Defining Rural at the U.S. Census Bureau

American Community Survey and Geography Brief

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Introduction

What image comes to mind when thinking of a rural place? Does it include the farmhouse down the road? Does it include the new housing subdivision on the outskirts of town? Does it include the community that has formed at the crossroads?

The U.S. Census Bureau defines rural as what is not urban—that is, after defining individual urban areas, rural is what is left. Other federal agencies and researchers may use a different definition of rural. For example, the U.S. Department of Agriculture’s Economic Research Service illustrates that there are several different ways to measure rural communities.¹

This brief highlights the history of delineating rural at the Census Bureau, the current delineations of urban/rural areas, and the relationship that exists between decennial censuses, the American Community Survey (ACS), and geography. Additionally, the brief categorizes counties based on three types of rurality and highlights the availability of ACS estimates.

Over the past century, the United States has experienced substantial urban growth. The suburbs around large cities have expanded, and in many areas account for a large proportion of an urban area’s population and land area. Midsize cities and small towns have now grown into larger urban agglomerations. As urban areas and their populations have increased, the rural population has declined as a percentage of the total population, from 54.4 percent in 1910 to 19.3 percent in 2010.² Changes to settlement patterns have necessitated periodic recalibrations in methods and definitions of what constitutes urban and rural.

“Statistics have been split into urban and rural categories in decennial census publications for over a century.”³

Geography plays a pivotal role throughout the collection and dissemination of data and statistics for the nation. For statistical measurement, it is necessary to subdivide the country into small geographic units. Figure 1 shows the standard Census Bureau divisions of geography and their relationships. Advancements in technology, like satellite imagery and computer-based mapping, have fostered new methods to collect essential data. The innovation and technological advancements in data collection aid our ability to create a more nuanced, yet uniform classification of urban areas.

The Census Bureau began identifying urban places in reports following the 1870, 1880, and 1890 Censuses. In the early part of the twentieth century, the Census Bureau adopted an official definition, identifying incorporated cities and towns with at least 2,500 people as urban. Population and territory outside of cities and towns with 2,500 or more people were considered rural. Definitions evolved over this period to reflect changing settlement patterns of the United States, but


³ A brief history of the Census Bureau’s definitions of urban and rural areas is available at <www.census.gov/history/www/programs/geography/urban_and_rural_areas.html>.
also in response to changes in data users’ needs and technology.4, 5
While the definition of urban has
continued to progress to include
more people and territory in the
United States, the rural definition
remains as all territory, persons,
and housing units not defined
as urban.6

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Urban or Rural?
Deciding where to draw the line
between urban and rural can be a
complex task. Densely developed
“downtowns” and sparsely popu-
lated areas are relatively easy to
identify. Where does an urban area
end as settlement patterns
change from the city center to
suburbs and beyond? The ambi-
guity of the urban area’s edge is
diminished with the application
of standard measures.

The Census Bureau uses a
definition based on population
density and other measures of
dense development when identi-
fying urban territory. The definition
seeks to draw the boundary
around an urban area’s “footprint”
to include its developed territory.
To accomplish this, the Census
Bureau’s definition of urban is
largely based on residential popu-
lation density and a few other
land-use characteristics to identify
densely developed territory.

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4 Ibid.
5 See “Differences between the Final
2010 Census Urban Area Criteria and the
Census 2000 Urban Area Criteria” available
at <www2.census.gov/geo/pdfs/reference
6 For a detailed discussion of urban/rural
historical definitions, see Michael Ratcliffe,
“A Century of Delineating a Changing
Landscape: The Census Bureau’s Urban and
Rural Classification, 1910 to 2010,” presented
at the Annual Meeting of the Social Science
History Association, November 14, 2015,
Baltimore, MD.
Starting with the 1950 Census, the Census Bureau began implementing criteria, through a uniform set of objective rules, which consistently define urbanized areas with a population of 50,000 or more. From 1950 through 1990, the delineation process was interactive, with geographers delineating boundaries “by hand” on paper maps (1950–1980) or in a geographic information system (1990). Technological limitations meant that the population density-based approach was applied only to urbanized areas with 50,000 or more people. Outside of urbanized areas, urban was defined as places with 2,500 or more people. Technological advancements, increased computing power, and data processing following the 1990 Census allowed the Census Bureau to extend the density-based approach to smaller clusters of the population, resulting in a consistent and seamless definition of urban areas with 2,500 or more people. To define an area as urban, the Census Bureau uses criteria including total population thresholds, density, land use, and distance. Census blocks are the “building blocks” for urban areas.

**Population thresholds**

In 2000, the Census Bureau expanded the classification to include two types of urban areas: urbanized areas and urban clusters. Urbanized areas are areas with 50,000 or more people. Urban clusters are areas with at least 2,500 but fewer than 50,000 people.Outside of urbanized areas, urban was defined as places with 2,500 or more people. Technological advancements, increased computing power, and data processing following the 1990 Census allowed the Census Bureau to extend the density-based approach to smaller clusters of the population, resulting in a consistent and seamless definition of urban areas with 2,500 or more people. To define an area as urban, the Census Bureau uses criteria including total population thresholds, density, land use, and distance. Census blocks are the “building blocks” for urban areas.

**Density**

In order for a block to qualify as urban, it must have a density of 1,000 people per square mile (ppsm). Using an automated process, qualifying blocks are aggregated to form a central core area. Once the initial identification process is concluded, a second automated pass is initiated with a lower density threshold, 500 ppsm. This aids in identifying blocks that do not meet the initial density threshold, but may contain a mix of residential and nonresidential land use (parks, schools, commercial, retail, or industrial uses), and therefore should be included within the urban area.

**Land use**

Beginning in 2010, the Census Bureau used land cover and impervious surfaces (paved areas, such as parking lots) to help identify nonresidential urban land uses. Airports, for instance, are part of the urban landscape, but because they lack population density and tend to be located on the fringe of developed areas, they have not always been identified as a part of an urban area. An airport must have a minimum of 2,500 passengers annually and be located within a half mile of other qualifying territory to be included in an urban area. A block containing nonresidential urban land uses can be included if it has a high amount of impervious surface and is within a quarter mile of the urban area.

**Distance**

The Census Bureau recognizes that there are instances where urban development is not continuous, but perhaps should be included in a representation of an urban area. For example, a housing subdivision may be separated from other urban development by a large regional park, a shopping center or other commercial development, or even a small farm. In order to accommodate these real-world instances in patterns of urban development, hop and jump criteria are applied. The hop criteria allows for areas up to half a mile along a road corridor (with multiple hops) to be included. The jump criteria allows for the inclusion of areas up to 2.5 miles, but only one jump along a road.

Rural is defined as all population, housing, and territory not included within an urbanized area or urban cluster. As a result, the rural portion of the United States encompasses a wide variety of settlements, from densely settled small towns and “large-lot” housing subdivisions on the fringes of urban areas, to more sparsely populated and remote areas. Figure 2 illustrates the classification process.

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7 A minimum of 1,500 people must reside outside of group quarters to classify an area as urban. More details about group quarters are available at <http://www2.census.gov/programs-surveys/acs/tech_docs/group_definitions/2015GQ_Definitions.pdf>.

8 In 2000, the criterion was a minimum of 10,000 passengers.


10 Details about the Census Bureau’s urban and rural classification are available at <www.census.gov/geo/reference/urban-rural.html>.
In 2010, there were 486 urbanized areas and 3,087 urban clusters in the United States.11 Urbanized areas contained 71.2 percent of the population, while 9.5 percent were within urban clusters. The rural areas of the United States contained 19.3 percent of the population. Urban areas and urban clusters (Figure 3), which contained the majority of the population, only occupied about 3.0 percent of the land area of the country.

Does Rural Equal Nonmetropolitan?
The Census Bureau’s delineation of urban areas and urban clusters provides the basis for the Office of Management and Budget’s delineation of Core Based Statistical Areas or Metropolitan (metro) and Micropolitan (micro) statistical areas.12 Metro and micro areas are nationally delineated for statistical purposes. Nonmetropolitan is often used synonymously with rural, and while there is overlap, these geographic entities are not identical and should not be used interchangeably.

The Urban/Rural Population Spectrum
By using rules for creating divisions between urban and rural, it is possible to have peculiar outcomes in the classification. Since the urban/rural classification is built on blocks and tracts, a county’s population can be a combination of urban and rural. A tract’s population can also be split between urban or rural.

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11 More details about 2010 Census urban areas are available at <www.census.gov/geo/reference/ua/uafacts.html>.

Core Based Statistical Areas (Metropolitan and Micropolitan Areas)

The delineations of urban and rural areas are used for statistical purposes to tabulate the population in the United States, including Puerto Rico and island areas. Additionally, the urban/rural delineation supports the Office of Management and Budget’s (OMB) delineation of Core Based Statistical Areas (CBSAs) or metropolitan (metro) and micropolitan (micro) statistical areas. Urbanized areas with 50,000 or more people form the urban cores of metro areas. Urban clusters with at least 10,000 and less than 50,000 people form the urban cores of micro areas. Metro and micro areas are based on counties. However, the underlying geographies (urban areas and urban clusters) that are used to define CBSAs are smaller and can be either urban or rural. Each metro or micro area must have one or more counties containing an urban core area. Additional, adjacent counties with substantial social and economic integration to the urban core may be included.

In the United States, there are 381 metro areas and 536 micro areas defined by OMB. Metro and micro areas account for about 94 percent of the population, while the remaining 6 percent is nonmetro. The amount of land area in metro and micro areas is about 47 percent and the remaining 53 percent is nonmetro.
In this brief, we placed counties into three categories based on the percentage of the population that was rural as of the 2010 Census.\textsuperscript{13} The three rurality categories are: (1) completely rural, (2) mostly rural, and (3) mostly urban.\textsuperscript{14} Using the 2010 urban/rural definition, there are 704 counties or county statistical equivalents that are 100 percent or completely rural. These counties have no areas that are identified as urban and are home to less than 2.0 percent of the total U.S. population. Over 20 percent of the population living in these 704 completely rural counties lives within a metro area (Table 1). Within the mostly urban counties, 29 counties have no rural population, meaning the counties are 100 percent urban. According to the 2010 Census, these 100 percent urban counties comprised about 3.5 percent of the total U.S. population. When combined, the 1,253 mostly urban counties contained about 266.6 million people or 86.3 percent of the total U.S. population in 2010.\textsuperscript{15}

Counties were sorted based on the proportion of the population living in an urban or rural area in 2010. Table 2 shows the five most and least populous counties within each rurality category and their respective percentage of the population living in rural areas. A wide range of population crosses each grouping. For example, completely rural counties range from 82 people in Loving County, TX, to more than 34,000 people in Lincoln County, ME. Stanley County, SD, provides a good example of the complicated nature of classifying counties as either mostly urban or mostly rural. Stanley County had a population of nearly 3,000, with 2,078 people residing in Fort Pierre, SD, the county’s largest population center. Fort Pierre is located across the Missouri River from Pierre, SD, and is included in the Pierre urban cluster, which had a total population of 14,425 in 2010. With 57.5 percent of its population defined as urban, Stanley County is

\textsuperscript{13} This includes the United States only, not Puerto Rico.
\textsuperscript{14} Completely rural counties have a population that is 100 percent rural. Mostly rural counties have a population that is 50.0–99.9 percent rural. Mostly urban counties have a population that is less than 50.0 percent rural.
\textsuperscript{15} There were 1,253 mostly urban counties in the 2011–2015 ACS 5-year estimates, but 1,254 mostly urban counties in the 2010 Census. The statistics for Urban/rural split and metro/nonmetro split in Table 1 use data from the 2011–2015 ACS.

### Table 1. County Type by Percentage of Urban/Rural and Metro/Nonmetro

<table>
<thead>
<tr>
<th>Type of county</th>
<th>Number of counties\textsuperscript{1}</th>
<th>Percent of total population</th>
<th>Urban/rural split</th>
<th>Metro/nonmetro split</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Percent urban</td>
<td>Percent rural</td>
</tr>
<tr>
<td>Mostly urban</td>
<td>1,253</td>
<td>86.3</td>
<td>89.0</td>
<td>11.0</td>
</tr>
<tr>
<td>Mostly rural</td>
<td>1,185</td>
<td>11.9</td>
<td>33.1</td>
<td>66.9</td>
</tr>
<tr>
<td>Completely rural</td>
<td>704</td>
<td>1.7</td>
<td>0.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

\textsuperscript{1} Number of counties or county statistical equivalents are based on 2011–2015 American Community Survey 5-year estimates. In 2013, Bedford city, VA, changed to town status and was added to Bedford County, decreasing the total number of mostly urban counties to 1,253.

Nonmetro includes micropolitan areas.

Sources: U.S. Census Bureau, 2010 Census and 2011–2015 American Community Survey 5-year estimates.

### Table 2. Selected Most and Least Populous Counties by Rurality: 2010

<table>
<thead>
<tr>
<th>County</th>
<th>100 percent rural</th>
<th>50–99 percent rural</th>
<th>Less than 50 percent rural</th>
</tr>
</thead>
<tbody>
<tr>
<td>Most populous</td>
<td>Lincoln County, ME</td>
<td>York County, ME</td>
<td>Los Angeles County, CA</td>
</tr>
<tr>
<td></td>
<td>34,457</td>
<td>197,131</td>
<td>9,818,605</td>
</tr>
<tr>
<td></td>
<td>Accomack County, VA</td>
<td>33,164</td>
<td>168,878</td>
</tr>
<tr>
<td></td>
<td>Cass County, MN.</td>
<td>28,567</td>
<td>153,923</td>
</tr>
<tr>
<td></td>
<td>Cherokee County, NC</td>
<td>27,444</td>
<td>146,445</td>
</tr>
<tr>
<td></td>
<td>San Jacinto County, TX</td>
<td>26,384</td>
<td>141,752</td>
</tr>
<tr>
<td>Least populous</td>
<td>Arthur County, NE</td>
<td>460</td>
<td>5,301</td>
</tr>
<tr>
<td></td>
<td>Kenedy County, TX.</td>
<td>416</td>
<td>4,010</td>
</tr>
<tr>
<td></td>
<td>King County, TX.</td>
<td>286</td>
<td>3,240</td>
</tr>
<tr>
<td></td>
<td>Kalawao County, HI</td>
<td>90</td>
<td>2,801</td>
</tr>
<tr>
<td></td>
<td>Loving County, TX.</td>
<td>82</td>
<td>2,513</td>
</tr>
</tbody>
</table>

Source: U.S. Census Bureau, 2010 Census.
classified as mostly urban for this analysis, however, nearly all of the county's land area (99.9 percent) is rural. Stanley County is in the mostly urban category with large metro counties, such as San Diego, CA; Los Angeles, CA; and Cook, IL (Chicago). Stanley County provides a good example of the challenges of classifying counties based only on the percentage of a county's population that is rural.

Relating the Urban/Rural Definition to the American Community Survey

The definitions of urban and rural are updated every decade following the decennial census. The ACS uses these definitions to identify urban or rural throughout the decade. The urban and rural definitions are updated every 10 years, annual data from the ACS rely on existing definitions. Since this is the case, the ACS does not necessarily reflect a community's urbanization process. The new urban definition generally goes into effect in the ACS the second year following the decennial census and is used until the second year after the next decennial census (urban areas based on the 2010 Census were announced and available in 2012). Tables 3 and 4 summarize the geographic relationship between decennial census and ACS with regard to urban/rural delineations. In order to create the

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16 Estimates of urban and rural population, housing units, and characteristics reflect boundaries of urban areas defined based on 2010 Census data. As a result, data for urban and rural areas from the ACS do not necessarily reflect the results of ongoing urbanization.

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Table 3.
Geographic Relationship Between the Decennial Census and 1-Year ACS for Urban/Rural Areas

<table>
<thead>
<tr>
<th>ACS 1-year</th>
<th>Census year</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2000</td>
</tr>
<tr>
<td>2005</td>
<td>X</td>
</tr>
<tr>
<td>2006</td>
<td>X</td>
</tr>
<tr>
<td>2007</td>
<td>X</td>
</tr>
<tr>
<td>2008</td>
<td>X</td>
</tr>
<tr>
<td>2009</td>
<td>X</td>
</tr>
<tr>
<td>2010</td>
<td>X</td>
</tr>
<tr>
<td>2011</td>
<td>X</td>
</tr>
<tr>
<td>2012</td>
<td>X</td>
</tr>
<tr>
<td>2013</td>
<td>X</td>
</tr>
<tr>
<td>2014</td>
<td>X</td>
</tr>
<tr>
<td>2015</td>
<td>X</td>
</tr>
</tbody>
</table>


Table 4.
Geographic Relationship Between the Decennial Census and 5-Year ACS for Urban/Rural Areas

<table>
<thead>
<tr>
<th>ACS 5-year</th>
<th>Census year</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2000</td>
</tr>
<tr>
<td>2005–2009</td>
<td>X</td>
</tr>
<tr>
<td>2006–2010</td>
<td>X</td>
</tr>
<tr>
<td>2007–2011</td>
<td>X</td>
</tr>
<tr>
<td>2008–2012</td>
<td>X</td>
</tr>
<tr>
<td>2009–2013</td>
<td>X</td>
</tr>
<tr>
<td>2010–2014</td>
<td>X</td>
</tr>
<tr>
<td>2011–2015</td>
<td>X</td>
</tr>
</tbody>
</table>


Table 5.
Type of County and ACS Estimates Available

<table>
<thead>
<tr>
<th>Type of county</th>
<th>Number of counties</th>
<th>ACS 1-year estimates</th>
<th>ACS 5-year estimates only</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mostly urban</td>
<td>1,253</td>
<td>729</td>
<td>524</td>
</tr>
<tr>
<td>Mostly rural</td>
<td>1,185</td>
<td>90</td>
<td>1,095</td>
</tr>
<tr>
<td>Completely rural</td>
<td>704</td>
<td>0</td>
<td>704</td>
</tr>
</tbody>
</table>

Source: U.S. Census Bureau, American Community Survey.
Additional Information

Urban and rural classification
www.census.gov/geo/reference/urban-rural.html
www.census.gov/geo/reference/ua/urban-rural-2010.html
www.census.gov/geo/reference/ua/uafaq.html

2010 Census
Information on other population and housing topics is presented in the 2010 Census Briefs series located on the Census Bureau's Website at <http://census.gov/library/publications.html>. This series also presents information about race, Hispanic origin, age, sex, household type, housing tenure, and people who reside in group quarters.

For more information on confidentiality protection, nonsampling error, and definitions, see <www.census.gov/prod/cen2010/doc/pl94-171.pdf>.

Metropolitan and micropolitan areas
For more information on metropolitan and micropolitan statistical areas, including concepts, definitions, reports, and maps, see <www.census.gov/population/metro/>.

Historical census data
www.census.gov/population/www/censusdata/hiscendata.html

American Community Survey
The American Community Survey (ACS) is a nationwide survey designed to provide communities with reliable and timely demographic, social, economic, and housing data for the nation, states, congressional districts, counties, places, and other localities every year. It has an annual sample size of about 3.5 million addresses across the United States and Puerto Rico and includes both housing units and group quarters (e.g., nursing facilities, college dormitories, and prisons). The 5-year file of the ACS is designed to provide reliable statistics for small populations and small geographical areas of the United States. For information on the ACS sample design and other topics, visit <www.census.gov/programs-surveys/acs/>.

Source and Accuracy
The data presented in this report are based on the ACS sample interviewed from January 2011 through December 2015. The estimates based on this sample describe the average values of people, households, and housing unit characteristics over this period of collection. Sampling error is the uncertainty between an estimate based on a sample and the corresponding value that would be obtained if the estimate were based on the entire population (as from a census). Measures of sampling error are provided in the form of margins of error for key estimates included in this report. All comparative statements in this report have undergone statistical testing, and comparisons are significant at the 90 percent confidence level unless otherwise noted. In addition to sampling error, nonsampling error may be introduced during any of the operations used to collect and process survey data such as editing, reviewing, or keying data from questionnaires. For more information on sampling and estimation methods, confidentiality protection, and sampling and nonsampling errors, please see the ACS Multiyear Accuracy of the Data document located at <www.census.gov/programs-surveys/acs/technical-documentation/code-lists.html>.

Contacts
If you have questions or need additional information, please call the Customer Services Center at 800-923-8282. You can also visit the Census Bureau's Question and Answer Center at <https://ask.census.gov> to submit your questions online.

Suggested Citation