

Understanding and Using American Community Survey Data

What the Business Community Needs to Know

Issued March 2019



U.S. Department of Commerce
Economics and Statistics Administration
U.S. CENSUS BUREAU
[census.gov](https://www.census.gov)

Acknowledgments

Linda A. Jacobsen, Vice President, U.S. Programs, Population Reference Bureau (PRB), and **Mark Mather**, Associate Vice President, U.S. Programs, PRB, drafted this handbook in partnership with the U.S. Census Bureau's American Community Survey Office. Some of the material in this handbook was adapted from the Census Bureau's 2008 publication, *A Compass for Understanding and Using American Community Survey Data: What the Business Community Needs to Know*, drafted by **Kenneth Hodges**.

American Community Survey data users who provided feedback and case studies for this handbook include: **Marcela Alvarez, Kirby Brady, Rob Galbraith, Svenja Gudell, Kenneth Hodges, Aaron Terrazas, and Stephen Tordella**.

Nicole Scanniello, Janice Valdisera, and Gretchen Gooding, Census Bureau, contributed to the planning and review of this handbook series.

The American Community Survey program is under the direction of **Albert E. Fontenot Jr.**, Associate Director for Decennial Census Programs, and **James B. Treat**, Assistant Director for Decennial Census Programs.

Other individuals from the Census Bureau who contributed to the review and release of these handbooks include: **Andrew Hait, Michael Starsinic, Edward Welniak, and Ellen Wilson**.

Linda Chen and **Amanda Perry** of the Public Information Office and **Janet Sweeney**, Creative Services Manager, provided publication management, graphic design and composition, and editorial review for print and electronic media.

Understanding and Using American Community Survey Data

Issued March 2019

What the Business Community Needs to Know



U.S. Department of Commerce
Wilbur Ross,
Secretary

Karen Dunn Kelley,
Deputy Secretary

Economics and Statistics Administration
Brian Moyer,
Acting Under Secretary for Economic Affairs

U.S. CENSUS BUREAU
Steven Dillingham,
Director

Suggested Citation

U.S. Census Bureau,
*Understanding and Using
American Community Survey
Data: What the Business Community
Needs to Know*, U.S. Government
Printing Office, Washington, DC,
2019.



Economics and Statistics Administration

Brian Moyer,
Acting Under Secretary for
Economic Affairs



U.S. CENSUS BUREAU

Steven Dillingham,
Director

Ron Jarmin,
Deputy Director and Chief Operating Officer

Albert E. Fontenot Jr.,
Associate Director for Decennial Census
Programs

James B. Treat,
Assistant Director for Decennial Census Programs

Vacant,
Chief, American Community Survey Office

Contents

1. How Businesses Use ACS Data	2
2. ACS Data Products for Business Uses	5
3. Case Studies Using ACS Data	10
4. Additional Resources	28

This page is intentionally blank.

UNDERSTANDING AND USING AMERICAN COMMUNITY SURVEY DATA: WHAT THE BUSINESS COMMUNITY NEEDS TO KNOW

Suppose a restaurant owner wants to determine the best location to start a new franchise. Managers at an engineering firm want to expand their business but need more information about the local workforce. A clothing retailer needs information about potential customers before opening a new store, distribution center, or warehouse. Where can businesses find the data they need to make informed decisions?

The U.S. Census Bureau's American Community Survey (ACS) provides corporations, small businesses, and individuals the detailed social, economic, housing, and demographic data they need to gauge the sales potential of products and services, better understand the workforce, and set strategies for growth.

This guide provides a brief overview of how businesses are using ACS data to stay competitive, run efficiently, and meet customers' needs. For many business applications, the focus is not on the ACS data themselves but on marketing products built from them. Many third-party data providers incorporate ACS data into business-friendly products, maps, and reports that help businesses with site selection, consumer segmentation, inventory and category management, and other strategies. But whether the focus is on ACS data accessed from the Census Bureau's Web site or derived, third-party products, business users should be aware of the opportunities and challenges presented by ACS data—particularly when working with data for small geographic areas.

What Is the ACS?

The ACS is a nationwide survey designed to provide communities with reliable and timely social, economic, housing, and demographic data every year. A separate annual survey, called the Puerto Rico Community Survey (PRCS), collects similar data about the population and housing units in Puerto Rico. The Census Bureau uses data collected in the ACS and the PRCS to provide estimates on a broad range of population, housing unit, and household characteristics for states, counties, cities, school districts, congressional districts, census tracts, block groups, and many other geographic areas.

The ACS has an annual sample size of about 3.5 million addresses, with survey information collected nearly every day of the year. Data are pooled across a calendar year to produce estimates for that year. As a result, ACS estimates reflect data that have been collected over a period of time rather than for a single point in time as in the decennial census, which is conducted every 10 years and provides population counts as of April 1 of the census year.

ACS 1-year estimates are data that have been collected over a 12-month period and are available for geographic areas with at least 65,000 people. Starting with the 2014 ACS, the Census Bureau is also producing "1-year Supplemental Estimates"—simplified versions of popular ACS tables—for geographic areas with at least 20,000 people. The Census Bureau combines 5 consecutive years of ACS data to produce multiyear estimates for geographic areas with fewer than 65,000 residents. These 5-year estimates represent data collected over a period of 60 months.

For more detailed information about the ACS—how to judge the accuracy of ACS estimates, understanding multiyear estimates, knowing which geographic areas are covered in the ACS, and how to access ACS data on the Census Bureau's Web site—see the Census Bureau's handbook on *Understanding and Using American Community Survey Data: What All Data Users Need to Know*.¹

¹ U.S. Census Bureau, *Understanding and Using American Community Survey Data: What All Data Users Need to Know*, <www.census.gov/programs-surveys/acs/guidance/handbooks/general.html>.

1. HOW BUSINESSES USE ACS DATA

Using ACS Estimates for Site Selection

Businesses need up-to-date information about their potential customers before creating a new business or expanding an existing one. Site selection—the evaluation of business needs measured against the merits of potential locations—is a complex process that requires detailed information about local communities. As the premier source of social, economic, housing, and demographic estimates for local areas, the American Community Survey (ACS) provides businesses with a wealth of free information that they can use for selecting a new location or for evaluating the performance of existing locations:

- Social and economic characteristics (e.g., educational attainment, employment status, language spoken at home, and income).
- Housing characteristics (e.g., homeownership, housing costs, average household size, age of housing, and computer/Internet use).
- Demographic characteristics (e.g., age, sex, and family structure).

Many businesses also need workers with specific degrees and need to know where those workers live, how long it takes them to get to work, and whether they drive or take public transportation. The ACS provides detailed information about the population and workforce in local communities that can help businesses choose appropriate locations for a new store, office, or warehouse, including:

- Labor force status (e.g., employment, unemployment, and full-time/part-time status).
- Means of transportation to work and travel time to work.
- Income and occupation (e.g., household income, earnings, occupation, and industry).
- Education (e.g., highest level of education and field of bachelor's degree).

Some businesses analyze ACS data directly to inform decisions about site selection, but third parties often help businesses access the ACS data that they need. For example, the Greater Houston Partnership uses ACS data to help businesses understand how Houston's population is changing and to encourage economic development.² In Indiana, the Scott County

² U.S. Census Bureau, Stats in Action: Greater Houston Partnership Uses ACS Data, 2011, <www.census.gov/library/video/sia_greater_houston.html>.

Economic Development Corporation analyzes ACS data to help local businesses make informed decisions that could increase sales, add jobs, and expand operations.³ The U.S. Census Bureau's State Data Centers can also help businesses access ACS and other data for decision-making.⁴

Because ACS data for small geographic areas (such as census tracts, which generally have a population size between 1,200 and 8,000 people) are only available in the form of 5-year estimates, many businesses rely on proprietary single-year estimates and 5-year demographic projections for these areas provided by private sector marketing information firms. For example, to select the best site for expansion, a business may prefer to analyze estimates of the number of households with children for block groups (statistical divisions of census tracts that typically contain between 600 and 3,000 people) in 2017 combined with projections of the number of such households in 2022, rather than rely on ACS estimates of households with children in 2012–2016. Single-year estimates are particularly important for areas experiencing recent growth or decline, but year-to-year changes are difficult to discern with 5-year estimates. While most private-sector data suppliers acknowledge the use and value of ACS data in the production of their proprietary demographic estimates and projections, many businesses that use these data are unaware of the important contribution of ACS estimates to these products.

For more information about ACS multiyear estimates, see the section on “Understanding and Using ACS Single-Year and Multiyear Estimates” in the Census Bureau's handbook on *Understanding and Using American Community Survey Data: What All Data Users Need to Know*.⁵

Using ACS Estimates for Consumer Segmentation

ACS estimates are also used for consumer segmentation—the process of dividing potential customers into groups, or segments, based on their distinctive characteristics. Consumer segmentation data provide businesses with unique insights into customer lifestyles and behaviors, and how they vary across different communities. They help businesses find their “ideal customers” and determine the best ways to market

³ Scott County Economic Development Corporation, Facts & Figures, <<http://scottcountyin.com/facts-figures/>>.

⁴ U.S. Census Bureau, State Data Center (SDC) Program, <www.census.gov/about/partners/sdc.html>.

⁵ U.S. Census Bureau, *Understanding and Using American Community Survey Data: What All Data Users Need to Know*, <www.census.gov/programs-surveys/acs/guidance/handbooks/general.html>.

specific products and services to them. Community segmentation profiles can also help businesses understand why some existing or potential locations may perform better than others.

Consumer segmentation systems are widely used in the private sector because they enable more precise identification and targeting of potential customers than demographic data alone. Data are often provided for very small geographic areas—such as ZIP codes—and may be derived from a combination of ACS estimates and data from other public and private sources.⁶ However, given the proprietary nature of these systems, the exact role of ACS data in the production of these systems is unclear.

For more information about how businesses use ACS data, see the U.S. Department of Commerce report on *The Value of the American Community Survey: Smart Government, Competitive Businesses, and Informed Citizens*.⁷

Using ACS Estimates for Small Geographic Areas

Businesses often need data for very small areas, and the ACS is the most authoritative source of annual small-area estimates available. However, because the ACS is based on a sample, rather than all housing units and people, ACS estimates have a degree of uncertainty associated with them, called sampling error.

TIP: Sampling error is minimal for large geographic areas and population groups, but there may be large errors associated with estimates based on a small subset of the sample.

The suitability of ACS estimates for businesses depends on the application and the level of certainty required.

Some businesses may use ACS estimates for individual block groups or markets consisting of one or a few block groups. For example, a fast-food business might consider the size and characteristics of the population in a three-block group area to be critical to the success of a location. However, ACS estimates on age, income, and employment may be too uncertain to support a decision to establish a franchise at that location. Data users should examine the margins of error (MOEs) reported for the geographic areas they use to gauge the level of uncertainty involved. If geographic areas

are aggregated together, data users should calculate and examine the MOE for the derived estimate.

Many third-party data suppliers do not report MOEs with their ACS-based estimates and may further adjust ACS estimates to match single-year population and housing unit control totals. Therefore, the uncertainty around these custom estimates may be considerably greater than that of the original ACS estimates from which they are derived.

In the absence of data on individual consumers, businesses may sometimes use block group characteristics as a proxy. For example, a publisher might have the name, address, and billing history of current subscribers to one magazine but need to append income, presence of children, and education data to these subscriber records to target prospects for a new publication. Because each subscriber's address corresponds to a block group, the publisher might infer these characteristics based on the characteristics of the block groups where subscribers live. This approach is error prone even if block group data are perfectly accurate, and the error associated with ACS estimates adds additional uncertainty.

For these reasons, many businesses tap the resources of household-level databases that are available from commercial suppliers. These databases have their own errors and often include a limited number of variables, so the temptation to use the characteristics of individual block groups persists.

However, ACS estimates for block groups have a high degree of uncertainty. The ACS might indicate that 58 percent of households in a block group have a child when the (unknown) reality is only 29 percent. Clearly, it would be a mistake to market to this block group as one with many children. But marketing efforts are not confined to a single block group, and a business might conclude that, across thousands of block groups, inferences of this type might work well enough to outperform alternatives such as targeting based on county data or untargeted blanket mailings. It is up to individual businesses to know the requirements of their applications, and to understand the limitations of ACS data before committing to applications of this type.

For more information about sampling error in the ACS, see the chapters on “Understanding Error and Determining Statistical Significance” and “Calculating Measures of Error for Derived Estimates” in the Census Bureau’s handbook on *Understanding and Using American Community Survey Data: What All Data Users Need to Know*.⁸

⁶ See, for example, Esri, Tapestry Segmentation, <www.esri.com/landing-pages/tapestry>; and Claritas, ZIP code Look-up, <<https://claritas360.claritas.com/mybestsegments/#zipLookup>>.

⁷ U.S. Department of Commerce, Economics & Statistics Administration, 2015, *The Value of the American Community Survey: Smart Government, Competitive Businesses, and Informed Citizens*, <www.commerce.gov/news/reports/2015/05/value-american-community-survey-smart-government-competitive-businesses-and>.

⁸ U.S. Census Bureau, *Understanding and Using American Community Survey Data: What All Data Users Need to Know*, <www.census.gov/programs-surveys/acs/guidance/handbooks/general.html>.

Using ACS Data on Population and Housing Counts

Many businesses, such as commercial developers, seek areas of rapid population and housing growth for their untapped potential and attractive demographics.

TIP: Data users need to understand that the ACS was designed to provide estimates of the characteristics of the population, not to provide counts of the population in different geographic areas or population subgroups.

Therefore, data users are encouraged to rely more upon noncount statistics, such as percent distributions or averages, when using ACS estimates.

The Census Bureau's Population Estimates Program produces and disseminates the official estimates of the population for the nation, states, counties, cities and towns, and estimates of housing units for states and counties.⁹ For 2010 and other decennial census years, the decennial census provides the official counts of population and housing units.¹⁰

As with most household surveys, the ACS data are controlled so that the numbers of housing units and people in certain categories agree with the Census Bureau's official estimates from the Population Estimates Program. The ACS uses a weighting method to ensure that ACS estimates are consistent with official Census Bureau population estimates by age, sex, race, and Hispanic origin—as well as with estimates of total housing units. ACS estimates are controlled to official population and housing units at the county level. ACS single-year estimates are controlled to population and housing unit estimates as of July 1 of the survey year, while ACS 5-year estimates are controlled to the average of the July 1 population and housing unit estimates over the 5-year period.¹¹

Starting with the 2009 survey, ACS estimates of the total population of incorporated places (self-governing cities, towns, or villages) and minor civil divisions (such as townships) are also adjusted so that they agree with official population estimates.

However, ACS data for small statistical areas (such as census tracts and block groups) have no control totals,

which may lead to errors in the population and housing unit estimates. In such cases, data users are again encouraged to rely more upon noncount statistics, such as percent distributions or averages. Many businesses also rely on third-party private organizations to provide them with value-added ACS data for these small geographic areas.

For more information about ACS methods, visit the Census Bureau's Design and Methodology Report Web page.¹²

Using ACS Estimates as Building Blocks for Larger Geographic Areas

Applications that use small areas as building blocks to form business-specific trade areas should be well served by ACS data. Companies may use data supplied by private organizations to examine demographic data for custom areas such as 3-mile radii around store locations, 20-minute drive times to bank branches, or telecommunications service areas.

In some cases, data users will need to construct custom ACS estimates by combining data across multiple geographic areas or population subgroups, or it may be necessary to derive a new percentage, proportion, or ratio from published ACS data.

TIP: One way to address the issue of unreliable estimates for individual census tracts or block groups is to aggregate geographic areas, yielding larger samples and more reliable estimates.

In such cases, additional calculations are needed to produce MOEs and standard errors (SEs), and to conduct tests of statistical significance for the derived estimates. For more information, see the section on "Calculating Measures of Error for Derived Estimates" in the Census Bureau's handbook on *Understanding and Using American Community Survey Data: What All Data Users Need to Know*.¹³

⁹ Census Bureau, Population and Housing Unit Estimates, <www.census.gov/popest/>.

¹⁰ See, for example, the U.S. Census Bureau, Census of Population and Housing, CPH-2, Population and Housing Unit Counts report series, <www.census.gov/prod/www/decennial.html>.

¹¹ In order for the ACS to make use of the best available population estimates as controls, the multiyear weighting uses the population estimates of the most recent vintage—or version—for all years in the period in order to derive the multiyear controls.

¹² U.S. Census Bureau, American Community Survey (ACS), American Community Survey Design and Methodology, <www.census.gov/programs-surveys/acs/methodology/design-and-methodology.html>.

¹³ U.S. Census Bureau, *Understanding and Using American Community Survey Data: What All Data Users Need to Know*, <www.census.gov/programs-surveys/acs/guidance/handbooks/general.html>.

2. ACS DATA PRODUCTS FOR BUSINESS USES

Census Business Builder

In September 2015, the U.S. Census Bureau launched a new data product for the business community: Census Business Builder.¹⁴ As its name implies, Census

¹⁴ U.S. Census Bureau, Census Business Builder (CBB), <www.census.gov/data/data-tools/cbb.html>.

Business Builder is designed for users needing data to help start or grow a business or to better understand an area's business landscape. The data can be used in determining potential locations for new businesses or in creating a business plan for investors.

Why this tool may be right for you	Why you may want to consider another tool
You want to open a new business or expand an existing business.	The data are limited to states, counties, places, ZIP codes, and census tracts.
The tool combines American Community Survey (ACS) data with economic data to guide your research.	Results include only a subset of all ACS topics.
Interactive maps allow you to select areas and compare results to those of neighboring areas.	
Reports are downloadable and printable.	

There are two editions of Census Business Builder: the Small Business Edition and the Regional Analyst Edition.¹⁵

The Small Business Edition was developed primarily for small business owners who need data for their business plans or to better understand their potential market, but large businesses can also find data for their industries by using the Search tool. The tool includes the following data:

- Social, economic, housing, and demographic data from the ACS.
- Business data from the County Business Patterns, Nonemployer Statistics, the Economic Census, and the Survey of Business Owners.
- Labor force data from the Quarterly Workforce Indicators program.
- Imports and Exports data from the International Trade program.
- Consumer spending data from Esri (a company that provides GIS mapping software).
- Farms data from the Census of Agriculture, USDA.

¹⁵ U.S. Census Bureau, Census Business Builder: Small Business Edition - 2.5, <<https://cbb.census.gov/sbe/#>>; and Regional Analyst Edition - 2.5, <<https://cbb.census.gov/rae/#>>.

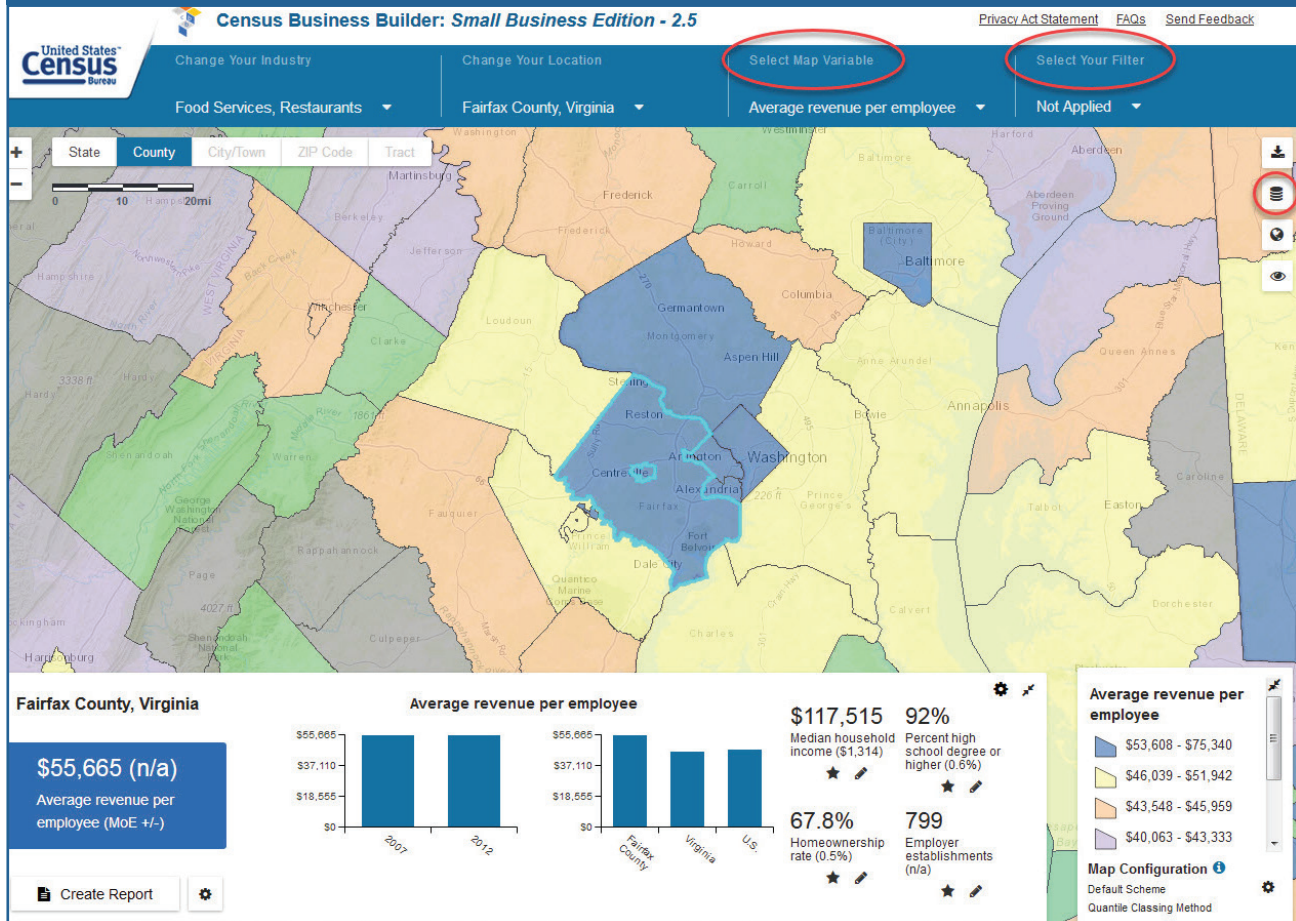
In July 2017, a new feature was added that allows users to upload and map their own data. More information about uploading data and instructions are available on the Census Business Builder Web page.¹⁶

The Small Business Edition provides easy access to information about potential customers and similar businesses. For example, the map and data dashboard displayed in Figure 2.1 present information about average business revenue per employee for restaurants by county in the Washington, DC Metro Area, combined with social, economic, and housing data from the ACS. The variable displayed on the map can be changed using the Map Variables menu on the top toolbar, and the Filter menu allows the user to identify specific areas that meet their own criteria. Data in the map can be downloaded as an Excel or .csv file using the download button located in the upper right-hand corner of the map.

The interactive and customizable dashboard includes charts that show historical data for many of the mapped data variables as well as a comparison of the selected area to the state and nation (see Figure 2.2). Users can change map variables in the dashboard by clicking the edit icons (pencils) located below each statistic on the right-hand side of the dashboard.

¹⁶ U.S. Census Bureau, Census Business Builder (CBB), <www.census.gov/data/data-tools/cbb/How_Tos.html>.

Figure 2.1. Sample Map From Census Business Builder: Small Business Edition



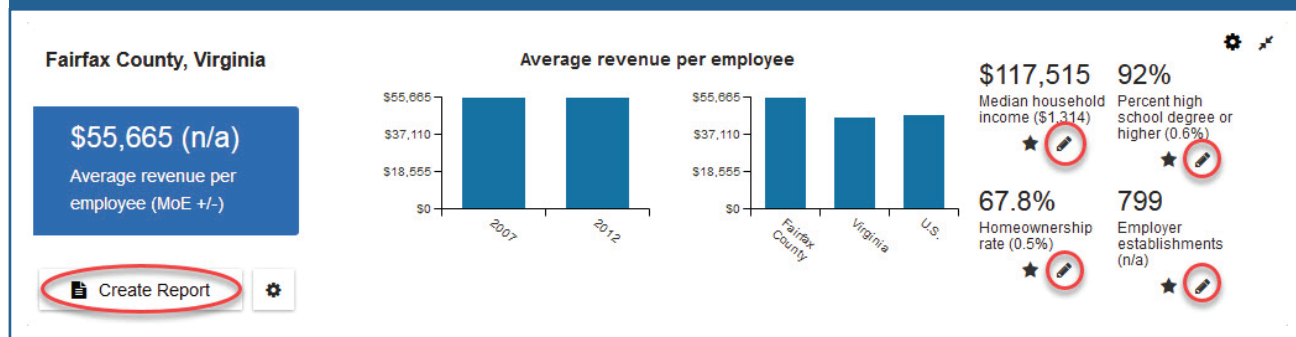
Source: U.S. Census Bureau, Census Business Builder: Small Business Edition - 2.5 <<https://cbb.census.gov/sbe/#>>.

After exploring the data on the map, users can also create Local Business Profile reports (by clicking the Create Report link) that include all the map variables (and their associated MOEs) as well as links to

American FactFinder (AFF) for even more detailed data (see Figure 2.3).¹⁷

¹⁷ U.S. Census Bureau, American FactFinder, <<https://factfinder.census.gov/>>.

Figure 2.2. Sample Dashboard From Census Business Builder: Small Business Edition

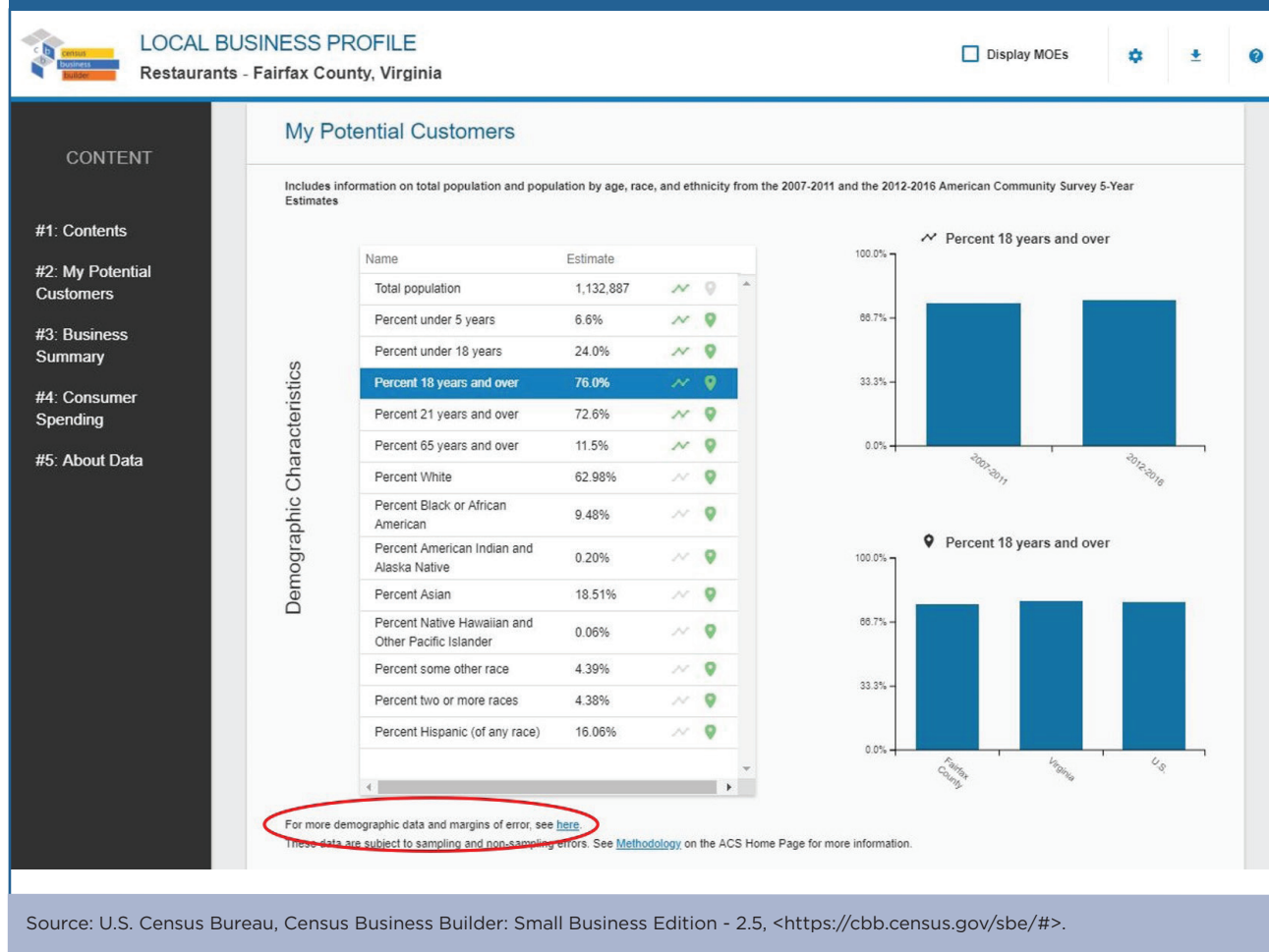


Source: U.S. Census Bureau, Census Business Builder: Small Business Edition - 2.5, <<https://cbb.census.gov/sbe/#>>.

The demographic and consumer spending data are available at the state, county, city/town, ZIP code, and census tract levels; economic data are available at the state, county, and city/town levels; and agriculture and trade data are available at the state level only.

The “ZIP code” data in Census Business Builder combine ZIP code Tabulation Area (ZCTA) data from the ACS with ZIP code data from other sources. ZCTAs are aggregations of census blocks that form “generalized areal representations of United States Postal Service

Figure 2.3. **Sample Local Business Profile From Census Business Builder: Small Business Edition**



(USPS) ZIP code service areas.”¹⁸ Many businesses use data for ZIP codes to design marketing campaigns based on the characteristics of people living in different mail delivery areas.

USPS ZIP codes represent a collection of mail delivery routes rather than geographic areas with clear boundaries. While ZIP codes for sets of mailing addresses may be changed every year by USPS, the Census Bureau only updates ZCTA definitions periodically. For example, the most recent ZCTA definitions are from 2010. In contrast, many private data suppliers update their ZIP code definitions/areas at least once a year.

The Regional Analyst Edition of Census Business Builder was developed primarily for chambers of commerce, regional planners, and others who need a broader portrait of the people and businesses in their service area. It presents data for all sectors of the

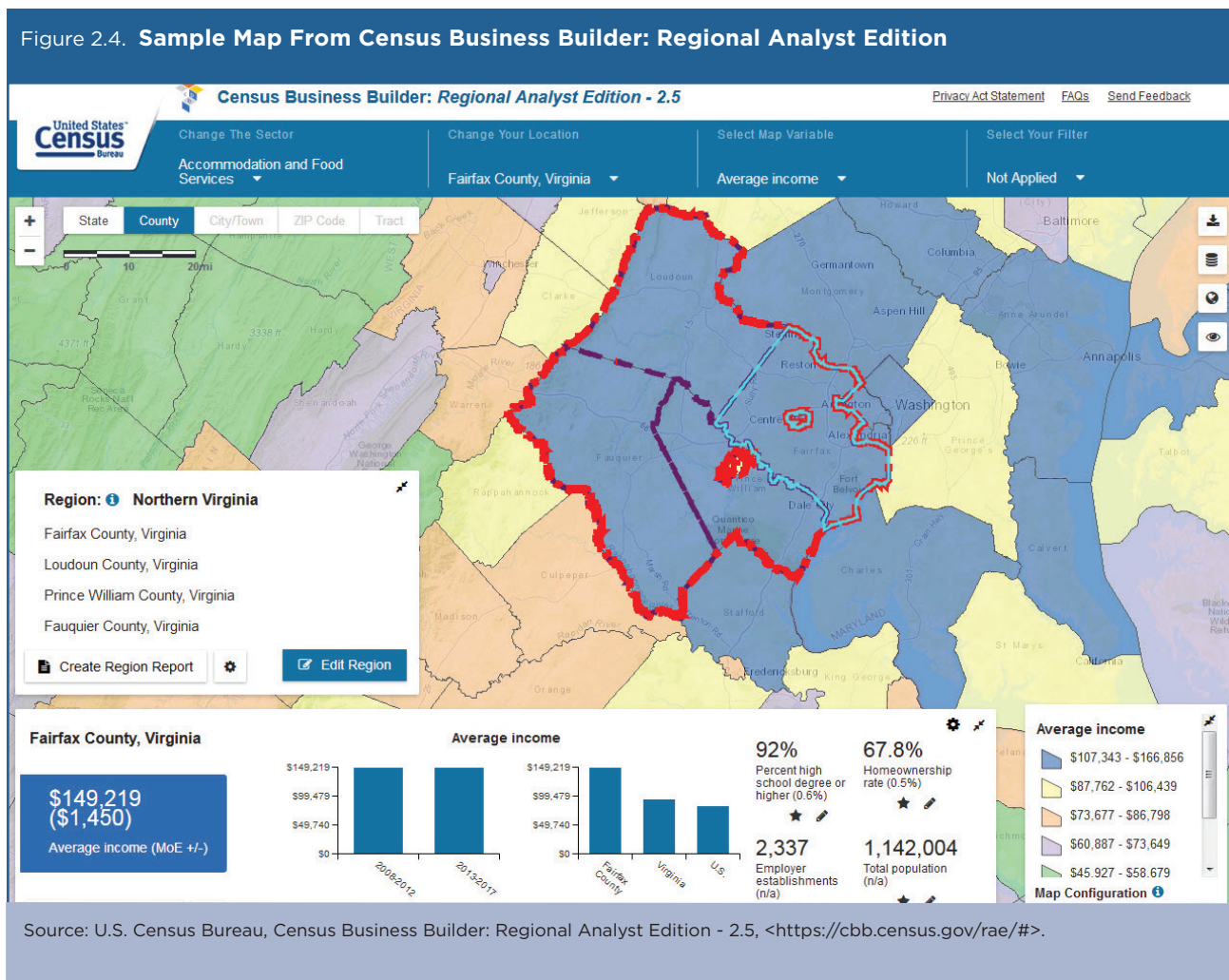
economy and for user-defined regions based on combinations of states, counties, cities/towns, ZIP codes, and tracts. You can also build regions by combining different types of geographic areas.

A sample map showing average household income for a region of Northern Virginia Counties that was created with the Regional Analyst Edition is shown in Figure 2.4.

The Regional Analyst Edition includes the same interactive and customizable data dashboard, download options, and map features as the Small Business Edition.

¹⁸ U.S. Census Bureau, ZIP code Tabulation Areas (ZCTAs), <www.census.gov/geo/reference/zctas.html>.

Figure 2.4. Sample Map From Census Business Builder: Regional Analyst Edition



American FactFinder and Other Data Sources

Businesses with occasional or limited data needs will be well served by the prepackaged ACS data products available through American FactFinder (AFF)—the Census Bureau’s primary tool for accessing data from the ACS, the Puerto Rico Community Survey, the decennial census, and many other Census Bureau data sets.¹⁹ AFF provides comprehensive access to pretabulated ACS data for a wide range of geographic areas, including states, cities, counties, census tracts, and block groups.

Many ACS products available through AFF function best as a lookup tool. If data users have a few areas in mind and want specific data and maps for those areas, they can access the relevant ACS product. For example, a small Des Moines-based retailer could go to AFF and obtain selected Detailed Tables, Data Profiles, and Subject Tables for the Sioux City, Omaha, and Lincoln metropolitan areas to determine which area is the best candidate for an initial expansion.

¹⁹ U.S. Census Bureau, American FactFinder, <<https://factfinder.census.gov/>>.

Other business users may need to access ACS estimates for many geographic areas across the country. For example, a real estate firm could download ACS data every year to help monitor the demographics in a large number of sites defined as aggregations of block groups. A financial services provider with data on the age and mortgage status of its customers might use ACS Public Use Microdata Sample data to build a model estimating the likelihood that its customers have children approaching college age. Or a business might use ACS data on housing costs as a percentage of income to identify neighborhoods where homeowners face difficulty in making house payments.

These more advanced users also have several options to access more detailed ACS data through downloadable Summary Files, the Public Use Microdata Sample Files, or the Census Bureau’s Application Programming Interface (API).²⁰

²⁰ U.S. Census Bureau, American Community Survey (ACS), Summary File Data, <www.census.gov/programs-surveys/acs/data/summary-file.html>; American Community Survey (ACS), PUMS Data, <www.census.gov/programs-surveys/acs/data/pums.html>; Developers, <www.census.gov/developers/>.

3. CASE STUDIES USING ACS DATA

Case Study #1: San Diego Region: City Data Profile

Skill Level: Introductory/Intermediate

Subject: County- and city-level demographic and socioeconomic data

Type of Analysis: Analysis and visualization of American Community Survey (ACS) data trends across the nation, state, county, and subcounty areas

Tools Used: American FactFinder, Excel spreadsheet, data visualization tools

Authors: Marcela Alvarez, Research Coordinator, San Diego Regional EDC; and Kirby Brady, Research Director, San Diego Regional EDC

San Diego Regional Economic Development Corporation (EDC) uses a multitude of publicly available datasets coupled with visualization software to create powerful economic development tools that provide clarity and insight into the region's demographic and economic landscape. As part of a greater initiative to uncover and highlight subregional trends within the county, EDC produced a demographic and socioeconomic profile for the City of San Marcos, California. This profile and accompanying online interactive dashboard were created to better inform business leaders, other decision makers, and the public about the city's social, economic, and demographic characteristics. City-level data can be compared with data for the county, state, and nation to provide additional context.

We used data from the U.S. Census Bureau's ACS and Longitudinal Employer-Household Dynamics (LEHD) program to inform parts of the profile (see Table 3.1). The Census Bureau releases single-year ACS data for geographic areas with 65,000 people or more. Since the City of San Marcos—the smallest geographic area under consideration—meets this threshold, we were able to use 1-year estimates throughout the analysis. EDC recognizes that all estimates have an associated level of uncertainty. However, after careful consideration, margins of error were not included in the profile.

Table 3.1. List of Key Variables and Data Sources

Variable	Dataset
Median household income	ACS 1-Year Estimates
Population below poverty level	ACS 1-Year Estimates
Educational attainment	ACS 1-Year Estimates
Field of bachelor's degree	ACS 1-Year Estimates
Median income by industry	ACS 1-Year Estimates
Work destination	LEHD OnTheMap
Distance to work	LEHD OnTheMap

Other data sources used in the profile include the San Diego Association of Governments, Emsi (a labor market analytics firm), the State of California Employment Development Department, and ReferenceUSA.

To obtain the desired data, we used the American FactFinder (AFF) “Advanced Search” tool, as follows:

- Go to the AFF Web site at <<https://factfinder.census.gov>>.
- Click “Advanced Search” on the ribbon.
- Select “Geographies” on the left sidebar, select “Place” under “Geographic Type,” select “California” from the state drop-down option, and use the scroll functionality to select “San Marcos city, California.” After highlighting the desired geography, click “Add to Your Selections” (see Figure 3.1).

Figure 3.1. Selecting Geographic Areas

The screenshot displays the American FactFinder Advanced Search page. On the left sidebar, the 'Geographies' section is expanded, showing options for Topics, Geographies, Race and Ethnic Groups, Industry Codes, and EEO Occupation Codes. The 'Geographies' section is further broken down into 'Place', 'County', and 'State'. The 'Place' option is selected, and a list of places in California is shown. 'San Marcos city, California' is highlighted with a red box. Below the list, the 'ADD TO YOUR SELECTIONS' button is circled in red. The main content area shows the search process, including a search bar and a list of selected geographies.

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)

Industry Codes (NAICS industry, ...)

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

To search for tables and other files in American FactFinder:

1 Enter search terms and an optional geography and click GO

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: Place - 160

Select a state: California

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

- San Leandro city, California
- San Lorenzo CDP, California
- San Lucas CDP, California
- San Luis Obispo city, California
- San Marcos city, California**
- San Marino city, California
- San Martin CDP, California
- San Mateo city, California
- San Miguel CDP (Contra Costa County), California
- San Miguel CDP, California

ADD TO YOUR SELECTIONS ABOUT THIS GEOGRAPHY

Didn't find your geographic type? Click the 'all geographic types' radio button above, or try the Name, Address or Map geography search options instead.

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

- Continue adding geographies until San Diego County, California, and the United States have been selected, each time selecting the appropriate geography under “Geographic Type.” At the end of this step, we have a total of four geographic areas specified under “Your Selections” (see Figure 3.2).
- Return to the left sidebar. Under “Topics,” expand the “Dataset” option, and select “2016 ACS 1-year estimates.”
- Since we are interested in the city’s socioeconomic characteristics, we begin by learning about the city’s educational attainment. Revisit the “Topics” window, expand the “People” category, expand “Education,” and select “Educational Attainment” (see Figure 3.3).

Figure 3.2. Geographic Selections

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

Figure 3.3. Selecting the Educational Attainment Topic

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

- Use the descriptive table titles to make your selection. We know we are searching for a summary table, so we select the first result, “S1501: Educational Attainment” (see Figure 3.4).²¹

Figure 3.4. Selecting an Educational Attainment Table

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

- From the results window, the table “Educational Attainment” (S1501) is exported and saved as a spreadsheet (see Figure 3.5).

Figure 3.5. American FactFinder Data Table S1501 Exported and Opened in Excel

Source: U.S. Census Bureau, American FactFinder, Table S1501: Educational Attainment.

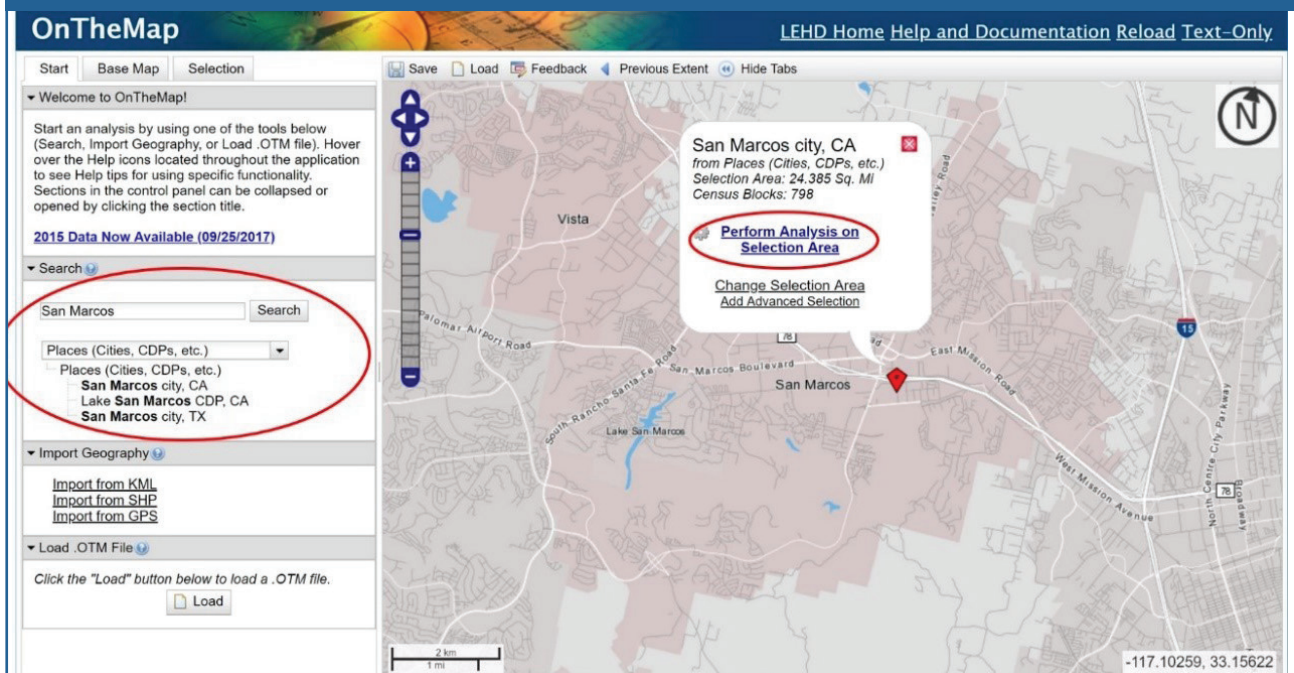
- We repeat this process for all AFF topics in the profile.

²¹ Tables beginning with “S” are Subject Tables that focus on particular ACS subjects and include both estimates and percentages. More information about Table IDs is available on the Census Bureau’s Web site, <www.census.gov/programs-surveys/acs/guidance/which-data-tool/table-ids-explained.html>.

For data on commuting patterns, we accessed LEHD data, as follows:

- Go to the LEHD Web site at <<https://lehd.ces.census.gov/research/>>.
- Click “OnTheMap” on the left sidebar. This action will open a new window.
- Under the “Search” box, type “San Marcos” in the search bar, using the dropdown menu to select “Places” as the geography type. Be sure to select San Marcos, California, rather than San Marcos, Texas. Our selection refreshes the map view and zooms in to San Marcos (see Figure 3.6).

Figure 3.6. Searching for a Geographic Area in OnTheMap



Source: U.S. Census Bureau, OnTheMap, <<https://onthemap.ces.census.gov/>>.

- Use the information bubble next to the location pin to select “Perform Analysis on Selection Area.”
- The “Analysis Settings” window opens, allowing us to refine our search.
 - Home/Work Area: Since we are interested in understanding commuting patterns, we select “Home.” This will produce an analysis based on San Marcos’ residents, rather than workers.
 - Analysis Type: We are interested in understanding where residents work. We select “Destination” and “Places” as our destination type.
 - Year: We select the most recently available data.
 - Job Type: Select “Primary Jobs.”

- Once all selections have been made, we click on “Go!” (see Figure 3.7).

Figure 3.7. Selecting Variables for Analysis in OnTheMap

Analysis Settings

Destination Analysis in 2015 by Primary Jobs

Home/Work Area
Determines whether the selection area is analyzed on where workers live ("Home") or where workers are employed ("Work").
☒ Home
☐ Work

Analysis Type
Determines the type of results that will be generated for the selected area.
☐ Area Profile
Labor Market Segment: All Workers
☐ Area Comparison
Areas to Compare: Places (Cities, CDPs, etc.)
Labor Market Segment: All Workers
☐ Distance/Direction
☒ Destination
Destination Type: Places (Cities, CDPs, etc.)
☐ Inflow/Outflow
Note: Home/Work choice does not affect results

Year
Determines the year(s) of data that will be processed in the analysis.
☒ 2015
☐ 2014
☐ 2013
☐ 2012
☐ 2011
☐ 2010
☐ 2009
☐ 2008
☐ 2007
☐ 2006
☐ 2005
☐ 2004
☐ 2003
☐ 2002

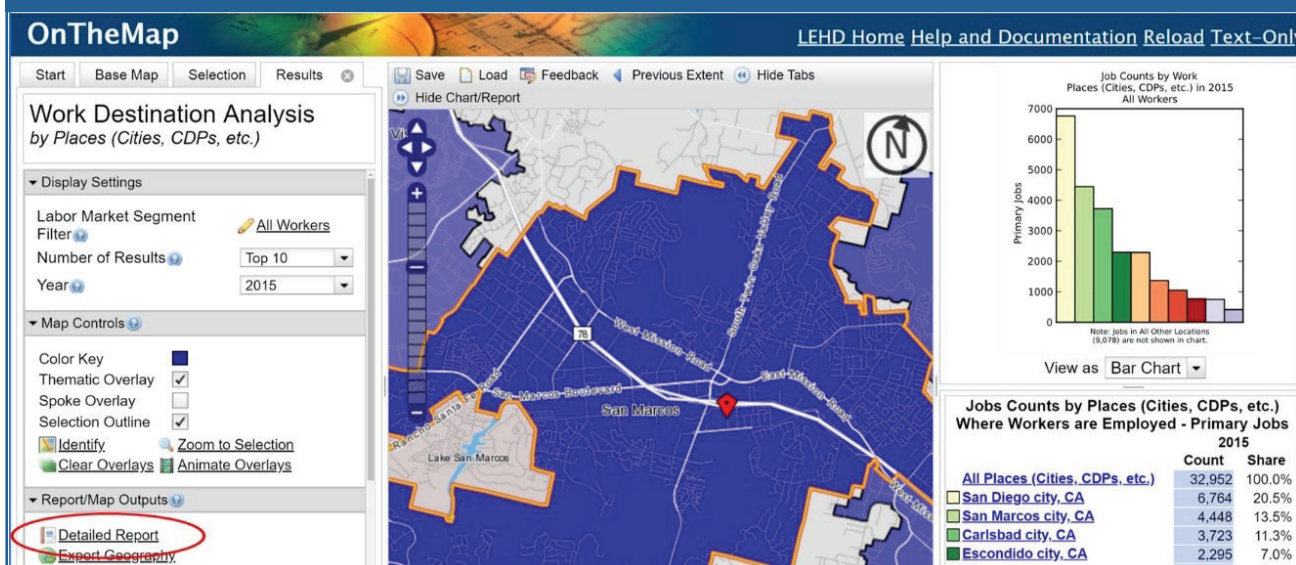
Job Type
Determines the scope of jobs that will be processed in the analysis.
☐ All Jobs
☒ Primary Jobs
☐ All Private Jobs
☐ Private Primary Jobs

Cancel **Go!**

Source: U.S. Census Bureau, OnTheMap, <<https://onthemap.ces.census.gov/>>.

- The page refreshes and populates our search results. We export the results by selecting “Detailed Report” under the left sidebar’s “Report/Map Output” bin, and export the data in spreadsheet format (see Figure 3.8).

Figure 3.8. Creating a Detailed Report in OnTheMap



Source: U.S. Census Bureau, OnTheMap, <<https://onthemap.ces.census.gov/>>.

Initial analysis was conducted in a spreadsheet, by sorting results from highest to lowest and comparing the city of San Marcos to the county, state, and nation. The resulting charts were created using a mixture of spreadsheets and visualization software. Figure 3.9 illustrates how poverty data was visualized in the dashboard. Figure 3.10 shows an interactive flow map that was created to visualize the city's commuting patterns.

Figure 3.9. City of San Marcos Regional Profile: Poverty

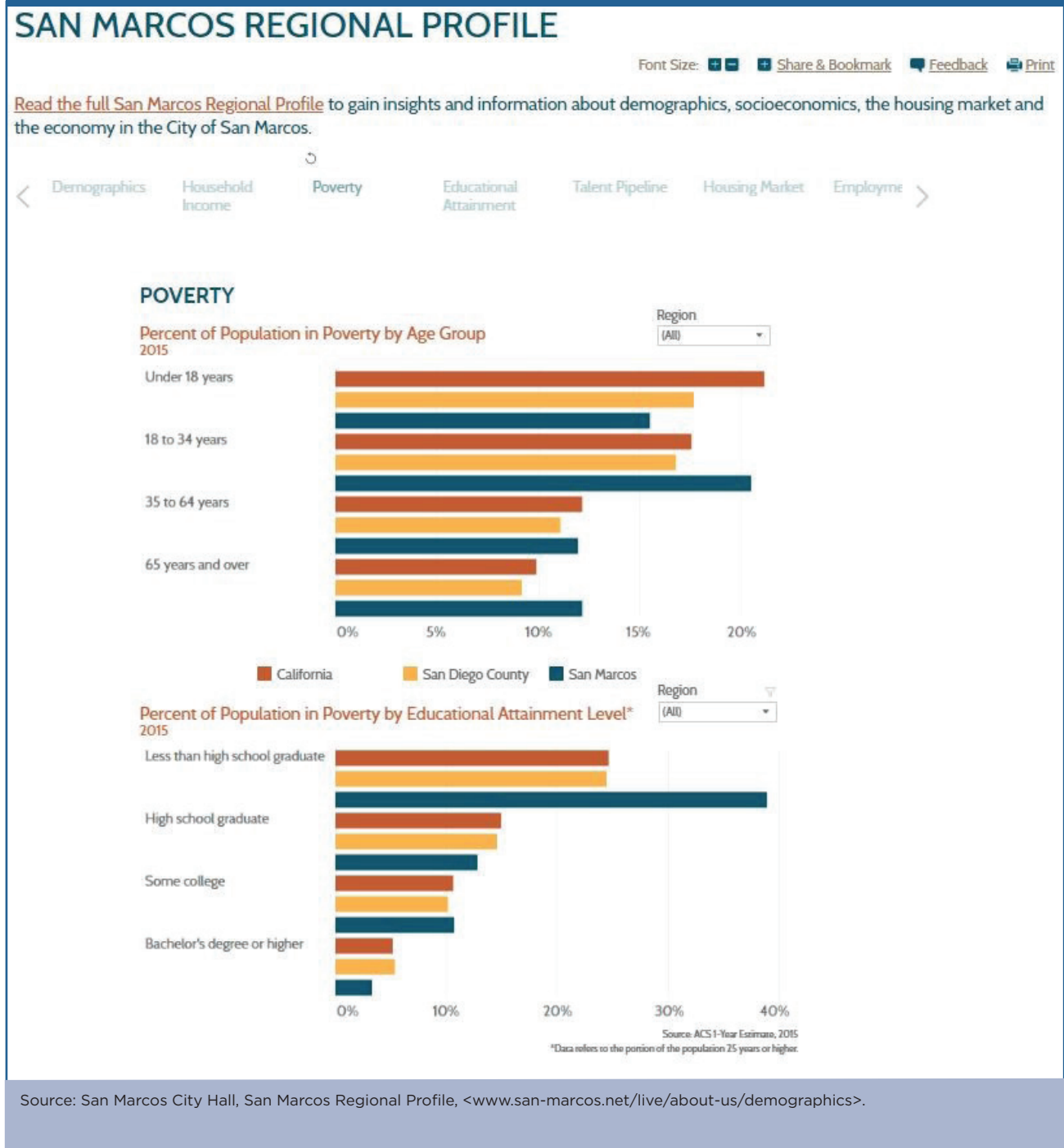
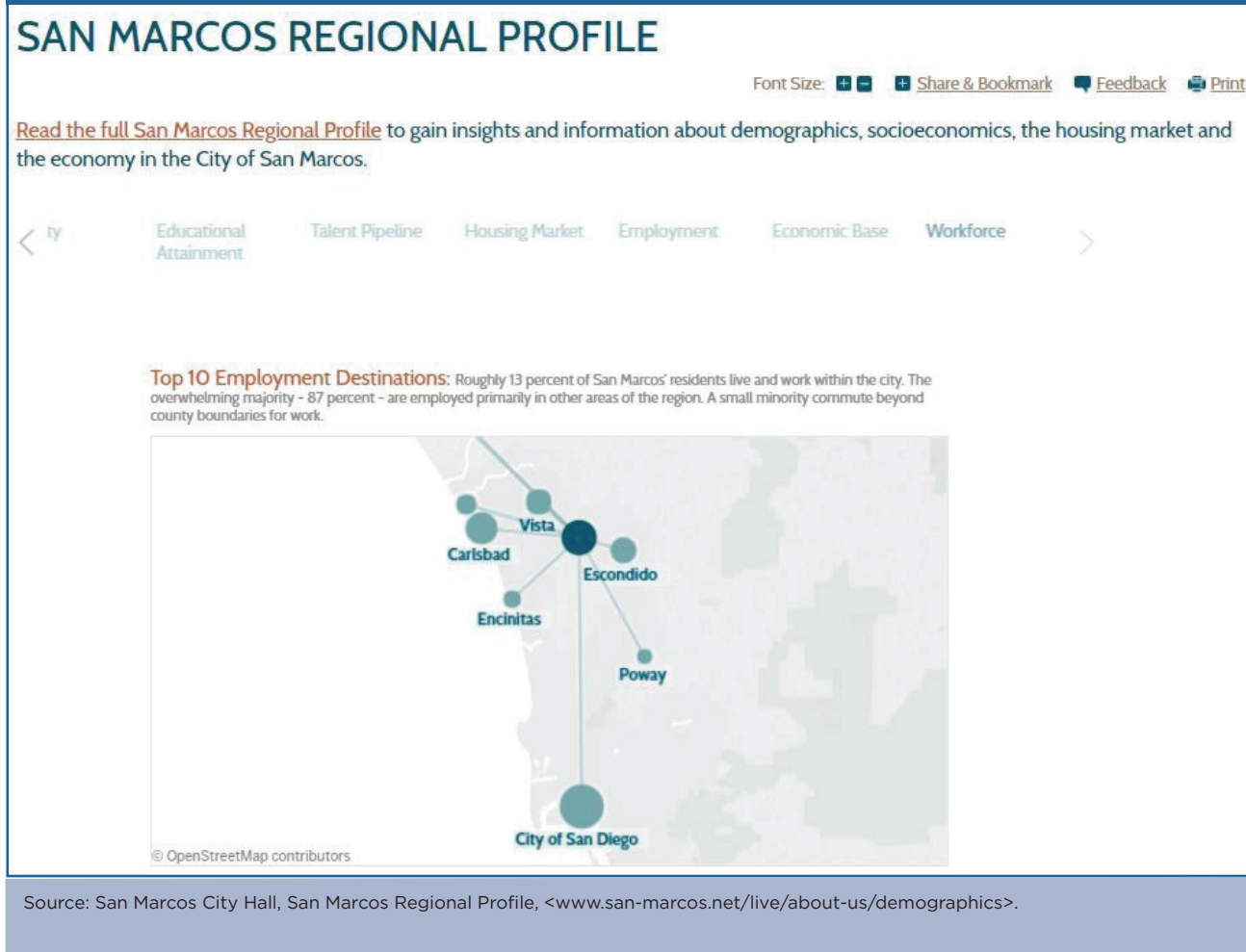


Figure 3.10. **City of San Marcos Regional Profile: Commuting Patterns**



The City of San Marcos Regional Profile and interactive dashboard were launched in the fall of 2017. Since then, the dashboard has been viewed more than 1,000 times and is actively used by the city and its partners to better inform the region's business community. In partnership with the city of San Marcos, the EDC plans on updating the profile and dashboard on an annual basis as data becomes available. Both products can be found on the city of San Marcos Web site.²²

²² San Marcos City Hall, San Marcos Regional Profile, <www.san-marcos.net/live/about-us/demographics>.

Case Study #2: Housing Affordability Gap

Skill Level: Intermediate

Subject: Median household income, housing affordability

Type of Analysis: Analysis of national housing trends, combining American Community Survey (ACS) data with other sources

Tools Used: ACS Public Use Microdata Sample, spreadsheet

Authors: Svenja Gudell, Chief Economist, Zillow; and Aaron Terrazas, Senior Economist, Zillow

In the decade since the 2007–2009 Financial Crisis, there has been a boom in housing market data available to the public. Each month, Zillow—an online resource for home buyers and renters—produces and publishes over 100 housing market data series—including median home values and median rents—aggregated at the national, state, metro, county, ZIP code, and neighborhood levels.²³

Zillow data provide a comprehensive view into the state of the U.S. housing stock, but Zillow's economic research and data science teams also rely on critical data inputs from the Census Bureau to analyze the full implications of changing home values and rents for American households. One prominent example is how Zillow combines proprietary data on home values with household income data from the Census Bureau's ACS to explore the share of income that the typical household spends on a monthly mortgage payment. (Zillow also produces a similar statistic for the share of income spent on rent.)

By the middle of 2016—the most recent data available at the time of this writing—the typical American household earning the country's national median income and buying the median-valued U.S. home could expect to pay 15.5 percent of their income on a mortgage. In the nation's priciest markets—such as San Jose, Los Angeles, and San Francisco—these shares exceed 40 percent.

But calculating housing affordability estimates based on median income and median home values by themselves does not provide a complete picture of affordability. Home values and incomes have consistently grown more at the top of the housing market and at the top of the labor market than at the bottom. Increasingly, affordability varies dramatically depending on a given buyer's income level and the type of home they are trying to buy.

To illustrate these diverging trends between more affluent and less affluent Americans, Zillow also computes mortgage affordability—the share of income spent on a mortgage—for the bottom, middle, and top third of households by income. This more granular (and, some would argue, more powerful) tier analysis is conducted by combining Zillow's property-level data with ACS microdata.

Calculating Mortgage Affordability

To calculate mortgage affordability, Zillow first estimates the mortgage payment for the median-valued home in a metropolitan area (based on the Zillow Home Value Index for a given quarter) and the 30-year, fixed mortgage interest rate during that quarter (from the Freddie Mac Primary Mortgage Market Survey), assuming a 20 percent down payment. Zillow uses their internal property-level data to estimate mortgage payments, but data users can also access housing data—including home value and mortgage payment estimates—from the ACS.

Data on median household income are from the Census Bureau's ACS Public Use Microdata Sample (PUMS). The PUMS files allow data users to conduct a custom analysis of the ACS data using a sample of actual responses to the survey. They are much more flexible than the aggregate data available on American FactFinder, though the PUMS files also require familiarity with statistical analysis software.

With access to appropriate software—the most common are SAS, SPSS, STATA, R, and Python—using the ACS PUMS data is straightforward. Analysts without statistical software can extract detailed cross tabulations using DataFerrett <dataferrett.census.gov>, the Census Bureau's online query tool.

²³ Data are published at <www.zillow.com/data>.

To download PUMS data, go to the Census Bureau's ACS PUMS Data Web site (see Figure 3.11) and elect the desired timeframe for the PUMS data. Data are available from the year 2005 to the present. You can select single-year or multiyear data. The example below uses data from the 2014 ACS 1-year file.

Figure 3.11. **ACS PUMS Data Repository**

Secure | <https://www.census.gov/programs-surveys/acs/data/pums.html>

U.S. Department of Commerce

United States Census Bureau

Topics: Population, Economy | Geography: Maps, Products | Library: Infographics, Publications | Data: Tools, Developers | Surveys/Programs: Respond, Survey Data | Newsroom: News, Blogs | About Us: Our Research

Census.gov > Our Surveys & Programs > American Community Survey (ACS) > Data > PUMS Data

American Community Survey (ACS)

About the Survey
Respond to the Survey
News & Updates

Data
Data Tables & Tools
Data via FTP
Summary File Data
PUMS Data
Variance Replicate Tables
Race/Ethnicity & AIAN Data
Custom Tables

Guidance for Data Users
Geography & ACS
Technical Documentation
Methodology
Library
Operations and Administration
Contact Us

PUMS Data

[Tweet](#) [Share](#)

Supporting documentation for the data below is available on the [PUMS Documentation](#) page.

PUMS Data 2005 - Current
Available through the American FactFinder website

- 2011-2015 ACS 5-year PUMS
- 2015 ACS 1-year PUMS
- 2010-2014 ACS 5-year PUMS
- 2014 ACS 1-year PUMS**
- 2009-2013 ACS 5-year PUMS
- 2011-2013 ACS 3-year PUMS
- 2013 ACS 1-year PUMS
- 2008-2012 ACS 5-year PUMS
- 2010-2012 ACS 3-year PUMS
- 2012 ACS 1-year PUMS
- 2007-2011 ACS 5-year PUMS
- 2009-2011 ACS 3-year PUMS

Available through the FTP site

- 2004 ACS PUMS
- 2003 ACS PUMS
- 2002 ACS PUMS
- 2001 ACS PUMS
- 2000 ACS PUMS

1996-98 PUMS Files Available on DVD
Microdata for select test areas is available on DVD.

- To request a DVD, email your name and mailing address and specify dataset (PUMS 1996-1998) to acso.dvd.order@census.gov. You may be contacted for additional information before your request is filled.

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

Once you have selected a data file, you will be directed to a page in American FactFinder, where you can choose between downloading the data in CSV format (comma-delimited data) or SAS format (see Figure 3.12).

Figure 3.12. ACS PUMS Data Download

The screenshot shows the American FactFinder website interface. At the top, there's a navigation bar with links: MAIN, COMMUNITY FACTS, GUIDED SEARCH, ADVANCED SEARCH (highlighted), and DOWNLOAD CENTER. Below this is a search bar with the text "Search - Use the options on the left (topics, geographies, ...) to narrow your search results".

On the left side, under "Your Selections", it shows:

- Search using... Product Type: Public Use Microdata Sample
- Dataset: 2014 ACS 1-year estimates
- Buttons: clear all selections and start a new search, load search, save search

Below "Your Selections", there are categories for narrowing search results:

- 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, ...)

The main results area shows "Search Results: 1-2 of 2 tables and other products match 'Your Selections'". It includes a refine search section with fields for "topic or table name" and "state, county or place (optional)", and buttons for "GO" and "?". Below this, there are radio buttons for "topics", "race/ancestry", "industries", and "occupations".

Below the refine section, it says "1 Selected" and shows a "View" button circled in red, along with "Download", "Compare", "Clear All", and "Reset Sort" buttons.

The table below lists the available datasets:

ID	Table, File or Document Title	Dataset	About
<input type="checkbox"/>	PUMS-CSV 2014 ACS 1-year Public Use Microdata Samples (PUMS) - CSV format	2014 ACS 1-year estimates	i
<input checked="" type="checkbox"/>	PUMS-SAS 2014 ACS 1-year Public Use Microdata Samples (PUMS) - SAS format	2014 ACS 1-year estimates	i

Below the table, it says "1 Selected:" and shows the same set of action buttons: "View", "Download", "Compare", "Clear All", and "Reset Sort".

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

After making a selection, clicking “View” brings you to another page where you can choose between population records (total U.S. population or a specific state) or housing records (entire United States or a specific state) (see Figure 3.13). Zillow uses the “United States Housing Unit Records” file.

Figure 3.13. ACS PUMS Downloads by Geography (Nation and States) and File (Population and Housing)

Advanced Search - Search all data in American FactFinder

1 Advanced Search 2 Table Viewer

PUMS-SAS | 2014 ACS 1-year Public Use Microdata Samples (PUMS) - SAS format ⓘ
2014 ACS 1-year estimates

The ACS Public Use Microdata Sample files (PUMS) are a sample of the actual responses to the American Community Survey and include tabulations and can be used for detailed research and analysis. Files have been edited to protect the confidentiality of all individuals and Area (PUMA).

For complete PUMS documentation, visit the [ACS PUMS documentation page](#).

All files below are provided in SAS format. The 2014 ACS 1-year PUMS are also available in [comma separated value \(CSV\) format](#).

United States Population Records	United States Housing Unit Records
Alabama Population Records	Alabama Housing Unit Records
Alaska Population Records	Alaska Housing Unit Records
Arizona Population Records	Arizona Housing Unit Records
Arkansas Population Records	Arkansas Housing Unit Records
California Population Records	California Housing Unit Records
Colorado Population Records	Colorado Housing Unit Records
Connecticut Population Records	Connecticut Housing Unit Records
Delaware Population Records	Delaware Housing Unit Records

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

After downloading the file, Zillow loads the ACS data into R (software for statistical computing) to produce estimates of monthly owner costs as a percentage of household income for households at different income levels. The PUMS Data Dictionary can help you find the variable needed for this analysis: HINCP (Household income in the past 12 months).²⁴

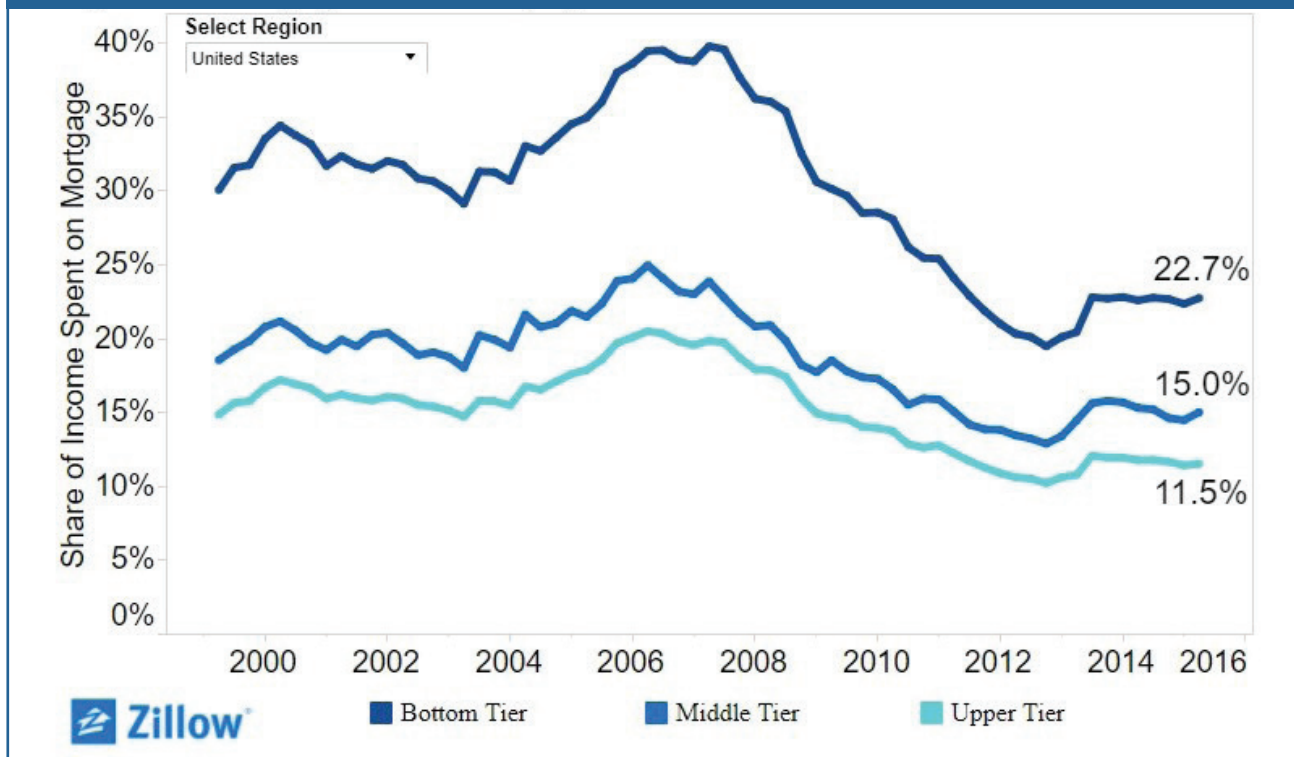
Using the HINCP variable to estimate median household income for households in the bottom third of the income distribution, Zillow then assumes that these households purchase a median bottom-tier home (i.e., 16.7th percentile of homes in a metro area) and then calculates the percentage of monthly income that household would have to spend to pay the mortgage.²⁵

²⁴ U.S. Census Bureau, PUMS Data Dictionary, <www.census.gov/programs-surveys/acs/technical-documentation/pums/documentation.html>.

²⁵ For median income used in the overall affordability analysis, Zillow chains the ACS income data forward using the Employment Cost Index (ECI), which is updated quarterly with a one-quarter lag. Income tier data are not directly published in the ECI, so to calculate tiers, Zillow relies on the Consumer Expenditure Survey (CES), which is published with a one-year lag. For this reason, tier data are only available through Q2 2016, but overall affordability data are available through Q2 2017.

The key results from Zillow's analysis are shown in Figure 3.14. Depending on a given buyer's household income level and the kind of home they're trying to buy, affordability can vary dramatically. Nationwide, a buyer at the median household income in the bottom one-third of all incomes and looking to buy a home valued in the bottom one-third of all homes would need to spend 23 percent of their household income on a mortgage as of Q2 2016, the latest quarter for which data were available at the time of this writing. A buyer in the top third of household incomes and looking to buy a more expensive home in the top third of homes by value would only spend 11.5 percent of their income on a mortgage.

Figure 3.14. **Mortgage Affordability by Income Tier**



Source: Svenja Gudell, Housing Highs & Lows: How the Home Affordability Gap Between the Rich and Poor is Widening, <www.zillow.com/research/affordability-2016q1-12763/>.

A decade after the 2007–2009 Financial Crisis and associated housing market bust, there has been a proliferation of housing market data available to consumers and researchers. Census Bureau data, particularly from the ACS, are a critical complement to Zillow's housing market data.

In an era when the gap in net worth between higher- and lower-wealth households is increasing, medians or averages cannot tell the full story of the American housing market.²⁶ Exploring within the distribution of home values and household incomes—analysis that is possible with Zillow's property-level home values and the Census Bureau's ACS PUMS data—allows for a much richer and more complete perspective on what is, for most Americans, their largest single asset.²⁷

²⁶ U.S. Census Bureau, Gap Between Higher- and Lower-Wealth Households Widens, Census Bureau Reports, <www.census.gov/newsroom/press-releases/2014/cb14-156.html>.

²⁷ Zillow updates this analysis periodically. For the most recent data and analysis, see <www.zillow.com/research>.

Case Study #3: USAA Potential Market Size Estimation

Skill Level: Introductory/Intermediate

Subject: Housing

Type of Analysis: Comparisons of American Community Survey (ACS) data over time, across demographic groups, and across states; identifying business market(s)

Tools Used: American FactFinder, spreadsheet

Author: Rob Galbraith, Director of Underwriting Research, Property & Casualty Insurance Group, USAA

Rob Galbraith is a Director of Underwriting Research with the Property & Casualty Insurance Company at USAA, a large financial services member-owned association that focuses on serving active duty military, veterans, and their families. The underwriting area is challenged with providing insurance to as many eligible members as possible while not taking on excessive exposure to natural hazards that could put the company at risk of bankruptcy. ACS data are used at USAA in conjunction with advanced analytics and predictive modeling to identify segments to target for marketing three of its major lines of business: homeowners insurance, sold to those with owner-occupied homes; renters insurance, sold to those who are renting a dwelling from a landlord who owns the property; and rental property insurance, sold to those who are landlords renting their property to one or more tenants. ACS data are also used to track trends in owner- and renter-occupied housing to target marketing expenditures to achieve profitable growth.

Rob scans the documentation available for the ACS and learns that while single-year data are available for states and many large geographic areas, data for smaller areas with fewer than 65,000 people are only available in 5-year tabulations (e.g., 2012–2016). He also learns that there is uncertainty—margin of error—associated with ACS estimates, particularly for smaller geographic areas and small population groups. For this example, Rob is interested in accessing ACS housing data at the state level.

Rob begins at the ACS home page and scrolls down, clicking on “Data Tables and Tools” (see Figure 3.15).

Figure 3.15. Selecting Data Tables and Tools From the ACS Home Page



Source: U.S. Census Bureau, American Community Survey (ACS), <www.census.gov/programs-surveys/acs/>.

- Under the subheading of “Subject Tables,” he clicks on the link, “Choose your subject table here!” (see Figure 3.16).

Figure 3.16. **Selecting ACS Subject Tables**

American Community Survey

About the Survey

Respond to the Survey

News & Updates

Data

Data Tables & Tools

Data Profiles

Narrative Profiles

Subject Tables

Ranking Tables

Supplemental Tables

American FactFinder

More ACS Tools & Apps

Data via FTP

Summary File Data

PUMS Data

Variance Replicate Tables

Race/Ethnicity & American Indian & Alaska Native Data

Data Tables & Tools

Data Profiles Selector

Data Profiles consist of four tables (Social, Economic, Housing, Demographic) to give a broad statistical view of a particular geography. We provide an easy to use [Data Profiles geography selector](#) for the most popular geographies: state, county and place. Our full data website, [American FactFinder](#), provides additional geographies for this table type and many more.

Narrative Profiles

The only place to find the current Narrative Profiles is right here on American Community Survey website. Narrative Profiles contain much of the same information found in the Data Profiles, except it is a text-based report with plenty of colorful graphs and charts. Use the map selector or the dropdown boxes to [generate a Narrative Profile](#) for your favorite place.

Subject Tables

More interested in a particular topic than a particular geography? Check out our listing of ACS Subject Tables. Subject tables have both numbers and percentages making them the versatile choice for data seekers. You can search/filter the listing, and then link to American Factfinder (AFF) where you can change geographies and go back in time! [Choose your subject table here!](#)

Source: U.S. Census Bureau, American Community Survey (ACS), <www.census.gov/programs-surveys/acs/>.

In the search box near the top right corner of the page, he types in “housing” and then selects Table S2504: Physical Housing Characteristics for Occupied Housing Units (see Figure 3.17). When he clicks on this link, he is connected to American FactFinder, the Census Bureau’s primary tool for accessing data from the ACS and many other Census Bureau data sets.

Figure 3.17. Searching for ACS Housing Tables

The screenshot shows the American Community Survey (ACS) website. At the top, there is a navigation bar with links: Topics, Geography, Library, Data, Surveys/Programs, Newsroom, and About Us. Below this is a search bar with the text "Search: housing". The main content area is titled "American Community Survey" and includes a sidebar with links: About the Survey, Respond to the Survey, News & Updates, Data, Data Tables & Tools, Data Profiles, Narrative Profiles, Subject Tables, Ranking Tables, Supplemental Tables, American FactFinder, More ACS Tools & Apps, Data via FTP, Summary File Data, and PUMS Data. The "Subject Tables" section is active, showing a list of tables. The table "Physical Housing Characteristics for Occupied Housing Units" (Table ID S2504) is highlighted. A red box highlights the search bar and the selected table.

Table Title	Table ID
Characteristics of the Group Quarters Population by Group Quarters Type	S2601B
Characteristics of the Group Quarters Population In Puerto Rico	S2601APR
Characteristics of the Group Quarters Population in the United States	S2601A
Characteristics of the Group Quarters Population in the United States	S2601C
Demographic Characteristics for Occupied Housing Units	S2502
Financial Characteristics	S2503
Financial Characteristics for Housing Units with a Mortgage	S2506
Financial Characteristics for Housing Units without a Mortgage	S2507
Occupancy Characteristics	S2501
Physical Housing Characteristics for Occupied Housing Units	S2504

Source: U.S. Census Bureau, American Community Survey (ACS), <www.census.gov/programs-surveys/acs/>.

- Next, he clicks on “Add/Remove Geographies” near the top of the page (see Figure 3.18).

Figure 3.18. Adding and Removing Geographies

The screenshot shows the American FactFinder website. At the top, there is a navigation bar with links: MAIN, COMMUNITY FACTS, GUIDED SEARCH, ADVANCED SEARCH, and DOWNLOAD CENTER. Below this is a search bar with the text "Search: housing". The main content area is titled "Advanced Search - Search all data in American FactFinder". It shows the search results for "S2504 PHYSICAL HOUSING CHARACTERISTICS FOR OCCUPIED HOUSING UNITS 2016 American Community Survey 1-Year Estimates". The "Table Viewer" tab is active. Below the table viewer, there is a section for "Actions" with buttons: Modify Table, Add/Remove Geographies, Bookmark/Save, Print, Download, and Create a Map. The "Add/Remove Geographies" button is highlighted with a red box. Below the actions section, there is a message: "This table is displayed with default geographies. Click Back to Search to select other geographies using the search options on the left." At the bottom, there is a feedback section titled "Tell us what you think." and a disclaimer: "Although the American Community Survey (ACS) produces population, demographic and housing unit estimates, it is the Census Bureau's Population Estimates Program that produces the nation, states, counties, cities and towns and estimates of housing units for states and counties."

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

- He clicks on the drop-down box under “Select a geographic type,” scrolls down to “State,” and clicks to select.
- A new box appears, and he selects the first one in the list called “All States within United States and Puerto Rico,” clicking the button labeled “Add to Your Selections” (see Figure 3.19).

Figure 3.19. **Selecting a Geographic Type**

The screenshot shows the 'Add/Remove Geographies' window in American FactFinder. At the top, there's a search bar with a 'GO' button. Below it, a message says 'Add one or more popular geographic areas (states, cities, towns, etc.) to Your Selections. Click **Show Table**.' A dropdown menu labeled 'Select a geographic type:' is open, showing 'State - 040' selected. Below the dropdown, a list of geographic areas is displayed, with 'All States within United States and Puerto Rico' at the top. A red box highlights this selection. At the bottom left, a red box highlights the 'ADD TO YOUR SELECTIONS' button. On the right side, a box labeled 'Your Geography Selections' shows 'Your Geography Selections' is empty. A red box highlights the 'SHOW TABLE' button.

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

- He then clicks the “Show Table” button on the right-hand side of the screen.
- The results are displayed in HTML format on the page. He selects “Download” at the top of the page.
- A pop-up window appears. He clicks on the radio button for “Use the data” and then clicks OK (see Figure 3.20).

Figure 3.20. **Downloading ACS Data**

The screenshot shows the 'Download' pop-up window. It has a title bar 'Download' and a close button. The main text says 'I want to download the data to ...'. There are two radio buttons: 'Use the data (e.g., in a spreadsheet or database)' which is selected, and 'View the data (e.g., as a presentable document)'. Below the selected option, it says 'The following content options are available for this Comma-Separated Value (.csv) download:'. There are two checkboxes: 'Merge the annotations and data into a single file?' which is checked, and 'Include descriptive data element names?' which is checked. At the bottom, there are 'OK' and 'CANCEL' buttons. In the background, a table of housing units data for Arizona is visible, with columns for 'Subject', 'Estimate', and 'Margin of Error'.

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

- The data table is saved in a Temporary Internet File called “ACS_16_1YR_S2504_with_ann.csv” and can be opened using a spreadsheet.

This process is repeated for multiple years to allow Rob to see trends in the data to assist with the selection of target markets to recommend (see Figure 3.21).

Figure 3.21. **Selecting ACS Data for Previous Years**

Table View BACK TO ADVANCED SEARCH

Actions: [Modify Table](#) [Add/Remove Geographies](#) [Bookmark/Save](#) [Print](#) [Download](#) [Create a Map](#)

[View Geography Notes](#) [View](#)

Although the American Community Survey (ACS) produces population, demographic and housing unit estimates, it is the Census Bureau's Population Estimates Program that produces and disseminates the official estimates of the population for states, counties, cities and towns and estimates of housing units for states and counties.

Versions of this table are available for the following years:

- 2016
- 2015
- 2014
- 2013
- 2012
- 2011
- 2010
- 2009
- 2008
- 2007
- 2006
- 2005

Alabama

Subject	Occupied housing units		Owner-occupied housing units		Renter-occupied housing units	
	Estimate	Margin of Error	Estimate	Margin of Error	Estimate	Margin of Error
Occupied housing units	1,846,390	+/-11,341	1,253,595	+/-13,117	592,795	+/-11,428
UNITS IN STRUCTURE						
1, detached	70.7%	+/-0.5	65.1%	+/-0.5	40.4%	+/-1.2
1, attached	1.7%	+/-0.1	1.4%	+/-0.2	2.2%	+/-0.3
2 apartments	2.0%	+/-0.2	0.1%	+/-0.1	5.8%	+/-0.5
3 or 4 apartments	2.8%	+/-0.2	0.2%	+/-0.1	8.4%	+/-0.5
5 to 9 apartments	4.7%	+/-0.3	0.2%	+/-0.1	14.3%	+/-0.8
10 or more apartments	5.9%	+/-0.3	0.3%	+/-0.1	18.0%	+/-0.9
Mobile home or						

Alaska

Subject	Occupied housing units		Owner-occupied housing units		Renter-occupied housing units	
	Estimate	Margin of Error	Estimate	Margin of Error	Estimate	Margin of Error
Occupied housing units	159,922	+/-3,409	90,263	+/-3,323	2,463,008	+/-12,455
UNITS IN STRUCTURE						
1, detached	79.6%	+/-1.4	24.3%	+/-1.8	65.5%	+/-0.4
1, attached	7.1%	+/-0.8	10.8%	+/-1.6	4.6%	+/-0.2
2 apartments	2.5%	+/-0.6	10.1%	+/-1.6	1.4%	+/-0.1
3 or 4 apartments	1.4%	+/-0.5	18.1%	+/-2.1	3.5%	+/-0.2
5 to 9 apartments	1.5%	+/-0.5	13.6%	+/-1.8	4.0%	+/-0.2
10 or more apartments	2.0%	+/-0.6	19.1%	+/-1.9	11.8%	+/-0.3
Mobile home or						

Arizona

Subject	Occupied housing units		Owner-occupied housing units		Renter-occupied housing units	
	Estimate	Margin of Error	Estimate	Margin of Error	Estimate	Margin of Error
Occupied housing units	1,524,828	+/-12,566	820,000	+/-12,566	704,828	+/-12,566
UNITS IN STRUCTURE						
1, detached	82.0%	+/-0.5	65.5%	+/-0.4	65.5%	+/-0.4
1, attached	4.6%	+/-0.2	4.6%	+/-0.2	4.6%	+/-0.2
2 apartments	0.2%	+/-0.1	0.2%	+/-0.1	0.2%	+/-0.1
3 or 4 apartments	0.7%	+/-0.1	0.7%	+/-0.1	0.7%	+/-0.1
5 to 9 apartments	0.5%	+/-0.1	0.5%	+/-0.1	0.5%	+/-0.1
10 or more apartments	0.9%	+/-0.1	0.9%	+/-0.1	0.9%	+/-0.1
Mobile home or						

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

Rob opens the .csv file and copy and pastes the owner-occupied and renter-occupied data for each state into a new table showing the data for the last 5 to 10 years (see Table 3.2). He can then use this table and compare it with internal USAA data showing the number of policies in force for each of the three lines of business and compare the two tables to determine potential market size by state. Since the purpose of this analysis is to identify target market opportunities, the margin of error is not considered as a critical factor, as the goal is merely to gain reasonable estimates of potential market size.

Table 3.2. **Owner-Occupied Housing Units by State and Year**

State	2012	2013	2014	2015
Alabama	1,268,565	1,240,017	1,246,080	1,253,595
Alaska	159,427	156,107	156,006	159,922
Arizona	1,496,650	1,490,031	1,484,857	1,524,828
Arkansas	757,722	739,987	744,318	746,000
California	6,781,817	6,804,639	6,855,688	6,910,823
Colorado	1,278,158	1,291,945	1,302,533	1,322,618
Connecticut	908,452	888,478	900,039	889,035
Delaware	241,050	243,047	245,808	249,681
District of Columbia	110,681	110,513	112,492	112,555
Florida	4,724,428	4,672,482	4,693,821	4,760,071

Source: U.S. Census Bureau, American FactFinder, Table S2504: Physical Housing Characteristics for Occupied Housing Units.

If desired, this process can be replicated at a county level for further refinement of market segmentation.

4. ADDITIONAL RESOURCES

U.S. Census Bureau, What Is the American Community Survey?

<www.census.gov/programs-surveys/acs/about.html>.

U.S. Census Bureau, Understanding and Using American Community Survey Data: What All Data Users Need to Know

<www.census.gov/programs-surveys/acs/guidance/handbooks/general.html>.

U.S. Census Bureau, ACS Data Releases

<www.census.gov/programs-surveys/acs/news/data-releases.html>.

U.S. Census Bureau, Geography in the ACS

<www.census.gov/programs-surveys/acs/geography-ac.html>.

U.S. Census Bureau, ACS Data Tables and Tools

<www.census.gov/acs/www/data/data-tables-and-tools/>.

U.S. Census Bureau, Census Business Builder (CBB)

<www.census.gov/data/data-tools/cbb.html>.

U.S. Census Bureau, How to Use American FactFinder

<<https://factfinder.census.gov/help/en/index.htm#>>.

U.S. Census Bureau, State Data Center (SDC) Program

<www.census.gov/about/partners/sdc.html>.

U.S. Department of Commerce, Economics & Statistics Administration, 2015, New Report on Value of the American Community Survey

<www.commerce.gov/news/reports/2015/05/value-american-community-survey-smart-government-competitive-businesses-and>.

