	47.3	324.7
Per Square Mile															
Population Density	10.0	18.2	18.2	5.2	11.2	5.8	10.6	20.7	31.0	22.5	32.0	5.2	32.0	16.8	91.9
Housing Unit Density	5.3	9.0	8.5	3.0	5.4	3.3	5.6	9.6	14.4	10.6	14.4	3.0	14.4	8.1	38.9

Source: Author tabulations of US Census Bureau, 2019 American Community Survey 5-Year Estimates.

Table 3. Demographic Characteristics of the Rural Housing Market by Definition

| Characteristic | Residual | | | Character | | | | Perceptual | | Policy | | Rural Summary | | | US |
	OMB1	OMB2	Census	RUCC	HAC	RUCA1	RUCA2	HUD	Trulia	FHFA	USDA	Min	Max	Mean	Overall
Percent															
People of Color	20.0	21.9	17.3	18.0	21.3	18.0	20.9	19.4	20.9	21.8	22.3	17.3	22.3	20.2	39.3
Bachelor's Degree	17.8	20.0	23.5	17.9	18.6	19.4	19.2	22.1	20.9	20.8	24.4	17.8	24.4	20.4	32.1
Homeownership Rate	74.4	71.4	81.6	76.5	77.5	76.6	72.8	79.3	75.4	73.6	75.2	71.4	81.6	75.8	64.0
Age 65 and Older	20.4	19.0	18.9	21.9	19.0	21.3	20.1	18.6	18.4	18.5	17.9	17.9	21.9	19.5	15.6
Median (Thousands of dollars)															
Household Income	47.4	49.4		46.1	52.0	50.5	49.0	57.7	53.4	52.7	57.7	46.1	57.7	51.6	61.7

Notes: The share of people with a bachelor's degree is among adults age 25 and over. People of color are of any race alone (except for non-Hispanic white), of two or more races, or Hispanic.
Source: Author tabulations of US Census Bureau, 2019 American Community Survey 5-Year Estimates.

Table 4. Housing Characteristics of the Rural Market by Definition

Characteristic	Residual			Character				Perceptual		Policy		Rural Summary			US Overall
	OMB1	OMB2	Census	RUCC	HAC	RUCA1	RUCA2	HUD	Trulia	FHFA	USDA	Min	Max	Mean	
Share of Housing Units (Percent)															
Single-Family	75.3	73.5	78.6	76.5	75.9	78.2	75.6	77.1	75.6	74.7	76.1	73.5	78.6	76.1	67.4
Multifamily	8.7	12.2	4.9	6.5	6.3	7.3	10.4	6.3	9.3	10.9	10.8	4.9	12.2	8.5	26.3
Manufactured Housing	15.9	14.1	16.3	16.9	17.6	14.3	13.9	16.5	15	14.3	13	13	17.6	15.3	6.2
Built Before 1950	20.2	19.8	14.9	19.9	18.2	22.9	21.7	14.9	17.1	18.1	15.3	14.9	22.9	18.5	17
Median (Dollars)															
Home Value (Thousands)	113	121		107	128	124	121	157	143	142	162	107	162	132	201
Monthly Gross Rent	663	709		622	702	670	682	773	735	736	789	622	789	708	1078

Source: Author tabulations of US Census Bureau, 2019 American Community Survey 5-Year Estimates.

Table 5. Housing Challenges of the Rural Market by Definition

Characteristic	Residual			Character				Perceptual		Policy		Rural Summary			US Overall
	OMB1	OMB2	Census	RUCC	HAC	RUCA1	RUCA2	HUD	Trulia	FHFA	USDA	Min	Max	Mean	
Percent															
Poverty Rate	16.6	16.3	11.7	16.7	14.8	15.2	16	12.7	14.1	14.8	12.9	11.7	16.7	14.7	13.4
Without Internet Access	23.8	21.2	18.3	25.1	22.3	22.8	22.5	18.6	19.7	19.9	17.2	17.2	25.1	21.0	13.9
Cost Burden Share															
All Households	24.2	25.7	22.9	23	23.3	23.8	25	23.9	24.8	25.5	25.7	22.9	25.7	24.3	32.2
Homeowners	19.6	19.7	20.1	19.6	19.7	20.5	19.9	20.3	20	20.1	20.5	19.6	20.5	20.0	23.1
Renters	37.3	40.8	35.1	34.3	35.6	34.5	38.5	37.7	39.5	40.6	41.3	34.3	41.3	37.7	48.2

Note: Households with cost burdens spend 30 percent or more of their income on housing.

Source: Author tabulations of US Census Bureau, 2019 American Community Survey 5-Year Estimates.

Figure 5. Policy and Perceptual Definitions Produce the Largest Rural Housing Markets
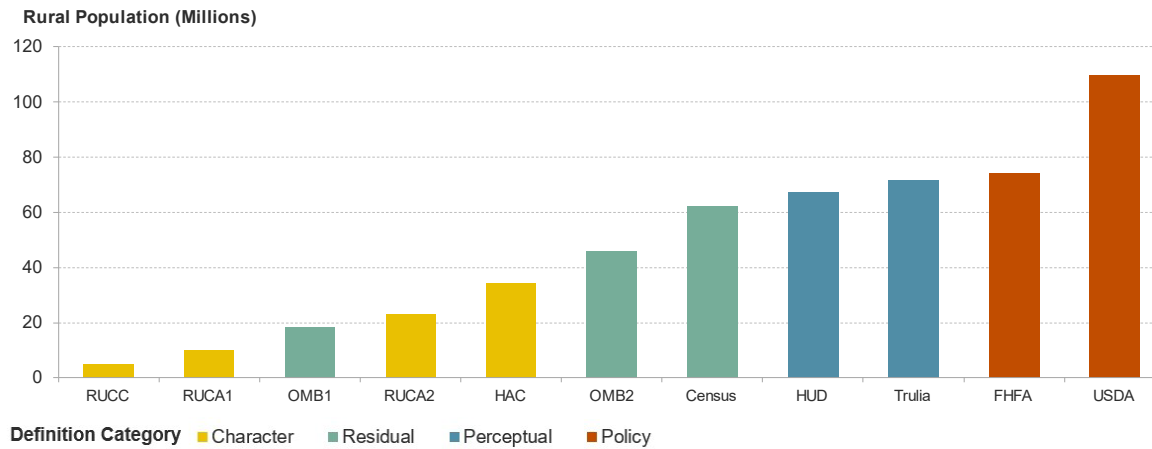
Rural Population (Millions)

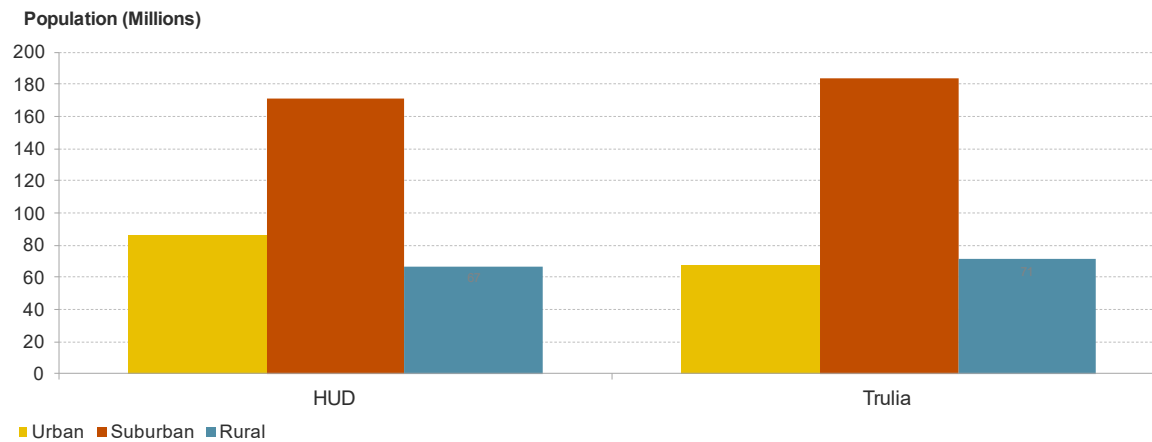
Source: Author tabulations of US Census Bureau, 2019 American Community Survey 5-Year Estimates.

Figure 6. In Perceptual Definitions, the Population Living in Urban and Rural Areas Is Similar But Far Outnumbered by Those Living in Suburbs

Population (Millions)

Source: Author tabulations of US Census Bureau, 2019 American Community Survey 5-Year Estimates.

The differences in the size of the rural housing markets across the four categories are largely explained by how these definitions are created or conceived. For example, character definitions likely produce the smallest estimates of rural population because rural character is often denoted by its sparse or diffuse population, especially in terms of lower densities or more limited access to population or employment centers. The policy definitions we consider here likely produce the largest estimates of rural housing markets because federal agencies have political incentives to serve a broader constituency –more people living in more places. The large rural populations implied by perceptual definitions might speak to the mismatch between people's perceptions of their own neighborhood context and what researchers are most likely to consider rural; or it could speak to the difficulties inherent in defining rural using existing available data. Lastly, residual definitions likely produce the widest range of outcomes in terms of the population living in rural areas because their purpose is not to define rural, perhaps increasing the variability of what encompasses rural. In the policy implications and conclusion, we will further discuss the importance of these considerations for researchers and policymakers when using different definitions of rural.

Size of the Rural Housing Market by State

The population living in rural areas can vary even more dramatically by state depending on the definition used. **Appendix A** gives the share of the population estimated by state for the nine definitions that could be disaggregated to the state level.[21] In thirty-six states, the share of the rural population ranges by more than 30 percentage points, depending on the definition used, including fourteen states where the range exceeds 50 percentage points. The range of estimates is especially pronounced in states typically considered to have relatively large rural populations. For example, the population living in rural areas ranged from 9 percent to 88 percent in Vermont; from 11 percent to 77 percent in Montana; and from 4 percent to 69 percent in Arkansas **(Figure 7).**

Among states, Maine had the widest range of possible outcomes and illustrates a few key trends. Rural areas in Maine, for example, cover from just under 4 percent of the state's population (according to RUCC) up to 85 percent of the population (according to USDA policy), a range of 81 percentage points. Looking beyond the extremes, the share of the population in rural areas can encompass a wide range of estimates in between: 18 percent according to RUCA's rural definition, 41 percent according to the less restrictive OMB definition, 58 percent according to HUD. Moreover,

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[21] In the state analysis, Trulia and Census definitions are excluded because zip codes and census urban areas/urban clusters cross state lines.

definitions based on character produce the smallest rural populations in the state, as they generally do in most states. On the other end, definitions rooted in policy produce the largest estimate of the rural population in every state in the country, including Maine.

Figure 7. Rural Populations Vary Considerably Across States Depending on the Definition Used

Share of State Population that Is Rural (Percent)
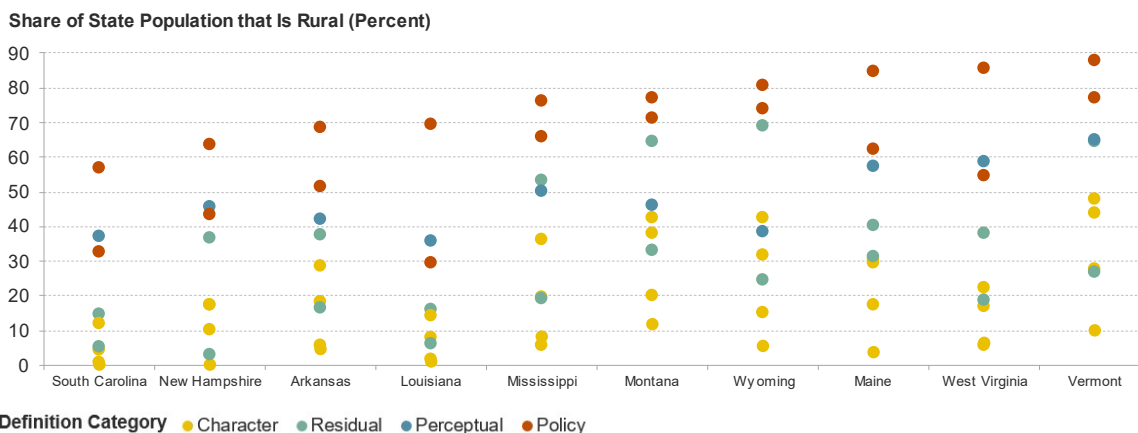
Notes: The ten states with the widest range of outcomes are shown. Only nine definitions are included in state analysis, as Trulia and Census definitions of rural are excluded here.
Source: Author tabulations of US Census Bureau, 2019 American Community Survey 5-Year Estimates

The share of the population living in rural areas varied considerably in every state depending on the definition, but some states had considerably narrower ranges. States with large urban populations generally had the narrowest range of outcomes. For example, the difference in rural population estimated across all nine definitions considered was smallest in California, where the share of the population living in rural areas ranged from under 1 percent to 13 percent. Estimates of the rural population also ranged from 0 percent to 20 percent in New Jersey; about 1 percent to 21 percent in Illinois; and 5 percent to 23 percent in Colorado.

The share of the state's population living in rural areas could be exceedingly low or high, depending on the specific state or definition chosen, illustrating the need to think carefully about the research or policy context when choosing a definition of rural. Indeed, at least one definition of rural produced an estimate of the rural population below 1 percent in 24 states, including nine states where at least one definition put the rural population at 0 percent. At the other end of the spectrum, the USDA policy definition of rural, which often produces the largest rural population in each state, suggests that at least 13 percent of each state's population lives in a rural area and more than half of the population lives in a rural area in fully 19 states.

Rural Demographic Composition

Rural areas are generally less diverse and have older populations, lower incomes and rates of educational attainment, and higher homeownership rates relative to urban areas. And while that holds true across all definitions of rural geographies examined in this study, the demographic makeup of rural areas still varies considerably depending on the definition used. In some cases—such as the age, income, or educational attainment of the population—the larger the rural housing market, the more demographically similar it becomes to the rest of the nation as it likely begins to encompass denser, more affluent areas.

For example, across all eleven definitions, about one-fifth of the population in rural areas on average consists of people of color (20.2 percent), about half the rate of the US overall (39.3 percent) **(Table 3).** The share of people of color in rural areas ranges from a low of 17.3 percent in the Census definition to a high of 22.3 percent in the USDA policy definition. In fact, there was a relatively high share of people of color according to the more expansive definitions of rural based on policy—about 21.8 percent of the rural population consisted of people of color according to the FHFA definition.

The population was also older in rural areas than in the US overall. The share of the population age 65 and older averaged 19.5 percent across all definitions and was above the 15.6 percent national share in every definition. The share of older adults was associated with the size of the rural housing market; smaller rural housing markets had a higher share of older adults. Indeed, the share of the population age 65 and over ranged from 17.9 percent in the USDA definition with the largest rural population to 21.9 percent in the RUCC definition which had the smallest rural population.

Incomes were also lower in rural areas across every definition relative to the national average. In the US overall, the median household income across all counties was $61,700, but in rural areas the median household income ranged from a low of $46,100 (according to RUCC) to $57,700 (according to HUD). Partly due to their larger size, the four rural areas defined by policy and perception had the highest median incomes. Likewise, the share of adults age 25 and over with a bachelor's degree was well under the 32.1 percent national share, with larger rural areas again having higher shares of educational attainment. Indeed, USDA eligible census tracts had the highest rate of adults with a bachelor's degree at 24.4 percent, followed by the Census definition at 23.5 percent and the HUD definition at 22.1 percent. On the other end, OMB counties outside of metro and micro areas had the lowest rates of educational attainment at 17.8 percent, followed by RUCC counties (17.9 percent) and rural areas according to HAC (18.6 percent).

Due in part to lower home values and the prevalence of older adults, rural areas also have higher homeownership rates than urban areas according to every definition. About 64.0 percent of households across the US were homeowners in 2019, compared with 75.8 percent of households across all rural definitions on average. Homeownership rates in rural areas ranged from 71.4 percent in non-metro areas (and including micropolitan areas) according to the OMB, all the way up to 81.6 percent according to the Census definition—a full 10 percentage point difference.

Rural Housing Stock

Characteristics of the housing stock can also vary depending on the definition of rural chosen by researchers. Single-family homes dominate the landscape of the rural US across definitions, with single-family housing comprising about three-quarters of all rural geographies in every definition. Indeed, the share of single-family housing units in rural areas varies from 73.5 percent when using the more expansive OMB residual definition to 78.6 percent when using the Census residual definition—a 5.1 percentage point difference **(Table 4).**

But what comprises the remainder of the housing stock varies more depending on rural definition. Indeed, the share of manufactured or mobile homes comprises 13.0 percent of the stock in rural areas under the USDA policy definition, versus 17.6 percent according to HAC. The amount of manufactured housing in a rural area is inversely related to the number of apartment buildings. Indeed, nearly 11 percent of housing units in rural areas are in multifamily structures, based on the FHFA and USDA policy definitions, compared to just under 5 percent according to Census and about 6 percent according to HAC.

The age of the housing stock also varies with the definition chosen. Fully 22.9 percent of homes in RUCA rural areas were built before 1950, compared to 14.9 percent of homes according to HUD and Census. By comparison, 17.0 percent of homes in the US overall were built before 1950, suggesting that the share of older housing in rural areas can be either older or newer than the urban housing stock depending on the rural definition used.

In contrast, rural parts of the country have lower rents and home values than the nation overall regardless of the rural definition used. Indeed, the weighted median gross rent including utilities for the US in our sample was $1,078 but averaged $708 across all definitions of rural, ranging from $622 according to the RUCC definition to $789 according to the USDA policy definition. Likewise, the self-reported median home value for the nation was $201,000, well above the $162,000 median home value in rural areas based on the USDA definition, the highest in our sample. On the low end, the median

home value in rural areas was nearly half the national average using the RUCC definition, at just $107,000. Notably, using the OMB definition of rural based on non-metro areas, which is prevalent in research, the median gross rent was just $663 while the median home value was just $113,000: both measures are lower than the average for rural areas across all definitions.

Rural Housing Challenges

Rural areas in the US face pervasive and persistent housing challenges, including poverty, housing affordability, and broadband/internet access. The choice of rural definition can have important implications for the magnitude and severity of these challenges.

Nationally, 13.4 percent of the population lived in poverty in 2019 **(Table 5).** The extent of rural poverty varies significantly depending on the definition used. Rural poverty is less pervasive than the national rate by three definitions that comprise a larger share of the US housing market. Fully 11.7 percent of people in rural areas live under the poverty line according to the Census definition, 12.7 percent under HUD, and 12.9 percent based on the USDA policy classification **(Figure 8).** On the other end, rural poverty rates exceeded 16 percent using four definitions, hitting 16.7 percent when using RUCC, followed closely by high rates under the OMB definition (16.3-16.6 percent) and the RUCA definition incorporating small towns (16.0 percent).

Figure 8. Depending on the Definition, Poverty Rates Can Be Below or Above the Overall US Rate
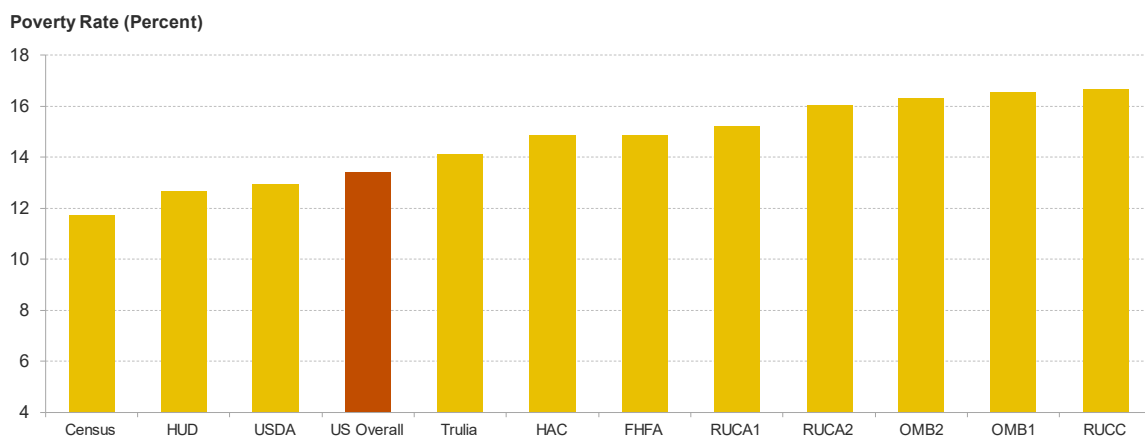
Source: Author tabulations of US Census Bureau, 2019 American Community Survey 5-Year Estimates.

The extent of other rural housing challenges also varies with the definition used, but generally housing cost burdens are lower in rural areas than in the US overall, while internet access is notably worse in rural areas. Indeed, 24.3 percent of households had cost burdens on average across all eleven

definitions considered, 7.9 percentage points lower than the US rate overall. The share of rural

households with cost burdens varied from 22.9 using the Census definition, up to over a quarter (25.7

percent) according to the USDA policy definition. The share of both homeowners and renters with cost

burdens follows the same general pattern: renter and homeowner cost burden rates in rural areas are

lower than the overall cost burden rate in the US, but they still vary considerably, especially for renters,

depending on the definition chosen.

Meanwhile, the share of households without access to the internet is higher in rural areas

regardless of definition chosen. Indeed, the share of households without internet ranges widely, with

more expansive definitions of rural generally indicating greater access to the internet. Indeed, over one-

quarter of households lacked access to the internet by the RUCC definition, while between 22.3 to 22.8

percent of rural households did not have access in the remaining three definitions based on rural

character. Under one-fifth of households lacked access to internet in definitions based on policy and

perception, ranging from 17.2 percent without access in USDA-eligible tracts to 19.9 percent according

to FHFA. Fully 13.9 percent of all US households did not have access to the internet in 2019.

Heterogeneity of Rural Places

Rural areas contain a considerable amount of socioeconomic and demographic diversity, regardless of

how they are defined, and definitions that contain minimal diversity are perhaps more likely to reinforce

stereotypes about rural places. Our analysis also considers the diversity of different rural definitions by

looking at the distribution of geographies defined as rural for select measures: population density,

median household income, and the share of people of color. Overall, rural places by most definitions

capture a wide range of diversity, though some definitions—oftentimes but not always larger ones—

capture considerably more diversity depending on the measure examined.

Broader definitions of rural that capture larger rural populations also capture geographies with a

greater range of population densities. Indeed, the population density at the 10th percentile for each

definition ranged from 2.9 people per square mile in RUCC counties (the most constrained definition of

rural in our sample) to 21.2 people per square mile in USDA policy tracts (the definition of rural with the

largest number of people). At the 90th percentile, population densities range from 55.2 people per

square mile in the RUCC definition to 1,327.5 people per square mile in USDA policy tracts **(Table 6).**

Beyond just the size, definitions of rural based on character generally posted the lowest population

densities, and that is especially evident at the high end. Indeed, three of the four rural definitions based

on character had the lowest population densities at the 90th percentiles: RUCC counties (55.2 people per square mile), RUCA rural tracts (102.7), and HAC rural and small town tracts (109.3).

Likewise, more inclusive definitions of rural also capture a broader range of affluence as measured by household income. Census tracts defined as rural according to the USDA had a median household income of $37,500 at the 10th percentile and a median household income of $92,847 at the 90th percentile—a difference of more than $55,000. Meanwhile, counties defined as rural according to the RUCC definition had a median household income of $34,673 at the 10th percentile and $60,975 at the 90th percentile—a difference of just $26,300. Besides the RUCC definitions, where rural areas are nested within OMB non-metro areas, the OMB definitions based on a residual have the lowest median household incomes at the 90th percentile, at $62,500 on average. Meanwhile, definitions based on character ($66,300 on average), perception ($83,200), and policy ($85,000) all encompass higher-income rural geographies at the high end.

The racial/ethnic diversity of rural geographies also ranges considerably for all definitions of rural, though HAC's definition of rural captures the widest range of community types. Indeed, the share of people of color at the 10th percentile ranges from 2.4 percent of the population identifying as people

Table 6. Diversity of Rural Areas by Definition

Definition	Population Density (Per Square Mile)		Median Household Income (Dollars)		Share of People of Color (Percent)	
	10th	90th	10th	90th	10th	90th
OMB1	7.2	366.2	33,031	63,550	2.7	53.4
OMB2	11.5	139.3	37,670	61,443	4.9	50.1
RUCC	2.9	55.2	34,673	60,975	3.8	43.6
HAC	7.6	109.3	36,165	71,667	2.7	56.6
RUCA1	4.4	102.7	35,278	66,992	2.4	50.7
RUCA2	7.1	496.9	33,750	65,724	2.8	56.2
HUD	13.9	391.0	39,054	87,396	2.8	48.9
Trulia	17.7	215.0	37,925	78,952	3.2	51.0
FHFA	15.0	1,169.7	35,000	77,174	3.1	55.7
USDA	21.2	1,327.5	37,500	92,847	3.4	55.6

Notes: The population density and share of people of color are weighted by the share of the population in each county, tract, and zip code, depending on definition; the median household income is weighted by the number of households.
Source: Author tabulations of US Census Bureau, 2019 American Community Survey 5-Year Estimates.

of color using the more restrictive RUCA definition to just 4.9 percent using the OMB definition that covers non-metro and micropolitan counties. In every definition of rural, rural areas encompass a large share of geographies where white people comprise at least 95 percent of the population. But on the other hand, most definitions of rural include at least some geographies where rural areas are majority people of color. At the 90th percentile, people of color comprise 43.6 percent of the population according to the RUCC definitions at the low end but 56.6 percent according to the HAC definition on the high end.

Policy Implications and Conclusion

This exploration of rural definitions reveals the wide variations in market size, demographic characteristics, and housing challenges that exist depending on how rural is conceptualized and operationalized. Definitions that use characteristics to classify neighborhoods as rural produce the smallest estimates of rural population, land area, and housing markets. Implicit in these definitions of rural is that population scarcity, including low population density and distance to population centers, chiefly distinguishes rurality from urbanity. Largely as a function of their smaller size, these definitions generally depict rural areas as less diverse, and with lower levels of educational attainment. The poverty rate is also higher. The small area and population covered by character-based definitions could speak to the challenge of finding data that adequately captures a community's essence, leaving researchers to rely on quantifiable characteristics such as density and population flows that capture only the most extreme rural and small town landscapes while omitting areas on the urban fringe.

The larger population captured by perceptual definitions speaks to what the character approach might be missing. Indeed, the population living in neighborhoods perceived as rural is at least double the amount encompassed by the character definitions. The size of the rural population implied by perceptual definitions, both in absolute terms and relative to the comparable size of urban areas, suggests that more research on and attention to rural housing challenges is likely warranted. Interestingly, the perceptual definitions also depict rural areas as having relatively lower poverty rates and higher housing and population densities. Additional qualitative work to understand why people perceive their communities as rural would be helpful in creating further iterations of rural definitions. It would also help answer whether survey respondents live in a rural pocket that gets washed out at larger tract- or county-level geographies.

Like perceptual definitions, policy definitions cast a wide net and yield the highest estimates of rural population and housing markets. Indeed, because federal policies are more politically tenable

when they cover more residents, the policy definitions included in our sample generate a substantial rural population in every state. Possibly because these classifications capture areas that might be considered more urban or suburban by other definitions, the rural population is more diverse, the poverty rate is lower, and internet access is more common in rural areas under the FHFA and USDA policy definitions. For building broad coalitions and ensuring that all rural areas and communities that identify themselves as rural are captured, these expansive definitions are useful. However, to the extent that there are uniquely "rural" housing challenges, an expansive definition makes it harder to identify and target them, especially if there are limited resources to distribute through rural housing programs.

While residual definitions conceptualize rural as the absence of urban, these definitions fall somewhere in between the other categories in terms of housing market size. This is likely a good outcome, as these widely used definitions generally capture a broader and more diverse set of geographies. These residual definitions, though, produce the largest range of estimates for some demographic and housing characteristics, reflecting the fact that constructing rural as a leftover category is substantially dependent on how populated and connected a place must be to be considered urban.

Across the majority of definitions, there are signs of rural commonalities that could be useful in identifying the elements that a rural definition should capture. All of the definitions show low rural population and housing unit densities relative to the nation as a whole. Regardless of the classification used, rural areas are less diverse, have lower educational attainment, and have higher homeownership rates than the nation as a whole. Rural areas are also less well-off, with lower median household incomes across every definition and generally higher poverty rates. A greater share of rural households is without internet access. And across all of the definitions, housing cost burdens are lower in rural areas.

As researchers and policy makers choose how to define rural areas, there are several important considerations. There is no one perfect or correct definition to use, and researchers and policymakers should be thoughtful and intentional about how they identify rural communities. First, data availability is a huge limitation that should be acknowledged. If the OMB definition is the only one possible with the data a researcher has, then tabulating estimates of rural areas based on a residual is better than excluding them entirely. Second, one should consider whether a more inclusive or exclusive definition is appropriate for a given study. There may be political incentives to casting a wide net, and similarly a more inclusive rural definition may better capture the heterogeneity of rural life, ensuring that those who consider themselves to be part of a rural community are included in a program or analysis. Third,

researchers and policymakers should consider the ultimate purpose or goal in selecting a rural definition. Those who are looking to conduct rural research or develop policies should consider what dimensions are most important for conceptualizing rural communities. Connectedness to economic networks, community perceptions, or housing characteristics could be the most important features for different projects or programs, and the chosen definition should be based on the most salient rural characteristics. If, for example, the intrinsic difficulty of providing public services to rural places is the most salient feature of the research or policy, perhaps a definition that emphasizes density and physical connectivity would be most sensible. If the primary goal is to compare individual markets to nearby rural areas, then perhaps the OMB definition is sufficient. In any case, researchers should always consider how their definition might bias their results and, when possible, assess the sensitivity of results to alternative definitions of rural.

Future research should continue to explore other categorizations and ways to break down rural space into more components. Not all rural areas are the same, and definitions that further identify different rural typologies (using geography, employment, transportation, and amenity data, for example) would help further our understanding of rural communities. Definitions that highlight the full spectrum of rurality would also help in reflecting the range of rural perceptions and characteristics that exist in rural communities across the country. While rural may ultimately be an elusive concept, much as urban and suburban are, refining these definitions and making sure rural communities are represented is a worthwhile endeavor for housing researchers.

Appendix

Appendix A. Share of Population Living in Rural Areas by State and Rural Definition (Percent)

State	Residual		Character				Perceptual	Policy		Rural Summary		
	OMB1	OMB2	RUCC	HAC	RUCA1	RUCA2	HUD	FHFA	USDA	Min	Max	Avg
Alabama	8.5	23.4	2.8	19.9	4.3	11.0	37.9	43.6	56.2	2.8	56.2	23.1
Alaska	26.2	31.3	8.0	35.9	15.1	26.2	27.7	51.1	56.1	8.0	56.1	30.8
Arizona	1.4	5.0	0.0	9.3	2.2	5.2	11.8	14.5	17.4	0.0	17.4	7.4
Arkansas	16.7	37.8	4.5	29.0	5.9	18.8	42.3	52.0	68.9	4.5	68.9	30.6
California	0.7	2.1	0.1	3.7	1.0	1.9	6.6	7.9	13.0	0.1	13.0	4.1
Colorado	5.4	12.6	1.4	10.9	3.3	8.3	13.9	19.5	23.0	1.4	23.0	10.9
Connecticut	0.0	5.1	0.0	0.8	0.7	0.7	11.5	8.3	26.6	0.0	26.6	6.0
Delaware	0.0	0.0	0.0	2.9	0.0	3.7	21.3	24.5	44.4	0.0	44.4	10.8
Florida	1.5	3.4	0.1	3.2	0.5	1.5	10.9	7.4	20.1	0.1	20.1	5.4
Georgia	7.5	17.2	1.9	11.1	2.0	5.5	26.6	26.6	35.0	1.9	35.0	14.8
Hawaii	0.0	19.1	0.0	9.3	2.5	5.8	15.1	26.0	49.1	0.0	49.1	14.1
Idaho	8.0	32.9	3.0	28.2	8.4	15.3	35.8	43.8	50.2	3.0	50.2	25.1
Illinois	4.8	11.5	0.5	7.9	1.4	6.2	12.6	16.9	20.9	0.5	20.9	9.2
Indiana	6.6	21.9	0.9	12.9	3.2	8.6	29.8	34.7	41.8	0.9	41.8	17.8
Iowa	24.2	40.4	5.4	29.2	12.9	27.6	31.8	52.2	51.5	5.4	52.2	30.6
Kansas	13.4	31.8	4.7	22.4	8.5	16.1	23.0	45.0	44.7	4.7	45.0	23.3
Kentucky	20.3	41.1	8.9	30.2	7.3	18.9	42.4	55.2	60.7	7.3	60.7	31.7
Louisiana	6.5	16.2	0.9	14.4	2.2	8.3	36.1	29.8	69.8	0.9	69.8	20.5
Maine	31.6	40.7	3.8	30.6	17.9	29.9	57.6	62.7	84.8	3.8	84.8	40.0
Maryland	1.4	2.5	0.0	2.1	0.7	1.4	13.2	8.1	21.4	0.0	21.4	5.6
Massachusetts	0.2	1.4	0.0	0.6	0.4	0.8	9.2	3.4	24.6	0.0	24.6	4.5
Michigan	8.0	18.0	1.9	11.1	4.6	9.1	28.9	27.1	41.5	1.9	41.5	16.7
Minnesota	9.3	22.3	2.9	18.4	7.7	14.7	23.7	34.2	36.7	2.9	36.7	18.9
Mississippi	19.4	53.6	8.1	36.6	6.2	19.7	50.5	66.0	76.3	6.2	76.3	37.4
Missouri	13.8	25.3	4.1	19.3	6.6	14.8	28.7	38.3	44.3	4.1	44.3	21.7

Source: Author tabulations of US Census Bureau, 2019 American Community Survey 5-Year Estimates.

Appendix A. Share of Population Living in Rural Areas by State and Rural Definition (Percent) (Continued)

State	Residual		Character				Perceptual	Policy		Rural Summary		
	OMB1	OMB2	RUCC	HAC	RUCA1	RUCA2	HUD	FHFA	USDA	Min	Max	Avg
Montana	33.3	64.9	11.5	42.8	20.3	38.1	46.3	71.7	77.4	11.5	77.4	45.1
Nebraska	18.1	34.7	8.8	23.8	12.4	20.9	23.7	42.4	38.1	8.8	42.4	24.8
Nevada	1.1	9.2	0.5	6.4	0.9	1.9	6.7	11.4	15.5	0.5	15.5	6.0
New Hampshire	3.6	37.1	0.0	17.6	10.5	17.6	45.8	43.9	64.1	0.0	64.1	26.7
New Jersey	0.0	0.0	0.0	0.5	0.1	0.1	6.7	2.8	19.7	0.0	19.7	3.3
New Mexico	3.2	32.9	0.9	21.1	5.6	11.5	30.7	41.5	40.7	0.9	41.5	20.9
New York	2.0	7.0	0.0	5.4	2.1	4.2	12.9	13.3	18.0	0.0	18.0	7.2
North Carolina	5.8	21.5	2.4	11.2	2.8	7.5	37.1	32.9	55.6	2.4	55.6	19.6
North Dakota	26.5	49.9	21.1	31.5	25.1	30.8	34.6	58.1	63.8	21.1	63.8	37.9
Ohio	3.8	20.2	0.2	10.6	1.9	6.4	22.5	28.7	36.7	0.2	36.7	14.6
Oklahoma	14.6	34.1	2.6	25.3	6.1	15.8	30.9	48.8	46.9	2.6	48.8	25.0
Oregon	2.4	16.2	0.5	14.7	3.7	7.4	22.1	30.6	43.9	0.5	43.9	15.7
Pennsylvania	2.9	11.4	0.3	7.4	2.0	4.3	27.1	20.9	47.6	0.3	47.6	13.8
Rhode Island	0.0	0.0	0.0	0.0	0.1	0.1	8.8	2.7	24.2	0.0	24.2	4.0
South Carolina	5.8	14.9	0.2	12.3	1.3	4.8	37.6	33.1	57.4	0.2	57.4	18.6
South Dakota	25.2	49.9	19.2	40.7	21.6	29.8	37.1	63.3	73.2	19.2	73.2	40.0
Tennessee	8.8	22.5	2.5	16.2	2.5	9.9	36.3	36.2	51.8	2.5	51.8	20.7
Texas	4.9	10.8	0.7	8.6	1.5	4.9	16.2	18.8	28.7	0.7	28.7	10.6
Utah	4.7	10.5	0.4	11.2	2.0	6.0	13.1	16.5	23.2	0.4	23.2	9.7
Vermont	27.0	65.0	9.7	44.1	28.2	48.0	65.2	77.2	88.3	9.7	88.3	50.3
Virginia	9.5	12.3	3.4	10.2	3.2	7.7	25.1	24.6	35.2	3.2	35.2	14.6
Washington	2.4	10.0	0.6	8.1	2.6	5.0	20.3	17.7	35.4	0.6	35.4	11.3
West Virginia	19.2	38.2	6.1	22.9	5.9	17.4	59.1	54.9	86.1	5.9	86.1	34.4
Wisconsin	12.4	25.9	2.8	18.8	7.8	17.2	28.1	38.9	48.6	2.8	48.6	22.3
Wyoming	24.9	69.3	5.4	43.0	15.7	32.2	38.9	74.3	80.8	5.4	80.8	42.7

Source: Author tabulations of US Census Bureau, 2019 American Community Survey 5-Year Estimates.

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