

Hi. I'm Mary Leisenring from Census Academy, and I'm here with Vicky Mick from the American Community Survey Office. Oftentimes, data seekers have more complex questions about what data are available for a particular geographic level or they want to know how to compare one geographic area to another. For example, let's take a geography like a census tract. You may want to know what census tract your address is located in or what census tracts make up your county, or you may want to know how your census tracts have changed over time. Stick with Vicky today as she shows you how to use different geography related tools such as Geocorr, census reporter, geocoder, and data.census.gov to help you answer your geography related questions.

Hi, I'm Vicky Mick from the American Community Survey Office. Today's lesson will help you learn the basics of geographic concepts as they relate to ACS data. This video will be useful to you if you want to understand how to access ACS data at various geographic levels from the national level down to the block group level. After today's video, you will be able to explain how geography relates to census bureau data. Describe some of the different geographic areas available for ACS data, determine what geographic areas are published in the annual ACS datasets, understand how to use an external site called Geocorr to identify the relationships between different geographic areas. Understand how to use census geocoder. Understand how to select ACS data for different geographic levels in data.census.gov, and an external site called census reporter. And finally, locate the TIGER shaped files joined with ACS data for mapping purposes, which are the files of geographic and cartographic information used to map data.

Let's discuss the relationship between geography and census data.

Geography is at the heart of all census bureau data. We strive to provide data for those geographic areas that are most useful to the many and varied users of census bureau data. In essence, geography provides meaning and context to statistical data. Without the context of geography, a number would just be a number. Geography provides the framework for survey design, survey sample selection, data collection, data tabulation, and data dissemination.

Depending on what survey we're discussing, different geographic areas are available. So, we're going to talk about what geographies are available for ACS data.

There are many geographic areas for which you can find data. The easiest ones to recognize and the most common geographies that people request data for are the nation states, metropolitan areas, counties, places which is the census term for cities, zip code tabulation areas, census tracts, and block groups. You could find the definitions for all geographic areas in the Geographic Areas Reference Manual or in the Geography Glossary. Links to these sites are found in the resources section below this video. The ACS provides data at very granular levels like zip code tabulation areas, census tracts, and block groups. Zip code tabulation areas are similar to US postal service zip codes, and in most cases, a zip code tabulation area is the same as a US Postal Service zip code. Census tracts are small subdivisions of counties that typically have between 1200 and 8000 residents. Block groups are subdivisions of census tracts that include between 600 and 3000 people each. In the ACS, the block groups are the lowest or smallest level of geography published. You

can only access ACS data at these geographic levels from the ACS five-year data, not the one-year data. I'll discuss this a bit more later. As this example shows in Harris County, Texas, the relationship between these common geographic types and how they are nested within one another. Census tracts lie within counties. Block groups lie within census tracts like the block groups shown here. Regardless of the type of geographic area, the ACS data are released based on the population size of each geographic area. The census generally releases three main ACS data products. The one year, one year supplemental, and five-year estimates. We release the data through a variety of tables about one year after the data are collected. ACS one-year estimates was combined data collected over 12 months are available for geographic areas with a population of 65,000 or more. ACS supplemental one-year estimates are a subset of detailed tables that are available for geographic areas with populations of 22,000 or more. One-year supplemental estimates are a simplified versions of popular ACS tables and provide the most current data to almost twice as many geographies compared to the standard one-year release. ACS five-year estimates combine data collected over 60 months and are available for geographic areas of all population sizes down to the granular census tracts and block group levels. It is helpful to understand how the availability of estimates is tied to geography. For example, if you're looking for data for all counties in the state of Oregon, you would want to use the five-year estimates. Due to the population sizes, you could only obtain data on 15 counties from the one-year estimates whereas you could obtain data for all 36 counties from the five-year estimates.

Let's take a break for a knowledge check.

ACS data are available for all of the geographies below except for blank. Places, blocks, block groups, or census tracts. If you answered blocks, you are correct. ACS data are available for all geographies shown except for blocks.

Let's talk about the resources to better help you understand geography boundaries and possible changes over time.

The geography in ACS webpage shown here provides a variety of resources to help data users to learn more about the geographic areas for which ACS data are available, about geographic boundary changes over the years, geography concepts and more. The resources include the handbook titled "Geography and the American Community Survey. What Data Users Need to Know." Check out the handbook to learn about the geographic areas for which ACS data are available, special considerations in working with spatial data, and links to tools and other resources that data users can use to map ACS data. Now let's talk more about the geography boundaries by year resource shown on this page. The boundaries of geography areas change from time to time due to changes in population after each decennial census or due to legal changes by different government entities. Data users need to know the latest available geographic boundaries for the published ACS data. The census bureau uses the term vintages to refer to the latest available geographic boundaries. The geography boundaries by year page helps data users determine vintages for the ACS data sets previously released. This page would be helpful if you're wondering if the most recent ACS data will use the most current decennial census boundaries or the previous decennial census boundaries. For example, zip code tabulation areas were produced using the 2010 census boundaries with the 2020 ACS five-year data release. But when the 2021 five-year

data were published, the zip code tabulation areas were produced using the 2020 census boundaries. Not the 2010 census boundaries. It is also helpful to know that for ACS five-year estimates, we use the last year of the estimate period to determine which geographic boundaries were used. For example, the 2021 ACS one-year estimates and the 2017 to 2021 ACS five-year estimates used the same vintage of geographic boundaries.

Let's talk about tools that will help you compare data for different geographic areas.

The state data center in Missouri created a great resource to help data users work with the Census Bureau's geographies called the Geographic Correspondence Engine or Geocorr for short. It is a tool that allows you to show the relationship between several geography areas. It also allows you to see the relationship between the same types of geography over time. Let me walk you through a demo using Geocorr. Suppose you want to determine which census tracks in the city of Tuskegee, Alabama, had the highest numbers of residents with bachelor's degrees in 2010. Since it's not possible to see census tracks within a city in the data.census.gov platform, you will have to rely on Geocorr to determine which census tracks are in the city of Tuskegee. Then you can look at the data for those tracks in data.census.gov. See the link to the Geocorr site below the video. So first, go to the Geocorr site and select the version for 2018 which would provide 2010 census track boundaries. The descriptions next to each version explain which Geocorr version to use. For example, version 2022 states that it uses geography from the 2020 census and beyond. If you select the 2018 or 2014 versions, you will see that they work with 2010 census boundaries. I'm choosing 2018 because I want the most updated 2010 boundaries and this option has added new district boundaries. Next, choose a state, Alabama in this case. Then choose place in the source box left hand column. Then choose census track in the target geographies box on the right. Scroll down and under the output options, you can click generate a data file in a CSD or tab delimited format. You can select to generate a report as an HTML, PDF, or plain text format. I will select the CSV file so that I could easily download and view the results in Excel. Scroll down and hit run request. You will see a file ending in CSV on the output page that pops up. And here is the file. I've opened the file, and now I want to filter this table to find the census tracks only in the city of Tuskegee. I will click on the place name column, select filter, select Tuskegee, and now I see all the census tracks that are located in this city of Tuskegee, Alabama. Now that I have these tracks identified, I can go to data.census.gov to find educational attainment data for those tracks. Here is the data that census.gov page. From here I would like to find the number of people over the age of 25 who completed bachelor's degrees in the city of Tuskegee by census track. So here I will select event search. I will select year or years in this case, and the year is 2010. Keep in mind that if you do not select a year, the system will provide the data that was released most recently. You would then have to change the year on the drop-down option that's provided in a particular table. Next, I'm going to click on geography. I'm going to select census track. I'm going to select Alabama, and I know that Tuskegee is in the county of Macon. I'm going to scroll down to select Macon County, and then I'm going to select those census tracks that are in Macon County in the city of Tuskegee. They include census track 2315, census track 2316.02, 2316.03, 2317, 2318, 2319, 2320, 2321, and 2323. These are the census tracks that are located in the city of Tuskegee, Alabama. Now I'm interested in the educational attainment data, so I can select another filter under the topics section. I'm

going to select education and then educational attainment. And then I click search. I know that the first table is 1501 will suffice. I will select that table and you see we're looking at table S1501, educational attainment and this is for the 2010 ACS five-year data. I can download this table in Excel. If I click on this icon, what I will see will look like what's on the screen. I can also map the data by clicking on the map icon here. Once I click on the map icon, a map is quickly revealed, and the first variable in the table is shown. But I can change this variable by clicking on the variables option here, clicking on the drop down and selecting bachelor's degree or higher. I can see that the darkest shade of blue is for census tract 2316.02 and then I can refer to the map legend to see what the shades of color represent. You can learn more about how to use data.census.gov by viewing how to materials or viewing the recorded training videos in a resources list below this video.

Finding ACS data by geography. Next, let's explore how to find data for a specific address.

I have two very handy resources to help you find data on any particular address. This functionality is not available in data.census.gov. The first resource is census geocoder, which allows you to enter an address to find the corresponding geographies, however, it does not provide data for the geographies. Data users can also geo code up to 10,000 addresses. Geo coding is the process of inputting an address and receiving back latitude, longitudinal coordinates or the geographic coordinates of an address. For the census that also means receiving other geographic identifiers such as the state, county, city, or place, et cetera. Learn more at the geo coder user guide link provided below this video. Census Reporter is another great external site that was developed for reporters. What I like about it is that it allows you to enter in an address to find all of the corresponding geographies for that address and the most current data for those geographies. The tool was not created by the census bureau, but we have a short data gym video training on using census reporter. Find the link to that video in the resources below. Now I'm going to take you to the geo coder tool for a quick demonstration. First, go to geocoding.geo.census.gov. Then select the fine geographies link. From the drop down select the one-line address processing. Enter the address on the one-line address area. In this case, I've entered 1615 Franklin Street Northeast, Washington, D.C., 20018. Note that you can select the vintage from the current year to the previous vintage for 2010. Next, select get results. Scroll down the page to see the different geography identifiers for that address. The census tract number for that address is 91.02. You can select the batch processing option to enter a CSV file with up to 10,000 addresses. Census Reporter is another very easy tool to use. Let's say you want some demographic data for your neighborhood and decide to use the census tract for your address to approximate the neighborhood. Go to censusreporter.org. First, you would enter the address in the search box next to the profile at the top of the screen. The address I will enter here is 1615 Franklin Street Northeast, Washington, D.C., 20018. Census Reporter offers a list of potential address matches. Select the address that matches. Then notice the many geography areas from the block group, census tract, to the county and state. Select the census tract which is census tract 91.02. On the screen, you can scroll down to see the variety of demographic data for that census tract, and that was your introduction to census reporter. See the link to the Census Reporter tutorial video below.

Let's take another break for a knowledge check.

Yield census geo coder to find the 2010 and 2020 census tract numbers for the address 977 Justin Street, Pullman, Michigan, 49450, which is in Allegan County, Michigan. What are the census tract numbers? Pause this video to conduct your search in the Geocorr tool. Then resume the video. If you found the 2010 census tract number to be 310 and 310.01 for 2020, you are correct. That census tract has undergone a boundary change since 2010. Now that we know the 2010 census tract number for the address at 977 Justin Street has changed to 310.01, use data.census.gov to find the estimated percentage of people aged 25 and over who have completed high school or higher. You would use the 2017 to 2021 ACS five-year data. Pause this video to conduct your search in data.census.gov. Then resume the video. If you said 58.4%, you are correct. That is the estimate shown in table S1501 using the ACS 2021 five-year data. See the link to the table below the video. If you are interested in mapping ACS data, you can start with the TIGER line shape files provided by the Census Bureau. These are a limited set of demographic and economic ACS data pre-joined with geographic information. TIGER stands topologically integrated geographic encoding and referencing system. Keep in mind that the TIGER line shape files are designed for use with GIS or the Geographic Information System Software which the Census Bureau does not provide. Visit the link below to learn more and access the files.

Here is where you can find more information on geography.

Here are a couple of geography resources that can help you with your geography related questions. Take a look at the Census Academy course titled The Ins and Outs of Census Geography at the link on the slide or on YouTube to learn more about census geography. Or view the recorded webinar on Geography Areas and Concepts for the American Community Survey.

Here is what you've learned today. Today you learned that the ACS provides data at a variety of geographic levels. Regardless of the type of geographic area, the ACS data are released based on the population size of each area. Resources are available to learn more about geography and ACS data such as our handbook, recorded videos, and the geography and ACS webpage. You can use Geocoder to identify geo codes of an address or thousands of addresses. You can use Geocorr to identify the relationships between different geographic areas. You can select ACS data at different geographic levels using data.census.gov or census reporter. And finally, the census provides TIGER line shape files joined with ACS data for mapping purposes.