A Data Tornado? How to Use and Choose 2010 Census and ACS data

By now, many data users are aware of the fact that large volumes of data are being released simultaneously from both the 2010 Census and the ongoing American Community Survey (ACS). This marks a significant departure from previous decades when census data was released from only one source. Choosing and using data from the 2010 Census and the ACS can lead to a dizzying array of challenges and opportunities. We have highlighted each data program in previous newsletters, but in this issue we will focus on some of the important differences between the 2010 Census and the ACS. We will also provide some guidance on how to choose data that is most appropriate and effective for different uses.

Comparing 2010 Decennial Census and American Community Survey Data

2010 Decennial Census data comes from a complete enumeration of the population and contains count data for population, age by sex, tenure, race and ethnicity, average household size, group quarters, tenure, and housing units. The 2010 Census was conducted in 2010, and the data was processed and released starting in early 2011. The Census Bureau will conduct the next complete enumeration in the year 2020.

The American Community Survey (ACS) is designed to provide data that is updated and released on an annual basis. The ACS collects and produces information every year and provides estimates of the social, economic and housing characteristics of the population based on a sample survey. Each ACS data variable is an estimate and is reported with information about the reliability of the estimates in the form of a margin of error.

Census 2010

- “Short Form” Only
- Point in time count of the population
- Most counts available down to census block level
- Counts of population & basic demographic characteristics
  - Age
  - Sex
  - Race/ethnicity
  - Household relationships
  - Vacancy and tenure
- Residence as of April 1, 2010 or for majority of the year

American Community Survey

- Large, continuous survey
- Annual updates of data
- Adds new questions as needed
- Produced estimates for all areas for first time in 2010, to the block group level
- Has replaced decennial “long form”
- Provides estimates of socio-economic characteristics
- Residence: as of the past 2 months prior to receipt of questionnaire

Figures 1 and 2 below summarize the key points of and differences between the 2010 Census and the American Community Survey (ACS).

2010 Census data or American Community Survey data? How to choose?

The implementation of the ACS reflects a major reorganization of how the U.S. Census Bureau collects information about the population and our communities. Data users are now in a position of having to choose between two sources when they are using census data for planning, identifying trends, conducting a needs assessment, grant writing, reporting, mapping or pursuing a myriad of other analyses that rely on thorough and precise information about people and places. Now that there are two data products to choose between, it is important to understand the benefits and constraints of each and how they meet specific needs and uses.

When to use 2010 Census data?

A general rule of thumb is that if the data you want or need is available from the 2010 Census, it should be the preferred source. 2010 Census data represents the most accurate and precise count of the population and housing units. The data is useful for analyses or programs requiring population counts, race/ethnicity, age, gender, households and families, and basic information on occupancy and tenure of housing in your community. The chief benefit of 2010 Census data is that it is an “on the ground” count and provides very accurate community snapshots. In addition, the basic information from the 2010 Census has been collected consistently over time and can be easily
used for temporal comparisons - and for evaluating trends. All data is available for geographical levels down to individual census blocks, and most data can be cross-tabulated by race/ethnicity, age and other basic categories.

**When to use American Community Survey data?**

If you need detailed socio-economic information then you must turn to the American Community Survey. It is the most complete source for detailed information on the social, economic and housing characteristics of small areas or communities. It is useful for analyses or programs that go beyond basic counts and characteristics of population and housing, and instead examine topics like income, poverty, education, employment, commuting, languages, housing values, owner/renter costs, and much, much more. In addition, the ACS is “refreshed” every year with new data, so it can be used to track characteristics over time and certainly, more often than once every ten years. As time goes on, the 2010 Census data will become out-of-date in many places, and the ACS may become the better choice for looking at demographic characteristics as well.

**Even more choices to make when using ACS data:**

For areas of 65,000 or more residents, the American Community Survey produces single year estimates. For smaller areas, survey responses are combined across three or five year intervals to develop the estimates. The population thresholds for one, three and five year estimates are summarized in Figure 3 below.

Some of your choices about which annual or multiyear estimate to use may be determined by the population size of the area for which you want data. For example, if you are looking for a town with a population of 650 – which is under 20,000 – you have to use the five-year estimates.

There may be some situations, particularly for areas with large populations, where you can choose between 1-year estimates, 3-year estimates, and 5-year estimates. Figure 3 below also gives some guidance on reliability tradeoffs when choosing among the three ACS intervals:

**Figure 3. Features of ACS 1-year, 3-year, and 5-year estimates**

<table>
<thead>
<tr>
<th>1-year estimates</th>
<th>3-year estimates</th>
<th>5-year estimates</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 months of collected data</td>
<td>36 months of collected data</td>
<td>60 months of collected data</td>
</tr>
<tr>
<td>Data for areas with populations of 65,000+</td>
<td>Data for all areas with populations of 20,000+</td>
<td>Data for all areas larger than a census block</td>
</tr>
<tr>
<td>Smallest sample size</td>
<td>Larger sample size than 1-year</td>
<td>Largest sample size</td>
</tr>
<tr>
<td>Less reliable than 3-year or 5-year</td>
<td>More reliable than 1-year; less reliable than 5-year</td>
<td>Most reliable</td>
</tr>
<tr>
<td>Most current data</td>
<td>Less current than 1-year; estimates more current than 5-year</td>
<td>Least current</td>
</tr>
</tbody>
</table>

**Best used when**

- Currency is more important than precision: More precise than 1-year, more current than 5-year
- Analyzing large populations: Analyzing smaller populations
- Examining small geographies because 1-year estimates are not available: Examining smaller geographies because 1- and 3-year estimates are not available

**Data Resources for 2010 Census and ACS Data**

- **American FactFinder** (Census Bureau)
  [http://factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml](http://factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml)
- **GetFacts** (maintained by APL & UW Extension)
  [http://www.getfacts.wisc.edu](http://www.getfacts.wisc.edu)

**APL News**

In January, the Applied Population Laboratory welcomed David Egan-Robertson to its staff. David comes to the APL from the Demographic Services Center at the Wisconsin Department of Administration and brings with him enormous experience and expertise in the areas of population estimates and projections and applied demography.

**Ongoing at the APL**

- David Long and Sarah Kemp presented recent work on community information systems and redistricting at the Wisconsin Land Information Association Annual Conference in Stevens Point in February.
- Bill Buckingham delivered a featured session on GIS and pharmacy to the American Pharmacist Association Annual Meeting in New Orleans, LA in March.
- Katherine Curtis and Dave Long recently published their research on the spatial dimensions of child poverty in the U.S. in Social Science Research. ([http://www.sciencedirect.com/science/article/pii/S0049089X11001372](http://www.sciencedirect.com/science/article/pii/S0049089X11001372))