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 Maryland, the Charles

County Department of Economic Development 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 2019 combined with projections of the number of such households in 2024, rather than rely on ACS estimates of households with children in 2014–2018. 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, *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

---

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

[3] Charles County Department of Economic Development Charles County by the Numbers, <www.meetcharlescounty.com/charles -county-by-the-numbers/>.

[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>.

customers" and determine the best ways to market 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 *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 on 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, *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 are consistent 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, *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/programs-surveys/popest.html>.

[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 Design and Methodology Report, <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>.