6. CASE STUDIES USING ACS DATA

Case Study #1: Employment Data for the Standing Rock Sioux Tribe

Skill Level: Introductory
Subject: Unemployment
Type of Analysis: Understanding employment data for American Indians on reservations
Tools Used: Data.census.gov, spreadsheet
Authors: Cheryl Penny, Employment and Training Director, Standing Rock Sioux

The Employment and Training Director for the Standing Rock Sioux Tribe received two related questions that needed answers. How many American Indian people on the reservation are unemployed? And how many are out of a job but not even counted as unemployed because they have barriers to employment that prevent them from actively looking for work?

The question about the number of unemployed and not working American Indians on the reservation is important because it indicates the need for services provided by the tribal employment and training program. In addition, the count of the American Indian unemployed on the reservation—the service area for the tribe's program—is a key factor determining the amount of funding the tribe receives under the special Native American workforce program administered by the U.S. Department of Labor.

Where can the director look for answers? Who counts unemployed American Indian people in reservation areas? The planner for the reservation has an idea: try the U.S. Census Bureau. It counts people in lots of ways and could be a good place to start.

When she checks around, she finds that the Census Bureau has staff in each regional office called "data dissemination specialists" who are there to help census data users find the information they need.[40] There are also Census Information Centers around the country that specialize in helping those looking for data specifically on the American Indian and Alaska Native population.[41]

The director learns that the Census Bureau's continuously updated American Community Survey (ACS) is the only federal program that publishes detailed information on the American Indian population in reservation areas. She also learns that data from the ACS are available to the public through the Census Bureau's Web site on the data.census.gov platform.[42]

However, the data.census.gov platform presents its own challenges. It has so much data that finding exactly what she wants takes some practice, even with the helpful video tutorials.[43] So the director asks an expert to guide her through the process.

The first step is to clearly specify the information she is looking for. In this case, the director is looking for: (1) the number of persons counted as unemployed and (2) the number counted as being of working age (aged 16 and older) but neither employed nor unemployed—or "not in the labor force" in the language of employment statistics. While unemployment statistics are often calculated based on the ratio of unemployed to the labor force, the U.S. Department of the Interior, Bureau of Indian Affairs includes people who are available for work, but may not be actively looking for work due to barriers to employment. For more information on the challenges of calculating unemployment and labor force statistics for tribal areas, view the U.S. Department of the Interior's 2013 American Indian Population and Labor Force Report.[44]

Then there is geography to consider. The numbers that the director needs are those just for people living on the reservation. Fortunately, the Census Bureau publishes data for reservation areas. Other sources of employment information, such as the Bureau of Labor Statistics, do not.

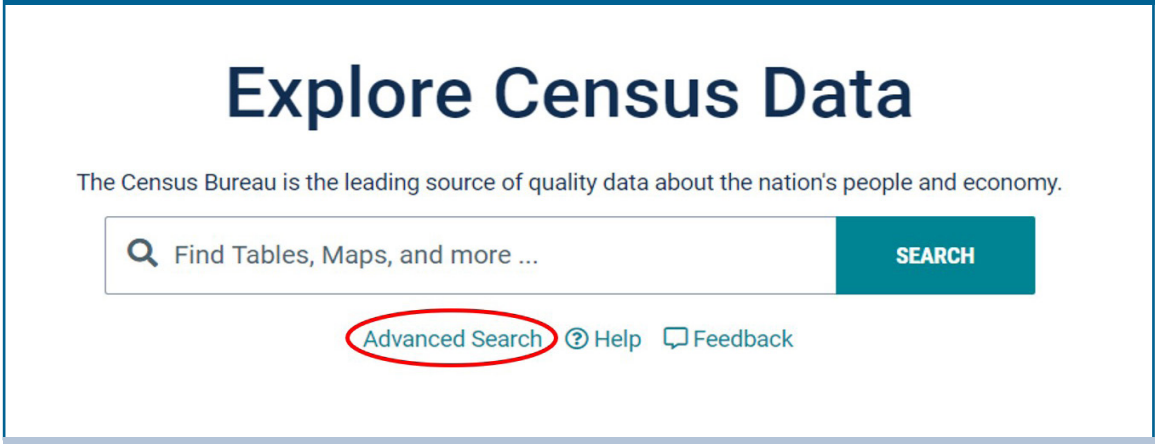
The director does not want numbers for everyone living on the Standing Rock reservation; roughly 25 percent of persons living on the reservation are not American Indian people. The total numbers of people who are

[40] U.S. Census Bureau, Census Academy, <www.census.gov/data/academy.html>.
[41] U.S. Census Bureau, Census Information Centers, <www.census.gov/about/partners/cic/network.html>.
[42] U.S. Census Bureau, data.census.gov, <https://data.census.gov>.
[43] U.S. Census Bureau, Data Gems, <www.census.gov/data/academy/data-gems.html>.
[44] U.S. Department of the Interior, Bureau of Indian Affairs, "2013 American Indian Population and Labor Force Report," <www.bia.gov/sites/bia.gov/files/assets/public/pdf/idc1-024782.pdf>.

unemployed and not in the labor force for the area are not sufficient. She needs to consider only those people on the reservation who identify themselves on the ACS questionnaire as American Indian people.

To extract unemployment and not-in-labor-force data from data.census.gov for American Indian people living on the Standing Rock reservation, she begins by navigating to <https://data.census.gov> and clicking on "Advanced Search" (see Figure 6.1).

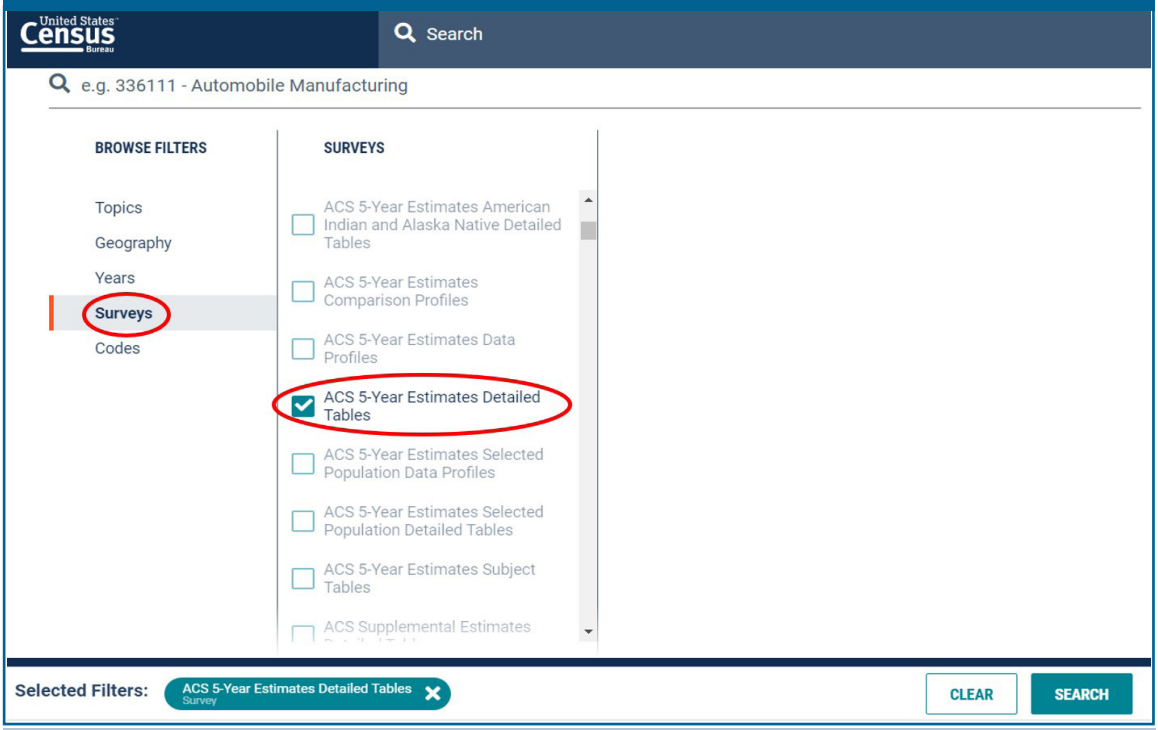
Figure 6.1. **Selecting Advanced Search in Data.census.gov**



Source: U.S. Census Bureau, data.census.gov, <https://data.census.gov>.

On the Advanced Search page, the director selects "Surveys" and specifies the "ACS 5-Year Estimates Detailed Tables," which include detailed information about the characteristics of people in small geographic areas (see Figure 6.2). She confirms that her selected survey is listed as a "Selected Filter" at the bottom of the page.

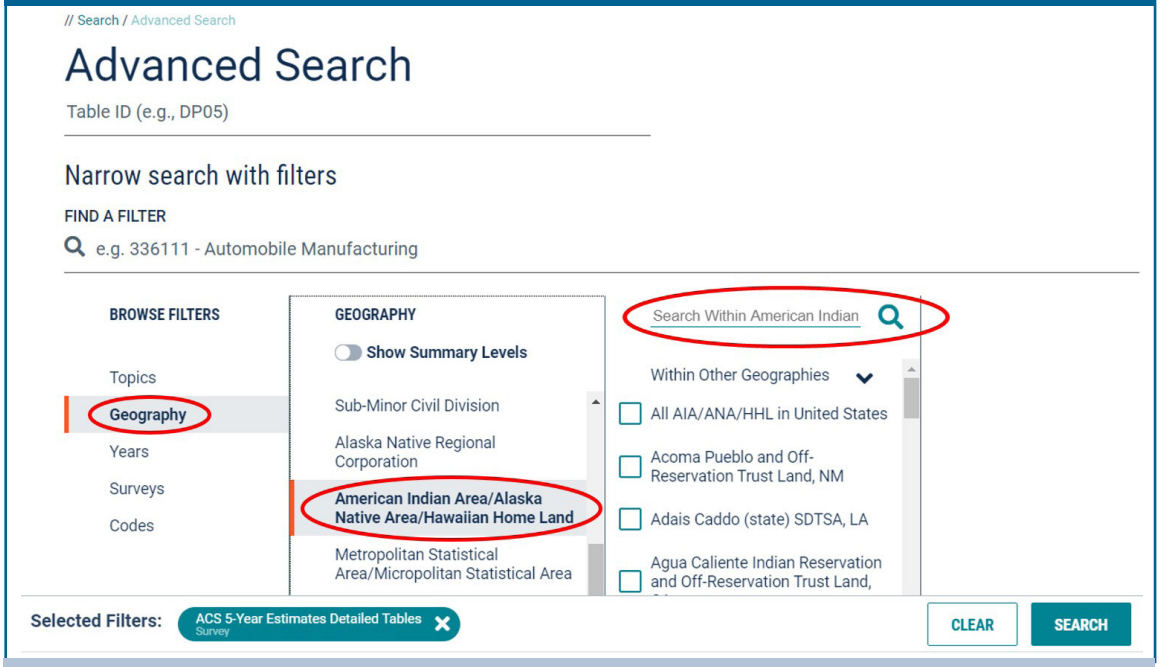
Figure 6.2. **Selecting Survey in Data.census.gov**



Source: U.S. Census Bureau, data.census.gov, <https://data.census.gov>.

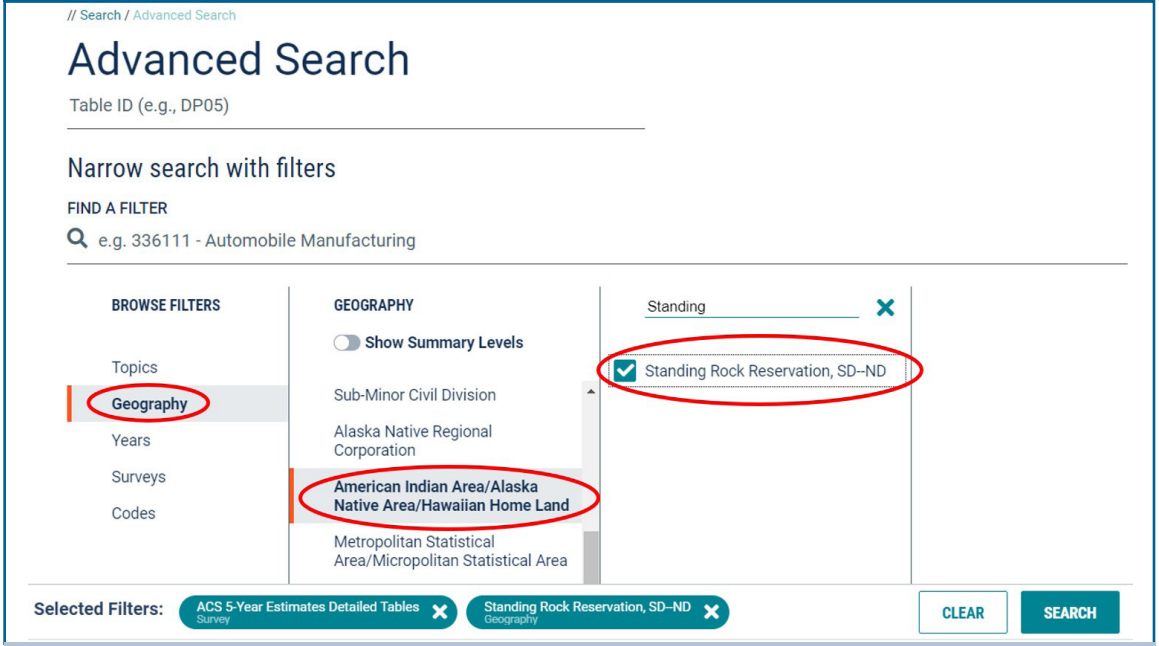
She then clicks the "Geography" filter and scrolls down through the different types of geographic areas—the nation, state, county, etc.—until she finds the line that reads "American Indian Area/Alaska Native Area/Hawaiian Home Land." Clicking on that line brings up a list of these areas, with reservations listed first, alphabetically by reservation name. Here the director could scroll through the list of reservations to find the one she needs, but instead she clicks the magnifying glass and starts to type the name of the reservation into the search box at the top of the list until "Standing Rock Reservation, SD-ND" appears. She clicks on the box to add the Standing Rock Reservation to her selections (see Figures 6.3 and 6.4).

Figure 6.3. **Using the Search Box to Find Geographies in Data.census.gov**



Source: U.S. Census Bureau, data.census.gov, <https://data.census.gov>.

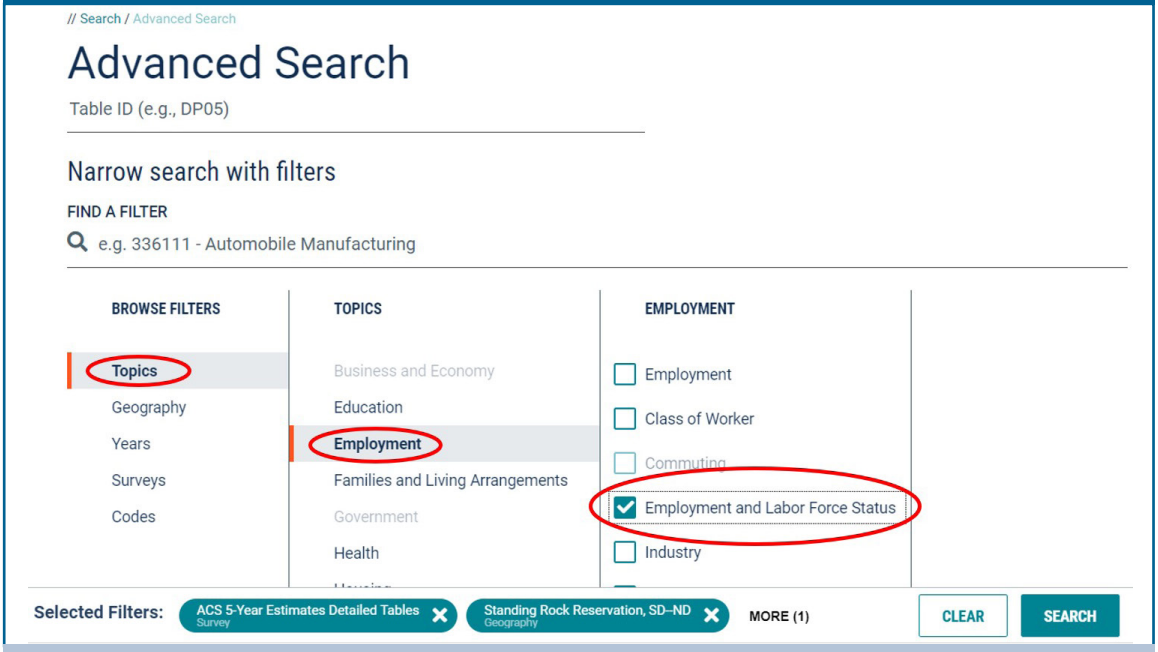
Figure 6.4. **Selecting Geographies in Data.census.gov**



Source: U.S. Census Bureau, data.census.gov, <https://data.census.gov>.

Finally, she clicks on the "Topics" filter to find the employment table she needs. From the list, she selects "Employment" and then marks the box for "Employment and Labor Force Status" (see Figure 6.5).

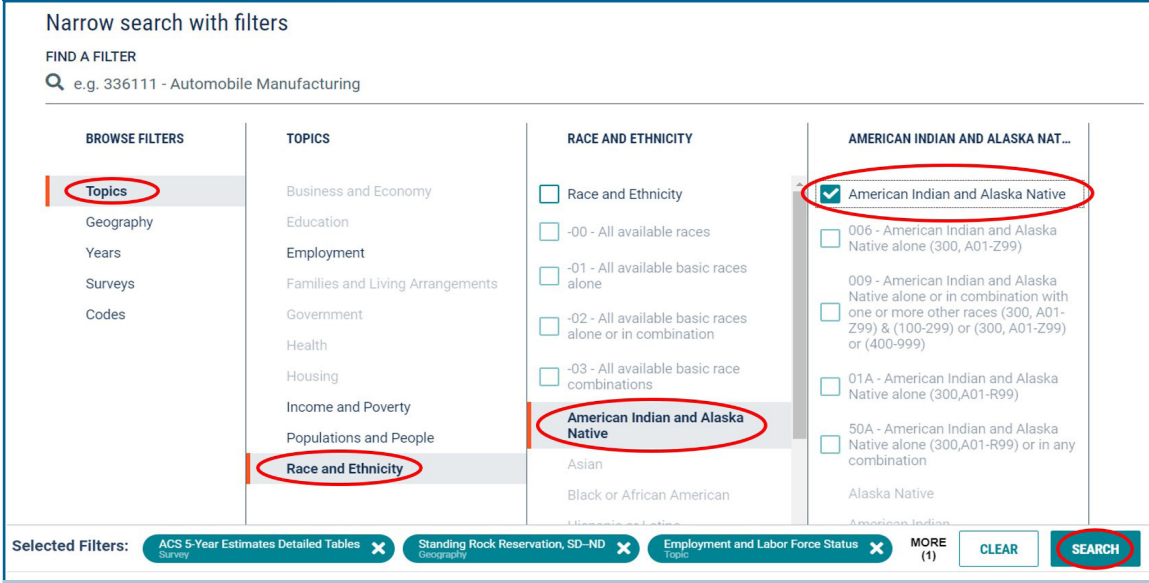
Figure 6.5. **Selecting Data on Employment in Data.census.gov**



Source: U.S. Census Bureau, data.census.gov, <https://data.census.gov>.

From the list of Topics, she then clicks on "Race and Ethnicity" and selects "American Indian and Alaska Native" from the list. In the next column, she marks the box for "American Indian and Alaska Native." Next, she clicks on "Search" in the lower right corner of the page (see Figure 6.6).

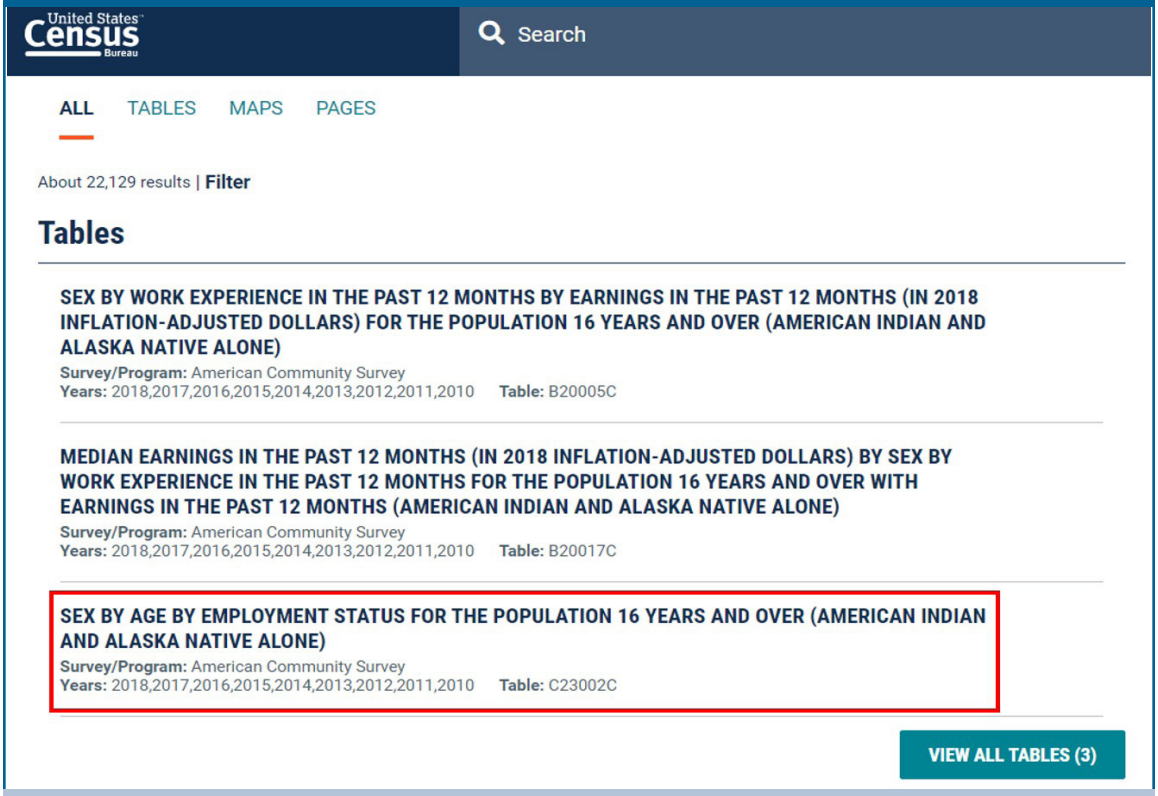
Figure 6.6. **Selecting Data for American Indian and Alaska Natives in Data.census.gov**



Source: U.S. Census Bureau, data.census.gov, <https://data.census.gov>.

On the results page, the director scrolls down the page and clicks on Table C23002C: "Sex by Age by Employment Status for the Population 16 Years and Over (American Indian and Alaska Native Alone)." That is the table with the employment, unemployment, and not-in-the-labor-force numbers (see Figure 6.7).

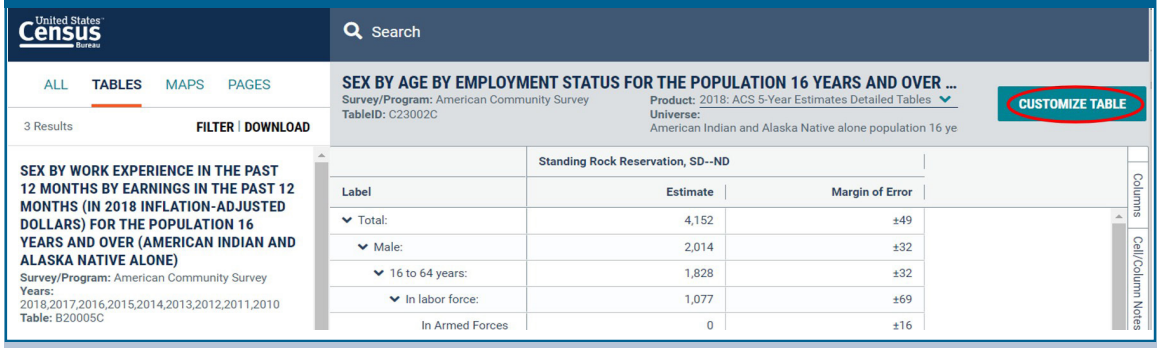
Figure 6.7. **Selecting Tables in Data.census.gov**



Source: U.S. Census Bureau, data.census.gov, <https://data.census.gov>.

From the table preview page, she clicks on "Customize Table" in the upper right corner (see Figure 6.8).

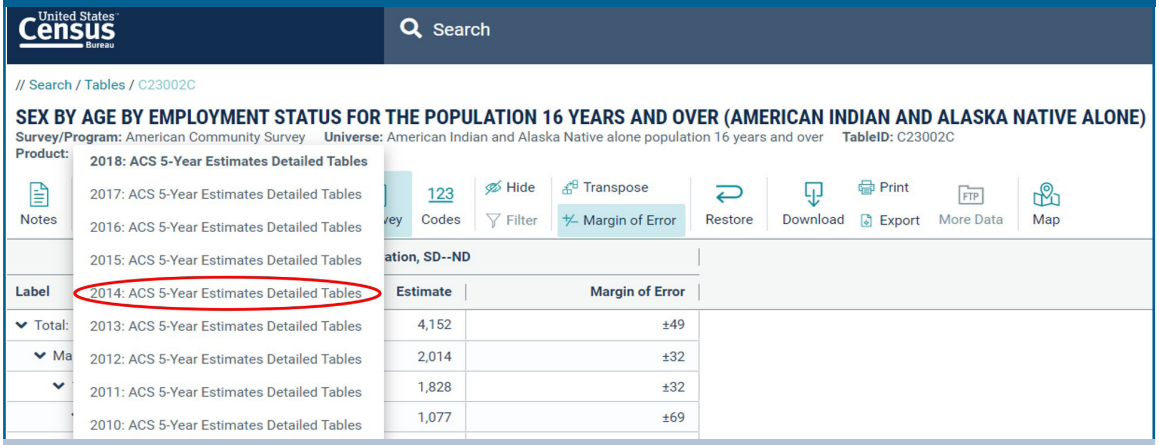
Figure 6.8. **Previewing Tables in Data.census.gov**



Source: U.S. Census Bureau, data.census.gov, <https://data.census.gov>.

A series of filters appear at the top of the screen. She selects the desired survey year by clicking on the current "Product" selection. For the purpose of this case study, she is interested in the "2014 ACS 5-Year Estimates Detailed Tables" (see Figure 6.9).

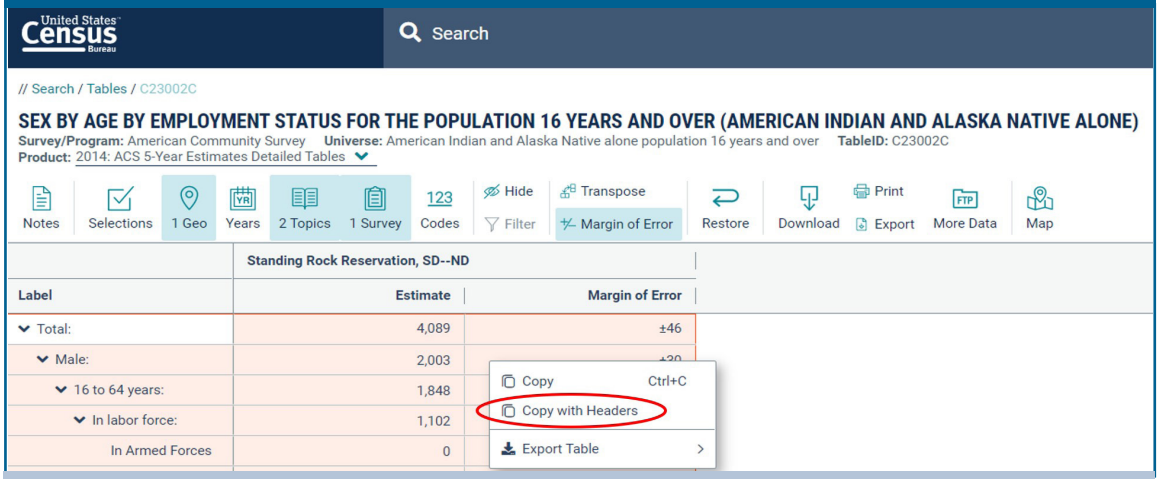
Figure 6.9. **Selecting the Survey Year in Data.census.gov**



Source: U.S. Census Bureau, data.census.gov, <https://data.census.gov>.

The resulting table is relatively small, so rather than using the "Download" option at the top of the screen, she decides to copy the table directly into her spreadsheet. She clicks on the first cell in the table and then drags her mouse to select all of the data cells. Then she right clicks and selects "Copy with Headers" to copy the data and column headers to her clipboard (see Figure 6.10).

Figure 6.10. **Copying Data Cells From Data.census.gov**



Source: U.S. Census Bureau, data.census.gov, <https://data.census.gov>.

She copies the data into her spreadsheet. The first column includes the variable labels, the second column includes the estimates, and the third column includes the margins of error. In the spreadsheet, she adds up the estimates to find out how many American Indian people on the reservation are unemployed or not in the labor force.

To find out the number of unemployed, she sums the following categories:

- Male: 16 to 64 years: In labor force: Civilian: Unemployed.
- Male: 65 years and over: In labor force: Unemployed.
- Female: 16 to 64 years: In labor force: Civilian: Unemployed.
- Female: 65 years and over: In labor force: Unemployed.
- Total = 443 + 8 + 333 + 0 = 784.

To find out the number of civilians in the labor force, she sums the following categories:

- Male: 16 to 64 years: In labor force: Civilian.
- Male: 65 years and over: In labor force.
- Female: 16 to 64 years: In labor force: Civilian.
- Female: 65 years and over: In labor force.
- Total = 1,102 + 45 + 1,136 + 51 = 2,334.

The resulting estimate of the unemployment rate is 33.6 percent (784 civilian unemployed divided by 2,334 civilians in the labor force). Unfortunately, even at this high level, the unemployment rate does not tell the full story of employment challenges on the reservation. To understand the full magnitude of the problem—including those not working because they may have barriers to searching for employment—she also estimates the number of people not in the labor force.

To find out the number of people not in the labor force, she sums the following categories:

- Male: 16 to 64 years: Not in labor force.
- Male: 65 years and over: Not in labor force.
- Female: 16 to 64 years: Not in labor force.
- Female: 65 years and over: Not in labor force.
- Total = 746 + 110 + 763 + 136 = 1,755.

To find out the total number of civilian adults, sum the number of civilians in the labor force (2,334) and the number not in the labor force (1,775). The total is 4,089.

Dividing the numbers of people who are unemployed and not in the labor force (784 + 1,755 = 2,539) by the total population aged 16 and older (4,089) yields the percentage of people unemployed and not in labor force—62.1 percent—that the director is looking for.

If she wanted to calculate a similar rate for the population aged 16 to 64, she would add the unemployed and not-in-labor-force estimates for men and women aged 16 to 64 (443 + 746 + 333 + 763 = 2,285) and divide that by the population aged 16 to 64 (1,848 + 1,899 = 3,747) to get 2,285 / 3,747 = 61.0 percent.

The Employment and Training director can now answer both of her questions about unemployment among American Indian people on the reservation. The official unemployment rate among American Indian people on the reservation—33.6 percent in 2010–2014—was more than three times the rate for the U.S. population as a whole (9.2 percent). However, this 33.6 percent unemployment rate does not include all of the American Indians on the reservation who need a job but do not have one.[45] Taking into account those who are not in the labor force and cannot look for a job until their barriers to employment are resolved—like needing reliable transportation so that a person living in a remote community on this rural reservation can take a job—the rate jumps to over 60 percent. These results based on ACS data provide a useful starting point for those seeking to improve conditions for American Indians on the Standing Rock Reservation.

[45] Unemployment rate estimate from Table S2301: "Employment Status," <https://data.census.gov/cedsci/table?q=S2301&hidePreview=true&tid=ACSST5Y2014.S2301&vintage=2018&layer=VT_2018_250_00_PY_D1&g=2500000US3970>.

Case Study #2: American Indian and Alaska Native Retirement Security

Skill Level: Intermediate/advanced
Subject: Retirement security
Type of Analysis: Analysis of retirement income among American Indians and Alaska Natives
Tool Used: ACS Public Use Microdata Sample (PUMS) data
Author: John Murphy, Social Science Research Analyst, Social Security Administration

The American Indian and Alaska Native (AIAN) population faces significant economic challenges, which can play a role in the financial resources available in retirement. These challenges include lower average wages and higher rates of disability, both of which can reduce the amount of future income available through pensions, savings, and Social Security for AIANs. Because there has been little research that has specifically addressed retirement income among AIANs, I wanted to compare retirement income among AIANs with that for the total population.

I previously examined retirement outcomes for AIAN communities and other populations using the Health and Retirement Study (HRS). The HRS is a rich data source for individuals aged 50 and older with information about wealth and retirement for various racial and ethnic groups. However, the HRS sample is far smaller than the ACS Public Use Microdata Sample (PUMS) and is restricted by age. The HRS has about 30,000 respondents, which means there are only 300 to 500 AIAN respondents—far too few to conduct a meaningful subanalysis for the target group. In comparison, the ACS PUMS data has millions of participants with tens of thousands of AIAN respondents.

Because the AIAN community is diverse, with different subgroups exhibiting unique characteristics, I analyzed data for three different categories of AIAN respondents:

- AIAN—A binary (two-category) variable listing a participant as either American Indian/Alaska Native or not, based on self-reporting. This recoded variable was taken directly from the PUMS file (variable RACAIAN) and includes all respondents who selected American Indian or Alaskan Native alone or in combination with one or more other races.

- Single-race AIAN—A binary, self-reported variable indicating that the respondent listed American Indian or Alaskan Native alone for his or her racial identification. This variable is constructed using the RAC1P variable, by combining respondents who identified with the following three groups:

    - American Indian alone.

    - Alaska Native alone.

    - American Indian and Alaska Native tribes specified; or American Indian or Alaska native, not specified and no other races.

- Multiple-race AIAN—A binary, self-reported variable indicating that the respondent listed American Indian or Alaskan Native in combination with one or more other races. This variable is derived from the two variables listed above (AIAN and Single-race AIAN).

The ACS includes data on a variety of sources of income, including earnings, public assistance, Social Security, retirement income, and other sources of income (e.g., dividends, interest, and rental income).

Annual retirement income is a self-reported, continuous variable denoting the amount of retirement income received during the past 12 months, which includes:

1. Retirement pensions and survivor benefits from a former employer; labor union; or federal, state, or local government and the U.S. military.

2. Disability income from companies or unions; or federal, state, or local government and the U.S. military.

3. Periodic receipts from annuities and insurance.

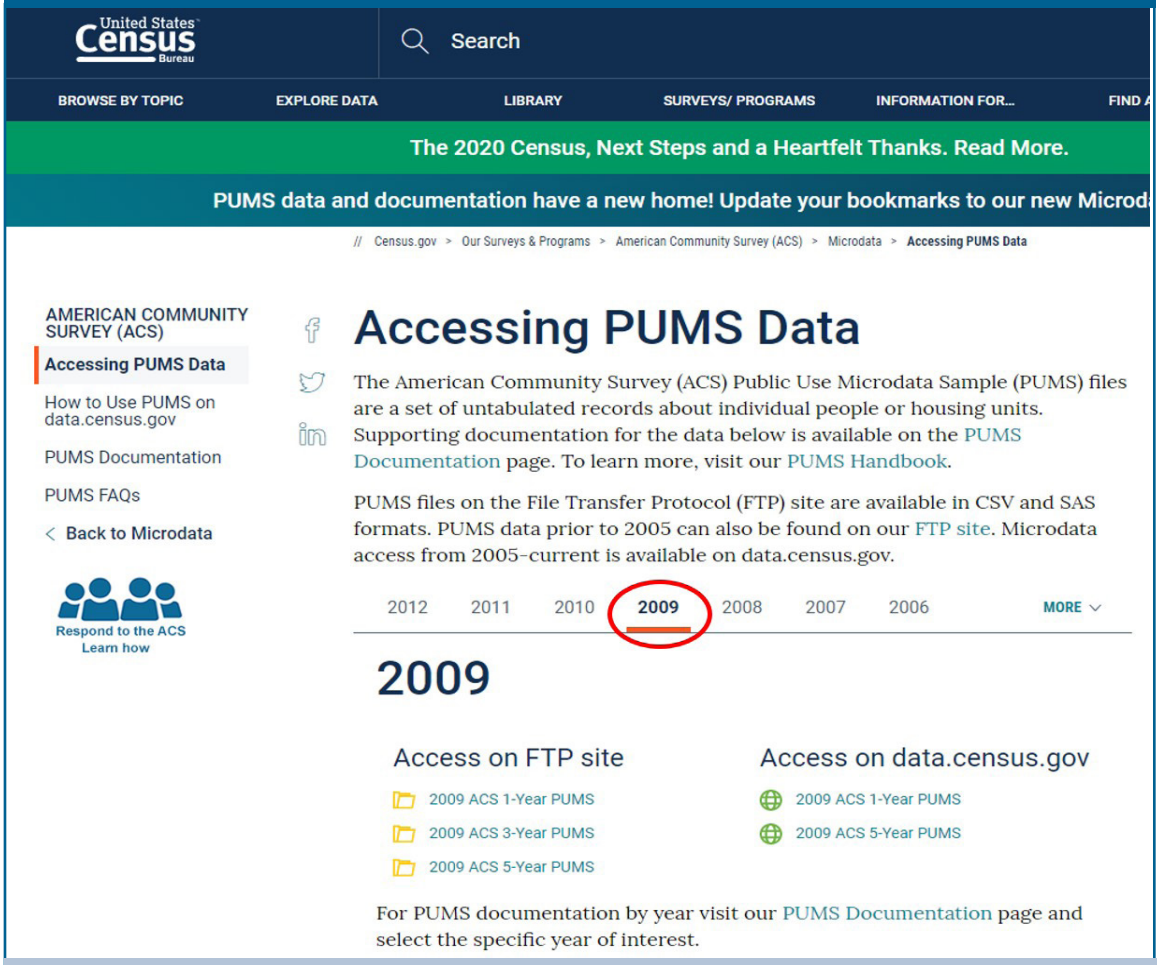
4. Regular income from IRA (individual retirement account) and Keogh plans. This does not include social security income.

Annual social security income is a self-reported, continuous variable of social security income for the past 12 months, which includes benefits received through Social Security's Old-Age and Survivors Insurance (OASI) and Disability Insurance (DI) programs. Definitions for these, and other key concepts, can be found in American Community Survey Subject Definitions.[46]

Accessing and using the PUMS data is pretty simple if you have access to statistical software (e.g., SAS, SPSS, or STATA) that you can use to analyze the data. This case study describes how to get the PUMS data you need if you are using statistical software. Analysts who do not have statistical software can use the U.S. Census Bureau's new microdata access tool on data.census.gov to generate ACS estimates online without the use of statistical software. The Census Bureau created a step-by-step guide on how to use this tool to produce custom estimates from the ACS 1-year PUMS file.[47]

To download PUMS data, go to the Census Bureau's "Accessing PUMS Data" Web page (see Figure 6.11).[48] Click on your desired year of interest from the year 2005 to the present. From here, you can access PUMS data on the FTP site or use the microdata analysis tool on data.census.gov. Data prior to 2005 can be found on the Census Bureau's FTP site.[49]

Figure 6.11. **Accessing ACS PUMS Data**



Source: U.S. Census Bureau, American Community Survey (ACS), Accessing PUMS Data, <www.census.gov/programs-surveys/acs/microdata/access.2018.html>.

[46] U.S. Census Bureau, American Community Survey Subject Definitions, <www.census.gov/programs-surveys/acs/technical-documentation/code-lists.html>.

[47] U.S. Census Bureau, Using Public Microdata to Create Custom Tables on data.census.gov, <www.census.gov/data/academy/webinars/2020/using-public-microdata-to-create-custom-tables.html>.

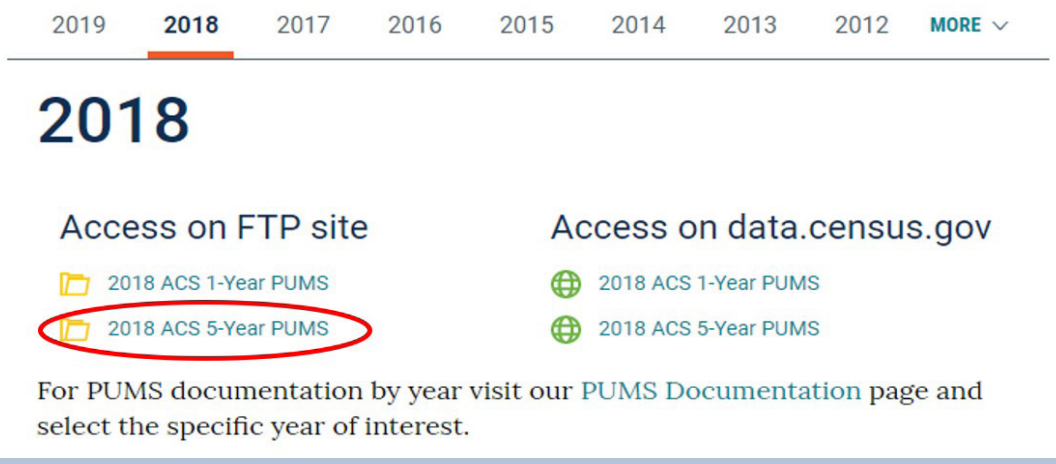
[48] U.S. Census Bureau, American Community Survey (ACS), Accessing PUMS Data, <www.census.gov/programs-surveys/acs/microdata/access.html>.

[49] ACS PUMS data for earlier years are available through the Census Bureau's FTP site at <https://www2.census.gov/programs-surveys/acs/data/pums/>.

For the purposes of this case study, I used 2018 ACS 5-Year PUMS data because they were the most recent 5-year data available at the time. The 5-year data also provide a larger pool of AIANs, thus avoiding problems of too few respondents for subanalysis.

Click on "2018 ACS 5-Year PUMS" to access the ACS 5-year PUMS data (see Figure 6.12).[50]

Figure 6.12. **Selecting ACS PUMS Files of Interest on the Census Bureau's FTP Server**



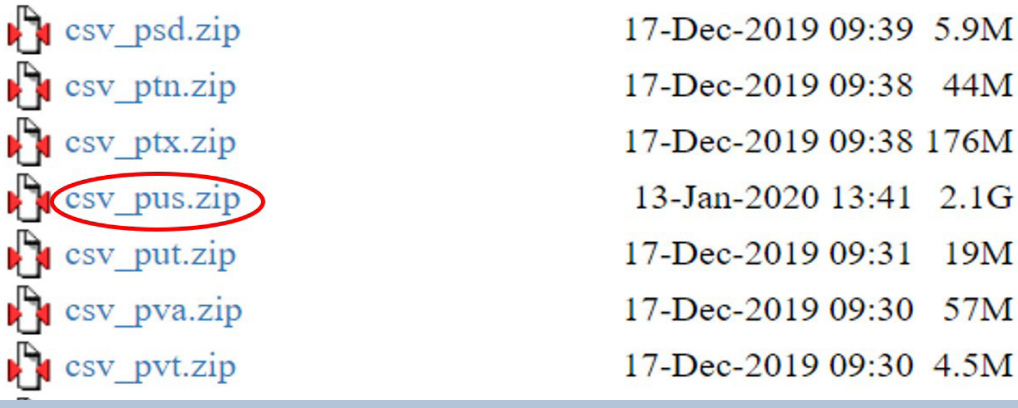
Source: U.S. Census Bureau, American Community Survey (ACS), Accessing PUMS Data, <www.census.gov/programs-surveys/acs/microdata/access.2018.html>.

PUMS files on the Census Bureau's FTP site are stored as ZIP files. The naming convention for PUMS files on the FTP server is based on three file features: the file format, the record type, and the state abbreviation.

- File formats are comma separated value files (CSV), SAS data sets for older PC versions of SAS (PC), or SAS datasets for UNIX and recent PC versions of SAS (UNIX) prior to 2010. From 2010 to present, file formats are comma separated value files (CSV) and SAS data sets for UNIX.
- Record types are housing files (h) or person files (p).
- State (or state equivalent) abbreviations are two letter labels such as "tx" for Texas and "dc" for District of Columbia. The abbreviation for the file containing all records in the United States is "us."

For my study, I used total U.S. population records by selecting "csv_pus.zip" (see Figure 6.13).

Figure 6.13. **Downloading ACS 5-Year PUMS Files From the Census Bureau's FTP Server**



Source: U.S. Census Bureau, FTP server, <https://www2.census.gov/programs-surveys/acs/data/pums/2018/5-Year/>.

[50] The Census Bureau previously released 3-year estimates based on 36 months of data collection. In 2015, the 3-year products were discontinued. The 2011–2013 ACS 3-year estimates, released in 2014, are the last release of this product.

You will then need to download a zip file of the data. The 5-year PUMS is divided into "a," "b," "c," and "d" files. It may take quite a while to download the file, depending on the size of the file and your Internet connection. (The download for my analysis took about 15 minutes.)

Once I downloaded the file, I used a statistical program to query information about the retirement income for each of the race categories described above. To determine which variables contained the data I needed for this analysis, I used the PUMS Data Dictionary.[51] Using the dictionary, I selected two variables for analysis: (1) Retirement income past 12 months (RETP) and (2) Social Security Income past 12 months (SSP). I then used the adjustment factor for income variable (ADJINC) to adjust income values for these variables to constant dollars.

Combining income from these two sources provided an estimate of total retirement income during the previous 12 months. I also limited the population to adults aged 62 and over using the age variable (AGEP).

The preliminary analysis suggests that AIANs have lower retirement incomes than the overall population and that single-race AIANs may be particularly at risk of economic insecurity (see Table 6.1).[52] However, this research is meant to provide a "jumping off point" for researchers and to inform policy makers. More exploration and research are warranted to investigate the nuances and obstacles of retirement security among AIANs.

Table 6.1. **Comparison of Mean Retirement Income by Race for the Population Aged 62 and Over: 2014-2018**

Race	Mean retirement income
All races	$21,400
AIAN	$17,900
Single-Race AIAN	$16,000
MultiRace AIAN	$19,700
White alone	$22,400
Black alone	$18,400

Source: Analysis of the 2014–2018 American Community Survey (ACS) 5-year Public Use Microdata Sample.

An earlier version of this analysis appeared in the report "Retirement Income Among American Indians and Alaska Natives in the American Community Survey." [53]

[51] U.S. Census Bureau, PUMS Data Dictionary, <www.census.gov/programs-surveys/acs/microdata/documentation.html>.

[52] To learn about data quality in the ACS PUMS and how to test whether differences between estimates are statistically significant, refer to the section on "Data Quality in the ACS PUMS" in Understanding and Using the American Community Survey Public Use Microdata Sample Files: What Data Users Need to Know, <www.census.gov/programs-surveys/acs/guidance/handbooks/pums.html>.

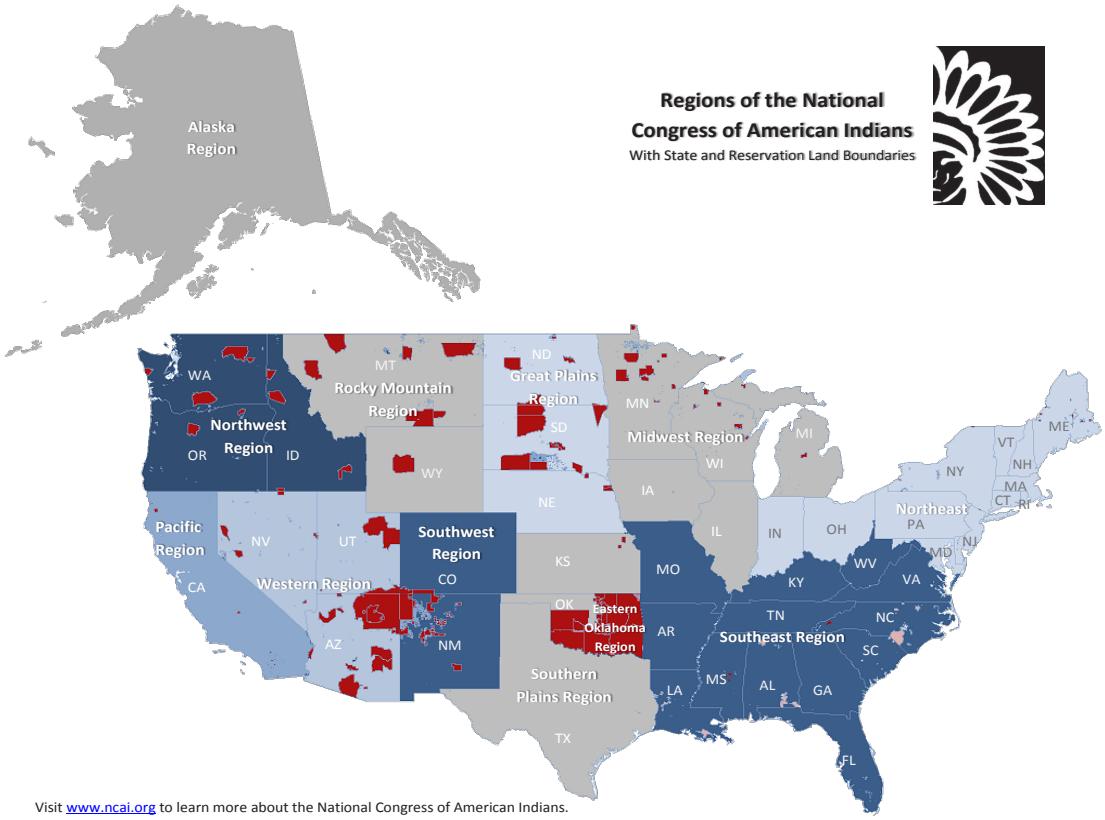
[53] John Murphy and Brent Huggins, "Retirement Income Among American Indians and Alaska Natives in the American Community Survey," Social Security Administration Research and Statistics Note, 2015-01 (2015), <www.ssa.gov/policy/docs/rsnotes/rsn2015-01.html>.

Case Study #3: National Congress of American Indians Regional Profiles

Skill Level: Intermediate
Subject: Earnings
Type of Analysis: Understanding a Demographic Group and Analyses of Trends/Patterns Within a Community
Tools Used: Census Data API, spreadsheet
Author: Malia Villegas, Director, Policy Research Center, National Congress of American Indians; Amber Ebarb, Budget/Policy Analyst and PRC Program Manager, National Congress of American Indians; and Sarah Pytalksi, Policy Research & Evaluation Manager, National Congress of American Indians

The National Congress of American Indians (NCAI) is a nonprofit organization that uses American Community Survey (ACS) data at the national, regional, and local level to provide tribal leaders with the best available knowledge to make strategically proactive policy decisions. For example, we have produced a series of Regional Profiles that combine data from the 2010 Census with more recent information from the ACS to provide information about the American Indian and Alaska Native population for 12 regions across the United States (see Figure 6.14).[54] American Indian areas are shown in red on the map. The Regional Profiles provide demographic data and information about trends in education, household, and economic characteristics for each region and for individual states within those regions.

Figure 6.14. **Twelve Regions of the National Congress of American Indians**



Source: National Congress of American Indians, Regional Profiles, <www.ncai.org/resources/ncai-publications/regional-profiles>.

[54] National Congress of American Indians, Regional Profiles, <www.ncai.org/resources/ncai-publications/regional-profiles>.

We believe that context is important for understanding issues relevant to the American Indian and Alaska Native populations. For example, issues relevant to American Indians living on tribal reservations may or may not be relevant to those living in urban areas, and vice versa. Similarly, we may discover an issue that affects Alaska Natives in a certain age group, but would be missed by looking at the population as a whole. For this reason, we try to disaggregate data whenever possible by tribal nation, geography, demographic characteristics (e.g., gender or age group), or language (e.g., native language speaker or nonspeaker). Accordingly, the Regional Profiles also provide several useful comparisons:

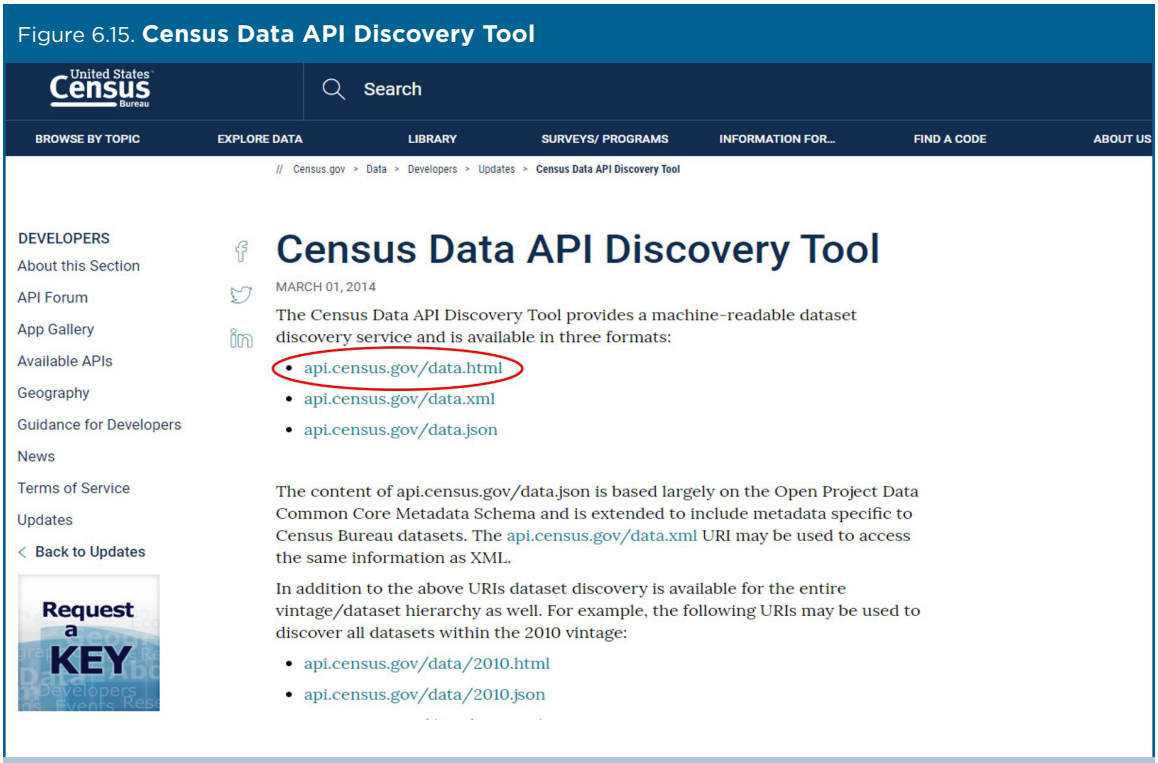
- Comparisons between the American Indian and Alaska Native populations and other groups (e.g., non-Hispanic Whites).
- Comparisons across states within a given region (e.g., Idaho, Oregon, and Washington in the Northwest Region profile).
- Comparisons by place (e.g., on reservation compared with off reservation, urban compared with rural).
- Comparisons by demographic category (e.g., women versus men, families with and without children).

For many of these comparisons, we rely on data from the ACS. For example, in the Southern Plains and Eastern Oklahoma Profile, we used the ACS to compile data on the gender wage gap—the ratio of women's earnings to men's earnings among full-time, year-round workers.[55]

Data on the gender wage gap for American Indian and Alaska Native populations can be accessed through the 2006–2010 ACS Selected Population Tables in the Census Data API.[56]

To find the variables you need, refer to the Census Data API Discovery Tool.[57] Select the HTML format link to view the available API data sets on the Census Bureau's Web site (see Figure 6.15).

Figure 6.15. **Census Data API Discovery Tool**



Source: U.S. Census Bureau, Census Data API Discovery Tool, <www.census.gov/data/developers/updates/new-discovery-tool.html>.

[55] National Congress of American Indians, Regional Profiles, Southern Plains and Eastern Oklahoma Profile, <www.ncai.org/policy-research-center/research-data/prc-publications/Southern_Plains_and_Eastern.pdf>.
[56] U.S. Census Bureau, Race/Ethnicity and American Indian & Alaska Native Data, <www.census.gov/programs-surveys/acs/data/race-aian.2010.html>.
[57] U.S. Census Bureau, Census Data API Discovery Tool, <www.census.gov/data/developers/updates/new-discovery-tool.html>.

To find a data set of interest, scroll through the list or search your Web browser for a specific year or phrase (for example, "2010" or "Selected Population Tables"). Select the link for "variables" to view a list of all the variables available in the data set (see Figure 6.16).

Figure 6.16. **Selecting a List of Variables in the Census Data API**

ACS 5-Year Data Profiles	economic, demographic, and housing characteristics of the U.S. population. The data profiles include the following geographies: nation, all states (including DC and Puerto Rico), all metropolitan areas, all congressional districts, all counties, all places and all tracts. Data profiles contain broad social, economic, housing, and demographic information. The data are presented as both counts and percentages. There are over 2,400 variables in this dataset.	2010	acs› acs5› profile	Aggregate	geographies	variables	groups	examples
American Community Survey: 5-Year Estimates: Selected Population Detailed Tables 5-Year	The Selected Population Tables (SPT) are released every five years. They are available for selected race, Hispanic origin, tribal, and ancestry populations.	2010	acs› acs5› spt	Aggregate	geographies	variables	groups	examples
American Community Survey: 5-Year Estimates: Selected Population Data Profiles 5-Year	The Selected Population Tables (SPT) are released every five years. They are available for selected race, Hispanic origin, tribal, and ancestry populations.	2010	acs› acs5› sptprofile	Aggregate	geographies	variables	groups	examples
ACS 5-Year Subject Tables	The American Community Survey (ACS) is an ongoing survey that provides data every year -- giving communities the current information they need to plan investments and services. The ACS covers a broad range of topics about social, economic, demographic, and housing characteristics of the U.S. population. The subject tables include the following geographies: nation, all states (including DC and Puerto Rico), all metropolitan areas, all congressional districts, all counties, all places and all tracts. Subject tables provide an overview of the estimates available in a particular topic. The data are presented as both counts and percentages. There are over 66,000 variables in this dataset.	2010	acs› acs5› subject	Aggregate	geographies	variables	groups	examples

Note: Data are only displayed for selected rows.
Source: U.S. Census Bureau, Census API: Datasets, <https://api.census.gov/data.html>.

Scroll through the list of variables to find the desired variables for men's earnings (B20017_003E) and women's earnings (B20017_006E) among full-time, year-round workers. You will use these variables and their associated margins of error, B20017_003M and B20017_006M, to create your API query (see Figure 6.17).

Figure 6.17. **Identifying Variables for an API Query**

B20005_095E	Estimate!!Total!!Female!!Other!!With earnings!!$100,000 or more	SEX BY WORK EXPERIENCE IN THE PAST 12 MONTHS BY EARNINGS IN THE PAST 12 MONTHS (IN 2010 INFLATION-ADJUSTED DOLLARS) FOR THE POPULATION 16 YEARS AND OVER	not required	B20005_095EA, B20005_095M, B20005_095MA
B20017_001E	Estimate!!Median earnings in the past 12 months (in 2010 inflation-adjusted dollars)!!Total (dollars)	MEDIAN EARNINGS IN THE PAST 12 MONTHS (IN 2010 INFLATION-ADJUSTED DOLLARS) BY SEX BY WORK EXPERIENCE IN THE PAST 12 MONTHS FOR THE POPULATION 16 YEARS AND OVER WITH EARNINGS IN THE PAST 12 MONTHS	not required	B20017_001EA, B20017_001M, B20017_001MA
B20017_002E	Estimate!!Median earnings in the past 12 months (in 2010 inflation-adjusted dollars)!!Male!!Total (dollars)	MEDIAN EARNINGS IN THE PAST 12 MONTHS (IN 2010 INFLATION-ADJUSTED DOLLARS) BY SEX BY WORK EXPERIENCE IN THE PAST 12 MONTHS FOR THE POPULATION 16 YEARS AND OVER WITH EARNINGS IN THE PAST 12 MONTHS	not required	B20017_002EA, B20017_002M, B20017_002MA
B20017_003E	Estimate!!Median earnings in the past 12 months (in 2010 inflation-adjusted dollars)!!Male!!Worked full-time, year-round in the past 12 months (dollars)	MEDIAN EARNINGS IN THE PAST 12 MONTHS (IN 2010 INFLATION-ADJUSTED DOLLARS) BY SEX BY WORK EXPERIENCE IN THE PAST 12 MONTHS FOR THE POPULATION 16 YEARS AND OVER WITH EARNINGS IN THE PAST 12 MONTHS	not required	B20017_003EA, B20017_003M, B20017_003MA
B20017_004E	Estimate!!Median earnings in the past 12 months (in 2010 inflation-adjusted dollars)!!Male!!Other (dollars)	MEDIAN EARNINGS IN THE PAST 12 MONTHS (IN 2010 INFLATION-ADJUSTED DOLLARS) BY SEX BY WORK EXPERIENCE IN THE PAST 12 MONTHS FOR THE POPULATION 16 YEARS AND OVER WITH EARNINGS IN THE PAST 12 MONTHS	not required	B20017_004EA, B20017_004M, B20017_004MA
B20017_005E	Estimate!!Median earnings in the past 12 months (in 2010 inflation-adjusted dollars)!!Female!!Total (dollars)	MEDIAN EARNINGS IN THE PAST 12 MONTHS (IN 2010 INFLATION-ADJUSTED DOLLARS) BY SEX BY WORK EXPERIENCE IN THE PAST 12 MONTHS FOR THE POPULATION 16 YEARS AND OVER WITH EARNINGS IN THE PAST 12 MONTHS	not required	B20017_005EA, B20017_005M, B20017_005MA
B20017_006E	Estimate!!Median earnings in the past 12 months (in 2010 inflation-adjusted dollars)!!Female!!Worked full-time, year-round in the past 12 months (dollars)	MEDIAN EARNINGS IN THE PAST 12 MONTHS (IN 2010 INFLATION-ADJUSTED DOLLARS) BY SEX BY WORK EXPERIENCE IN THE PAST 12 MONTHS FOR THE POPULATION 16 YEARS AND OVER WITH EARNINGS IN THE PAST 12 MONTHS	not required	B20017_006EA, B20017_006M, B20017_006MA
B20017_007E	Estimate!!Median earnings in the past 12 months (in 2010 inflation-adjusted dollars)!!Female!!Other (dollars)	MEDIAN EARNINGS IN THE PAST 12 MONTHS (IN 2010 INFLATION-ADJUSTED DOLLARS) BY SEX BY WORK EXPERIENCE IN THE PAST 12 MONTHS FOR THE POPULATION 16 YEARS AND OVER WITH EARNINGS IN THE PAST 12 MONTHS	not required	B20017_007EA, B20017_007M, B20017_007MA
B21001_001E	Estimate!!Total	SEX BY AGE BY VETERAN STATUS FOR THE CIVILIAN POPULATION 18 YEARS AND OVER	not required	B21001_001EA, B21001_001M, B21001_001MA
B21001_002E	Estimate!!Total!!Veteran	SEX BY AGE BY VETERAN STATUS FOR THE CIVILIAN POPULATION 18 YEARS AND OVER	not required	B21001_002EA, B21001_002M, B21001_002MA

Note: Data are only displayed for selected rows.
Source: U.S. Census Bureau, Census API: Variables, <https://api.census.gov/data/2010/acs/acs5/spt/variables.html>.

Now that you know the required API query variables, revisit the list of data sets available in the Census Data API and select "examples" to view a list of example API queries (see Figure 6.18).

Figure 6.18 **Finding Example Queries in the Census Data API**

ACS 5-Year Data Profiles	economic, demographic, and housing characteristics of the U.S. population. The data profiles include the following geographies: nation, all states (including DC and Puerto Rico), all metropolitan areas, all congressional districts, all counties, all places and all tracts. Data profiles contain broad social, economic, housing, and demographic information. The data are presented as both counts and percentages. There are over 2,400 variables in this dataset.	2010	acs› acs5› profile	Aggregate	geographies	variables	groups	examples
American Community Survey: 5-Year Estimates: Selected Population Detailed Tables 5-Year	The Selected Population Tables (SPT) are released every five years. They are available for selected race, Hispanic origin, tribal, and ancestry populations.	2010	acs› acs5› spt	Aggregate	geographies	variables	groups	examples
American Community Survey: 5-Year Estimates: Selected Population Data Profiles 5-Year	The Selected Population Tables (SPT) are released every five years. They are available for selected race, Hispanic origin, tribal, and ancestry populations.	2010	acs› acs5› sptprofile	Aggregate	geographies	variables	groups	examples
ACS 5-Year Subject Tables	The American Community Survey (ACS) is an ongoing survey that provides data every year -- giving communities the current information they need to plan investments and services. The ACS covers a broad range of topics about social, economic, demographic, and housing characteristics of the U.S. population. The subject tables include the following geographies: nation, all states (including DC and Puerto Rico), all metropolitan areas, all congressional districts, all counties, all places and all tracts. Subject tables provide an overview of the estimates available in a particular topic. The data are presented as both counts and percentages. There are over 66,000 variables in this dataset.	2010	acs› acs5› subject	Aggregate	geographies	variables	groups	examples

Note: Data are only displayed for selected rows.
Source: U.S. Census Bureau, Census API: Datasets, <https://api.census.gov/data.html>.

For this example, data are needed for specific states (Kansas, Oklahoma, and Texas), so you can use the state example URL to start creating a query (see Figure 6.19).

Figure 6.19. **Selecting Example Queries in the Census Data API**

Census API: Examples for /data/2010/acs/acs5/spt

Geography Hierarchy	Geography Level	Example URL
us	010	https://api.census.gov/data/2010/acs/acs5/spt?get=B01001_001E,NAME&for=us:*&key=YOUR_KEY_GOES_HERE
		https://api.census.gov/data/2010/acs/acs5/spt?get=B01001_001E,NAME&for=us:1&key=YOUR_KEY_GOES_HERE
region	020	https://api.census.gov/data/2010/acs/acs5/spt?get=B01001_001E,NAME&for=region:*&key=YOUR_KEY_GOES_HERE
		https://api.census.gov/data/2010/acs/acs5/spt?get=B01001_001E,NAME&for=region:1&key=YOUR_KEY_GOES_HERE
division	030	https://api.census.gov/data/2010/acs/acs5/spt?get=B01001_001E,NAME&for=division:*&key=YOUR_KEY_GOES_HERE
		https://api.census.gov/data/2010/acs/acs5/spt?get=B01001_001E,NAME&for=division:1&key=YOUR_KEY_GOES_HERE
state	040	https://api.census.gov/data/2010/acs/acs5/spt?get=B01001_001E,NAME&for=state:*&key=YOUR_KEY_GOES_HERE
		https://api.census.gov/data/2010/acs/acs5/spt?get=B01001_001E,NAME&for=state:01&key=YOUR_KEY_GOES_HERE
state› county	050	https://api.census.gov/data/2010/acs/acs5/spt?get=B01001_001E,NAME&for=county:*&key=YOUR_KEY_GOES_HERE
		https://api.census.gov/data/2010/acs/acs5/spt?get=B01001_001E,NAME&for=county:*&in=state:*&key=YOUR_KEY_GOES_HERE
		https://api.census.gov/data/2010/acs/acs5/spt?get=B01001_001E,NAME&for=county:003&in=state:01&key=YOUR_KEY_GOES_HERE
state› county› county subdivision	060	https://api.census.gov/data/2010/acs/acs5/spt?get=B01001_001E,NAME&for=county%20subdivision:*&in=state:09&key=YOUR_KEY_GOES_HE
		https://api.census.gov/data/2010/acs/acs5/spt?get=B01001_001E,NAME&for=county%20subdivision:*&in=state:09&in=county:*&key=YOUR_KE
		https://api.census.gov/data/2010/acs/acs5/spt?get=B01001_001E,NAME&for=county%20subdivision:08070&in=state:09%20county:001&key=YOU
state› county› county subdivision› subminor civil division	067	https://api.census.gov/data/2010/acs/acs5/spt?get=B01001_001E,NAME&for=subminor%20civil%20division:*&in=state:72%20county:003%20coun
		https://api.census.gov/data/2010/acs/acs5/spt?get=B01001_001E,NAME&for=subminor%20civil%20division:72320&in=state:72%20county:003%20
state› county› tract	140	https://api.census.gov/data/2010/acs/acs5/spt?get=B01001_001E,NAME&for=tract:*&in=state:01&key=YOUR_KEY_GOES_HERE
		https://api.census.gov/data/2010/acs/acs5/spt?get=B01001_001E,NAME&for=tract:*&in=state:01&in=county:*&key=YOUR_KEY_GOES_HERE
		https://api.census.gov/data/2010/acs/acs5/spt?get=B01001_001E,NAME&for=tract:020100&in=state:01%20county:001&key=YOUR_KEY_GOES_
state› place› county (or part)	155	https://api.census.gov/data/2010/acs/acs5/spt?get=B01001_001E,NAME&for=county%20(or%20part):*&in=state:01%20place:00124&key=YOUR_
		https://api.census.gov/data/2010/acs/acs5/spt?get=B01001_001E,NAME&for=county%20(or%20part):067&in=state:01%20place:00124&key=YOUR

Note: Data are only displayed for selected rows.
Source: U.S. Census Bureau, Census API: Examples <https://api.census.gov/data/2010/acs/acs5/spt/examples.html>.

To access a 2006–2010 ACS Selected Population Table on the gender wage gap among American Indian/Alaskan Native and non-Hispanic White subpopulations in Kansas, Oklahoma, and Texas, enter the following query in your Web browser: "https://api.census.gov/data/2010/acs/acs5/spt?get=B20017_003E,B20017_006E,B20017_003M,B20017_006M,POPGROUP_TTL,NAME&for=state:20,40,48&POPGROUP=451&POPGROUP=455%22" as described in the steps below.

1. Start your query with the host name: "https://api.census.gov/data."

2. Add the data year (2010) to the URL: "https://api.census.gov/data/2010."

3. Add the data set name acronym for the ACS 5-Year Selected Population Tables, and follow this base URL with a question mark: "https://api.census.gov/data/2010/acs/acs5/spt?."

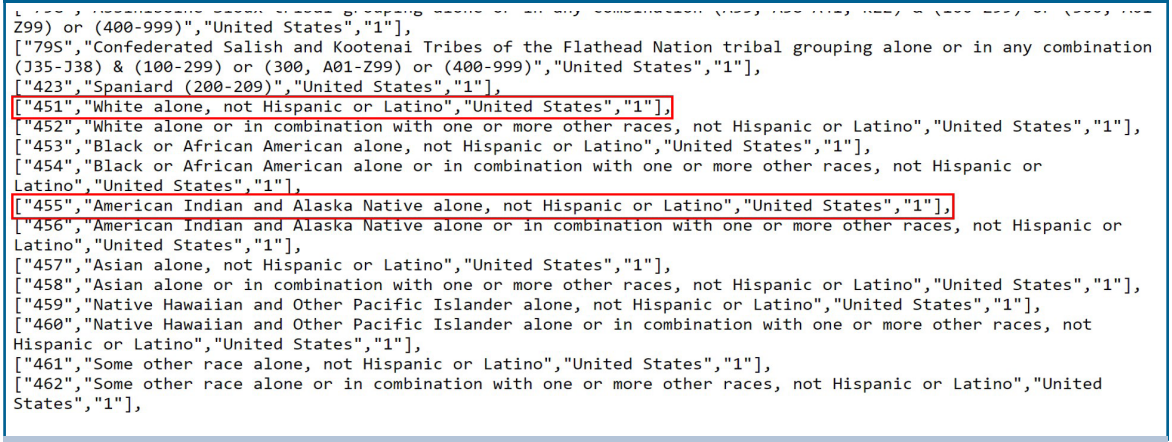
4. Add the required variables, starting with a "get" clause: "https://api.census.gov/data/2010/acs/acs5/spt?get=B20017_003E,B20017_006E,B20017_003M,B20017_006M."

5. To select data for Kansas, Oklahoma, and Texas, you need to specify the codes for these areas in your query. The Census Data API supports Federal Information Processing Series (FIPS) codes and Geographic Names Informational System (GNIS) codes. You can find the FIPS codes for these states on the Census Bureau's Geographies Web page. [58] Then add the state codes for Kansas (20), Oklahoma (40), and Texas (48) to the URL, separated by commas. In this data set, the variable called NAME provides the name of the geographic areas that you are using to limit your search, and the "for" predicate (&for) restricts the data to the state level: "https://api.census.gov/data/2010/acs/acs5/spt?get=B20017_003E,B20017_006E,B20017_003M,B20017_006M,POPGROUP_TTL,NAME&for=state:20,40,48."

6. Next, you need to specify the required racial/ethnic groups. Use the POPGROUP variable to specify the codes for the population groups and use POPGROUP_TTL to specify the names of the population groups, as shown in the list of variables for the 2010 ACS 5-Year Selected Population Tables.[59] You can find the relevant codes by entering the following API query in your Web browser: "https://api.census.gov/data/2010/acs/acs5/spt?get=POPGROUP,POPGROUP_TTL,NAME&for=us:*."

By scrolling through the results of this query, you find that the POPGROUP code for White alone, not Hispanic or Latino is "451," and the code for American Indian and Alaska Native alone, not Hispanic or Latino is "455" (see Figure 6.20).

Figure 6.20. **Identifying Racial/Ethnic Codes for an API Query**



```
Z99) or (400-999)","United States","1"],
["79S","Confederated Salish and Kootenai Tribes of the Flathead Nation tribal grouping alone or in any combination
(J35-J38) & (100-299) or (300, A01-Z99) or (400-999)","United States","1"],
["423","Spaniard (200-209)","United States","1"],
["451","White alone, not Hispanic or Latino","United States","1"],
["452","White alone or in combination with one or more other races, not Hispanic or Latino","United States","1"],
["453","Black or African American alone, not Hispanic or Latino","United States","1"],
["454","Black or African American alone or in combination with one or more other races, not Hispanic or
Latino","United States","1"],
["455","American Indian and Alaska Native alone, not Hispanic or Latino","United States","1"],
["456","American Indian and Alaska Native alone or in combination with one or more other races, not Hispanic or
Latino","United States","1"],
["457","Asian alone, not Hispanic or Latino","United States","1"],
["458","Asian alone or in combination with one or more other races, not Hispanic or Latino","United States","1"],
["459","Native Hawaiian and Other Pacific Islander alone, not Hispanic or Latino","United States","1"],
["460","Native Hawaiian and Other Pacific Islander alone or in combination with one or more other races, not
Hispanic or Latino","United States","1"],
["461","Some other race alone, not Hispanic or Latino","United States","1"],
["462","Some other race alone or in combination with one or more other races, not Hispanic or Latino","United
States","1"],
```

Note: Data are only displayed for selected rows.
Source: U.S. Census Bureau, <https://api.census.gov/data/2010/acs/acs5/spt?get=POPGROUP,POPGROUP_TTL,NAME&for=us:*>.

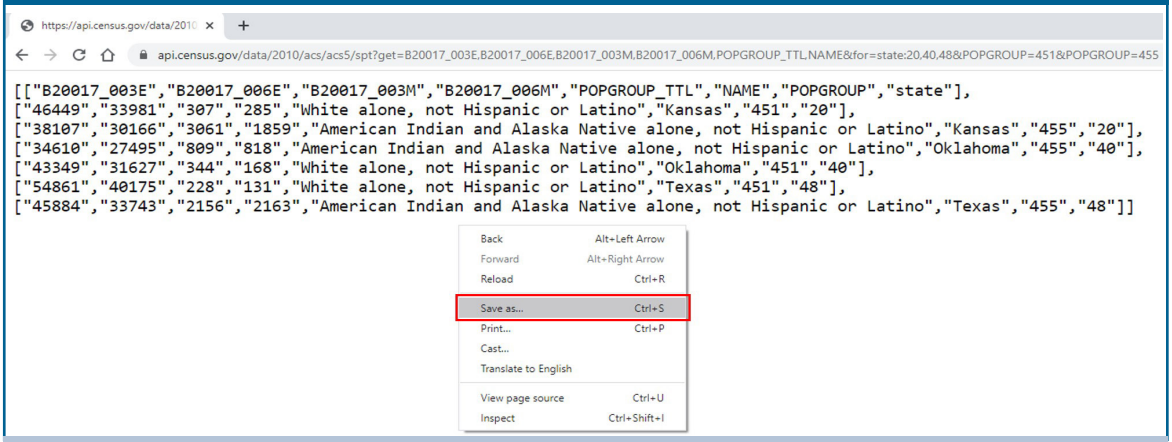
[58] U.S. Census Bureau, Geographies, Reference Files, <www.census.gov/geographies/reference-files.html>.
[59] U.S. Census Bureau, Census Data API: Variables, <https://api.census.gov/data/2010/acs/acs5/spt/variables.html>.

7. Now that you know the correct racial/ethnic codes, you can complete your query: “https://api.census.gov/data/2010/acs/acs5/spt?get=B20017_003E,B20017_006E,B20017_003M,B20017_006M,POPGROUP_TTL,NAME&for=state:20,40,48&POPGROUP=451&POPGROUP=455.”

From your browser, you can then save the query results as a CSV file. Here are the steps to open your query results in a spreadsheet:

1. Right click on the page and select “Save as” (see Figure 6.21).

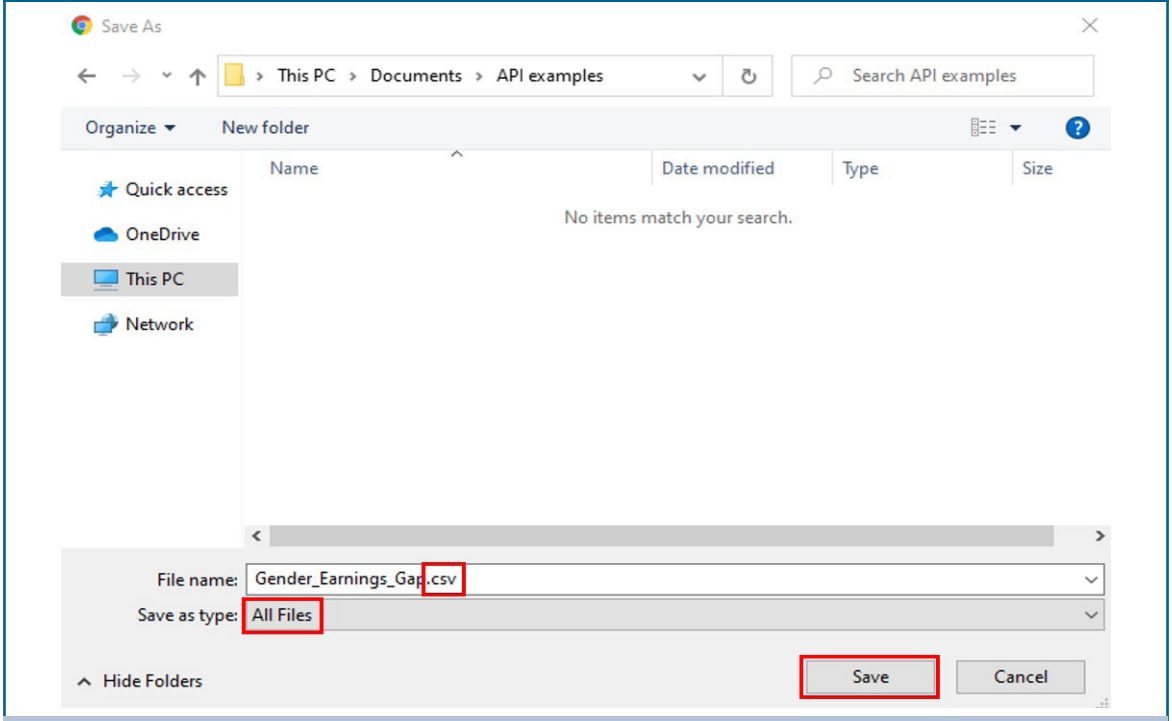
Figure 6.21. **Saving the API Query Results**



Source: U.S. Census Bureau, <https://api.census.gov/data/2010/acs/acs5/spt?get=B20017_003E,B20017_006E,B20017_003M,B20017_006M,POPGROUP_TTL,NAME&for=state:20,40,48&POPGROUP=451&POPGROUP=455>.

2. Save the page as a CSV file by adding “.csv” at the end of the file name and selecting “All Files” as the file type (see Figure 6.22).

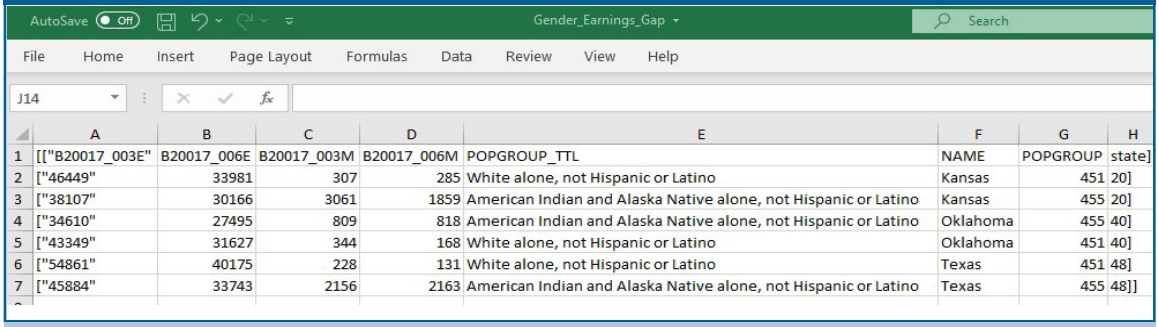
Figure 6.22. **Saving the Results as a CSV File**



Source: U.S. Census Bureau.

3. Open the CSV file in a spreadsheet for further analysis of the query results (see Figure 6.23).

Figure 6.23. **Opening the API Query Results**

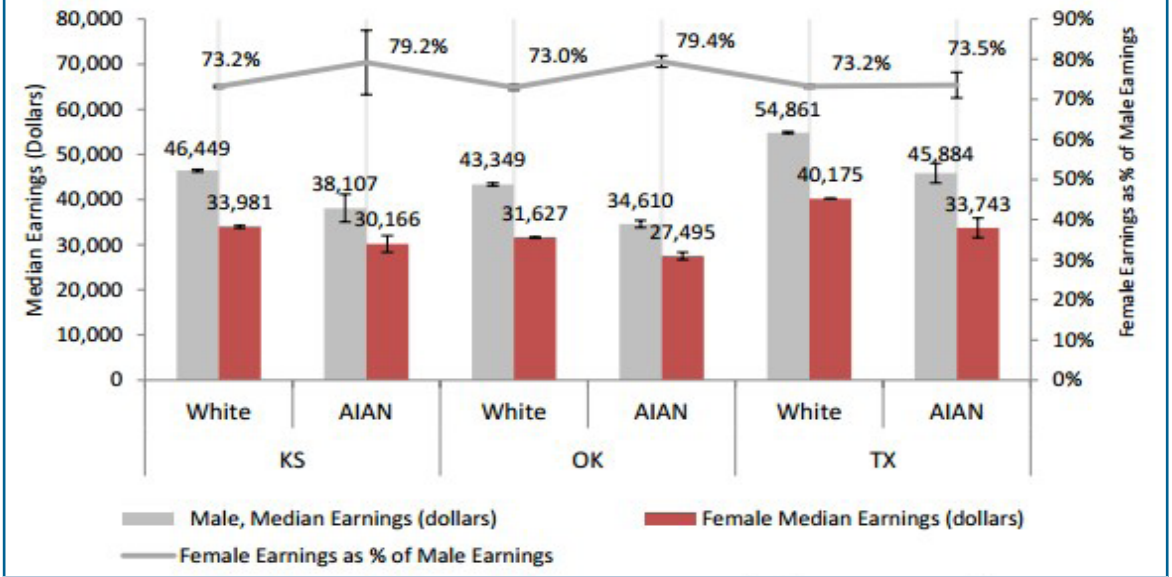


	A	B	C	D	E	F	G	H
1	[["B20017_003E"	B20017_006E	B20017_003M	B20017_006M	POPGROUP_TTL	NAME	POPGROUP	state]
2	["46449"	33981	307	285	White alone, not Hispanic or Latino	Kansas	451	20]
3	["38107"	30166	3061	1859	American Indian and Alaska Native alone, not Hispanic or Latino	Kansas	455	20]
4	["34610"	27495	809	818	American Indian and Alaska Native alone, not Hispanic or Latino	Oklahoma	455	40]
5	["43349"	31627	344	168	White alone, not Hispanic or Latino	Oklahoma	451	40]
6	["54861"	40175	228	131	White alone, not Hispanic or Latino	Texas	451	48]
7	["45884"	33743	2156	2163	American Indian and Alaska Native alone, not Hispanic or Latino	Texas	455	48]]

Source: U.S. Census Bureau.

We took the data and calculated the earnings ratio for each state and for each demographic group, and we used these data to create a chart that compares the 12 categories (three states, two racial/ethnic groups, and two gender groups). On the chart, we also showed the margin of error for each estimate, which is included in each of the tables we downloaded (see Figure 6.24). The margin of error provides a measure of reliability for a given estimate.

Figure 6.24. **Gender Earnings Gap for American Indian and Alaska Natives and Non-Hispanic Whites in Kansas, Oklahoma, and Texas: 2006–2010**



Source: U.S. Census Bureau, 2006–2010 American Community Survey Selected Population Tables, Table B20017.

We produced similar analyses for a variety of other topics, including educational attainment, poverty, employment, homeownership, and median home values.

Policy Applications of the Data

This case study demonstrates how ACS data can be used to provide tribal leaders with the data they need for decision-making. The Regional Profiles were developed by the NCAI in response to a request from our Executive Board to provide clearer demographic and economic portraits of the communities and regions beyond their own. These communities are being called upon to testify before Congress as national leaders and as representatives of Indian Country as a whole—not only for their respective tribal communities. Since their release, these Regional Profiles have been used by regional intertribal organizations, tribal Community Development Financial Institutions (CDFI), as well as tribal program administrators engaged with YouthBuild in their efforts to advocate for federal funding, increase data collection, apply for grants, and educate policy makers at state and federal levels.

One of the first explicit data requests the NCAI Policy Research Center received came from the Executive Director of the United Southern and Eastern Tribes, who needed economic data for the entire eastern region. He was amazed that within 5 minutes of his request, we had printed a copy of the Eastern Regional Data Profile with the exact information that he and his staff were seeking. Conveniently, he was heading to testify on Capitol Hill later that afternoon and he quickly amended his prepared comments to include several data points.

Another request came from the Executive Director of the Native CDFI Network, who was eager to incorporate economic data in grant proposals and funding requests to private and federal partners. She knew how critical data would be in telling the story of economic disparity and the lack of access to capital so many of the communities across Indian Country face—and how the Native CDFIs are poised to meet and fill those resource gaps. She was thrilled to realize that the Regional Profiles had been produced and that they covered topics, such as housing and broadband connectivity, in addition to employment and income information. She immediately disseminated the profiles to their respective CDFI regional representatives within her network.

Finally, various tribal program administrators met with NCAI and the U.S. Department of Labor to determine what more could be done to secure access to funding through the YouthBuild program. When they were told how heavily data and evaluation were factored into competitive applications, many administrators expressed frustration that their programs did not have sufficient capacity to collect and analyze data to the extent required. The NCAI Policy Research Center shared the Regional Profiles as a resource, and the representatives took great comfort in having these baseline ACS data about the communities within their state and how they compared to non-Native populations—enabling them to highlight the need for increased investment in workforce development and economic opportunity.