
3. TOOLS AND RESOURCES FOR THE ACS SUMMARY FILE

The U.S. Census Bureau provides several resources to help data users access and use the table-based American Community Survey (ACS) Summary File on the “Getting Started” webpage, including:

- Links to the ACS Summary File data.
- Release notes and supporting materials.
- Instructions on how to read ACS geography names into Summary File tables using Excel.
- Example programs to access the ACS Summary File using SAS or Python.
- Webinars that provide guidance on using the ACS Summary File in the table-based format.¹⁵

Reading the ACS Summary File Into Excel

The Census Bureau provides a document that describes how data users without access to SAS or other statistical software—or who are seeking data for just a few tables—can retrieve ACS Summary File tables using Excel.¹⁶

- Select a table of interest from the Census Bureau’s file transfer protocol (FTP) directory and download it as a text file.
- In Excel, open the text file of the table of interest, using Excel’s Text Import Wizard. The table file uses pipe delimiters (i.e., vertical bar symbols).
- Download the corresponding geography file, either from the Table-Based Format webpage or the FTP website. Make sure the geography file corresponds with the ACS Summary File from where you selected the table. For example, if the data table comes from the 2021 1-year Summary File, you will want to download the 2021 ACS 1-year geography file. Like the data table, the geography file will be saved as a text file.
- Open the geography file in Excel using the Text Import Wizard. Like the table file, the geography file uses pipe delimiters.
- Once both the data table and geography files are open, use the VLOOKUP function to merge the geography names into the data table.

¹⁵ U.S. Census Bureau, American Community Survey Summary File, “Getting Started,” <www.census.gov/programs-surveys/acs/data/summary-file/Getting_Started.html#list-tab-1622397667>.

¹⁶ U.S. Census Bureau, “Instructions on How to Read ACS Geography Names into Summary File Tables Using Excel,” <https://www2.census.gov/programs-surveys/acs/summary_file/2021/table-based-SF/documentation/ACS_Table_Based_SF_Excel_Import%20GEO%20Names_Tool.pdf>.

SAS and Other Statistical Programs

More advanced users can also use the Census Bureau’s example programs, available on the “ACS Summary File” webpage, as a starting point to access ACS data using SAS, Python, or other statistical software.¹⁷ These programs can be used to access:

- The ACS 1-year data for all the geographies in a single state (California).
- The ACS 5-year data for all the tracts in the United States.

The SAS code listed in Figure 3.1 could be used to output 2021 ACS 1-year data for all geographies in California from Table B01001, “Sex and Age.” The Census Bureau also has an “ACS Data Users GitHub” webpage where data users can share code for working with ACS data with different programming languages (R, Python, SAS, Stata, etc.).¹⁸

Webinars and Other Supporting Materials

The Census Bureau has organized a series of webinars for data users who want more information about using the ACS Table-Based Summary File.¹⁹

USER NOTES

Population Thresholds

The Census Bureau publishes American Community Survey 1-year and 5-year estimates with population thresholds set for the ACS 1-year estimates to provide reliable data. Table 3.1 provides a brief comparison of the two types of estimates:

For more guidance on using ACS 1-year and 5-year estimates, refer to the chapter on “Understanding Multiyear Estimates” in *Understanding and Using American Community Survey Data: What All Data Users Need to Know*.²⁰

¹⁷ U.S. Census Bureau, American Community Survey Summary File, “Getting Started,” <www.census.gov/programs-surveys/acs/data/summary-file/Getting_Started.html#list-tab-1622397667>.

¹⁸ U.S. Census Bureau, American Community Survey, “Data Users GitHub” webpage, <<https://github.com/Census-ACS>>.

¹⁹ U.S. Census Bureau, American Community Survey Summary File, “Getting Started,” <www.census.gov/programs-surveys/acs/data/summary-file/Getting_Started.html#list-tab-1622397667>.

²⁰ U.S. Census Bureau, *Understanding and Using American Community Survey Data: What All Data Users Need to Know*, <www.census.gov/programs-surveys/acs/library/handbooks/general.html>.

Figure 3.1. SAS Code Used to Output 2021 American Community Survey 1-Year Data for California Geographies

```

/*-----ADD INPUT HERE -----*/
%let Table_ID =b01001;
%let State =ca;
%let Data_Dir =../1YRData;
%let Geo_File =../Geos20211YR.txt;
/*-----*/
libname out ".";

/** Import Data **/
proc import datafile = "&Data_Dir./acsd1y2021-&Table_ID.dat"
  out = &Table_ID
  dbms = dlm
  replace;
  getnames = yes;
  delimiter = "|";
  GUESSINGROWS=10000;
run;

/* import geography labels */
proc import datafile="&Geo_File"
  out = Geos
  dbms = dlm
  replace;
  getnames=yes;
  delimiter = "|";
  GUESSINGROWS=10000;
run;

/* merge data with geography labels and output */
proc sql;
  create table out.&Table_ID as
  select geo.name, tbl.*
  from &Table_ID as tbl
  left join Geos as geo
  on tbl.GEO_ID = geo.GEO_ID
  where geo.stusab = upcase("&State");

```

Source: U.S. Census Bureau, American Community Survey, "Data Users GitHub Repository," <<https://github.com/Census-ACS/acs-summary-file/blob/master/SAS/Example01.sas>>.

Table 3.1. Understanding American Community Survey 1-Year and 5-Year Estimates

1-Year Estimates	5-Year Estimates
Published for selected geographic areas with populations of 65,000 or greater.	Published for all geographic areas.
Represent the average characteristics over 1 calendar year.	Represent the average characteristics over a 5-year period of time.
Have fewer published geographic areas than the 5-year estimates.	Have more published areas than the 1-year estimates.

Source: U.S. Census Bureau, *Using the American Community Survey Summary File: What Data Users Need to Know*, <www.census.gov/programs-surveys/acs/library/handbooks/summary-file.html>.

Explanation of Missing Estimates and Data Release Filtering Rules

Data users often question why certain ACS estimates are not available. Missing estimates can be caused by data suppression through various methods or restrictions that are applied to ACS data to limit the disclosure of information about individual respondents and the number of published estimates with unacceptable statistical reliability.

Filtering rules, based on statistical reliability of the ACS 1-year estimates, are used to ensure that Detailed Tables are not released where the majority of estimates in the Detailed Tables have an unacceptable level of reliability.

Learn more about missing estimates and filtering rules on the Census Bureau's "Data Suppression" webpage.²¹

Margins of Error (MOEs) and Rounding Rules

There are a few special rules on how certain MOEs are determined for ACS estimates. The accuracy of the estimate (decimal place) within the Detailed Tables determine the number of digits to where the MOE is rounded.

Some ACS tables and estimates do not have MOEs associated with them, including:

- Tables B98001, B98002, and B98003, which are sample counts, not estimates.
- The remaining tables in series B98 (quality measure tables) and B99 (allocation tables).
- ACS estimates that are controlled to independent population or housing unit totals.

²¹ U.S. Census Bureau, American Community Survey, "Data Suppression," <www.census.gov/programs-surveys/acs/technical-documentation/data-suppression.html>.

Jam Values

A "jam value" is a hard-coded value used to explain the absence of data. The Table-Based Summary File uses numeric jam values, whereas, the previous sequence-based format used character values. For example, a jam value is represented by a value in the data display, such as "-6666666666," in cases where the estimate could not be computed because there was an insufficient number of sample observations. The sequence-based format used a dot (.) to express this information. Learn more about these special data values on the Census Bureau's "Code Lists, Definitions, and Accuracy" webpage.²²

Display of ACS Estimates

The estimates in the Summary File are stored using standard notation instead of in scientific notation. The estimates are stored as whole numbers. The largest estimate in the ACS Summary File contains 14 digits.

For More Information

For any technical questions or comments on the ACS Summary File, email <acso.users.support@census.gov>. If you have questions or comments about the ACS, you can submit a question online at <<https://ask.census.gov/>>.

²² U.S. Census Bureau, "Code Lists, Definitions, and Accuracy," <www.census.gov/programs-surveys/acs/technical-documentation/code-lists.html>.