

6. CASE STUDIES USING ACS DATA

Case Study #1: New Orleans Smoke Alarm Outreach Program

Skill Level: Intermediate

Subject: Age, Income, Poverty, Year Structure Built, Year Householder Moved Into Unit

Type of Analysis: Analyses of trends/patterns within a community

Tool(s) Used: American FactFinder, statistical software, mapping software

Author(s): Oliver Wise, Director of the Office of Performance and Accountability, City of New Orleans

As a component of its fire prevention effort, the New Orleans Fire Department (NOFD) offers free smoke alarm installation to all city residents. Initially the program was fairly passive—requiring individuals to contact the fire department to request a smoke alarm, but local leaders wondered if the program was as effective as it could be.

To answer that question, and to help guide the city's efforts in reducing fire fatalities, the Office of Performance and Accountability teamed up with the NOFD to pilot a more targeted approach to smoke alarm installation. The team developed a model to identify neighborhoods most at risk for fire fatalities. That model then helped NOFD prioritize a door-to-door effort to install free smoke alarms in homes across New Orleans.

This analysis combined data from multiple sources, but would not have been possible without the American Community Survey (ACS).

The first step was to estimate the likelihood that homes in a neighborhood were missing smoke alarms. From the American Housing Survey (AHS), the research team identified three key factors associated with lack of a smoke alarm: the age of the structure, the length of time the householder has lived in the structure, and the household's ratio of income to the poverty level. However, AHS data are only available for relatively large areas. (Parishes, the equivalent of counties in other states, are the smallest reported geographies in Louisiana.) NOFD needed a smaller spatial scale for targeted outreach. The ACS filled that local data requirement because ACS data are available at a small neighborhood scale. For this project, we used block group data from the 2009–2013 ACS 5-year estimates to identify neighborhoods most at risk for lack of smoke alarms.

To produce the block-group-level analysis of smoke alarm risk, we downloaded three ACS tables from American FactFinder (AFF): B25034 (Year Structure Built), C17002 (Ratio of Income to Poverty Level in the Past 12 Months), and B25038 (Tenure by Year Householder Moved Into Unit).

- First, we went to the AFF Web site: <<https://factfinder.census.gov>>.
- To access the data from AFF, we chose the Advanced Search option (see Figure 6.1).

Figure 6.1. Advanced Search in American FactFinder

United States Census Bureau

AMERICAN FactFinder

MAIN COMMUNITY FACTS GUIDED SEARCH **ADVANCED SEARCH** DOWNLOAD CENTER

Search - Use the options on the left (topics, geographies, ...) to narrow your search results

Your Selections
"Your Selections" is empty
load search | save search

Search using the options below:

Topics
(age, income, year, dataset, ...)

Geographies
(states, counties, places, ...)

Race and Ethnic Groups
(race, ancestry, tribe)

To search for tables and other files in American FactFinder:

1 Enter search terms and an optional geography and click GO

topic or table name state, county or place (optional) GO ?

topics race/ancestry industries occupations

-- or --

Select from Topics, Race and Ethnic Groups, Industry Codes, EEO Occupation Codes.

- these are added to "Your Selections"
- the Search Results are updated

Source: U.S. Census Bureau, American FactFinder, accessed at <<https://factfinder.census.gov>>.

- We then selected Block Group from the “Geographies” drop-down menu and narrowed the query by selecting Louisiana as the state and Orleans as the county, or parish (see Figure 6.2).

Figure 6.2. **Selecting Geographies in American FactFinder**

Your Selections

Search using...
Search: B25034
clear all selections and start a new search
load search | save search

Search using the options below:

Topics
(age, income, year, dataset, ...)

Geographies
(states, counties, places, ...)

Race and Ethnic Groups
(race, ancestry, tribe)

Industry Codes
(NAICS industry, ...)

EEO Occupation Codes
(executives, analysts, ...)

Select Geographies

List | Name | Address | Map

Select geographies to add to Your Selections ?

Select from: ☒ most requested geographic types ☐ all geographic types

Select a geographic type:
Block Group - 150

Select a state:
Louisiana

Select a county:
Orleans

Select one or more geographic areas and click Add to Your Selections:

All Block Groups within Orleans Parish, Louisiana

Source: U.S. Census Bureau, American FactFinder, accessed at <<https://factfinder.census.gov>>.

- Highlighting the phrase “All Block Groups within Orleans Parish, Louisiana” and then clicking “Add to Your Selections” ensures that AFF will extract data for all block groups in Orleans Parish.
- Because we knew which tables we wanted to extract for the analysis, we typed a table number into the “topic or table name” search bar in AFF and clicked “Go” (see Figure 6.3).

Figure 6.3. **Selecting Tables in American FactFinder**

factfinder.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t

United States Census Bureau

FactFinder

Feedback | FAQs | Glossary | Help

MAIN | COMMUNITY FACTS | GUIDED SEARCH | **ADVANCED SEARCH** | DOWNLOAD CENTER

Search - Use the options on the left (topics, geographies, ...) to narrow your search results

Your Selections

Search using...
Block Group within Census Tract
All Block Groups within Orleans Parish, Louisiana
clear all selections and start a new search
load search | save search

Search using the options below:

Topics
(age, income, year, dataset, ...)

Geographies
(states, counties, places, ...)

Race and Ethnic Groups
(race, ancestry, tribe)

Industry Codes
(NAICS industry, ...)

EEO Occupation Codes
(executives, analysts, ...)

Search Results: 1-25 of 1,655 tables and other products match Your Selections

per page: 25 ▼

Refine your search results: topic or table name state, county or place (optional)
B25034
GO ?

Selected: View Download Compare Clear All Reset Sort

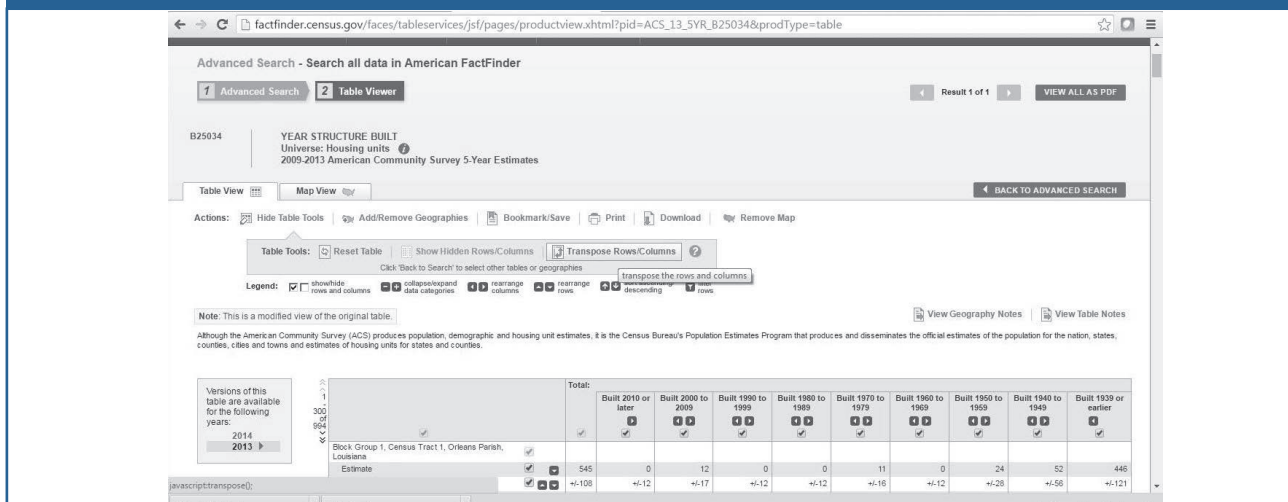
Show results from: All available years All available programs

| ID | Table, File or Document Title | Dataset | About |
|---------|--|---------------------------|-------|
| B00001 | UNWEIGHTED SAMPLE COUNT OF THE POPULATION | 2014 ACS 5-year estimates | ? |
| B00002 | UNWEIGHTED SAMPLE HOUSING UNITS | 2014 ACS 5-year estimates | ? |
| B01001 | SEX BY AGE | 2014 ACS 5-year estimates | ? |
| B01002 | MEDIAN AGE BY SEX | 2014 ACS 5-year estimates | ? |
| B01002A | MEDIAN AGE BY SEX (WHITE ALONE) | 2014 ACS 5-year estimates | ? |
| B01002B | MEDIAN AGE BY SEX (BLACK OR AFRICAN AMERICAN ALONE) | 2014 ACS 5-year estimates | ? |
| B01002C | MEDIAN AGE BY SEX (AMERICAN INDIAN AND ALASKA NATIVE) | 2014 ACS 5-year estimates | ? |
| B01002D | MEDIAN AGE BY SEX (ASIAN ALONE) | 2014 ACS 5-year estimates | ? |
| B01002E | MEDIAN AGE BY SEX (NATIVE HAWAIIAN AND OTHER PACIFIC ISLANDER ALONE) | 2014 ACS 5-year estimates | ? |
| B01002F | MEDIAN AGE BY SEX (SOME OTHER RACE ALONE) | 2014 ACS 5-year estimates | ? |
| B01002G | MEDIAN AGE BY SEX (TWO OR MORE RACES) | 2014 ACS 5-year estimates | ? |
| B01002H | MEDIAN AGE BY SEX (WHITE ALONE, NOT HISPANIC OR LATINO) | 2014 ACS 5-year estimates | ? |

Source: U.S. Census Bureau, American FactFinder, accessed at <<https://factfinder.census.gov>>.

- We then selected the year of interest (in this case the 2013 ACS 5-year data) to view the results.
- To format the data for downloading, we used the “Modify Table” option in AFF to Transpose Rows/Columns (see Figure 6.4).

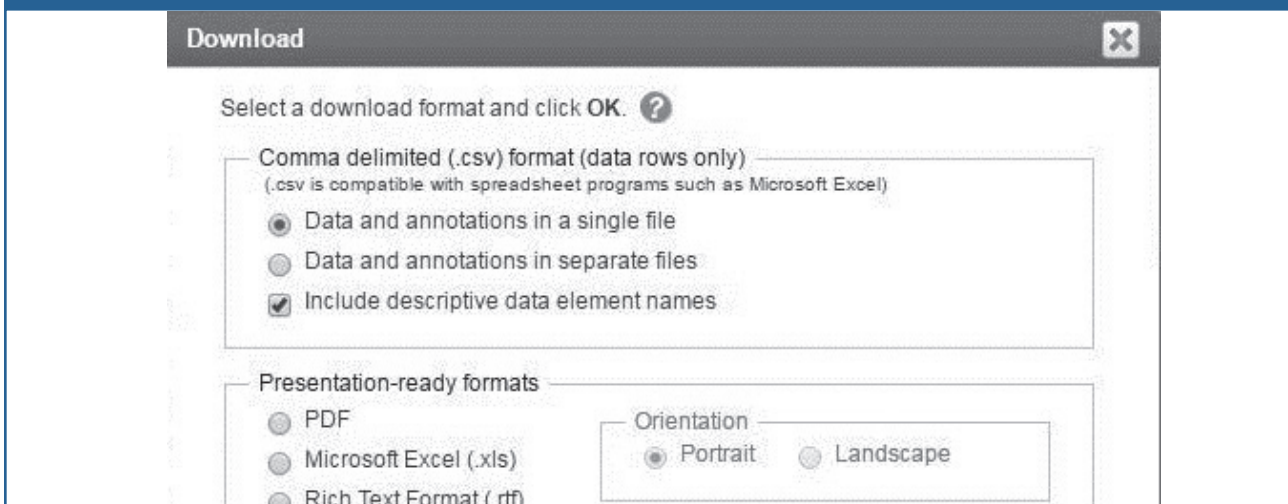
Figure 6.4. **Transposing Table Rows and Columns in American FactFinder**



Source: U.S. Census Bureau, American FactFinder, accessed at <<https://factfinder.census.gov>>.

- We then downloaded the data as a .csv file and repeated the process for the other two tables (see Figure 6.5).

Figure 6.5. **Downloading the Data**



Source: U.S. Census Bureau, American FactFinder, accessed at <<https://factfinder.census.gov>>.

The research team then used a statistical program to aggregate the data from each table into relevant risk categories. We used data from Table C17002 to calculate the percentage of households in each block group with income below 200 percent of the federal poverty level, data from Table B25034 to identify the percentage of housing structures built before 1949, and data from Table B25038 to identify the percentage of householders who moved into their home before 2000. We then used these three indicators to assign a risk score to each block group.

It is important to note that some block groups are sparsely populated, and some have no population at all. For example, Lake Pontchartrain is probably not a relevant block group for smoke alarm outreach. To account for this, we removed large, sparsely populated (or completely unpopulated) block groups from the analysis.

The second step of the analysis was to estimate fire fatality risk. Since young children and older adults are most at risk of death in a fire, we used 2010 Census data to identify block groups with high proportions of people under the age of 5 or age 65 or older. In addition, we added fire frequency data from NOFD records for March 2009 to March 2015. Using these three pieces of information, we compiled a fire fatality risk map.

Overlaying the smoke alarm risk map—based on ACS data—with the fire fatality risk map, we were able to highlight neighborhoods where fire mortality risk was high and where homes were unlikely to have smoke alarms. NOFD used that map to begin a door-to-door campaign in high-risk neighborhoods to install smoke alarms. We estimated that the program was twice as effective as random assignment would have been for contacting households in need of smoke alarms.

Shortly after the program began, a fire occurred in one of the homes in which a smoke alarm had been installed based on the targeted installation outreach. Eleven people survived that fire because they had an early warning from the alarm.

Because the model is based on ACS data available nationwide, the analysis could be replicated—and fire safety improved—for other communities around the nation. The code for this analysis can be found [online](#).⁴⁸ You can also view the Census Bureau's [Stats in Action](#) video to learn more about this project.⁴⁹

⁴⁸ See <<https://github.com/cno-opa/smoke-alarm-outreach>>.

⁴⁹ U.S. Census Bureau, Stats in Action: New Orleans, LA: Smoke Alarm Outreach Program, 2016, <www.census.gov/library/video/2016/sia-nola-saop.html>.

Case Study #2: Atlanta Region 20-County Data Dashboard

Skill Level: Intro/intermediate

Subject: County-level demographic and socioeconomic data

Type of Analysis: Analysis and visualization of ACS data across the 20-county metro Atlanta region

Tool(s) Used: American FactFinder, Excel, data visualization tools

Author(s): Taylor Tyger, Senior Planner, Atlanta Regional Commission

Jim Skinner, Senior Principal Planner, Atlanta Regional Commission

Mike Carnathan, Division Manager, Atlanta Regional Commission

The Atlanta Regional Commission's (ARC) Research and Analytics Division uses various databases, analysis tools, and visualization programs to improve data outreach in metro Atlanta. One of those tools is the [Atlanta Region 20-County Data Dashboard](http://33n.atlantaregional.com/20-county-data-dashboard).⁵⁰ This data dashboard was created to provide an interactive platform for users seeking demographic and socioeconomic information at the county level. The dashboard consolidates data from various data sources into eight categorical "bins": population, employment, housing, education, health, crime, income, and forecasts. The designated "bins" were identified based on common data requests ARC receives.

We used the Census Bureau's County Population Estimates and ACS 5-year estimates to "feed" parts of the dashboard (see Table 6.1). Some of the counties for which populations are included in the dashboard are fairly small. As a result, ACS 5-year estimates must be used instead of ACS 1-year estimates. Other data sources used in the dashboard include U.S. Bureau of Labor Statistics, U.S. Department of Housing and Urban Development, Georgia Department of Public Health, Georgia Department of Education, Federal Bureau of Investigation, and Atlanta Regional Commission forecasts.

| Table 6.1. List of Variables Downloaded Through American FactFinder | |
|---|-----------------------------|
| Variable | Dataset |
| Population | County Population Estimates |
| Race and ethnicity | County Population Estimates |
| Age | County Population Estimates |
| Housing tenure | ACS 5-Year Estimates |
| Vacancy rate | ACS 5-Year Estimates |
| Household composition | ACS 5-Year Estimates |
| School enrollment | ACS 5-Year Estimates |
| Educational attainment | ACS 5-Year Estimates |
| Median household income | ACS 5-Year Estimates |
| Population below poverty level | ACS 5-Year Estimates |

While we recognize that there is a level of uncertainty associated with ACS estimates, the margins of error are not included in the dashboard. We considered several factors in the decision not to show margins of error. First, we wanted to present the information in a concise format for data users. Second, we wanted to present information in a consistent way across measures, and several measures in the dashboard from other sources do not have margins of sampling error.

⁵⁰ Atlanta Regional Commission, 20-County Data Dashboard, <<http://33n.atlantaregional.com/20-county-data-dashboard>>.

To download the data, we used the AFF Advanced Search tool, as follows:

- Go to the AFF Web site at <<https://factfinder.census.gov>>.
- Under “Geographies,” select “County” as a geographic type. Then select Georgia as the state. Holding down the CTRL key, select each of the 20 counties and then click “Add to Your Selections” (see Figure 6.6). We saved this search the first time—by clicking on the “save search” link in the “Your Selections” box—so that it could be reloaded later using the “load search” option. Reloading a saved query saves us time because it allows us to preselect the 20 counties of interest for each variable in the database.

Figure 6.6. **Geography Selection in American FactFinder**

Select Geographies

List Name Address Map

Select geographies to add to Your Selections ?

Select from: ☒ most requested geographic types ☐ all geog

Select a geographic type:
..... County - 050

Select a state:
Georgia

Select one or more geographic areas and click Add to Your Sele

- Banks County, Georgia
- Barrow County, Georgia
- Bartow County, Georgia
- Ben Hill County, Georgia
- Berrien County, Georgia
- Bibb County, Georgia
- Bleckley County, Georgia
- Brantley County, Georgia
- Brooks County, Georgia
- Bryan County, Georgia

Source: U.S. Census Bureau, American FactFinder, accessed at <<https://factfinder.census.gov>>.

- Under “Topics,” expand the “Dataset” tab, and click “2014 ACS 5-year estimates.”
- Many variables in the dashboard use the ACS as the data source. For example, to find housing tenure (owner vs. renter) under “Topics,” expand the “Housing” option, then expand “Occupancy Characteristic,” and then select “Owner/renter.” (See Figure 6.7 for an image of all the selections used.)

Figure 6.7. Selections Used to Access the Housing Tenure Variable

Your Selections

Search using...

Dataset:
2014 ACS 5-year estimates

Housing: Occupancy Characteristic:
Owner/Renter (Tenure in Occupied Units)

County
20 selected

clear all selections and start a new search

load search | save search

Source: U.S. Census Bureau, American FactFinder, accessed at <<https://factfinder.census.gov>>.

- From the results window, the table “Tenure” (B25003) is downloaded and saved (see Figure 6.8).

Figure 6.8. American FactFinder Data Table B25003 Downloaded and Opened in Excel

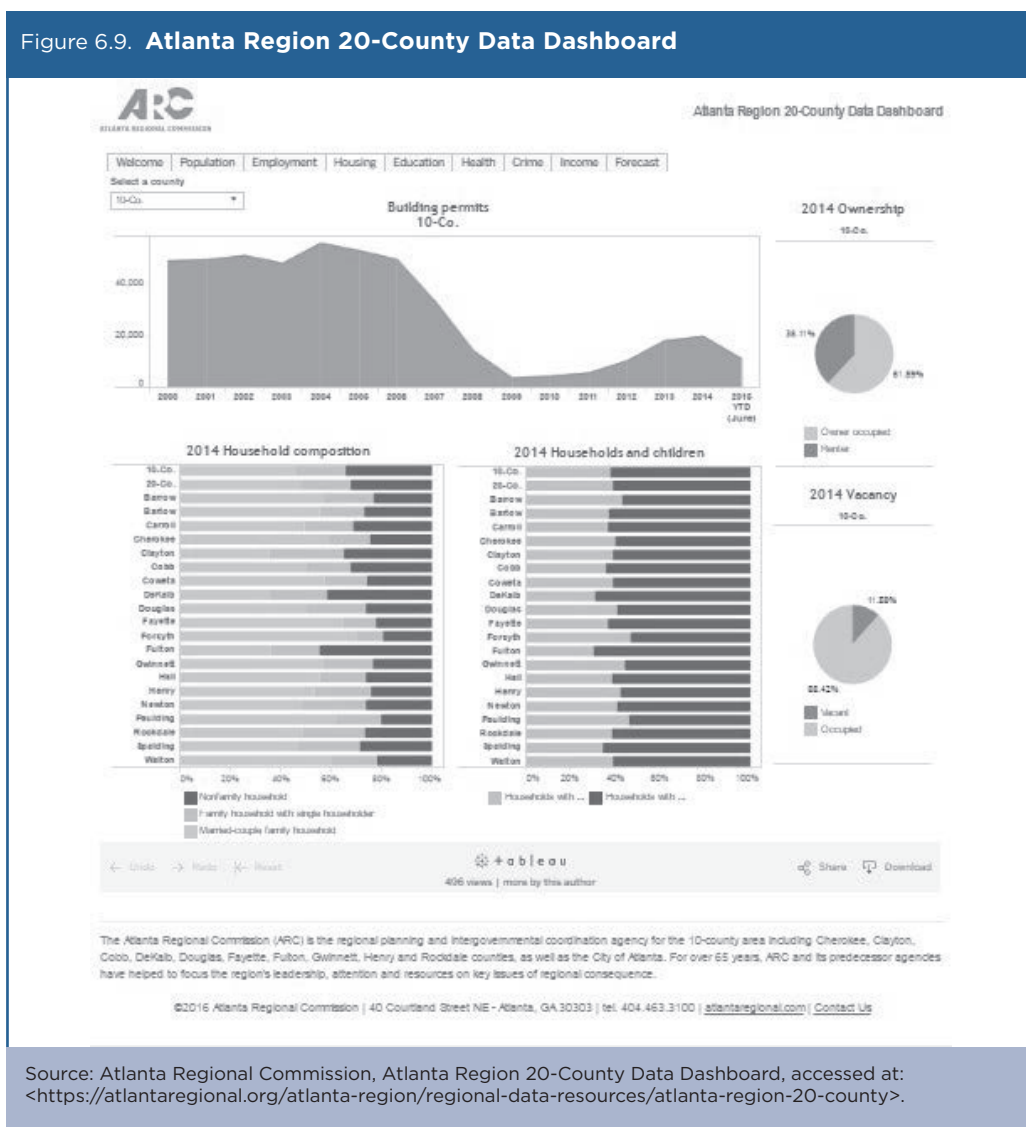
| | A | B | C | D | E | F |
|----|----------------|---------|--------------------------|------------------|-------------------------|-----------------------------------|
| 1 | GEO.id | GEO.id2 | GEO.display-label | HD01_VD01 | HD02_VD01 | HD01_VD02 |
| 2 | Id | Id2 | Geography | Estimate; Total: | Margin of Error; Total: | Estimate; Total: - Owner occupied |
| 3 | 0500000US13013 | 13013 | Barrow County, Georgia | 23064 | 482 | 17649 |
| 4 | 0500000US13015 | 13015 | Bartow County, Georgia | 35293 | 643 | 23612 |
| 5 | 0500000US13045 | 13045 | Carroll County, Georgia | 39610 | 556 | 25574 |
| 6 | 0500000US13057 | 13057 | Cherokee County, Georgia | 77654 | 803 | 60780 |
| 7 | 0500000US13063 | 13063 | Clayton County, Georgia | 87490 | 952 | 47133 |
| 8 | 0500000US13067 | 13067 | Cobb County, Georgia | 264805 | 1429 | 172044 |
| 9 | 0500000US13077 | 13077 | Coweta County, Georgia | 47666 | 524 | 35303 |
| 10 | 0500000US13089 | 13089 | DeKalb County, Georgia | 264120 | 1760 | 147784 |
| 11 | 0500000US13097 | 13097 | Douglas County, Georgia | 46708 | 706 | 32113 |
| 12 | 0500000US13113 | 13113 | Fayette County, Georgia | 38231 | 434 | 31168 |
| 13 | 0500000US13117 | 13117 | Forsyth County, Georgia | 59633 | 926 | 50733 |
| 14 | 0500000US13121 | 13121 | Fulton County, Georgia | 373005 | 2265 | 196020 |
| 15 | 0500000US13135 | 13135 | Gwinnett County, Georgia | 270773 | 1625 | 182874 |
| 16 | 0500000US13139 | 13139 | Hall County, Georgia | 61361 | 633 | 41303 |
| 17 | 0500000US13151 | 13151 | Henry County, Georgia | 69717 | 880 | 51500 |

Source: U.S. Census Bureau, American FactFinder, accessed at <<https://factfinder.census.gov>>.

- We repeat this process for all ACS topics in the dashboard.
- Once all the variables are downloaded from AFF as tables, we process the data in a spreadsheet. In the default format, each variable table is downloaded with each of the 20 counties’ identifiers in rows and then the data variables (including values and margins of error) in columns. In processing, two rows are added: a “10-county” and “20-county” summary geography. We use the 10- and 20-county definitions as references for comparing individual counties to the broader region.
- When needed, additional columns are added in order to aggregate or refine the data as downloaded. For example, we combined individual columns of age data to create an age range for the population aged 20 to 34. We also calculated percentages by downloading the “universe” of data for selected variables.
- Columns that are not needed are deleted, and the labels are edited for clarity.

An initial analysis can be done in a spreadsheet, by sorting results from highest to lowest and comparing county-level values to the 10- and 20-county reference points. However, most of the analysis and trend identification occurs in the visualization software, rather than in a spreadsheet. Figure 6.9 shows how the data are visualized in the final product.

Figure 6.9. Atlanta Region 20-County Data Dashboard



Source: Atlanta Regional Commission, Atlanta Region 20-County Data Dashboard, accessed at: <https://atlantaregional.org/atlanta-region/regional-data-resources/atlanta-region-20-county>.

The data dashboard is updated throughout the year as updated data become available. The dashboard can be found on the [Atlanta Regional Commission Web site](https://atlantaregional.org/atlanta-region/regional-data-resources/atlanta-region-20-county).⁵¹ The tool also has its own page on the Atlanta Regional Commission's [Research and Data Blog](https://atlantaregional.org/atlanta-region/regional-data-resources/atlanta-region-20-county).⁵²

The dashboard has been viewed more than 3,000 times and is used as a resource by internal agency coworkers, external partners, nonprofits, elected officials, and the general public. For example, within ARC, the Aging Services division uses the 20-County Data Dashboard to quickly access and summarize demographic information for clients. It has even served as a model for Aging Services to develop their own data dashboards. Local media partners have used the 20-County Data Dashboard to quickly pull data that informs their stories. In addition, Tableau showcased the 20-County Data Dashboard as a best practice example for using data visualization to improve data outreach in their Webinar "Data Driven Government."

⁵¹ Atlanta Regional Commission, Atlanta Region 20-County Data Dashboard, <https://atlantaregional.org/atlanta-region-20-county-data-dashboard/>.

⁵² Atlanta Regional Commission, 20-County Data Dashboard, <https://33n.atlantaregional.com/20-county-data-dashboard>.

Case Study #3: USDA 515 Rental Housing Maturation

Skill Level: Intro/intermediate

Subject: County-level rental housing data

Type of Analysis: Analysis and visualization of counties' affordable rental housing

Tool(s) Used: American FactFinder, spreadsheet, mapping software

Author(s): Keith Wiley, Research Associate, Housing Assistance Council

The 2010–2014 ACS 5-year data show that there are 5 million occupied rental housing units in rural areas.⁵³ Since its inception in 1963, the U.S. Department of Agriculture (USDA) Section 515 Rural Rental Housing loan program has financed the construction of more than 533,000 affordable rental units, and it represents an important part of this housing stock. The program has received attention recently because a growing number of these loans will begin reaching maturity and will be paid off; an estimated 6,684 loans are expected to reach maturity over the next 20 years.⁵⁴ After a loan is paid off, owners are under no obligation to maintain their properties as affordable housing and some fear many owners may no longer choose to do so.⁵⁵

Given that the distribution of Section 515 units is not uniform across rural areas, the risk to affordable housing stocks associated with maturing loans will be greater for some areas than others. The following approach uses the 2010–2014 ACS 5-year data to identify those counties where the USDA Section 515 properties represent a relatively large portion of the overall rental housing stock. These are the areas where policymakers may want to concentrate efforts to ameliorate the potential loss of this important affordable housing option.

The Census Bureau's AFF Web site provides easy access to 2010–2014 ACS 5-year occupied-rental housing unit estimates. With these data, one can assess the role of the Section 515 program.

Steps:

- Go to the AFF Web site at: <<https://factfinder.census.gov>>.
- Select the “Guided Search” option, and click on “I’m looking for information about housing,” which limits the search to housing characteristics. Click “Next” (see Figure 6.10).

Figure 6.10. Guided Search in American FactFinder

United States Census Bureau

AMERICAN FactFinder

MAIN COMMUNITY FACTS GUIDED SEARCH ADVANCED SEARCH DOWNLOAD CENTER

Guided Search - Step-by-step access to Census Information

1 Start 2 Topics 3 Geographies 4 Race/Ethnic Groups 5 Search Results 6 Table Viewer

Choose from one of the following and click **Next**.

☐ I'm looking for information about **people**.
(age, sex, income, poverty, education, ...)

☒ I'm looking for information about **housing**.
(housing units, household type, value of home, ...)

☐ I'm looking for information about **businesses or industries**.
(annual payroll, sales and receipts, number of employees, ...)

☐ I'm looking for information from a specific **dataset**.
(2006-2010 American Community Survey 5-Year Estimates, 2007 Economic Census, 2010 Census Summary File 1, ...)

Source: U.S. Census Bureau, American FactFinder, accessed at <<https://factfinder.census.gov>>.

⁵³ In this case study, rural refers to all counties that are not part of an Office of Management and Budget defined metropolitan area using the 2013 classification.

⁵⁴ Housing Assistance Council, Rural Policy Note: Maturing USDA Rural Rental Housing Loans: An Update, 2016, <www.ruralhome.org/storage/documents/policy-notes/rpn_maturing-mortgages-usda-2016.pdf>.

⁵⁵ The New England Housing Network's June 30, 2015, letter to the U.S. Senate Appropriations Subcommittee on Agriculture, Rural Development, Food and Drug Administration, and Related Agencies exemplifies the concern raised by local housing advocates about the potential loss of Section 515 housing units. The letter, as accessed on 8/28/16, can be found at <<http://housingactionnh.org/wp-content/uploads/2015/07/RD515LETTER2015.pdf>>.

- Housing topics appear. Click on the “Occupancy Characteristics” since a count of renter occupied units is an occupancy measure. Then select the “Owner/Renter (Tenure in Occupied Units)” option. Click “Next” (see Figure 6.11).

Figure 6.11. Selecting Topics in American FactFinder Guided Search

The screenshot shows the American FactFinder Guided Search interface. The top navigation bar includes 'MAIN', 'COMMUNITY FACTS', 'GUIDED SEARCH', 'ADVANCED SEARCH', and 'DOWNLOAD CENTER'. The 'GUIDED SEARCH' tab is active. Below the navigation bar, the 'Guided Search - Step-by-step access to Census Information' section shows a progress bar with steps 1 Start, 2 Topics, 3 Geographies, 4 Race/Ethnic Groups, 5 Search Results, and 6 Table Viewer. Step 2, 'Topics', is currently selected. The instructions state: 'Select the topic(s) you're interested in. Click Next. You can select one or more topics to add to Your Selections. As you add and remove topics, the number of tables matching Your Selections is updated.' The 'Housing' category is expanded, showing sub-topics like 'Basic Count/Estimate', 'Financial Characteristic', and 'Occupancy Characteristic'. Under 'Occupancy Characteristic', several options are listed, including 'Age of Householder (627)', 'Co-owner/Co-renter (12)', 'Educational Attainment (Householder) (12)', 'Hispanic or Latino Householder (79)', 'Household Size (467)', 'Household Type (289)', 'Nonrelative (Roommate, Lodger) (12)', 'Occupancy and Vacancy Status (340)', 'Occupants Per Room (469)', 'Previous Residence (12)', 'Recent Movers (16)', 'Race/Ethnicity of Householder (493)', 'Seasonal & Vacant Units (22)', and 'Usual Home Elsewhere (18)'. The 'Your Selections' box on the right shows 'Search using...' with 'Housing:Occupancy Characteristic: Owner/Renter (Tenure in Occupied Units)' selected, resulting in 'Tables matching your selections: 5,164'. Navigation buttons 'PREVIOUS', 'NEXT', and 'CANCEL' are at the bottom.

Source: U.S. Census Bureau, American FactFinder, Guided Search, <https://factfinder.census.gov/faces/nav/jsf/pages/guided_search.xhtml>.

- Geography options appear. Click on “Select a Geographic type:” and from the drop-down choices, select “County - 050.” Additional options for choosing counties then appear. Since this is a national analysis, click on “All Counties within United States” and then “Add to Your Selections.” Click “Next” (see Figure 6.12).

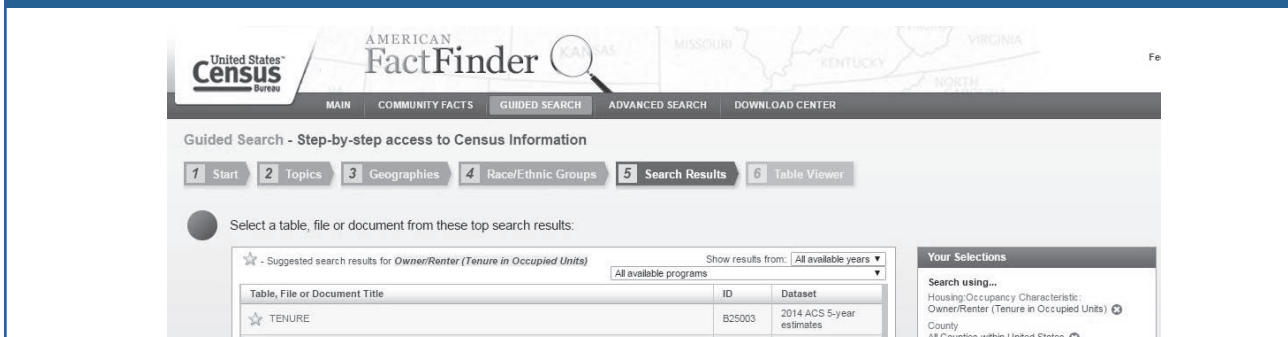
Figure 6.12. Selecting Geographies in American FactFinder Guided Search

The screenshot shows the American FactFinder Guided Search interface at the 'Geographies' step. The top navigation bar is the same as in Figure 6.11. The progress bar shows steps 1 Start, 2 Topics, 3 Geographies, 4 Race/Ethnic Groups, 5 Search Results, and 6 Table Viewer. Step 3, 'Geographies', is currently selected. The instructions state: 'Enter a state, county, city, town or zip code: [text box] GO -- or -- Add one or more geographic areas (states, cities, towns, etc.) to Your Selections. Click Next. The guided search allows you to select from the most requested geographies. To select from all available geographies, use the Advanced Search.' Below the instructions, there are three options: 'Select a geographic type:' with a dropdown menu showing 'County - 050'; 'Select a state:' with a dropdown menu showing '-- select a state --'; and 'Select one or more geographic areas and click Add to Your Selections:' with a list box showing 'All Counties within United States' and 'All Counties within United States and Puerto Rico'. The 'Your Selections' box on the right shows 'Search using...' with 'Housing:Occupancy Characteristic: Owner/Renter (Tenure in Occupied Units)' and 'County: All Counties within United States' selected, resulting in 'Tables matching your selections: 2,485'. Navigation buttons 'PREVIOUS', 'NEXT', and 'CANCEL' are at the bottom.

Source: U.S. Census Bureau, American FactFinder, Guided Search, <https://factfinder.census.gov/faces/nav/jsf/pages/guided_search.xhtml>.

- The final option is to select data by race/ethnicity, which is not relevant here, so click on “Skip this step.”
- The available data tables appear with stars highlighting the best matches. Click on the first table labeled “Tenure” (Dataset: 2014 ACS 5-year estimates). The Tenure data in table format appear for review; however, for analysis purposes the data must be downloaded. Click on the “Download” option and in the screen that pops up, leave the settings as they are, comma-delimited file elements highlighted, and click “OK.”⁵⁶ A pop-up window notes when “Your file is complete.” Click on the “Download” option in that window to download the zip file (see Figure 6.13).

Figure 6.13. Results of Guided Search in American FactFinder

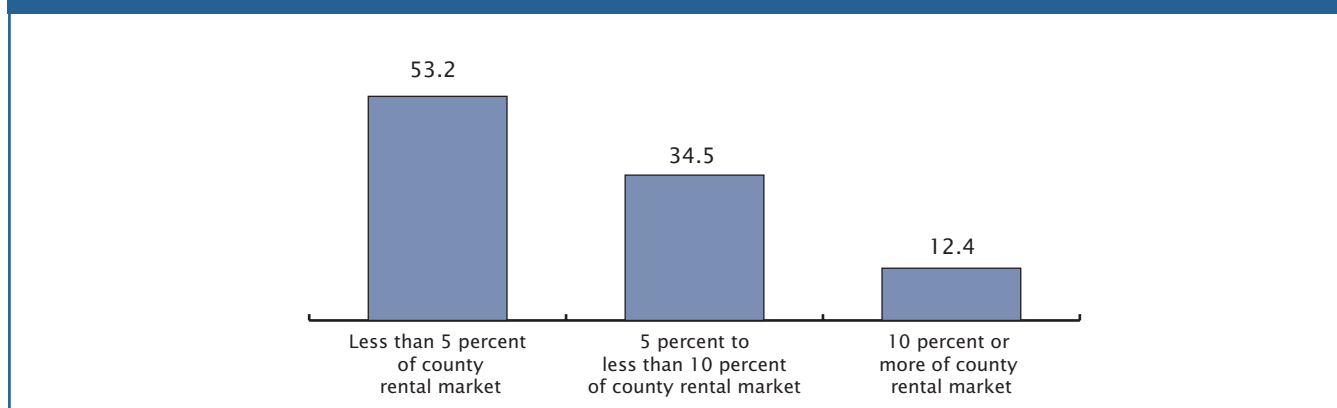


Source: U.S. Census Bureau, American FactFinder, Guided Search, <https://factfinder.census.gov/faces/nav/jsf/pages/guided_search.xhtml>.

- Clicking on the downloaded zip file will open a folder containing four files. Clicking on the file with an ending name of “with_ann.csv” will open the Tenure table in a spreadsheet.⁵⁷ The initial row can be deleted since the variables are already labeled. The data provide the user with estimates of the number of rental units in all counties.

The next step is to join the 2010–2014 ACS 5-year data with Section 515 property data, using a spreadsheet, and calculate the percentage of occupied rental units that are in the Section 515 program for each county.⁵⁸ Counties where Section 515 occupied units make up 10 percent or more of the entire occupied rental housing stock are considered most at risk as these loans mature. The potential loss of 10 percent or more of all rental housing units would be problematic for most counties. These at-risk counties are home to approximately 13 percent of USDA Section 515 properties containing 48,378 occupied units (see Figure 6.14).

Figure 6.14. Percentage of USDA Section 515 Properties by Share of County Rental Housing Market



Source: Analysis by the author of publicly available USDA Multi-Family Housing 515 (2014), and U.S. Census Bureau 2010–2014 American Community Survey 5-year data.

⁵⁶ There is a size limit on files that can be downloaded directly in Excel format. This request exceeds the column limits. There is no such restriction for comma delimited or CSV downloads, and they work just as well since the files also open in Excel.

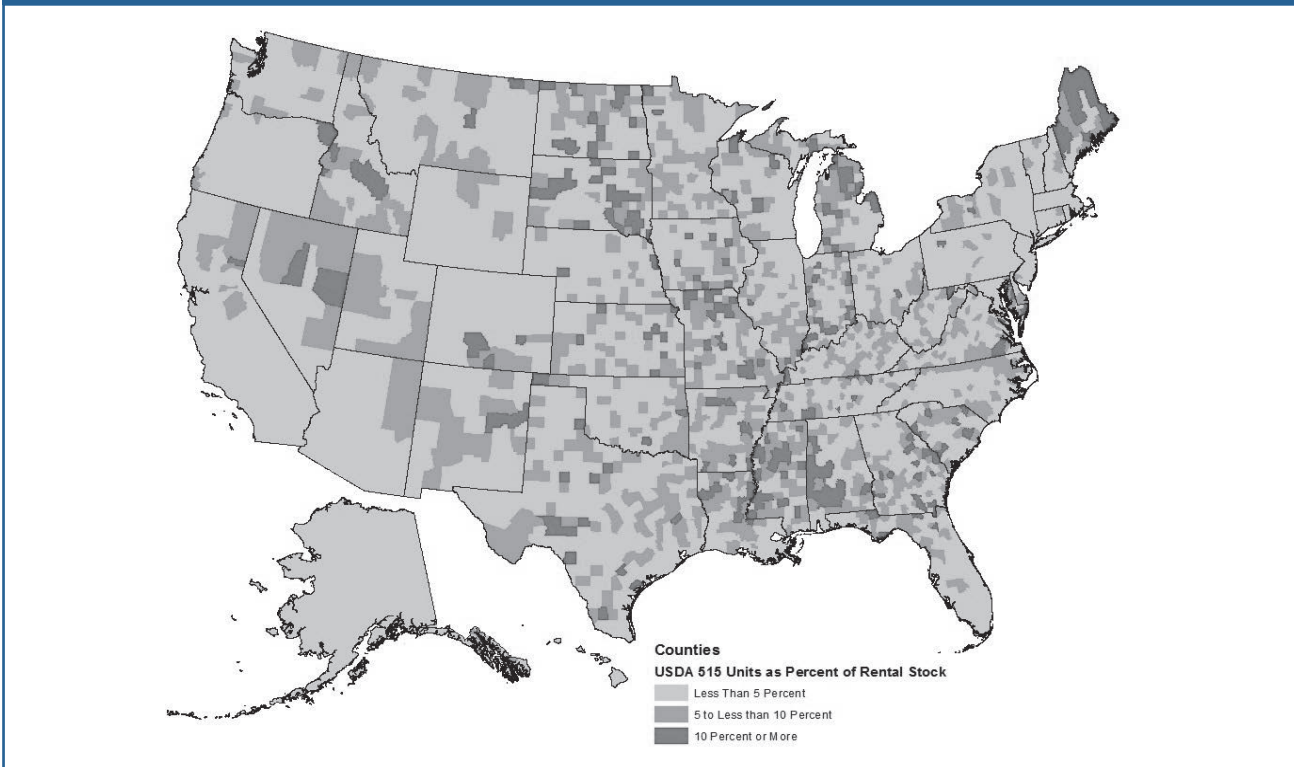
⁵⁷ The CSV file will open in Excel just fine. When saving the file, however, the user will want to specify that it will be saved in an Excel format.

⁵⁸ The USDA property data are publicly available at: <www.sc.egov.usda.gov/data/MFH.html>. This analysis involved aggregating these property data to the county level. The county-level USDA data were then linked to the ACS data using the state/county FIPS codes (labeled Id2 in ACS download data and State County FIPS Code in USDA data).

The final step is to use the data to create a map of at-risk counties across the nation (see Figure 6.15). Certain states, such as Alabama, Maine, Mississippi, and South Dakota, contain many of these counties.

Policymakers may want to monitor what occurs with these maturing loans over the next 10 to 15 years, particularly in those counties where USDA Section 515 units represent at least one in every 10 rental units. If there is a considerable amount of attrition in these affordable housing units, it would most likely be in areas with higher concentrations of Section 515 housing units. Knowing where the loss would have the greatest impact can also help policymakers decide how best to use limited resources to address any problems. This issue is difficult to address, however, because it will unfold over many years.

Figure 6.15 **USDA Section 515 Properties by Share of County Rental Housing Market**



Sources: Analysis by the author of publicly available USDA Multi-Family Housing 515 (2014), and U.S. Census Bureau, 2010–2014 American Community Survey 5-year data.