How to Use American Community Survey (ACS) Geodatabase Files and ArcMap

May 16, 2018

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Outline

• American Community Survey (ACS) basics
• Background Information
• Location of Census Geodatabases
• Downloading Geodatabase
• Joining feature class to tables
• Using metadata tables to identify full descriptions
• Wrap-up/Questions
American Community Survey is Foundational

- 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 about 3.5 million addresses and informs $675 billion of Federal government spending each year
- Designed to produce critical information on small areas and small population groups previously collected on the decennial long form
- Covers 35+ topics, supports over 300 evidence-based Federal government uses, and produces 11 billion estimates each year
- Three key annual data releases:
  - 1-year estimates (12 months of data)
  - 1-year Supplemental Estimates (12 months of data)
  - 5-year estimates (60 months of data)
Decennial Census and the American Community Survey

1790-1930 Census
one form to all households

1940-2000 Census
short form & long form

1996-2004 ACS
demonstration period

2005-present ACS
annual estimates for all geographies

2010 Census and future
short form only
## How is the ACS Different from a Census?

<table>
<thead>
<tr>
<th>Purpose</th>
<th>ACS</th>
<th>2010 and 2020 Census</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Sample estimates</td>
<td>Official counts</td>
</tr>
<tr>
<td><strong>Produces</strong></td>
<td>Population characteristics</td>
<td>Population totals</td>
</tr>
<tr>
<td><strong>New Data Every</strong></td>
<td>Year</td>
<td>10 years</td>
</tr>
<tr>
<td><strong>Data Reflect</strong></td>
<td>Period of time</td>
<td>Point in time</td>
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<tr>
<td><strong>Collects</strong></td>
<td>Information previously on the census “long form”</td>
<td>“Short form” information</td>
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</table>
ACS Data Collection Process

Self-Response Modes
- Online
- Mail

Non-Response Mode
- Personal Visit
ACS Content

Social
- Ancestry
- Citizenship Status
- Disability Status
- Educational Attainment & School Enrollment
- Fertility
- Grandparents as Caregivers
- Language Spoken at Home
- Marital History; Marital Status
- Migration/Residence 1 Year Ago
- Period of Military Service
- Place of Birth
- Undergraduate Field of Degree
- Veteran Status
- Year of Entry

Demographic
- Age
- Hispanic or Latino Origin
- Race
- Relationship to Householder
- Sex

Economic
- Commuting (Journey to Work) & Place of Work
- Employment Status
- Food Stamps/SNAP
- Health Insurance Coverage
- Income and Earnings
- Industry, Occupation, & Class of Worker
- Poverty Status
- Work Status Last Year

Housing
- Bedrooms
- Computer and Internet Use
- House Heating Fuel
- Kitchen Facilities
- Occupancy/Vacancy Status
- Occupants Per Room
- Plumbing Facilities
- Rent
- Rooms
- Selected Monthly Owner Costs
- Telephone Service Available
- Tenure (Owner/Renter)
- Units in Structure
- Value of Home
- Vehicles Available
- Year Householder Moved into Unit
- Year Structure Built

35+ Topics ⇒ 1000+ Tables ⇒ 11 Billion Estimates

United States Census Bureau
U.S. Department of Commerce
Economics and Statistics Administration
U.S. CENSUS BUREAU
census.gov
Table/Profile Numbering

- B=Data Product Type (Base Table)
- 06=Subject (Place of Birth)
- 004=Sequential Number (2 or 3 digits)
- A=Race/Hispanic Origin (White Alone)
- PR=For Puerto Rico Geographies Only

[census.gov/programs-surveys/acs/guidance/which-data-tool/table-ids-explained.html](census.gov/programs-surveys/acs/guidance/which-data-tool/table-ids-explained.html)
Selected Census Geographic Concepts

Nation

Regions

States

Counties

Census Tracts

Block Groups

Urban Areas

American Indian/Alaska Native Areas/Hawaiian Home Lands

Zip Code Tabulation Areas

Metropolitan and Micropolitan Areas

Places

Public Use Microdata Areas (PUMAs)

Alaska Native Regional Areas

State Legislative Districts

Congressional Districts

School Districts

930,000 Geographic Areas

35,000+ Communities

9

9

9

9

9
## Availability of ACS Data Products

<table>
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<th>Estimated Population of Geographic Area</th>
<th>1-Year Estimates</th>
<th>1-Year Supplemental Estimates</th>
<th>5-Year Estimates</th>
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<tr>
<td>20,000 to 64,999</td>
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<tr>
<td>Less than 20,000</td>
<td></td>
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**Release Date**
- September 13
- October 18
- December 6

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• **Background Information**
  • Location of Census Geodatabases
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• Wrap-up/Questions
Background Information

• Geodatabases bring together geography from the 2016 TIGER/Line Shapefiles and data from the 2012-2016 American Community Survey (ACS) 5-year estimates.

• The geodatabases were developed for Census Bureau partners and the public who wanted an easier way to join ACS data to geographic boundaries.
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TIGER Products
# TIGER/Line with Selected Demographic and Economic Data

<table>
<thead>
<tr>
<th>Product</th>
<th>Best For...</th>
<th>File Format</th>
<th>Type of Data</th>
<th>Level of Detail</th>
<th>Descriptive Attributes</th>
<th>Vintage Available</th>
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<tbody>
<tr>
<td>TIGER/Line Shapefiles</td>
<td>Most mapping projects—this is our most comprehensive dataset. Designed for use with GIS (geographic information systems).</td>
<td>Shapefiles (.shp) and database files (.dbf)</td>
<td>Boundaries, roads, address information, water features, and more</td>
<td>Full detail (not generalized)</td>
<td>Extensive</td>
<td>2008 - 2017, CD 113</td>
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<td>TIGER Geodatasets</td>
<td>Useful for users needing national datasets or all major boundaries by state. Designed for use in ArcGIS. Files are extremely large</td>
<td>Geodatabase (.gdb)</td>
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<td>Limited</td>
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<tr>
<td>TIGER/Line with Selected Demographic and Economic Data</td>
<td>Data from selected attributes from the 2010 Census, 2000-2010 through 2010-2014, ACS 5-year estimates and County Business Patterns (CBP) for selected geographies. Designed for use with GIS.</td>
<td>Shapefiles (.shp) and Geodatabases</td>
<td>Boundaries, Population Counts, Housing Unit Counts, 2010 Census Demographic Profile 1 attributes, 2005-2010 through 2012-2016 ACS 5-year estimates data profiles, CBP data</td>
<td>Full detail (not generalized)</td>
<td>Limited</td>
<td>2012 CBP, 2010, 2006-2010 to 2012-2016 ACS 5-Year Estimates</td>
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<td>KML - Cartographic Boundary Files</td>
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<tr>
<td>TIGERweb</td>
<td>Viewing spatial data online or streaming to your mapping application.</td>
<td>Interactive viewer, HTML data files, plus REST and WMS map services</td>
<td>Boundaries, roads, address information, water features, and more</td>
<td>Detailed</td>
<td>Extensive</td>
<td>Current, 2015 ACS, 2014 ACS, 2010 Census</td>
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www.census.gov/geo/maps-data/data/tiger-data.html
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• Downloading Geodatabase
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• Using metadata tables to identify full descriptions
• Wrap-up/Questions
Block Group
ZIP File pop ups
Unzip Files Once Download is Complete
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Adding Geodatabase
Choose Feature Class and Tables

www.census.gov/geo/reference/mtfcc.html
Feature Class, Age and Sex, & Income
Joining the Table to the Feature Class
Validation Check
Attribute Table of Successful Join

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Metadata – Example 1

Documentation
Data are available for the United States and some data sets are available for Puerto Rico.
In each geodatabase is a metadata table with a short name and a full description of each data element, and difficult to read in a GIS, and are provided here as text files:

- American Indian Areas
  - American Indian/Alaska Native/Native Hawaiian Area Metadata [TXT]
  - Alaska Native Regional Corporation Metadata [TXT]
  - Tribal Block Group Metadata [TXT]
  - Tribal Census Tract Metadata [TXT]
- Block Group Metadata [TXT]
- Census Tract Metadata [TXT]
- Congressional District (115th Congress) Metadata [TXT]
- Core Based Statistical Areas (CBSAs)
  - Metropolitan/Micropolitan Statistical Area Metadata [TXT]
  - Metropolitan Division Metadata [TXT]
  - Combined Statistical Area Metadata [TXT]
  - New England City and Town Area Metadata [TXT]
  - New England City and Town Area Division Metadata [TXT]
  - Combined New England City and Town Area Metadata [TXT]
- County Metadata [TXT]

https://www.census.gov/geo/maps-data/data/tiger-data.html
Metadata – Example 2
• When joining tables to the feature class, use the GEOID_Data field *not* the GEOID field.

• Metadata can be viewed as a table or text document.
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Continue the Conversation
#ACSdata #CensusGeo

Sign up for and manage alerts at
https://public.govdelivery.com/accounts/USCENSUS/subscriber/new

More information online:
https://www.census.gov/acs
https://www.census.gov/geography.html

1-800-923-8282

acso.users.support@census.gov
geo.tiger@census.gov

Social media: @uscensusbureau
Questions?
• 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
• Presentations and recordings from past conferences available
• Webinars and special sessions at professional meetings planned
• Users group website and online community

acsdatacommunity.prb.org
Need Local Stats?

• Assistance Near You! Our regional data staff can help you access local statistics from the ACS or offer training to help build your skills.

• Contact us at:
  
  1-844-ASK-DATA
  (1-844-275-3282)
  census.askdata@census.gov