Content

The Estimates and Projections (E&P) database is the most extensive update available, covering a broad range of demographic characteristics for the current year, and 5- year projections.   Variables include:

Population
- • Population by household type (family, non-family, group quarters)
- • Population by age (19 age breaks)
- • Population by age and sex (38 breaks)
- • Population by sex
- • Population by race
- • Population by Hispanic origin
- • Population by race and Hispanic origin (e.g. white Hispanic, white non-Hispanic)
- • Population by Marital Status
- • Population by Educational Achievement

Households
- • Households by type (family, non-family)
- • Households by size of household
- • Households by age of head of household
- • Household type (e.g. lone parent male family with children)
- • Average Household Size
- • Length of Residence
- • Total Vehicles Available
- • Households by number of vehicles available
- • Households by number of vehicles available and tenure

Labor Force
- • Employment Status
- • Employment Status by sex

Income
- • Aggregate Income (family, non-family households, group quarters)
- • Household income distribution (15 breaks)
- • Family income distribution (15 breaks)
- • Extended Upper-Income distributions
- • Median and average income (family, household)
- • Households by disposable income
- • Age of head of household by income
- • Median income by age of head of household

Dwellings
- • Vacant Dwellings
- • Tenure

The 2010 Census, American Community Survey, and the 2012A Update

Historically, the Census Bureau has used a two form approach to taking the census. The majority of households would fill out the "short" form, which included questions on the age, race, and sex of the household members, as well as the relationships between them. One in seven households would receive the long form, which included many questions related to income, education, occupation, and housing characteristics.

The 2010 Census, as most are aware, did not include a long form and as a result, the data available from the Census itself is highly limited. For those familiar with the historical releases, there was no SF3 (long form) release, only the SF1 (short form) and the special group quarters population tabulations.

The replacement for the Census long form, known as the American Community Survey (ACS), has been underway for several years. Over the past decade, the ACS has been steadily improving, as the geographic coverage and detail level (e.g. from state to county to block group) has become more complete. AGS' 2010 American Community Survey (ACS) database establishes detailed demographic data that aligns with 2010 census numbers.

Like the Census long form before it, the ACS is based on a sample of all households. The difference is in the timing. The ACS takes place continually and is distributed to about three million households over the course of each year. ACS data is also released annually. For larger population centers, ACS data represents an average of the surveys collected over the course of the year. At lower cartographic levels the data represents either a three year average or, at the block group level, a five year average. So while the Census 2000 long form data represented a snapshot, ACS provides annual releases to serve as guideposts for on-going trends and also as consistent moving averages.

Our goal for this database was to create a version of the ACS data that agreed with the basic 2010 Census counts and also encapsulated the detailed ACS data collected in the year 2010 down to the block group level.

Since ACS data available at the block group level is collected and averaged over 5 years, to bring it in line with 2010 ACS numbers we first balanced it to the ACS one year data at the state level. This means we used a process to bring the five year block group data into agreement with the 2010 numbers for the corresponding higher level cartography. Afterwards, to bring our database in line with Census 2010 population counts, we balanced each block group's detailed data to the corresponding 2010 census Block Group numbers. At the end of the process, we arrived at detailed ACS data at the block group level for year 2010 that agrees with the 2010 Census counts.

The tables we extracted from the ACS include:

Population
- Marital status by sex
- School enrollment by sex

- Educational attainment by sex
- Veteran status by age and sex
- Period of military service for civilian veterans

Households
- Household language and linguistic isolation
- Vehicles available by housing tenure

Labor Force
- Employment by Occupation
- Employment by Industry
- Means of transportation to work
- Time leaving for work
- Travel time to work
- Employment by Type (e.g. government, self-employed) and sex

Income
- Households by income
- Family and Non-Family Households by Income
- Age of head of householder by income
- Aggregate income by type of household
- Aggregate income by source of income

Dwellings
- Units in structure by tenure
- Year structure built by tenure
- Cash Rent
- Value of Owner Occupied Housing Units

Methodology and Data Sources

AGS uses a wide range of data sources in constructing its estimates and projections, including:

- Census tabulations from 1980, 1990, 2000, and the release of the 2010 Census
- USPS and commercial source ZIP+4 level delivery statistics
- Census Bureau estimates and projections of population characteristics at various levels of geographic detail, including the latest estimates of population at the city level.
- The Census Bureau's American Community Survey results at the block group level, which are based upon a five year rolling sample from 2006-2010
- Bureau of Labor Statistics estimates and projections of employment by industry and occupation at the county level
- Medicare eligible population counts at the ZIP code level, including population by sex and 5-

year age cohorts, provided by the Health Care Financing Administration of Social Security. These counts provide a very accurate local count of the population aged 65 and higher.
- Internal Revenue Service statistics on tax filers and year-to-year migration
- The Census Bureau's Current Population Survey, which provides detailed demographic breakdowns and enables a thorough longitudinal analysis of demographic trends
- Experian's INSOURCE database, a household level credit and demographic database which covers the vast majority of households

INSOURCE is a vast database at the household and individual level that Experian provides to AGS for use in its demographic estimates.   The INSOURCE database was aggregated to the ZIP+4 and Block Group levels of geography for analysis and standardized to Census Bureau county level current estimates.   A large number of demographic attributes from INSOURCE were utilized in building the current year estimates, including:

• Population	• Marital Status
• Population by Age	• Income
• Households	• Hispanic origin
• Household Size	• Population of Asian origin
• Household Type (presence of children)	• Dwelling Tenure (own/rent)
	• Length of Residence

In turn, the AGS demographic estimates are used as the foundation of Experian's U.S. MOSAIC segmentation system.

The estimates and projections methodology combines the best current and projected information from the data sources noted above. It is supplemented by the extensive experience of Applied Geographic Solutions in creating accurate and reliable estimates and projections.   A summary of the methodology for each of the major variable groups is included in the sections that follow.

Population

The current population of the United States is obtained from the monthly Census population estimate. This is a very accurate and current estimate of the population and serves as the basis for projection and estimation at lower levels of geographic detail. The five and ten year projections have been derived from the middle-series projections of the Census Bureau.

The current year estimates rely heavily on the 2010 Census block level population counts, as these provide the most accurate recent data available.   These 2010 Census counts replace the 2000 Census counts as the basis for undertaking estimates.   In effect, the latest Census tabulation provides a baseline for the estimates and projections.

State and county level estimates are based on the compilation of data from a range of Federal and State authorities, including the latest county population estimates from the Census Bureau, the American Community Survey (ACS), reviews of building permit statistics, the current population survey (CPS), and

additional local sources.   Where required, the resulting estimates are then ratio-adjusted so that the sum of the county estimates is equal to the state total, and the state estimates equal to the national total. For the five- and ten-year projections, a similar method is employed. However, rather than using simple straight-line techniques, AGS uses straight-line methods only for growing areas. For declining areas, a log-normal extrapolation is used. This has the effect of slowing decline over time, which is characteristic of long-term population decline at the state level.

At the block group level, the population model consists of the application of a non-linear trend model which estimates population given historical patterns, INSOURCE population counts, and the latest Census age distributions (using cohort-survival techniques).   Special consideration is given to the population age 65+ by applying ZIP code level counts by age and sex of all Medicare eligible persons. This provides considerable improvement in the estimates of this important segment of the population. The final results are then carefully balanced to the county and city level population estimates to ensure consistency with current Census Bureau estimates.

The result is a comprehensive set of population estimates and projections which includes the knowledge of State, County, and private agencies about their detailed areas but also ensures that the total population is consistent with the Census Bureau estimates, which have proved extremely reliable over time.

Population by Age, Sex, and Race

National and State level Census bureau projections of age by sex and race/Hispanic origin were used as overall controls to ensure consistency with the Census projections. Detailed forecasts by age, sex, and race, as well as Hispanic origin, were obtained from the Census Bureau 'middle series' projections.

At the state level, the projections of individual state agencies and ACS estimates were combined with the results of a cohort survival approach to obtain reliable state estimates by age and sex. The block group estimates were compiled using cohort survival methods, then balanced to both the estimated block group population totals and to the state level control totals.   Consistency checks with the annual CPS (Current Population Survey) are used to ensure the validity of the resulting age/sex distributions. Further, INSOURCE population by age summaries were used to adjust local estimates for the adult population, with further adjustments applied using the ZIP code level Medicare eligibility statistics.

Trends in the racial distribution and Hispanic populations were used to derive preliminary estimates at the block group level, which were then adjusted to balance with appropriate control totals. This method allows the utilization of the historical changes in race and Hispanic origin distributions and projects those changes into the future while maintaining consistency with national level projections.   Again, the CPS is used extensively to assist in the verification of the models.

Households and Household Type

Total households were modeled by:

- projecting trends in the population per household over time at the national level to provide a control total;
- reviewing currently available household size statistics at the State level; and utilizing the current estimates of population by age and sex to determine household formation rates for small areas

The ACS data has been extensively used in order to bridge the gap between population estimates and dwelling/postal delivery counts.

All household based numbers are initially estimated / projected separately for family and non-family households.   Non-family households have been growing in number at a higher rate than family households have over the past several decades.   Average household sizes for family households have been decreasing for several decades.   However, during the 1990's, the decline has stopped in most areas and has actually reversed in several states, especially those with high immigrant populations.

The group quarters population, that is population that is not in households (such as persons in institutions, military barracks, nursing homes, college dormitories, and homeless persons), is expected to increase slightly during the decade, but remain relatively constant as a percentage of the total population.   This is a reflection of two trends: the decreasing armed forces employment since the 1980's and the continuing aging of the Baby Boomer generation, who are now beginning to reach the age where the need for populations in nursing homes and other institutions which cater to the elderly population.   As a result, the total group quarters population has been relatively constant.

Income

Income estimates include aggregate income by household type and income distributions as well as derived measures include per capita income, and various median income measures.

All income estimates produced by Applied Geographic Solutions are in current, rather than constant, dollars. In other words, a projection of income for the year 2012 includes both an inflationary component and a 'real' component, the latter being the difference between the change in income and the change in inflation during the period. The 'real' component is normally attributed to productivity gains in the economy and to differences in the international competitiveness of the economy.

Aggregate income estimates for the current year are based on an analysis of income information the 2010 ACS release and by considering various macro-economic statistical data from the Department of Commerce and the Federal Reserve.   The projections of aggregate income are based in part on a review of national Bureau of Economic Analysis (BEA) projections combined with historical analyses of the factors affecting comparative income growth at the block group and higher geography levels.

Income distributions are estimated and projected for both family households and non-family households separately. Total household income distributions are simply the aggregate of the two detailed distributions.

Income distributions were derived by using a complex distribution shifting technique which utilizes the changes in per family household and non-family household incomes as a means of adjusting the income distributions over time. The relative ratio between changes in per household average incomes and median incomes were used to adjust for above-average growth in high-income households within some geographic areas. The resulting distributions were then normalized to higher order totals and adjusted to national level expectations and were verified for internal consistency with respect to the mean and median measures.

Other Variables

A number of other variables are also projected within the series.   In large part, these are derived by using available current estimates and projections at the lowest possible level of geography as the base for the estimation procedures, relying heavily upon the annual release of the ACS.   The CPS is used extensively to track changes using available cross-reference information related to age, race, sex, and income.   Where possible, these CPS statistics are supplemented by INSOURCE estimates.

For example, current marital status estimates are available at the state level ACS from the Census Bureau as "control targets".   The ACS is used in conjunction with the annual CPS surveys (both historical and current) are used to track the changes in marital status dependent upon other symptomatic variables such as age, sex, race, and income levels.   These "micro-models" are then applied to the block group level changes between the census and the current period.   This results in block group level data which is consistent with higher order levels but also reflects changes in marital status owing to shifting local demography.

On the other hand, vacant housing is tracked using state and regional indicators, then adjusted for seasonally vacant dwellings which are a significant component of the marketing landscape in many areas of the country.