

Visualizing ACS Data in Tableau

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May 26, 2022

Visualizing ACS Data in Tableau

Overview

- **Review of Core Concepts**
- Best practices for Visualizing ACS Data
- Visualizing ACS Summary Products
- Visualizing ACS Public Use Microdata Sample (PUMS)
- Resources for Learning More


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The American Community Survey: The Foundation

The American Community Survey is on the leading edge of survey design, continuous improvement, and data quality


- The nation's most current, reliable, and accessible data source for local statistics on critical planning topics such as age, children, veterans, commuting, education, income, and employment
- Surveys **3.5 million** addresses and informs over **\$675 billion** of federal government spending each year
- Covers **40+ topics**, supports over **300** evidence-based Federal government uses, and produces **11 billion** estimates each year
- Typically provides three key annual data releases:
 - 1-year Estimates (for large populations, geographies of 65,000+ population)
 - 1-year Supplemental Estimates (for small populations, geographies of 20,000+ population)
 - 5-year Estimates (for very small populations, geographies down to Census Tracts and Block Groups)

13191010


 **The American Community Survey**

Start Here


You have two ways to respond:

 Respond online today at:
<https://respond.census.gov/acs>

OR

 Complete this form and mail it back as soon as possible.

Your response is required by law.
The American Community Survey is conducted by the U.S. Census Bureau. This survey is one of only a few surveys for which all recipients are required by law to respond. The U.S. Census Bureau is required by law to protect your information.

 **If you need help or have questions about completing this form,** please call **1-800-354-7271**.

Toll Telephone (TTY):
Call 1-800-562-8330.

¿NECESITA AYUDA? Llame sin cargo alguno al **1-877-833-5625**.

For more information about the American Community Survey, visit our website at: <https://www.census.gov/acs>

Please print the name and telephone number of the person who is filling out this form. We will only contact you if needed for official Census Bureau business.

Last Name

First Name MI

Area Code + Number
 -


How many people are living or staying at this address?

- **INCLUDE** everyone who is living or staying here for more than 2 months.
- **INCLUDE** yourself if you are living here for more than 2 months.
- **INCLUDE** anyone else staying here who does not have another place to stay, even if they are here for 2 months or less.
- **DO NOT INCLUDE** anyone who is living somewhere else for more than 2 months, such as a college student living away or someone in the Armed Forces on deployment.

Number of people

Fill out pages 2 - 7 for everyone, including yourself, who is living or staying at this address for more than 2 months. Then complete the rest of the form.

Form **ACS-1(2021)**
OMB No. 0607-0810
OMB No. 0607-0936



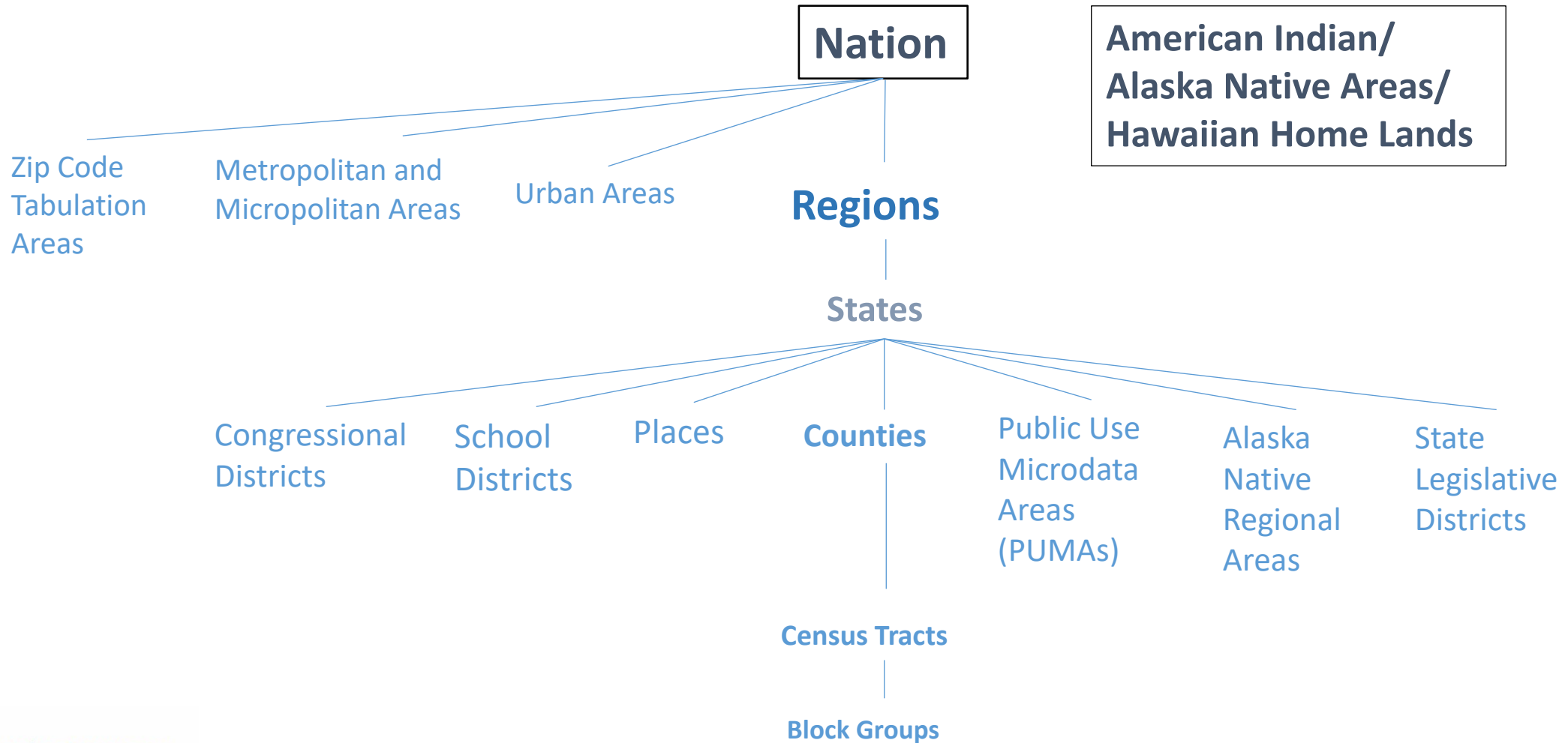
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ACS Content Overview

POPULATION		HOUSING
SOCIAL Ancestry Citizenship Citizen Voting Age Population Disability Educational Attainment Fertility Grandparents Language Marital Status Migration School Enrollment Veterans	DEMOGRAPHIC Age Hispanic Origin Race Relationship Sex ECONOMIC Class of Worker Commuting Employment Status Food Stamps (SNAP) Health Insurance Hours/Week, Weeks/Year Income Industry & Occupation	Computer & Internet Use Costs (Mortgage, Rent, Taxes, Insurance) Heating Fuel Home Value Occupancy Plumbing/Kitchen Facilities Structure Tenure (Own/Rent) Utilities Vehicles Year Built/ Year Moved In

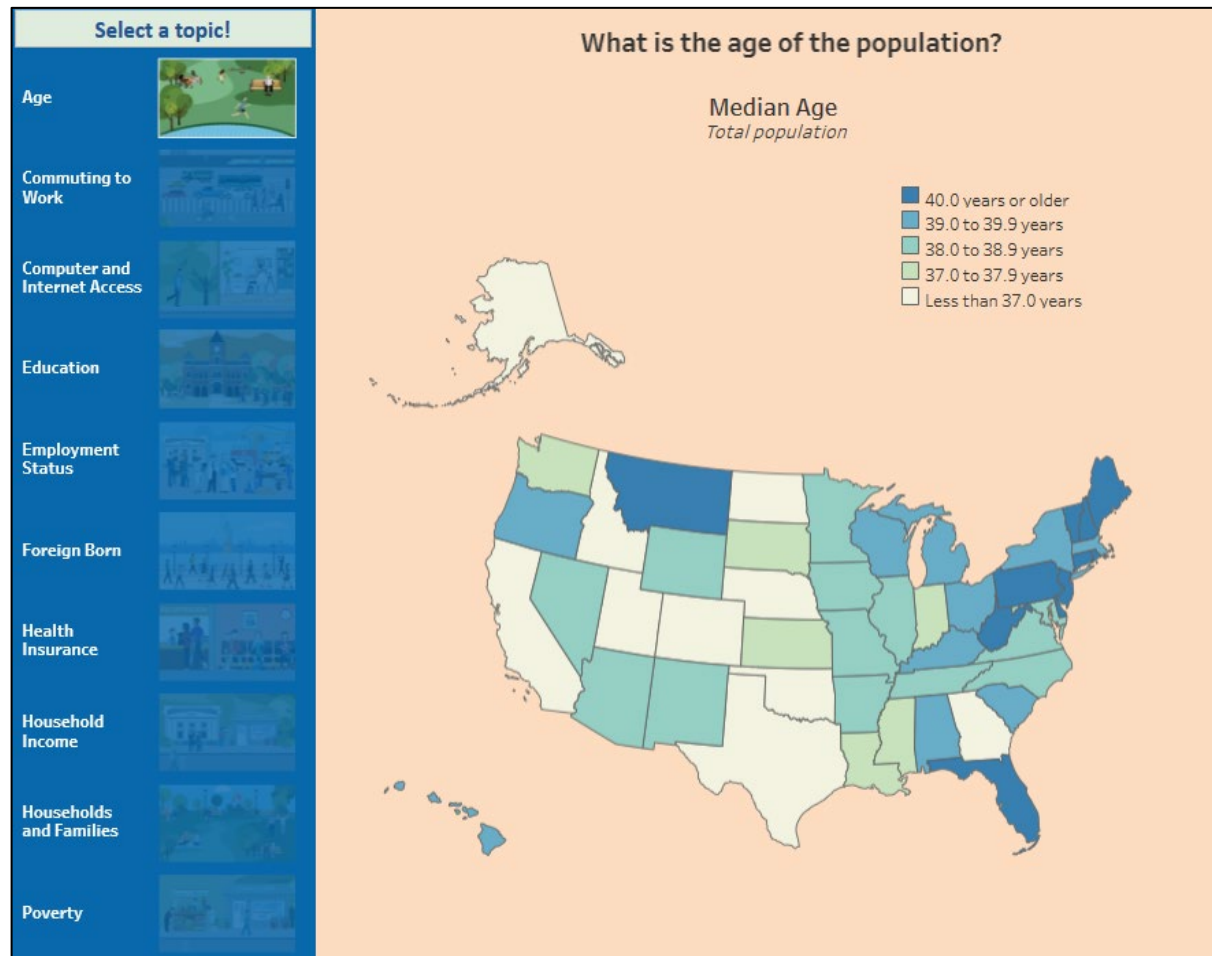
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Selected ACS Geographic Concepts



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ACS Data Visualizations



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Types of ACS Data Products

Summary Products

- Tables and profiles
- Generated by Census Bureau with input from subject matter experts
- Available from:
 - data.census.gov
 - API
 - Many other tools and apps

Public Use Microdata Sample

- Untabulated records
- Subsample of population and housing records from the ACS
- Available from:
 - data.census.gov (Microdata Access)
 - API
 - FTP

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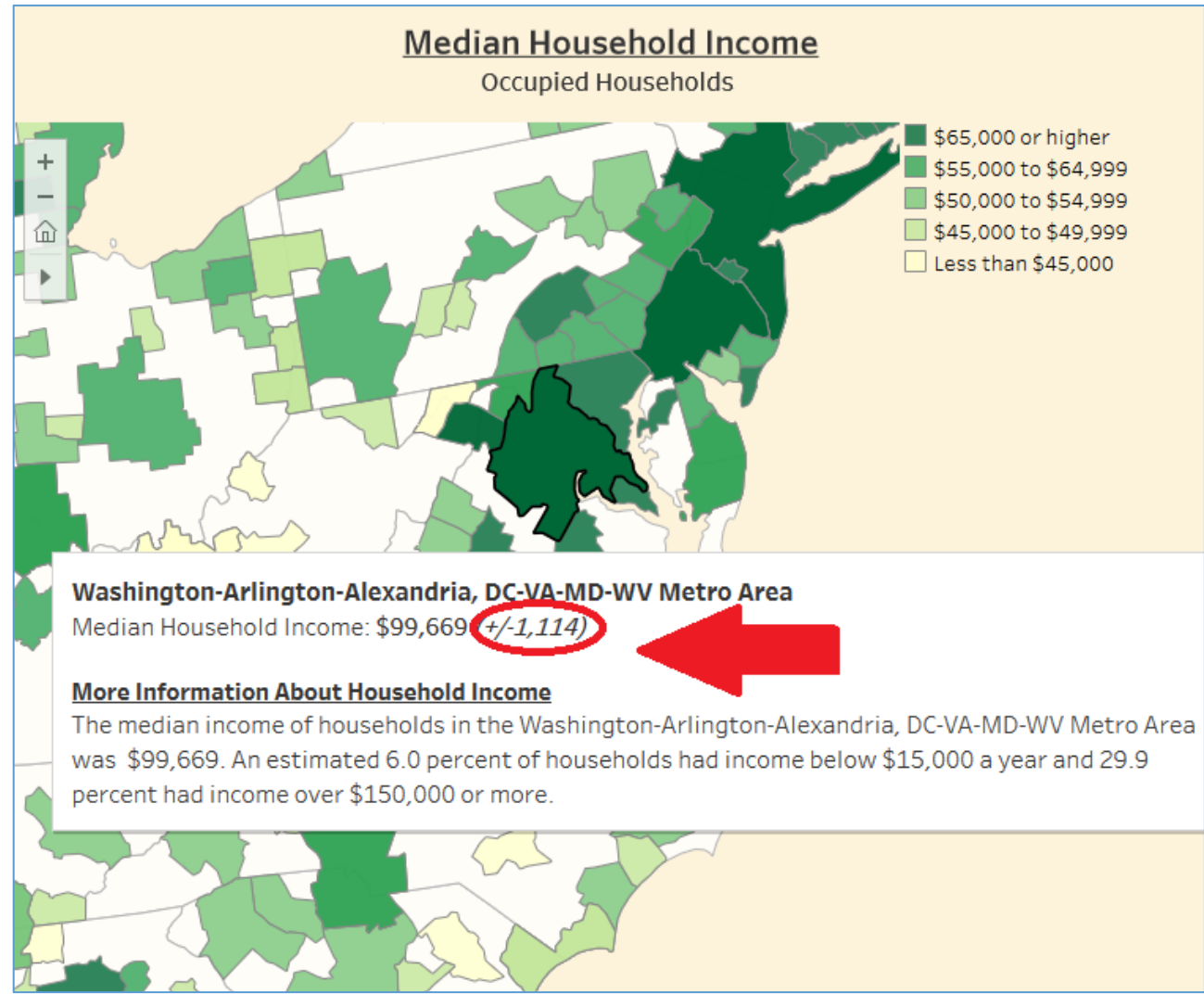
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Best Practices

- Remember Margins of Error
 - Show them
 - Visualize them
 - Ensure reliability
- Use Census tracts and block groups with caution
 - Margins of Error
 - Custom Geographies

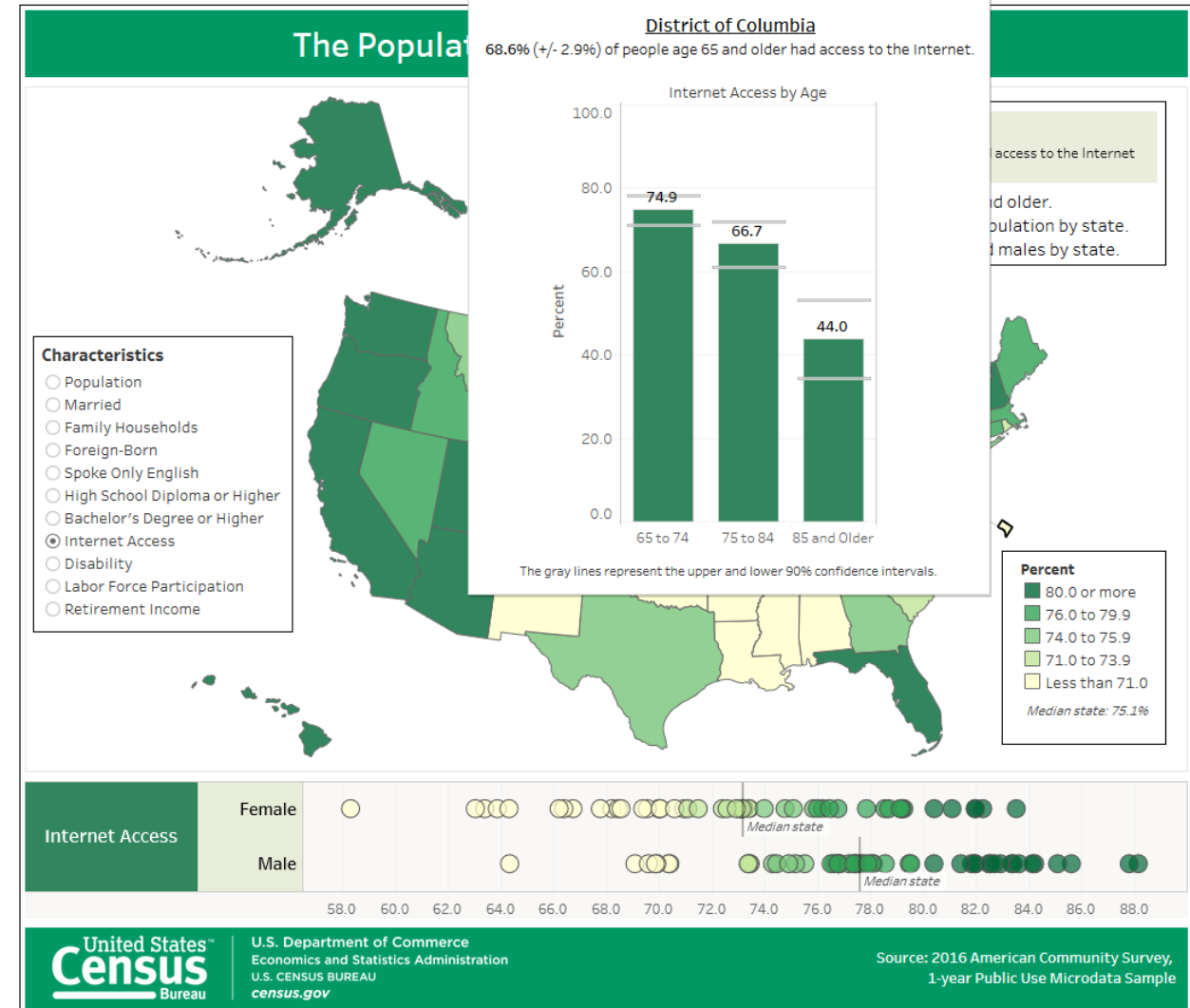


census.gov/library/visualizations/interactive/learn-acs.html

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MAP RELIABILITY CALCULATOR
(Fill in boxes to get map reliability* for classification schemes)

STEP 1
Insert estimates & Margins of Error (MOEs)
(Insert up to 2,500 lines)

	Estimates	MOEs
1	0.00	
2	1105.00	222.00
3	2667.00	358.00
4	0.00	
5	4028.00	998.00
6	6463.00	737.00
7	4132.00	619.00
8	1120.00	162.00
9	695.00	110.00
10	1882.00	560.00
11	1709.00	246.00
12	3419.00	400.00
13	1734.00	231.00
14	1470.00	244.00
15	3663.00	390.00

STEP 2
Select number of classes
(Type in number from 2 to 7)

Classes:

STEP 3
Select class breaks
(Type in lower limit for each class)

User Defined			
	Class Breaks	Count	Reliability *
top class	5,000.00	52	11.9
lowest (2 classes)	2,500.00	384	11.0
lowest (3 classes)	1,000.00	1,241	6.4
lowest (4 classes)	0.00	490	7.3
lowest (5 classes)			
lowest (6 classes)			
lowest (7 classes)			
Total		2,167	7.6

Reliable

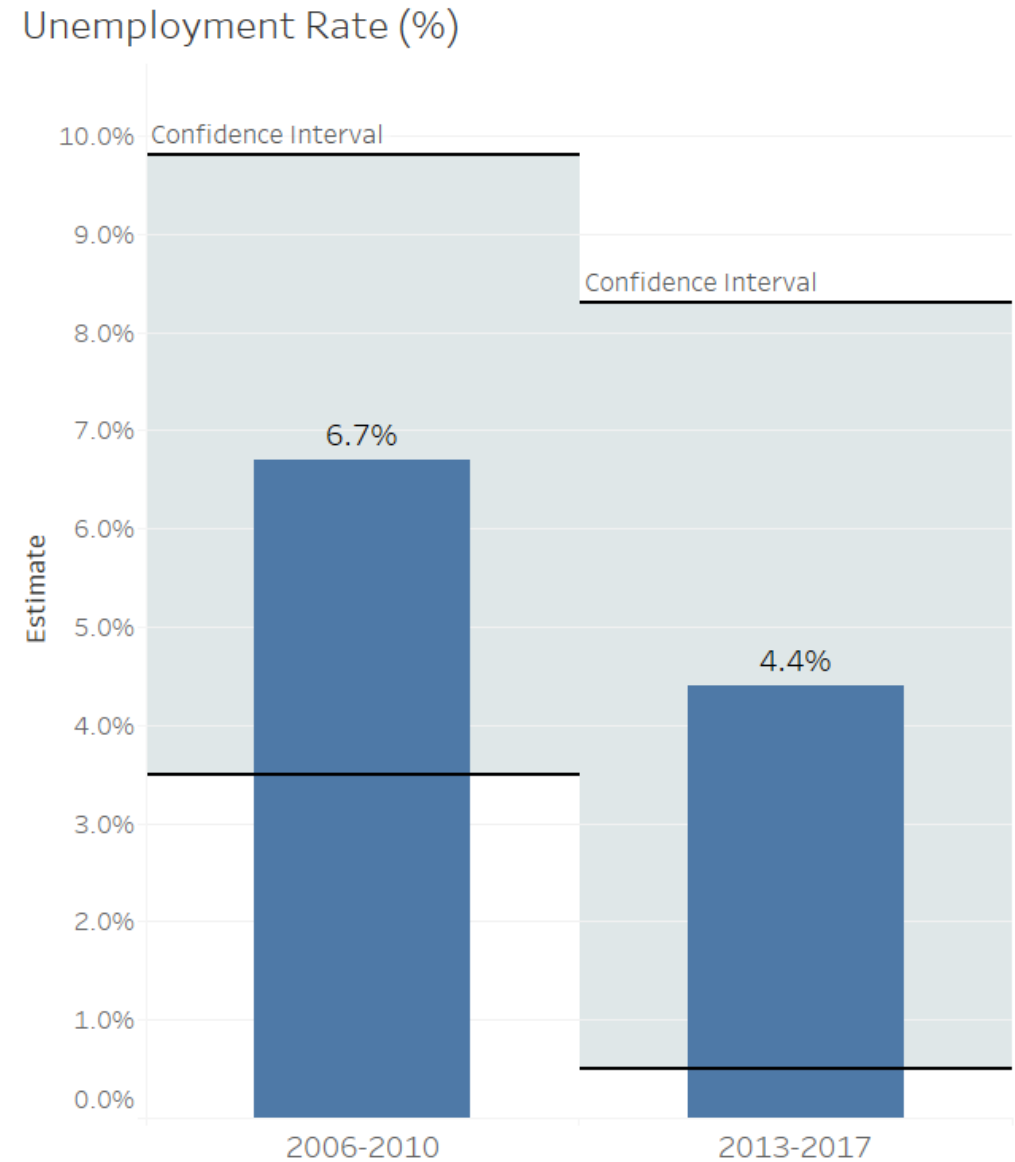
*The reliability score is the probability that any given estimate is erroneously classed.
A map classification is considered to be reliable if the total reliability score is less than 10% and all individual classes are less than 20%.

census.gov/programs-surveys/acs/library/handbooks/state-local.html

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Best Practices

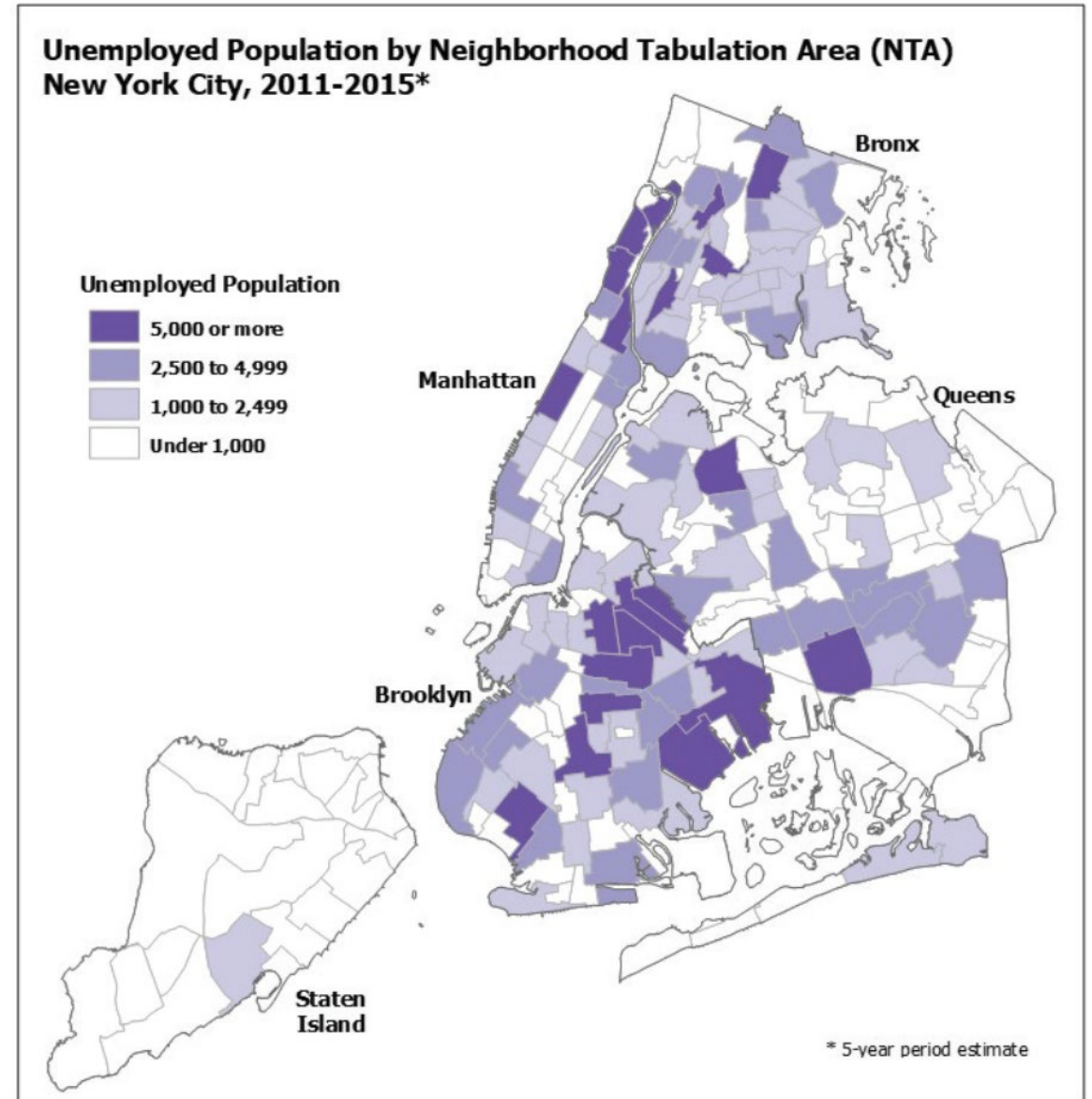
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Data Dissemination and Training

- ✓ **Bring our data experts to you.**

Request a free data training for your organization.

- ✓ **Receive our Data Gems.**

These short “how-to” videos are an easy and quick way to increase your knowledge of Census data. Get them in your inbox!

- ✓ **Get access to our Courses.**

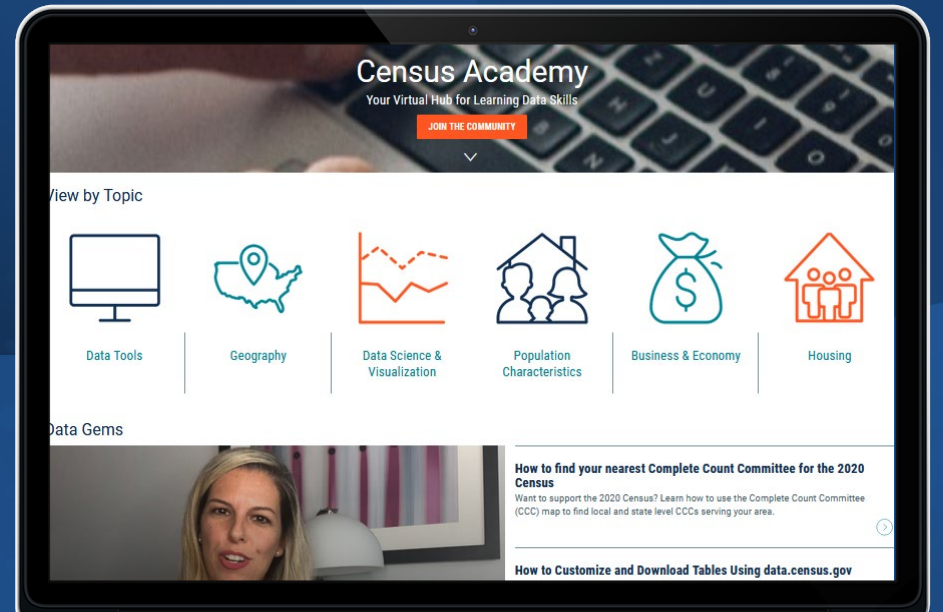
You will learn-at-your-own-pace with these video-tutorials designed for different skill levels.

- ✓ **Interact with our instructors via Webinars.**

Learn about our data releases and tools while attending these live virtual classes.



Census.gov/Academy



Contact us:

Census.askdata@census.gov

1-844-ASK-DATA

*Share your ideas and feedback at
census.academy@census.gov*

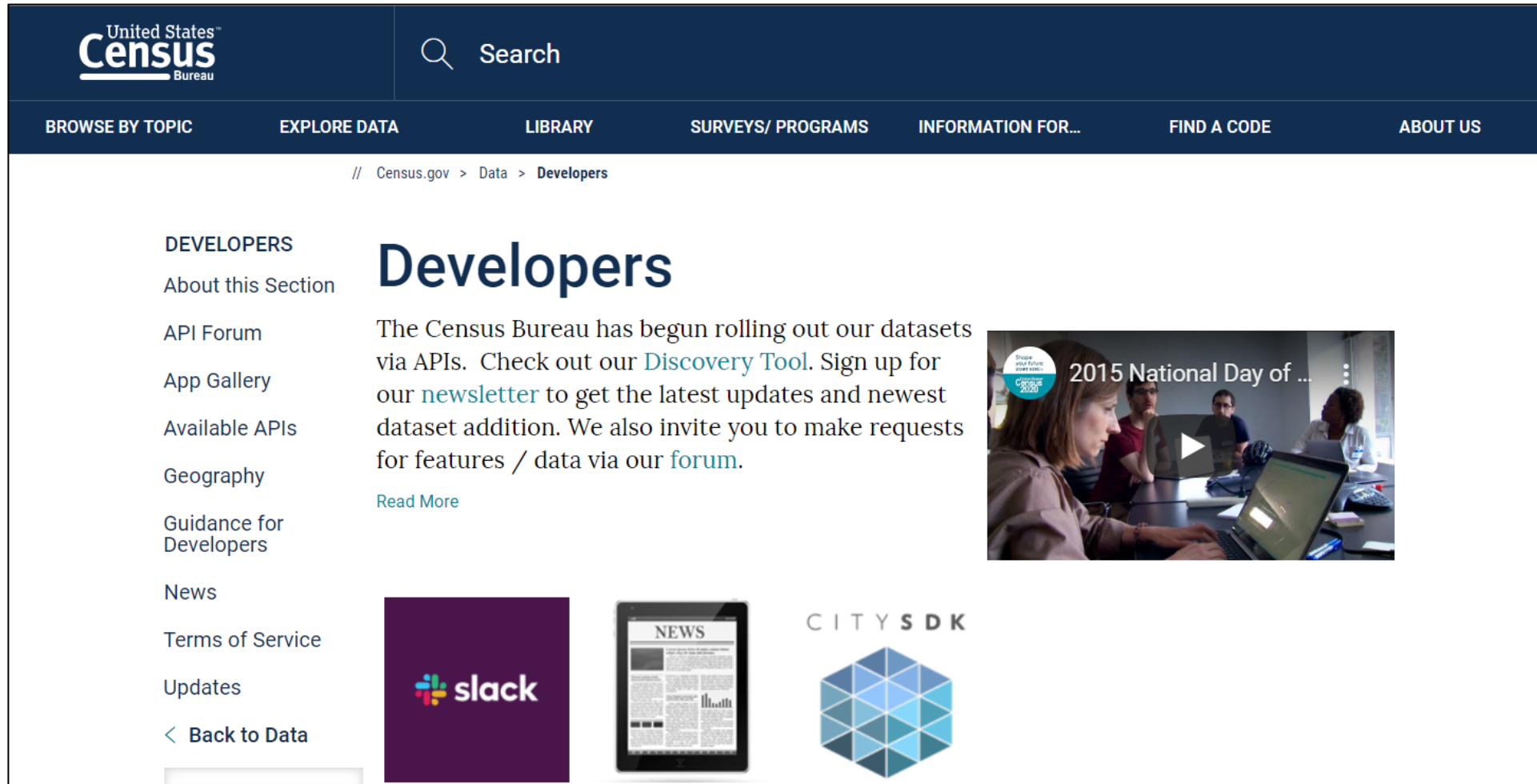
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ACS Website

The screenshot shows the homepage of the American Community Survey (ACS) website. At the top, there is a dark blue header with the United States Census Bureau logo on the left and a search bar on the right. Below the header is a navigation menu with links for BROWSE BY TOPIC, EXPLORE DATA, LIBRARY, SURVEYS/ PROGRAMS, INFORMATION FOR..., FIND A CODE, and ABOUT US. The main content area features a breadcrumb trail: // Census.gov / Our Surveys & Programs / American Community Survey (ACS). On the left, there is a sidebar menu titled "WITHIN OUR SURVEYS & PROGRAMS" with links for About the ACS, Data, Geography & ACS, Guidance for Data Users, Information For..., Library, Methodology, Microdata, News & Updates, Operations and Administration, Respond to the ACS, and Technical Documentation. The main heading is "American Community Survey (ACS)", followed by a paragraph: "The American Community Survey (ACS) helps local officials, community leaders, and businesses understand the changes taking place in their communities. It is the premier source for detailed population and housing information about our nation." To the right of this text is a video player showing a classroom scene. Below the video are three call-to-action buttons: "RESPOND NOW" (with a mouse cursor), "Find ACS Data" (with a data visualization icon), and "SUBSCRIBE" (with a grid icon). At the bottom of the main content area, there is a "Data" link.

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Census Bureau Developer's Site



The screenshot shows the 'Developers' page on the Census Bureau website. The top navigation bar includes the United States Census Bureau logo, a search bar, and links for 'BROWSE BY TOPIC', 'EXPLORE DATA', 'LIBRARY', 'SURVEYS/ PROGRAMS', 'INFORMATION FOR...', 'FIND A CODE', and 'ABOUT US'. The breadcrumb trail reads '// Census.gov > Data > Developers'. The main heading is 'Developers'. A sidebar on the left lists various resources: 'About this Section', 'API Forum', 'App Gallery', 'Available APIs', 'Geography', 'Guidance for Developers', 'News', 'Terms of Service', 'Updates', and a 'Back to Data' link. The main content area features a paragraph about API datasets, a 'Read More' link, and a video player for '2015 National Day of ...'. Below the text are three icons: the Slack logo, a tablet displaying a news article, and the City SDK logo.

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ACS Data User Resources

New resource page, Using American Community Survey Data with Open-Source Software, is now available.

This webpage provides information on open-source software packages that allow data users to access and work with ACS data.

The screenshot shows a webpage with a navigation menu on the left and a main content area on the right. The navigation menu includes links for 'WITHIN GUIDANCE FOR DATA USERS', 'Comparing ACS Data', 'Handbooks', 'Statistical Testing Tool', 'Subjects Included in the Survey', 'Training Presentations', 'Using ACS Data with Open-Source Software', 'When to Use 1-year or 5-year Estimates', and 'Which Data Table or Tool Should I Use?'. The main content area features a breadcrumb trail, social media icons, a title, a paragraph of text, a section for 'R and ACS' with a bulleted list of packages, a section for 'Python and ACS' with a bulleted list, and a section for 'JavaScript and ACS' with a bulleted list. At the bottom left of the page is a logo for 'Respond to the ACS Learn how'.

// Census.gov / Our Surveys & Programs / American Community Survey (ACS) / Guidance for Data Users / Using ACS Data with Open-Source Software

WITHIN GUIDANCE FOR DATA USERS

Comparing ACS Data

Handbooks

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Using American Community Survey Data with Open-Source Software

Statistical software is a powerful way to quickly and consistently retrieve and interact with data. Open-source programming languages allow developers to create libraries and packages that give data users the opportunity to work with American Community Survey (ACS) data in new and innovative ways. Explore some of these open-source libraries and packages for working with ACS data that have been created by developers in the data user community.

These resources have been created externally and the Census Bureau does not maintain or provide support for any of these libraries and packages.

R and ACS

- **tidycensus** is a package that allows users to interface with the Census Bureau APIs and return tidyverse-ready data frames, with the option of including simple feature geometry.
- **censusapi** is a wrapper for the Census Bureau APIs. This package is designed to retrieve data using the same main function and the same syntax for each dataset.
- **tigris** is a package that allows users to directly download and use Census Bureau TIGER/Line shapefiles.

Python and ACS

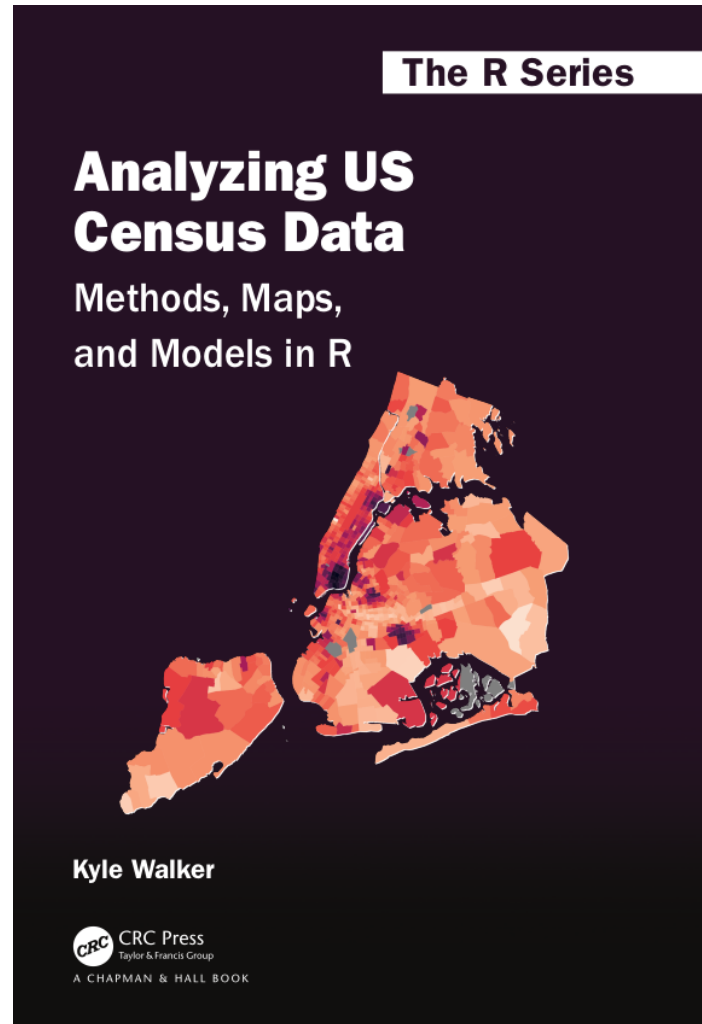
- **cenpy** is an interface to explore and query the Census Bureau APIs and return Pandas data frames. This package is intended for exploratory data analysis.
- **datamade** is a simple wrapper for the Census Bureau APIs.

JavaScript and ACS

- **CitySDK** provides convenient JavaScript utilities for working with Census Bureau APIs including Statistics, Cartographic GeoJSON, latitude/longitude conversion to FIPS codes, and more.

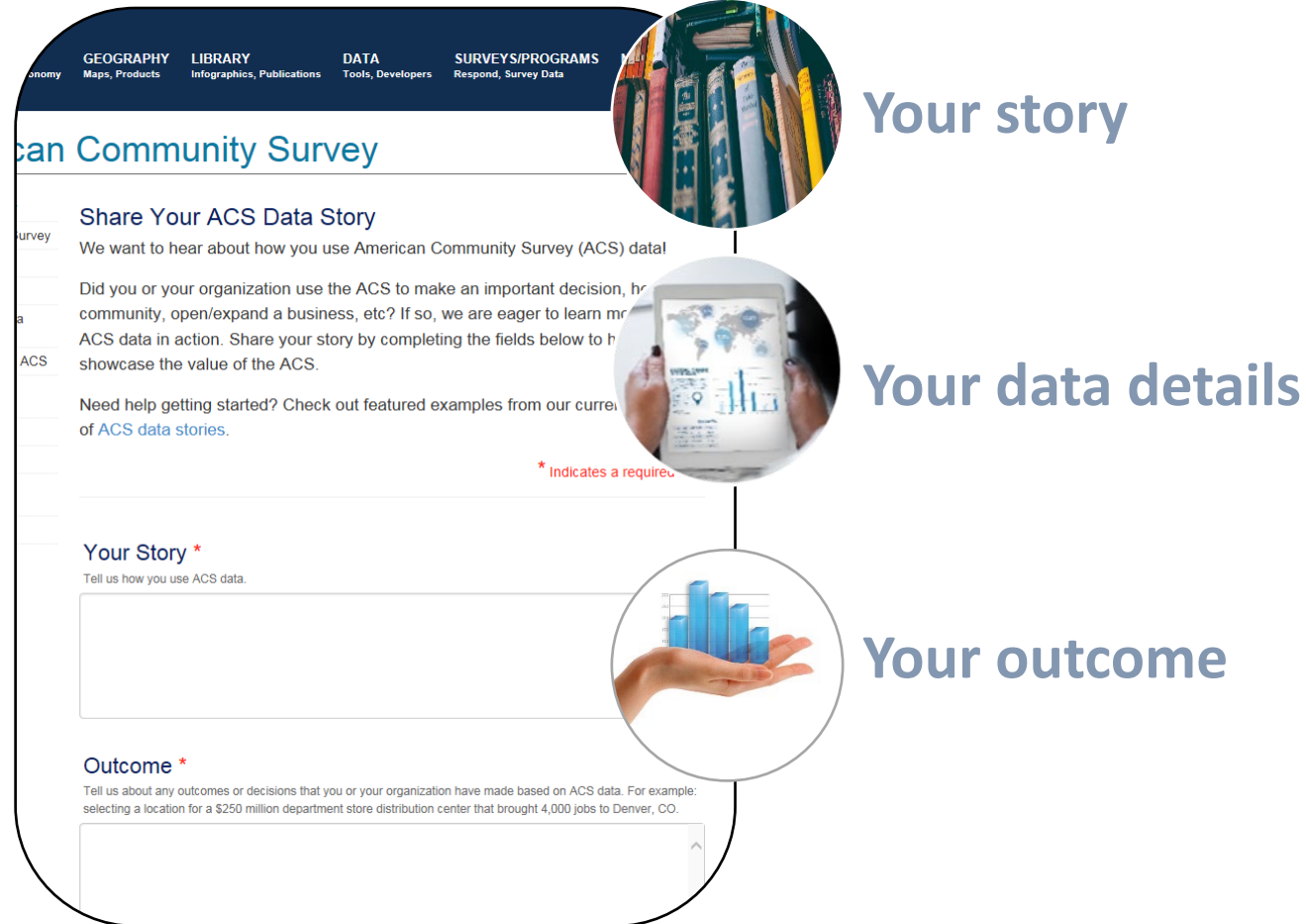
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Analyzing US Census Data: Methods, Maps, and Models in R



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Data Tells Stories. Tell Us Yours!



Share Your ACS Data Story

We want to hear about how you use American Community Survey (ACS) data!

Did you or your organization use the ACS to make an important decision, improve your community, open/expand a business, etc? If so, we are eager to learn more about how you use ACS data in action. Share your story by completing the fields below to help us showcase the value of the ACS.

Need help getting started? Check out featured examples from our current collection of [ACS data stories](#).

* Indicates a required field

Your Story *

Tell us how you use ACS data.

Outcome *

Tell us about any outcomes or decisions that you or your organization have made based on ACS data. For example: selecting a location for a \$250 million department store distribution center that brought 4,000 jobs to Denver, CO.

Your story

Your data details

Your outcome



- Purpose:
 - Improve understanding of the value and utility of ACS data.
 - Promote information sharing among data users about key ACS data issues and applications
- Membership is free and open to all interested ACS data users
- Webinars and special sessions at professional meetings planned
- Users group website and online community

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For Further Information

Customer Service Center

1-800-923-8282

Email Us

American Community Survey Office

acso.users.support@census.gov

Website

census.gov/acs

Email Alerts

<https://public.govdelivery.com/accounts/USCENSUS/signup/12426>

Social Media @uscensusbureau

#ACSdata

Source Us

U.S. Census Bureau, [YYYY – YYYY] American Community Survey [1/5]-year estimates