

The Decennial Census and the American Community Survey (ACS)

Background

The population counts from the decennial census are required by the U.S. Constitution as the basis for reapportionment of the House of Representatives. In addition, these population counts are used to draw political districts at state and local levels and to comply with federal anti-discrimination laws related to equal employment opportunity and voting rights. These data are collected using fewer than 10 questions on what has come to be known as the decennial census “short form,” and are asked of all persons in the nation. Since 1790, the decennial census also has been used as a statistical barometer for a variety of characteristics that define who we are as a nation. Increases in the amount of data collected occurred in tandem with concerns about adequately measuring the progress of the country after the Great Depression and advances in sampling techniques around 1940. Ultimately, this resulted in the creation of a separate “long form,” which asked more than 50 questions of a sample of the population; the information gathered related to demographic, social, economic and housing characteristics. While these data provided a wealth of information, the collection occurred just once a decade.

In the 1970s, changes in the nation’s population, especially at a small area level, prompted the Census Bureau to begin an effort to devise methods for measuring change in characteristics more than once a decade. This effort began with a failed attempt to fund a mid-decade census. In the 1980s, proposals gained momentum for a “continuous” survey that would gauge changes in the population for all areas – large and small. Congressional misgivings over a lackluster response in the 1990 Census, which was linked in part to the burdensome nature of the long form, increased pressure to de-couple the long form from the short form. In response, the Census Bureau began pilot testing a continuous measurement survey program in 1995. After years of testing, the Census Bureau went live in 2005 with what is now called the American Community Survey or ACS. The ACS has replaced the census long form sample, making the 2010 Census “short form only.”

The ACS is a continuous national survey that aims to provide data more than once a decade for all places in the nation. Each month, ACS questionnaires are sent to a sample of approximately 240,000 households. In order to have a large enough sample from which to create estimates of characteristics, the ACS “rolls-up” the sample for one-year, three-year or five-year periods, depending on the size of the geographic area. For New York City and its five boroughs, the ACS makes it possible to obtain separate annual estimates of characteristics, which is a big improvement over the decennial census long form sample. For smaller places, estimates are prepared using 12 months of sample for places of at least 65,000 residents, 36 months of sample for places of at least 20,000 residents, and 60 months of sample for all places regardless of size. This means that estimates can be for a single year (e.g. 2009) or for multi-year periods (e.g. 2006-2008, 2007-2009 and 2006-2010). The ACS provides annually updated estimates for all person and housing characteristics, which represents a significant advance over data previously available from only the ten-year cycle census.

Since New York City’s 55 Public Use Microdata Areas (PUMAs are approximations of New York City’s 59 Community Districts based on the aggregation of whole census tracts) all exceed

the 65,000 threshold, estimates based on a 12 month sample roll-up are available. However, many cells in the tables and data profiles provided by the Census Bureau have been suppressed because of confidentiality concerns and the absence of sufficient sample for reliable estimates. While these numbers represent an average for a characteristic over a three-year period, the increased reliability of the estimates makes it well worth the tradeoff. As a result, we provide PUMA estimates for a three-year period, based on 36 months of sample beginning with 2005-2007 and continuing with annual updates thereafter. (Multiyear estimates also are presented for the city and boroughs, to allow for comparisons with the PUMA estimates – see discussion below).

On the Use of Multiyear Estimates

Multiyear estimates require a different frame of reference for data users. In the past, data users considered census estimates as being “pinned” on a specific point of reference: April 1 of the census year. (In reality, the decennial census data were collected over a period lasting about six months.) The ACS one year estimates provide a picture that represents an average over a 12 month period, while the three-year estimates represent an average over a 36 month period. The Census Bureau refers to these estimates as “period estimates,” since they represent the best estimate for a characteristic over a specified period of time: one, three or five years (e.g. the population of Queens was 48 percent foreign-born in the 2006-2008 period). In late 2010, the Census Bureau will be issuing census tract data for the nation that are based on a five-year period.

Here are some general rules that should be applied when using ACS estimates:

1. **Comparisons should employ estimates with the same time-stamp: one year to one year; three-year to three-year etc.** Do NOT compare estimates representing periods of different length to each other, even if the two estimates have some years in common (e.g. 2007 versus 2006-2008);
2. **You can compare 2000 Census data with data from the ACS, but approach these comparisons with caution.** While the ACS is a replacement for the decennial census long form, it is NOT the long form. Differences in residence rules, reference periods for items like income and previous residence, and changes in how questions are asked make interpretation of differences problematic. Further, since the ACS is a rolling survey, changes occur from year to year in the sample, content and conduct of the survey. Users need to know about these changes in order to exercise caution, where appropriate. Detailed information on the comparability of successive years of the ACS and of the ACS with the 2000 Census is available at: http://www.census.gov/acs/www/guidance_for_data_users/comparing_data/
3. **Effective use of the ACS represents a balance of three competing considerations:**
 - a) **Geography** – what is the highest level of geography needed to address the question at hand?
 - b) **Timeliness of the data** – is it essential that you have data for the latest time point?

c) **Reliability** – how reliable do estimates need to be for the application at hand?

Achieving the best compromise is closely related to the data application. Some users may decide that timeliness is the highest priority and will sacrifice geographic detail in order to obtain reliable data, opting to use the single year data for an entire borough, instead of three-year data for a PUMA of interest. For example, if a recent change in the economy is best reflected in the data for 2008, the borough number may better reflect this downturn than a three-year PUMA estimate that includes data for 2006 and 2007.

For others, geography will trump timeliness, making it more acceptable to use a three-year period estimate for a single PUMA than the one year estimate for the borough. Such is the case when attempting to demonstrate a characteristic that is unique to a PUMA, such as the number of foreign-born persons with limited English proficiency (LEP); targeting programs requires geographic detail below the borough level. Similarly, there are cases where needs exist within geographic areas that may not be apparent at the borough level, as when a government is trying to determine whether elderly homeowners are in need of assistance; multiyear PUMA estimates should work well here.

Finally, there may be cases where reliability is less important than geography and timeliness. This is the case where a general idea of a characteristic is sufficient to answer a question, as with the presence of foreign-born population or a specific foreign-born subgroup. Knowing the precise percentage of population foreign-born or the precise number from a particular subgroup may not be important; getting a general idea of those areas that are at both ends of a continuum may be the goal.

At the highest levels of geography, New York City and the five boroughs, the option exists for reliable three-year and one-year estimates. Because most of these estimates are reliable, users will likely opt for the one-year data since they are timelier. There may be situations, however, where small subgroups of the population could be more difficult to estimate reliably with one year of data, compared with estimates using data for three years (e.g. new immigrant groups). As we proceed with new ACS data each year, the choices for comparisons will expand. The biggest change will occur in 2010-2011, when the first five-year estimates are released for census tracts, PUMAs, boroughs and the city. Once again, the use of ACS data will be related to the question at hand and the priority of the three items above.

For more information on the applications of ACS data, including the use of thresholds for determining reliability, see:

http://www.census.gov/acs/www/UseData/Compass/handbook_def.html