
# ESRI® Demographic Update Methodology: 2007/2012

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# ESRI Demographic Update Methodology: 2007/2012

## An ESRI White Paper

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## What's Hot

If you want to follow the latest trends, find the trendsetters. To "follow the money," you may opt for areas with either the highest household (HH) income or the most rapidly growing income. To find both high income and rapid growth in income, check out the areas in table 1:

**Table 1**

| Metropolitan Statistical Area | 2007 Median Household Income | 2000-2007 Change: Median HH Income |
|---|---|---|
| Bridgeport-Stamford-Norwalk, CT | $84,800 | 31% |
| Boston-Cambridge-Quincy, MA-NH | $73,000 | 34% |
| Minneapolis-St. Paul-Bloomington, MN-WI | $71,400 | 32% |
| Washington-Arlington-Alexandria, DC-VA-MD-WV | $80,100 | 27% |
| Denver-Aurora, CO | $67,500 | 31% |

Each of these metropolitan areas, except for Bridgeport-Stamford-Norwalk, CT, has more than three million residents.[1] If you prefer high income in a smaller residential area, look at a micropolitan statistical area such as Los Alamos, New Mexico, that has a median income of $101,200 in 2007, up 30 percent since 2000, or a high-income county such as those in table 2:

**Table 2**

| County/Metropolitan Statistical Area | 2007 Median Household Income | 2000-2007 Change: Median HH Income |
|---|---|---|
| Douglas County, CO<br>Denver-Aurora, CO | $111,300 | 36% |
| Loudoun County, VA<br>Washington-Arlington-Alexandria, DC-VA-MD-WV | $108,100 | 35% |
| Fairfax County, VA<br>Washington-Arlington-Alexandria, DC-VA-MD-WV | $104,500 | 30% |
| Hunterdon County, NJ<br>New York-Northern New Jersey-Long Island, NY-NJ-PA | $103,800 | 31% |
| Somerset County, NJ<br>New York-Northern New Jersey-Long Island, NY-NJ-PA | $100,300 | 31% |

[1] Bridgeport-Stamford-Norwalk, CT, metropolitan statistical area has a 2007 population of 918,315.

To "keep up with the Joneses," you want to find the areas with the best housing. Using median home value as the yardstick, a median of $400,000 or more and double-digit appreciation every year since 2000 qualifies the country's top metropolitan areas (found primarily in California or Hawaii). Geographic exceptions to this pattern are the metropolitan statistical areas of New York-Northern New Jersey-Long Island, NY-NJ-PA, and Washington-Arlington-Alexandria, DC-VA-MD-WV.

Requirements at the county level are more stringent—a median home value of $600,000 or more is necessary to rank among the best county markets. Double-digit appreciation in home value, 2000–2007, is typical, but not universal. The top counties are also common to California and Hawaii; notable exceptions are counties that specialize in seasonal attractions such as Nantucket and Dukes (Martha's Vineyard) in Massachusetts and Pitkin in Colorado, better known as the site of Aspen.

Not interested in tracking the money or keeping up with the Joneses? You can simply "go with the flow" by following the population movement to the South and West. There are few changes in the list of hot spots in 2007. The fastest-growing metropolitan areas are in Florida and the Southwest. The fastest-growing counties still represent the suburban sprawl of growing metropolitan areas—Flagler County, Florida; Loudoun County, Virginia (Washington, D.C., metropolitan area); Kendall County, Illinois (Chicago metropolitan area); Rockwall County, Texas (Dallas metropolitan area); Douglas County, Colorado (Denver metropolitan area); plus several counties in the Atlanta, Georgia, metropolitan area.

Sustained population growth in two micropolitan areas—Palm Coast, Florida (Flagler County), and Lake Havasu City-Kingman, Arizona (Mohave County)—resulted in their revised classification to *metropolitan* areas this year. However, without the economic draw of a metropolitan central city, most micropolitan areas do not grow as quickly as metropolitan centers. Counties that are neither metropolitan nor micropolitan are least likely to experience rapid population growth and are most likely to lose population.

**Table 3**

| 2000–2007 Annual Rate | Metropolitan Counties | Micropolitan Counties | Nonmetropolitan Counties |
|---|---|---|---|
| High Growth: ≥ 2% | 25% | 6% | 3% |
| Moderate Growth: 1–2% | 29% | 19% | 10% |
| Minimal Growth: < 1% | 36% | 48% | 44% |
| Loss | 10% | 27% | 43% |
| Total Counties | 1,092 | 692 | 1,357 |
| **Average Annual Rate** | **1.4%** | **0.6%** | **0.2%** |

Small, subcounty areas are the exception to this pattern. Because they represent a fraction of a county's population, subcounty areas can experience trends that are diametrically different from population change at the county level. For example, the population of

Washington, D.C., has increased by only 3.4 percent since 2000, but Washington ZIP Code 20004 has grown by 80 percent. Although ZIP Codes can pose a challenge to time series analysis due to administrative changes by the U.S. Postal Service in their territories, ZIP Codes remain popular geographic areas for subcounty analysis. The average annual rate of change in populated ZIP Codes from 2000 through 2007 is 1.2 percent—comparable to metropolitan counties.

ESRI® 2007 demographic data updates reflect current events such as rising inflation or interest rates and regional distinctions like the availability of jobs or affordable housing. The housing market remains central in the discussion of current trends. In 2006, the housing market was slowing after more than a decade of upsurge. The appreciation of home value was decelerating in most markets, and sales of existing homes were declining. Today's U.S. housing market faces various challenges. Sixty-eight percent of U.S. householders own their homes in 2007, but this represents a leveling in the rate of homeownership, which started to climb in the mid-1990s. Inventories of new and existing homes have increased; sellers are lowering their asking prices, receiving fewer offers, and experiencing longer selling periods. Home builders are reducing sales forecasts, cutting back on staff, offering buyer incentives, and experiencing rising cancellation rates. Home prices are actually declining in some markets, and new home sales are down. Existing home sales dropped 8.4 percent in March 2007, which is the largest monthly drop since 1989, according to the National Association of Realtors.[2]

What's happening? Demographics played a key role in shaping the housing market boom that began in the mid-1990s. During that period, the baby boomers, born between 1946 and 1964, reached their peak earning years, with many in their 30s and 40s. At that stage in their lives, they became first-time homebuyers or traded up to meet their changing housing needs. This contributed to a surge in housing demand that boosted the housing market.[3] Demographic change, including immigration and population growth, was not the only factor behind increasing demand. The transitory surge in demand can also be attributed to the Federal Reserve, mortgage lenders, and Wall Street investment firms. The Federal Reserve's easy money stance contributed to the demand growth. In early 2001, the Federal Reserve began its series of rate cuts when it reduced its short-term target from 6.5 to 6 percent. The cuts continued through mid-2003 when rates plummeted to 1 percent. The Federal Reserve finally reversed its policy in mid-2004. Surprisingly, a Federal Reserve district bank president conceded that bad preliminary data on inflation led the bank's committee members to reduce short-term rates too low for far too long.[4] As mortgage rates fell to historic lows, lenders introduced creative mortgages and loosened credit lending standards, which benefited borrowers in the subprime market but fueled speculative behavior. Finally, Wall Street investment firms saw an opportunity for high returns by extending credit to subprime mortgage lenders to distribute to borrowers with the greatest credit risk. All these factors unleashed the demand for housing.

[2] Haggerty, James R., "House Prices Slide as Property Glut Grows," *The Wall Street Journal*, April 25, 2007, D1, http://online.wsj.com/article/SB117745915366081228.html.

[3] Dowell Myers and Lonnie Vidaurri's article, "Real Demographics of Housing Demand in the United States," *The Lusk Review*, 1996, pages 55–61, provides a detailed discussion on how the size of an age cohort affects housing demand.

[4] Ip, Greg, "Fed Official Says Bad Data Helped Fuel Rate Cuts, Housing Speculation," *The Wall Street Journal*, November 3, 2006, A6.

Although more householders could afford to buy homes, mortgage payments on adjustable rate loans were poised to increase. When monetary policy reversed course and the Federal Reserve began to raise short-term rates, teaser rates on risky loans increased and strained many household budgets. Borrowers who were unable to refinance into more conventional mortgages were left with few alternatives. Investment properties flooded the resale market, placing additional downward pressure on prices and eroding equity. The result has been rising delinquencies, defaults, and foreclosures. The Federal Reserve believed that defaults would not spread to the broader segment of borrowers. But it is becoming evident that borrowers who fall in the middle between subprime and prime mortgages, called *Alt-A*, are starting to succumb to the same problems as subprime borrowers.

That explains how we got to this point. Now what? Demographic change continues to affect demand. Both the baby boomers and Generation Y can have a significant impact on the housing market in the next decade. As baby boomers enter their retirement years, their housing needs will change. Some will downsize to smaller homes with less maintenance, while others will seek second or vacation homes. The Generation Y cohorts, born between 1978 and 1997, are now forming new households or entering adulthood. In 2007, the median income for households headed by 25–29-year-olds is $46,600; the median income for householders younger than 25 years old is $29,800. While still in their 20s and with home prices still high, Generation Y is an important factor in the rental housing market. But as they enter their 30s in the next few years, they will be potential homebuyers.

The demand for affordable housing has not changed. In fact, housing affordability remains a key issue, particularly in large metropolitan areas such as Los Angeles or San Francisco where median home values are more than nine times median household incomes. However, subprime mortgages with adjustable interest rates were not the best response. If the mortgage industry, or Congress, tightens credit lending practices, the market will certainly experience a drop in demand that can prolong or worsen the slump in the short term. In the long run, reducing the volume of subprime mortgages can also restore the market by bringing supply and demand back to a sustainable balance.

Since a market correction appears inevitable, what is the effect on the economy? Some analysts estimated the impact the housing contraction had on gross domestic product (GDP) growth was approximately one percentage point during the last half of 2006.[5] Other pressures such as recent productivity trends may indicate higher inflation in the future. Labor productivity, which measures the output per hour worked, has begun to weaken, which can elevate prices for goods and services. GDP is expected to grow, but at a slower pace than in 2006, and employment continues to expand. A strong labor force may serve as one explanation for the lower productivity rates. As the business cycle expansion matures and technological gains dissipate, firms may find it necessary to increase labor to expand output.

Inflation, as measured by the core personal consumption expenditure index, has risen above the Federal Reserve's upper range. Meanwhile, it has held short-term interest rates steady at 5.25 percent since mid-2006 and assumed a cautious stance on future policy

[5] Wheeler, David C., "Housing Slump Could Lean Heavily on Economy," *The Regional Economist*, April 2007.

adjustments. For now, the Federal Reserve believes the overall economy will exhibit "moderate growth" in 2007.

## *What's New in 2007*

ESRI's 2007/2012 demographic data updates include more new developments uncovered by the innovative combination of spatial and demographic analysis that ESRI introduced in 2006. Collectively known as Address-Based Allocation, the techniques are designed to capture change in the distribution of household population. To date, these techniques have uncovered not only changes in the settlement of established neighborhoods but also new housing in previously unpopulated areas. This year, ESRI could also apply these new methods to the Gulf Coast communities impacted by the 2005 hurricane season.

Gauging the effects of Hurricanes Katrina, Rita, and Wilma was complicated in 2006 by the lack of information from ESRI's usual data sources. Because the situation was too "fluid" in the impacted areas, databases that are normally updated continually were not revised right away to incorporate the loss of population and businesses. Measuring the demographic and economic consequences in 2006 proved to be a singular challenge that required the development of new methods.[6] Building from this work and incorporating data released later in 2006, ESRI was able to integrate past and current changes in the distribution and characteristics of the population along the Gulf Coast.

## *Geography Changes*

Change is inevitable with any geographic area—political or statistical. Identifying the changes in the areas for which data is tabulated and reported is critical to the analysis of trends. In the past year, there have been minor changes to metropolitan areas by the Office of Management and Budget, boundary revisions for Designated Market Areas (DMAs) by Nielsen Media Research, and changes to the boundaries of congressional districts in Georgia and Texas in addition to the usual adjustment of ZIP Codes by the U.S. Postal Service.

Metropolitan changes include the latest revisions to Core Based Statistical Areas (CBSAs), released in January 2007. Changes include one new micropolitan statistical area: Fredericksburg, Texas (Gillespie County), and two revisions from micropolitan to metropolitan areas: Palm Coast, Florida (Flagler County), and Lake Havasu City-Kingman, Arizona (Mohave County). There are now 939 CBSAs, 363 metropolitan areas, and 576 micropolitan areas.

DMAs represent the 2006–2007 markets defined by Nielsen Media Research. Most DMAs correspond to whole counties, but there are a few exceptions where counties are split into different DMAs. There are no code or name changes to DMAs; however, several counties were assigned to different DMAs. Data for congressional districts was updated to represent the 110th Congress, including boundary revisions to congressional districts in Georgia and Texas. Finally, ZIP Codes, which are defined by the U.S. Postal Service, are updated to reflect its November 2006 inventory.

ESRI presents its 2007/2012 demographic forecasts, including population, age by sex, race by Hispanic origin, age by sex by race and by Hispanic origin, households and families, housing by occupancy, tenure and home value, labor force and employment by industry and occupation, and income—including household and family income

[6] The data sources, assumptions, and methods used to estimate the change along the Gulf Coast in 2006 are provided in a separate ESRI white paper, *Gulf Coast Update Methodology*, which is available at http://www.esri.com/data/community_data/demographic/methodology.html.

distributions, household income by age of householder, and per capita income.[7] Updates of household income are also extended to provide after-tax (disposable) income and a measure of household wealth: net worth. Changes in the update base from the Census Bureau's Count Question Resolution (CQR) revisions, updated boundaries, and improvements to forecasting techniques may preclude comparison to 2006 or earlier updates.

## 2007 Demographic Update Methodology

Forecasts are prepared initially for counties and block groups (BGs). From the county database, forecasts are aggregated to CBSAs, states, or higher levels. From the block group database, forecasts can be retrieved for census tracts; places; county subdivisions; ZIP Codes; Congressional Districts for the 110th Congress; DMAs; or any user-defined site, circle, or polygon.

### *County Totals*

The change in total population is a function of changes in household population and the population in group quarters (GQ), which are subject to different trends. The addition of a prison, for example, produces a sudden increase in the group quarters population that is unlikely to yield an attendant change in the household population or the projected population growth of a county. A military base closing effects an immediate decrease in the household population with the reduction not only of military personnel but also their families and civilian personnel; however, this drop is unlikely to continue. The disparity of trends in household versus group quarters population is accommodated by separate projections. The group quarters population is the Census 2000 count of group quarters, with CQR revisions and updates culled from a variety of federal, state, and local sources.

Forecasting change in the size and distribution of the household population begins at the county level with several sources of data. ESRI begins with a time series from the U.S. Census Bureau that includes county estimates through 2005.[8] Because testing has revealed improvement in accuracy by using a variety of different sources to track county population trends, ESRI also employs a time series of building permits and housing starts, plus residential postal delivery counts. Finally, local data sources that tested well against Census 2000 are reviewed.

### *Block Group Totals*

Measuring the change in population or households at the county level is facilitated by the array of data reported for counties. Unfortunately, there is no current data reported specifically for block groups. Past trends can be calculated from previous census counts, but there is nothing current. To measure current population change by block group, ESRI models the change in households from three primary sources—InfoBase database from Acxiom Corporation, residential delivery statistics from the U.S. Postal Service, and residential construction data from Hanley Wood Market Intelligence—in addition to several ancillary sources.

The U.S. Postal Service (USPS) publishes monthly counts of residential deliveries for every U.S. postal carrier route. This represents the most comprehensive and current information available for small, subcounty geographic areas. USPS establishes carrier routes to enable efficient mail delivery. Carrier routes are a fluid geographic construct that is redefined continually to incorporate real changes in the housing inventory and

[7] Forecasts represent the midyear population on July 1, unless otherwise specified.
[8] U.S. Bureau of the Census, Population Division, Table CO-EST2005-ALLDATA.

occupancy plus administrative changes in staffing and budgets of local post offices. These frequent changes in the carrier routes are not the only difficulty.

Converting delivery statistics from postal carrier routes to census block groups is a complex challenge. Carrier routes are defined to deliver the mail, while block groups are constructed to collect and report census data. Comparing two different areas that are defined for wholly different purposes provides a significant conversion issue. Carrier routes commonly overlap multiple block groups. In many cases, a carrier route encompasses disjointed areas that can be distant from each other, but block groups are rarely divided into multiple polygons. These overlaps require an effective method of allocating the postal delivery counts across multiple block groups.

One way to distribute delivery statistics among component block groups is to create a correspondence using boundary files. Changes in postal carrier routes can be tracked through quarterly updates of carrier route boundaries, and delivery statistics can be assigned to block groups with 2000 census block data. Another way also employs boundary files but assumes a uniform distribution of households within the area. Using standard geodemographic tools, it is possible to estimate the change in households from carrier route delivery statistics and to apply that change to any block group(s) in the area. But the estimated change is simply being redistributed from one summary area to another.

ESRI has developed another way to link a carrier route to the correct block groups—using the *actual* locations of mail deliveries. Its proprietary Address-Based Allocation (ABA) solves the complex challenge of converting delivery counts from carrier routes to block groups. This allocation method uses the addresses from Acxiom's InfoBase household database. Addresses in the database are geocoded with carrier route and block group codes, using an enhanced geocoding technique and database, and serve as the foundation for the conversion. This approach is unbounded by geographic borders or arbitrary assumptions about the distribution of households or postal deliveries.

ABA results have been tested extensively. The tests include benchmarking against the 2000 Census. Manual reviews confirm the capability of the method to identify areas with high growth. The ABA allocation method reveals sprawls and new developments across the country since Census 2000. Assessments based on other data sources verify the efficacy and precision of ABA. For the small portion of block groups where addresses are not available from the InfoBase database, delivery statistics are allocated from a correspondence file. The correspondence between census block groups and postal carrier routes is developed using quarterly updated data from Tele Atlas.

The effectiveness of the ABA methodology relies on the precision of block group assignment to InfoBase addresses. ESRI improved the geocoding accuracy of the InfoBase file by applying ArcGIS® 9.2 with the Dynamap/Address Points database from Tele Atlas, which provides coordinates that are accurate *to the building.* It offers a new development in large-scale geographic databases where addresses are represented as points rather than approximations estimated from address ranges or street segments. The database currently covers the most densely populated areas in the United States, with continuously increasing geographic coverage. Addresses that fall outside the coverage were geocoded with the conventional approach, based on address ranges.

Post office delivery counts or address counts provide less coverage in rural areas. Sparsely populated areas tend to have post office box ZIP Codes because there are few rural addressing systems and little comparability to urban, street delivery. The same problems characterize rural addresses in the InfoBase database. To track new housing developments, especially in previously unpopulated areas, ESRI licensed a new data source from Hanley Wood Market Intelligence—new and planned residential construction in the top 75 U.S. housing markets including 7 new markets added in 2006.

The new residential construction database from Hanley Wood Market Intelligence adds a unique component to ESRI's strategy for producing accurate demographic forecasts. This database identifies individual construction projects—for instance, a complex of single-family homes or townhomes or a condominium building—with their exact locations by latitude and longitude. It also pinpoints conversions of apartments into condominiums. The construction information includes

- Total number of units planned
- Inventory of units under construction, sold, and/or closed
- Type of housing—Detached homes, townhomes, condominiums, and so forth
- Target markets—Families, seniors, empty nesters, and so forth

The use of this type of information in demographic forecasts has traditionally been confined to small-scale implementation such as producing forecasts for a specific county. ESRI partners with Hanley Wood Market Intelligence to introduce this information in a large-scale forecasting effort. The new construction database complements and corroborates the postal delivery statistics. More important, it tabulates planned construction to be completed in upcoming years. This information is incorporated in ESRI's five-year forecasts. Tracking residential development since 2000 with enhanced demographic and spatial analysis tools provides better information for the five-year forecasts than past trends.

A revised housing unit methodology applies the change in households estimated from address counts, delivery counts, and new housing construction to update household population by block group. The best techniques are derived from a combination of models and data sources. Discrepant trends are checked extensively against independent sources. Finally, totals for block groups are controlled to the county totals. The integration of demographic and spatial analysis and the addition of the Hanley Wood data about residential development represent a break from past methods and preclude comparisons to earlier updates.

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### *Population and Household Characteristics*

ESRI's population and household characteristics include the population by sex and age, race and Hispanic origin, sex by age by race and Hispanic origin, and household type. Population by sex and age include estimates by five-year age groups and by single years from less than 1 year to 84 years.

The population by age and sex is projected via a cohort survival model that calculates the components of population change separately, by age and sex. Applying survival rates specific to the cohort carries the 2000 population forward. Changes in the population by age and sex diverge at the household level. For example, an area that is losing population can age more rapidly with the loss of population in prime migrant ages, 20–34 years—unless there is a college nearby. An influx of college students can offset the loss of youthful out-migrants.

To capture these variations, ESRI's model first separated the group quarters population from the household population and, second, keyed the calculations to the size and characteristics of the population. This stratification identified several different patterns of change by age and sex that were applied in the cohort survival model. Births were projected from area-specific, child-woman ratios. Migration was computed as a residual, the difference between the surviving population and independent projections of the total population.

Accurate allocation of funds to minority groups and tracking of immigration to the United States are two important reasons to accurately measure the growth of population by race and Hispanic origin. ESRI's database is supplemented with the Diversity Index, a measure that summarizes racial and ethnic diversity. The index shows the likelihood that two persons, chosen at random from the same area, belong to different races or ethnic groups. The index ranges from 0 (no diversity) to 100 (complete diversity).

The U.S. Diversity Index currently stands at 59, an increase of 1 percent annually since 2000. Led primarily by Hispanic diversity, California, New Mexico, and Texas are the most diverse mainland states, with diversity indexes higher than 70. The process of diversification in these states is advanced; therefore, these areas are among the states with slow rates of change in diversification. Although immigration is still rising in these states, it has a smaller impact on the diversity level. Traditionally nondiverse states, such as Maine, Vermont, and Connecticut, are experiencing some of the highest rates of diversification. Pockets of diversity are common in less diverse states. For example, the Liberal and Garden City micropolitan areas in Kansas have diversity indexes of more than 75.

The Hispanic population now stands at 46 million, or 15 percent of the total U.S. population. The influence of this ethnic group in American culture is on the rise, due to growth rates of 3.7 percent a year since 2000 and a projected total of 54.7 million by 2012 (approximately 17 percent of the U.S. population). Although they are smaller population groups, Asian and non-Hispanic multiracial populations are following Hispanic trends closely, with growth rates of 3.8 percent and 3.1 percent, respectively.

Historical trends in race and Hispanic origin play an important role in the analysis and forecasting process. Tracking intercensal population change by race was encumbered by the new reporting method in Census 2000. Race was reported as a multiple-choice item, not "one person—one race," as reported in past censuses or estimates. The Census 2000

data is not directly comparable to 1990 Census data or to any earlier estimates or projections.

Comparisons made between single-race reporters in 2000 and 1990 underestimate the change by race. Excluding the rapid growth of the multiracial population minimizes the change by race from 1990 to 2000. Alternatively, combining single-race reporters with races reported in any combination can cut down the 63 racial groups reported in Census 2000. For example, a person who reports "White and Asian" is counted as both white and Asian. This combination of single-race and multiracial reporters overcounts multiracial reporters and overestimates the change by race from 1990 to 2000. To achieve a true picture of population change by race, it is important to account for the change in multiracial reporting.

ESRI takes an innovative approach in analyzing this data to make effective use of the additional information from Census 2000.[9] The Census Bureau released most race-related data by six single-race groups and one multiple-race group. ESRI's data preserves this format and enables a comparison of 1990 and 2000 data for six single races and one multiracial group. Assuming that the probability of reporting more than one race varies by race group and geographic area as shown in Census 2000, ESRI estimates the number of likely multiple-race reporters from 1990 Census data. The same approach is adopted for the population of Hispanic origin by race.

The most current data sources by race and Hispanic origin are 2005 data available by county and state from the Census Bureau's estimates or its American Community Survey (ACS). Survey data is analyzed in conjunction with ESRI's estimate of change from 1990 to 2000 by race and Hispanic origin to establish county population by race and Hispanic origin. Forecasts by block group combine local changes in the distributions by race and projected change for counties. The last step controls block group distributions to county projections.

The composition of the American household continues the slow change from married-couple families to nontraditional families and single-person households. Between 1990 and 2000, the dominant share of households remained married-couple families in most states but decreased from 55 percent of all households to 52 percent in 2000. Increased shares of single-parent and single-person units comprise the difference. The attendant change in average household size is the decline from 2.63 in 1990 to 2.59 in 2000. Through 2007, these changes continue, but even more gradually than in the 1990s.

The gradual change in household size makes it uniquely suitable to forecasting the change in households from the change in household population. Average household size is one of the most stable and predictable components of the forecasts. Household forecasts are predicated on local patterns of change, which are controlled to the more constant trends for states and counties. Nationally, household change stabilized in the 1990s and remains at 2.59 in 2007.

[9] A more detailed discussion of ESRI's 1990–2000 race analysis is available from Sangita Vashi's paper, *Trends in the U.S. Multiracial Population 1990–2000,* presented at the 2001 Southern Demographic Association Annual Meeting.

Local change, however, is affected more by the singular composition of the population, and trends often vary from the national norm. Nationally, average household size decreased by less than 0.4 percent annually from 1990 to 2000. By county, the change varied from a low of –2.1 percent to a high of 1.3 percent. An increase in household size can result from higher rates of fertility locally or from an increase in multigenerational households. Census 2000 has documented the increase in multigenerational households in areas where there is high immigration or areas with housing shortages and higher costs. From 2000 through 2007, change in household size by county ranges from –0.9 percent to a high of 0.6 percent.

Few block groups represent a cross section of U.S. households. In areas that gained population from immigration in the 1990s, the trend in average household size actually reversed and increased. To distinguish local variation, ESRI's model is keyed to the characteristics of households at the block group level. This stratification identifies several different patterns of change by household type that are applied to forecast trends in the characteristics of households—both family composition and tenure. Local change is emphasized in the 2007/2012 forecasts of households and families for counties and block groups. National and state trends are monitored by sources such as the Current Population Survey (CPS) and American Community Survey from the Census Bureau, then applied as controls.

### *Housing*

ESRI's housing updates include total housing units, occupancy, tenure, and home value. As the supply of housing units surged and investor activities scaled back, the housing market has cooled. The homeownership rate remains at 68 percent in 2007. The sharp growth in homeownership since 1995 has leveled off. Home value remains high, with a median of $192,300 in 2007, compared to $111,800 in 2000. The drastic changes in home prices from 2000 to 2007 vary by geography. Residents in metropolitan areas are benefiting from a 73 percent increase in median home value, while their nonmetropolitan counterparts are dealing with only a 58 percent increase. Some of the key housing concerns include affordability in areas where home prices have outpaced the growth of income and high incidences of foreclosures and mortgage delinquencies.

Current data on change in the housing inventory encumbers the application of past trends. From 1990 to 2000, the housing stock increased by less than 1.4 million annually. From 2000 to 2007, the annual increment has grown to more than 1.7 million units. Total housing units are updated from the Census 2000 base by recorded changes in the housing inventory and estimated changes in occupancy rates since April 2000. Recorded change in the housing inventory is culled from several data sources including ESRI's latest addition, construction data from Hanley Wood Market Intelligence; building permits for permit-issuing places and counties; data for new and demolished public housing from the Department of Housing and Urban Development; and data for new manufactured homes placed by state from the Census Bureau. Dozens of independent sources were consulted to retrieve detailed information on housing development data where no building permits existed. Fewer than half the counties have complete coverage with building permits. Independent estimates of change in occupancy were calculated from U.S. Postal Service residential lists, the Current Population Survey, and the Housing Vacancy Survey from the Census Bureau.

The data for tenure represents owner- and renter-occupied housing units. Together, the two components sum to total households, or total occupied housing units. A time series model based on data from the Housing Vacancy Survey, combined with changes in the Current Population Survey and the latest census data, guide tenure forecasts. With a blend of top-down and bottom-up techniques, the forecasts take advantage of the latest information from survey data at higher levels of geography while employing local characteristics at the lower levels. The data from the lower levels of geography are controlled to the higher levels to produce the tenure updates. Changes in owner-versus-renter occupancy are forecasted independently and controlled to the total households.

ESRI tracks the change in home value using the House Price Index (HPI) from the Office of Federal Housing Enterprise Oversight (OFHEO). The HPI is designed to monitor change in the loan-to-value ratio of mortgages held or guaranteed by Fannie Mae or Freddie Mac. OFHEO affirms the "significant advantages" of the HPI to Commerce Department surveys. ESRI has evaluated the accuracy of the HPI in estimating change in home value through the past decade.

HPI data is released quarterly for states and metropolitan areas, with county or county group data for larger metropolitan areas. ESRI has applied time series analysis to extrapolate both short-term (2007) and long-range (2012) trends in home value from states and metropolitan areas to block groups. Local estimates of home value incorporate supply-demand characteristics, the socioeconomic traits of householders in the area, and HPI trends assessed for larger markets.

## Labor Force Update Methodology

ESRI forecasts the civilian labor force and employed population by industry and occupation for 2007 and 2012. While GDP, productivity, and spending softens, the U.S. labor force is still growing at a solid pace. As of July 2007, the job market includes an additional 2.4 million people, an increase of 1.7 percent from a year ago. Much of the growth occurred in the South, primarily in Florida, Georgia, and Texas. Over the same period, the U.S. unemployment rate improved by 0.3 percentage points to 6.6 percent. While the five-year forecast of employment anticipates slower growth at 1.4 percent per annum, unemployment will improve to 6.1 percent of the total civilian labor force.

Since 2006, many industries have added to their workforce, which is to be expected in an economy that has grown by 3 percent for the past three years. A number of industries expanded more than others. Some of the largest employment gains were in construction and real estate, with more than 730,000 new jobs. However, housing-related sectors benefited from the housing boom. The hiring increase in these sectors will temper as housing demand drops.

### *Data Sources*

Estimates of the civilian labor force integrate recent change in the supply and demand for labor from the Local Area Unemployment Statistics (LAUS), Employment Projections programs from the Bureau of Labor Statistics (BLS), and the American Community Survey and Current Population Survey from the U.S. Census Bureau. Federal statistical surveys are the principal sources of information about labor force trends. The LAUS program is the premier resource for current and local economic conditions utilized by state and local governments, media outlets, the private sector, and academic researchers.

### *Methods*

Employment and unemployment forecasts are developed from the Census 2000 base.[10] Trends are adapted from an LAUS monthly time series, projected to July 2007. LAUS state estimates are based on the concepts and definitions from the program's main input source, the monthly Current Population Survey, as well as the Current Employment Statistics program from BLS and state unemployment insurance systems. Additionally, LAUS substate models incorporate data from the decennial census. ESRI's labor force methodology retains the strategic improvement introduced in 2004 to enhance the accuracy of the July 1 estimate of employment status. Change between Census 2000 and ESRI's labor force estimates is more closely tied to historical and seasonal patterns in the LAUS state and county monthly series.

ESRI's industry and occupation updates capture temporal change from three federal statistical sources: the ACS and CPS from the Census Bureau and the Employment Projections program from the BLS. From the Census 2000 base, national industry and occupation distributions are updated with trends from all three sources, and state trends from the ACS are applied. These targets, with total employment, are used to model substate areas.

### *Concepts*

The civilian labor force includes the population aged 16 years and older, who are classified as either employed or unemployed, and excludes active-duty Armed Forces personnel. The *employed* population includes persons who were either

- Working during the reference week as a paid employee, self-employed, working on a farm, or working as unpaid workers for 15 hours or more on a family farm or business
- Temporarily absent from their job due to vacation, illness, bad weather, labor disputes, or other personal reasons, excluding layoffs

Total employment excludes volunteer workers and caretakers of home or family. The *unemployed* population includes persons who were

- Neither at work nor temporarily absent from a job
- Seeking employment during the last four weeks
- Available to accept employment
- Waiting to return from a layoff

[10] In July 2002, the Census Bureau reported a processing error affecting its 2000 labor force estimates for areas surrounding college towns. The error apparently overstated the number of unemployed persons and the unemployment rate while underestimating the employed population and persons classified as not in the labor force. Further research by the Census Bureau uncovered a response pattern to the employment questions that extends beyond the population living in college towns. The Census Bureau estimates employment responses for roughly 15 percent (or 500,000 people) of the working-age, civilian noninstitutional GQ population were affected. Furthermore, it surmises the positive bias in the number of unemployed appeared to artificially increase the 2000 U.S. unemployment rate of 5.8 percent by 0.4 percentage points. ESRI addressed the apparent bias at the block group level and realigned the affected Census 2000 labor force estimates before any forecasts were calculated. For more information, refer to appendix 3 in the U.S. Census Bureau Housing and Household Economic Statistics Division report *Comparing Employment, Income, and Poverty: Census 2000 and the Current Population Survey*, September 2003, found at http://www.census.gov/hhes/www/laborfor/final2_b8_nov6.pdf.

### *Dissimilarities in Sources of Labor Force Information*

It is important for data users to recognize differences that exist across surveys of labor markets. To illustrate: The U.S. unemployment rate reported in the 2000 decennial census is 5.8 percent, while the CPS estimate for the same time period is 3.7 percent (seasonally unadjusted). This gap stems from differences in survey methodology. Census 2000 labor force data consists of sample estimates produced from responses reported in the long-form questionnaire mailed to roughly 17 percent of all households. The CPS produces more timely monthly data, but from a much smaller sample size. Definitions of employment status are similar, but methods of data collection are not. The decennial census is self-reported, while for the CPS, the Census Bureau employs experienced interviewers to ask more probing questions to minimize survey nonresponse or data misclassification. Due to the differences between the decennial census and the CPS, ESRI focuses on rates of change to capture current trends and seasonal patterns to produce accurate civilian labor force forecasts.

### *Impact of the Gulf Coast Region on the U.S. Labor Force*

In an effort to quantify the number of Gulf Coast evacuees as well as their displacement and employment status after Hurricane Katrina, the Census Bureau added hurricane-related questions to its monthly CPS questionnaire in October 2005. Because the CPS is a household survey, the posthurricane estimates did not represent the total evacuee population. People living in hotels, churches, shelters, or on cruise ships were, by definition, outside the scope of the CPS sample. One year later, the Census Bureau discontinued collection of this data with the CPS due to survey-related deficiencies. The small sample size, respondent confusion, and the diminished impact of the storms with the passage of time were the primary factors that led the Census Bureau to drop these questions from the survey in October 2006.

From the final month of evacuee estimates in this series, the CPS identified approximately 1.1 million people who evacuated from the Gulf Coast due to the hurricanes. Approximately 38 percent did not return home. Almost 63 percent participated in the civilian labor force, but unemployment hit 11 percent. A large gap exists between the unemployment of evacuees who returned versus those who did not. Those who returned home had an unemployment rate of 7 percent; displaced residents are experiencing rates of joblessness close to 18 percent.

For the second year, ESRI's civilian labor force estimates reflect adjustments to the affected region's population base as well as their employment status. The large losses to the civilian labor force base due to the population shifts are not as pronounced this year. ESRI's 2007 employment estimates reflect the remaining effects of the storms as measured by the LAUS program's hurricane modifications to their state and county models. The LAUS program continued to include model adjustments to reflect the poststorm demographic changes, although it has yet to publish monthly employment estimates for the seven parishes that comprise the New Orleans metro area. However, the LAUS program partner at the Louisiana Department of Labor continues to fulfill its mandate to provide parish-level detail for the allocation of federal funds. ESRI indirectly incorporated these estimates in its time series forecasts but realigned the 2007 labor force distributions to the more stable metro forecast.

Louisiana was the hardest-hit state in the Gulf Coast after the 2005 hurricanes. The state lost more than 178,000 jobs between 2005 and 2006; unemployment climbed from 8.4 percent to 9.8 percent. One year later, the state is still undergoing recovery efforts, but

its civilian labor force has improved. More than 117,000 jobs have been added since 2006, while the state's unemployment rate dropped to 7.7 percent.

The hardest-hit areas in the state were in the New Orleans metropolitan area. Before the hurricanes, local businesses within the metro area employed nearly 580,000 people with unemployment at 8.1 percent—1.2 percentage points higher than the national rate. By July 2006, only 60 percent of the area's employment remained, and the rate of joblessness jumped to almost 10 percent. One year later, the economy is slowly recovering, and job losses are beginning to reverse. As of July 2007, the metro economy employs almost 485,000 people, or roughly 83 percent of its 2005 employment. Unemployment has markedly improved to 6.7 percent, which is only a tenth of a percentage point higher than the U.S. rate.

## Income Update Methodology

Supported by favorable labor market conditions, median household income has maintained a growth of 3.2 percent since Census 2000. Median household income for 2007 is $53,150. Growing at a slightly faster pace of 3.4 percent a year, average household income and per capita income reached $73,100 and $27,900, respectively. Driven by job opportunities and income potential, U.S. population growth in metropolitan areas is three times the rate of growth in nonmetropolitan areas. Today, median household income in metropolitan areas is almost $17,000 higher than the median income of $37,740 in nonmetropolitan areas. Ninety-five percent of U.S. aggregate personal income is earned in metropolitan areas.

Douglas County, Colorado, continues to grow in population and prosperity. With median household income now growing at an annual rate of 5.5 percent, this area has the nation's highest county median household income, at more than $111,000. In the last year, another four counties have passed the $100,000 mark for median household income. In addition to Douglas County, Loudoun and Fairfax Counties, Virginia, and Hunterdon County, New Jersey, households in Somerset and Morris Counties in New Jersey, as well as Los Alamos, New Mexico, and Falls Church City, Virginia, now have median incomes of more than $100,000.

Median disposable income is $41,640 in 2007; average disposable income stands at $55,000. On average, a household's disposable income is approximately 75 percent of its pretax income. Householders younger than 25 years or older than 65 years have disposable incomes of more than 80 percent of their income. With a median household income of $67,000, householders in the 45–54 age group represent peak earning years and pay the highest taxes. They earn a median disposable income of $51,360 and pay 23 percent of their income in taxes. This demographic group, near the end of the baby boomer cohort, has accrued a median net worth of $155,000 and an average net worth of $625,000.

### *Data Sources*

ESRI's projection base is the income that was reported in Census 2000. Technically, 2000 income data represents income from 1999 because the Census Bureau tabulates income received in the "last year" before the decennial census. Similarly, ESRI's 2007 income updates represent income received in 2006, expressed in 2006 dollars. Projections for 2012 are shown in 2011 dollars, assuming a continuation of the current rate of inflation.

ESRI uses the definition of money income used by the Census Bureau, which enables the direct comparison of income updates and decennial census data. For each person 15 years old and older, money income received in the preceding calendar year is tallied from each of the following sources: earnings, unemployment compensation, Social Security, Supplemental Security Income, public assistance, veterans' payments, survivor benefits, disability benefits, pension or retirement income, interest, dividends, rent, royalties, estates and trusts, educational assistance, alimony, child support, financial assistance from outside the household, and other income.

Data for consumer income collected by the Census Bureau covers money income received (exclusive of certain money receipts such as capital gains) before payments for personal income taxes, Social Security, union dues, Medicare deductions, and so forth. Therefore, money income does not reflect the fact that some families receive part of their income in the form of noncash benefits such as food stamps, health benefits, rent-free housing, or goods produced and consumed on a farm. In addition, money income does not include noncash benefits such as the use of business transportation and facilities and full or partial payments by business for retirement, medical, and educational expenses, and so forth.

### *Income Methods*

To estimate income for all households and family households, ESRI evaluated several federal data sources including the Current Population Survey and American Community Survey from the Census Bureau plus the personal and per capita income data and the Census of Employment and Wages from the Bureau of Labor Statistics.

After Census 2000, ESRI conducted a detailed evaluation of data sources employed in past income forecasts and analysis of more recent data from the Supplementary and American Community surveys. Data for 2000 from each source varied from the income that was reported in Census 2000. It was concluded that one point in time is just not a good measure of a data series. For any given year, any estimate of income is likely to vary from the true population value. However, the sources that ESRI employed throughout the 1990s proved to be effective measures of change in income. Testing revealed the power of time series data in tracking income. ESRI's postcensal updates emphasize the use of time series data from household surveys to establish a base trend line. Annual updates evaluate current trends in wage inflation and other economic shocks that impact income growth.

After forecasting the state income distributions, household income is estimated for counties, tracts, and block groups. ESRI's income forecasts are uniquely designed to distinguish local variation, changes in income inequality, and urbanicity as differentiators of income growth. The model correlates the characteristics of households at the block group geography level with changes in income. This stratification identifies several different patterns of change by household type that are applied to forecast trends in income. The annual change in income is derived from national surveys. Modeling links the current income change to all households with similar socioeconomic characteristics. Separate forecasts of the change in income by strata are aggregated to comprise the income distributions.

Once the base 2000 income tabulations are updated, the distributions are extended to provide additional data for the wealthiest households. The Pareto function is employed to extend the upper interval of the income distributions from $200,000 or more to include

the intervals $200,000–$249,999, $250,000–$499,999, and $500,000 or more. Finally, the models are calibrated to distinguish the change in average household income, for example, from the change in median income.

Average and median income for 2007 and 2012 are calculated in the same way that the Census 2000 average and median income are computed. Medians are calculated from the distributions using linear or Pareto interpolation; averages, from aggregate household income.[11] Differences arise from the distributions. The 2000 income base from the Census Bureau is different from the income tables that they report to the public. ESRI's 2007/2012 income base is also different from the Census 2000 reported tables. Medians and averages for 2007/2012 represent the extended income distributions, to $500,000 or more. It is the extended income distributions that provide the base for updating aggregate income. Using the midpoints of income intervals in the extended distribution, aggregate household income is calculated to be consistent with the distribution of household income—and the aggregate incomes that are estimated for the extended distributions of income by age of householder.

Household income reported by age of householder is updated to be consistent with the 2007/2012 distributions of household income and age of householder. To update the age distribution of householders, the ratio of householders by age to population by age in 2000 is extrapolated to 2007/2012 and applied to the current age distributions. After the targets are set, the 2000 distributions of household income by age of householder by block group are fitted to current distributions of households by income and by age of householder.

### *Disposable Income*

Disposable income represents an estimate of a household's purchasing power, or after-tax income. The proportion of household income left after taxes is estimated from special studies conducted by the Census Bureau to simulate household taxes. With the release of the 2004 Annual Social and Economic Supplement (ASEC) to the Current Population Survey, a new tax model was implemented. The new model performs a statistical match of tax variables not collected in the ASEC with the 2000 Statistics of Income (SOI) file from the Internal Revenue Service. The most recent release of tax data in the 2005 ASEC implements the 2001 SOI file.[12] These changes impact the time series of tax variables available and are reflected in this release of ESRI's disposable income. Four types of taxes are deducted: federal individual income taxes, state individual income taxes, Federal Insurance Contributions Act (FICA) (or Social Security) and federal retirement payroll taxes, and property taxes for owner-occupied housing.

Sophisticated modeling techniques are employed to improve the handling of top-coded earnings and tax data from the CPS. Internal Revenue Service tax rates are used as guidelines for model testing. ESRI then applied the proportions of after-tax earnings to income intervals that were cross-tabulated by age of householder for each state. State-specific proportions account for the variation in taxes by state. The proportions, or

[11] For further information on calculations used with Census 2000 data, see Census 2000 Summary File 3 Technical Documentation prepared by the U.S. Bureau of the Census, 2002.

[12] Further information on changes to tax variables in the latest Current Population Survey is available at http://www.census.gov/hhes/www/income/cpsasec2005taxmodeldoc.pdf. A detailed review of the tax model is available at http://www.census.gov/hhes/www/income/oharataxmodel.pdf and http://www.irs.gov/pub/irs-soi/06ohara.pdf.

multipliers, were then applied to the age by income forecasts for block groups and counties to calculate disposable income.

### *Net Worth*

Net worth is estimated from data on household wealth that is collected from the Surveys of Consumer Finance (SCF) from the Federal Reserve Board from 1992 through 2004. From 2001 to 2004, inflation-adjusted average and median net worth grew annually at 2 percent and 0.5 percent, respectively. This growth rate is somewhat slower than the growth reported in previous surveys. Most of the recent growth is attributable to the appreciation in residential real estate, a rise in the number of new and second homeowners, and the growth in speculative investment properties. However, household debt also increased as a result of growing residential real estate portfolios. The amount of secured debt serviced as a share of household income also rose despite the decline in interest rates over this period. And although the stock market has rebounded since the last recession, the amount of corporate equities held by households has declined since 2001.

Between 2006 and 2007, the U.S. median net worth grew by 2.6 percent annually to nearly $106,000. Average net worth rose 6.9 percent to more than $517,000 during the same period. Some of the largest gains were in the 55-to-64-year-old cohort. This group's average appreciated nearly 7 percent to more than $947,000.

The size of the triennial surveys used in estimating net worth is approximately 25,000 households. The major strengths of the SCF surveys lie in their enhanced representation of wealthy households and in the comprehensive measurement of net worth components. By definition, net worth equals total household assets less any debts, secured or unsecured. Assets include own home, rental property, own business, individual retirement accounts (IRAs) and Keogh accounts, pension plans, stocks, mutual funds, and motor vehicles. Examples of secured debt include home mortgages and vehicle loans; unsecured debt includes credit card and other bills or certain bank loans.

The first step in calculating net worth is to measure the relationship of net worth to household income by age of householder. The relationship is further differentiated by tenure since homeownership represents a major factor in household wealth. The next step is to model the relationship statistically to enhance the reliability of the estimates. This effort represents a model introduced in 2004 to reflect the recent trends in the housing markets and their impact on net worth. As interest rates have risen from historic lows and more homes flood the resale market, the value of residential real estate will not be as significant a driver of household net worth growth as it was during the market's peak.

The extension of the 2000 household income distribution from an upper interval of $200,000 or more to $500,000 or more also enhances the calculation of net worth for the wealthiest households. The 2007 estimates of net worth reflect current income and homeownership with adjustments for inflation and updates based on economic growth since the 2004 SCF survey.

ESRI again paid special attention to the adjustment of the net worth-income relationships for homeowners along the Gulf Coast to account for changes in the posthurricane value of residential housing in the hardest-hit areas. In 2007, as the recovery efforts continue in the Gulf Coast, fewer areas necessitate home value adjustments for the estimates of net worth.

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### *Use of Projections*

Projections are necessarily derived from current events and past trends. The past and the present are known; the future must be extrapolated from this knowledge base. Even though projections represent the unknown, they are not uninformed. Guidelines for the development of projections also inform the use of those projections:

- The recent past provides a reasonable clue to the course of future events, especially if that information is tempered with a historical perspective.
- A stable rate of growth is easier to anticipate than rapid growth or decline.
- The risk inherent in projections is inversely related to the size of an area: the smaller the area, the greater the risk.
- The risk increases with the length of the projection interval. Any deviation of the projected trends from actual events is amplified over time.

ESRI revises its projections annually to draw on the most recent estimates and projections of local trends. However, this data can be complemented with personal knowledge of an area to provide the qualitative, anecdotal detail that is not captured in a national database. It is incumbent upon data users and producers to incorporate as much information as possible when assessing local trends, especially for areas that are subject to "boom-bust" cycles.

## ZIP Code Update Methodology

Data for residential ZIP Codes is estimated by ESRI; Census 2000 geographic areas are the building blocks for the estimates. Because ZIP Code boundaries change frequently, census geography provides a comparatively stable base for the development of ZIP Code data. ZIP Code data has been estimated from block groups, which are assigned to residential ZIP Codes by overlaying the centroids of component blocks onto ZIP Code boundaries. Expressed as latitude-longitude coordinates, centroids approximate the geographic centers of blocks. If the centroid of a block falls within a ZIP Code, it is included in the residential inventory; otherwise, it is classified as nonresidential. Block data is then aggregated, and the ratio of block totals to block group data is used to apportion demographic characteristics to a ZIP Code.

The 2007/2012 updates include data for 30,006 residential ZIP Codes. This geodemographic method does not provide data for ZIP Codes with no assigned boundary. If a polygon is not defined for a ZIP Code, or no blocks are assigned to a ZIP Code polygon, data cannot be retrieved. In most cases, information about post office box ZIP Codes or single address ZIP Codes is incorporated with the data for the enclosing, residential ZIP Code.

### *Data Source for Boundaries*

Tele Atlas creates boundary files for ZIP Codes. The complete ZIP Code inventory includes both point and boundary ZIP Codes. ZIP Code boundaries are current as of November 2006.

### *Comparisons over Time*

ZIP Codes are not amenable to time series analysis, thereby preventing a direct comparison with ZIP Codes from previous updates. Changes typically include new residential ZIP Codes (65 in 2007), deleted ZIP Codes (26 in 2007), and boundary revisions. The 2007 inventory of residential ZIP Codes includes 8,985 ZIP Codes that have the same geocode as the 2006 inventory but a different population base as a result of boundary changes or slightly different block allocations. These changes reflect revisions of ZIP Codes by the U.S. Postal Service in addition to any changes in the techniques used by Tele Atlas to define ZIP Code boundaries.

## About ESRI's Data Development Team

Led by chief demographer Lynn Wombold, ESRI's data development team has a history of more than 30 years of excellence in market intelligence. The combined expertise of the team's economists, statisticians, demographers, geographers, and analysts totals nearly a century of data and segmentation development experience. The team has crafted data methodologies such as the demographic update, segmentation, the diversity index, and the Retail MarketPlace that are now industry benchmarks. Authors of white papers such as *Evaluating Population Projections: The Importance of Accurate Forecasting* and *Trends in the U.S. Multiracial Population from 1990–2000,* the team frequently presents sessions and papers to industry and professional organizations.