A Demographic Evaluation of the Consistency of the ACS Multi-Year Estimates for the ACS Test Sites

The American Community Survey (ACS) is designed to provide current estimates of the demographic, housing, and socioeconomic characteristics of the United States population. Annual ACS estimates are produced for areas with populations over 65,000; 3 years of survey data are pooled to produce estimates for places between 20,000 and 65,000; and 5 years of data are used to produce estimates for places below 20,000 population (including tracts and block groups). The ACS provides on an ongoing basis the characteristic data formerly collected once every 10 years in the decennial census sample or "long form." In the re-engineered 2010 census, only the 100 percent or "short form" questions will be asked (e.g., age, sex, race).

While ACS has been underway and data published for all states since 2000, the sample did not achieve its full sample size (of about 3 million addresses nationally) until 2005. The data released have been limited to areas over 65,000; the first 3-year "multi-year" estimates will be published in 2008 and the first 5-year estimates for small areas will be available in 2010.

In preparation for the 2008 release of multi-year estimates and to help data users begin to understand the characteristics of multi-year estimates, the Census Bureau conducted a Multi-Year Estimates Study. Data profiles that include demographic, socioeconomic, and housing characteristics were produced for a broad set of geographic areas in a subset of 34 ACS test counties that have contained sufficiently large samples since 1999.

The purpose of this presentation is to evaluate the demographic consistency of the multi-year estimates, especially for demographic subgroups such as race and origin. While the quality of the ACS estimates for the total population has been studied, very little analysis of the consistency of demographic subgroups of the population has been conducted. The illustrations in this presentation are directed at the following question: How reliable are the ACS estimates for measuring the characteristic distribution of <u>population and/or housing subgroups</u> within any given year? Secondarily, we examine the stability of the time series of the ACS estimates (for single year and 3-year estimates) in measuring <u>change over time</u> in the characteristics of the population and housing.
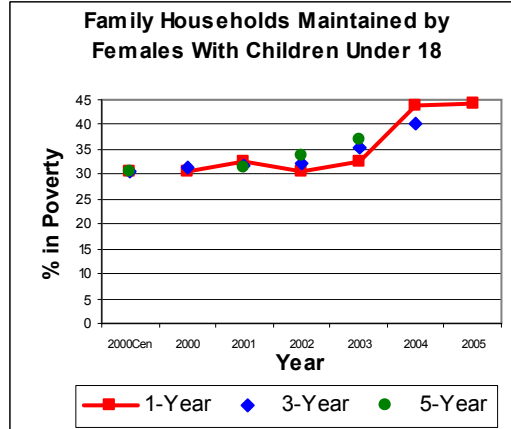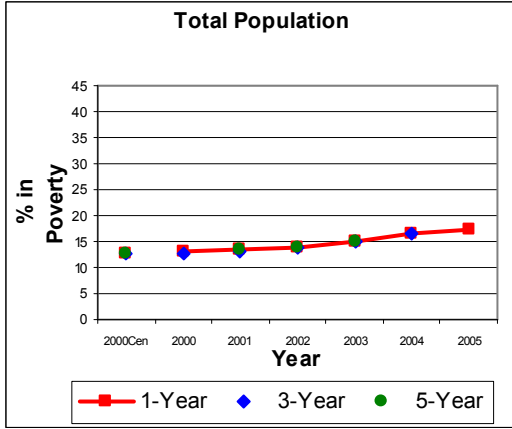
For the evaluation, the ACS estimates will be compared to Census 2000 benchmarks for the corresponding level of geography; and the consistency of each estimate will be assessed relative to the estimates for successive time periods, other demographic groups, and other geographic areas (e.g., poverty rate of Blacks relative to poverty rate of Hispanics and Non-Hispanic Whites; poverty rate for married-couple families relative to poverty rate of households maintained by females with children, poverty rate of 2003-05 relative to 2000-02). Statistical and demographic measures will summarize the consistency of the estimates across demographic groups and across geography.

The figures at the end of this document give visual examples of how the demographic consistency of the annual, 3-year, and 5-year ACS estimates for selected test site counties can be assessed on a time series basis (including comparisons to the Census 2000

benchmark), for demographic groups, and across geographies. Note that while the 1-year estimates in Figure 1 are linked by solid lines denoting the measurement of change of non-overlapping observations, the 3-year and 5-year estimates are not connected. These multi-year estimates are overlapping: for example, the 3-year multi-year estimates for 2000-02 and 2001-03 are both based in part on data for 2001 and 2002. The focus of the graph is on the consistency of the differentials between the estimates by type of household. In Figure 2, the focus is the consistency of the differential poverty rates for race/origin groups, using non-overlapping 3-year ACS estimates (1999-01 and 2002-04, and 2000-02 and 2003-05). In Figure 3, the consistency of the ACS estimates across geographic areas is examined for selected variables.

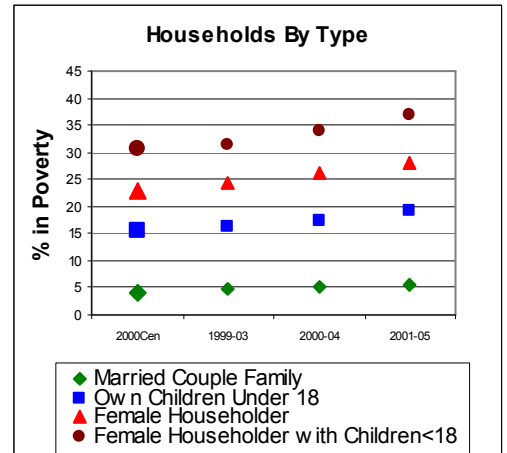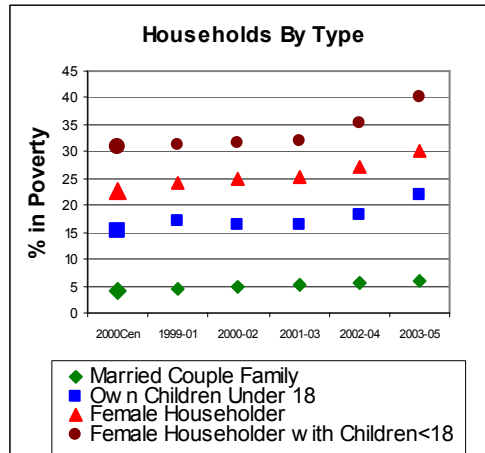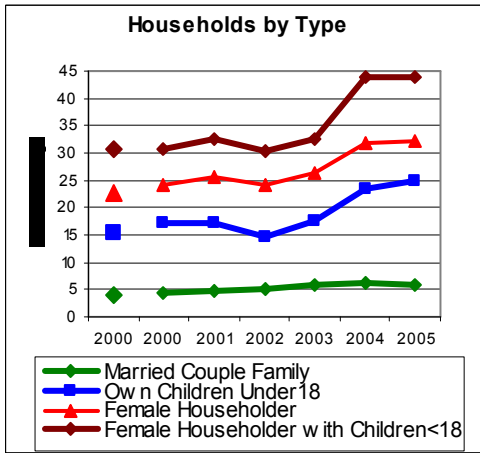**Figure 1 - Comparison of Consistency of Poverty Rates by Household Type Based on 1-Year, 3-Year, and 5-Year ACS Estimates: Multnomah County, Oregon**
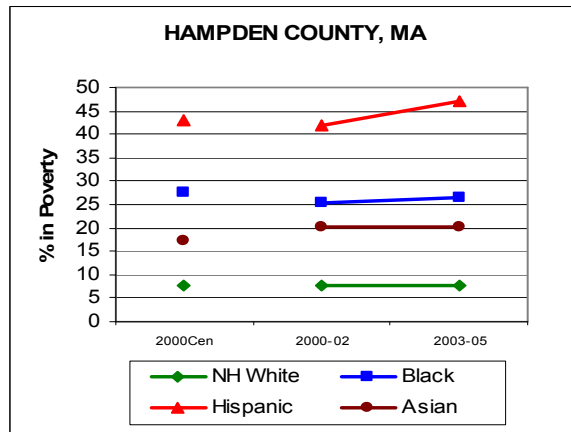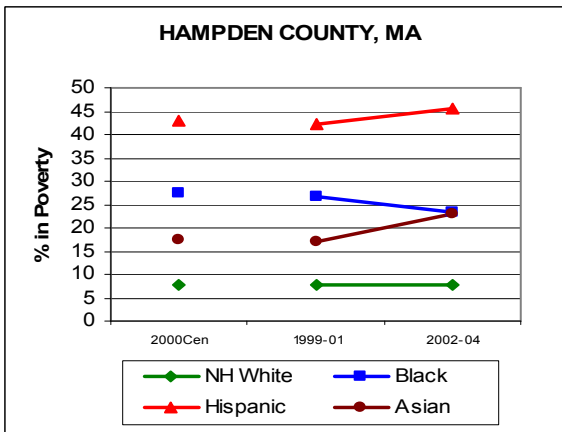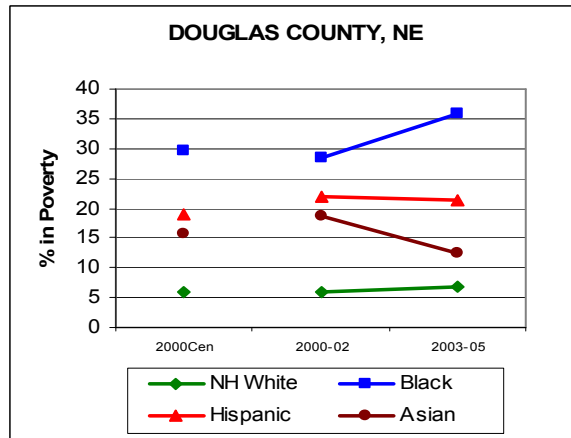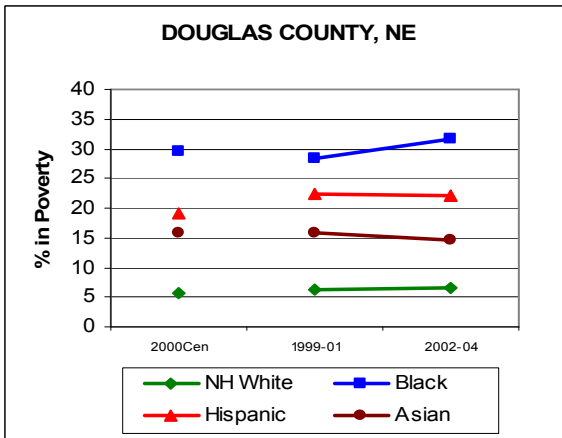(Multi-year estimates are centered on midpoint)

Total Population

Family Households Maintained by Females With Children Under 18

1-Year Estimates
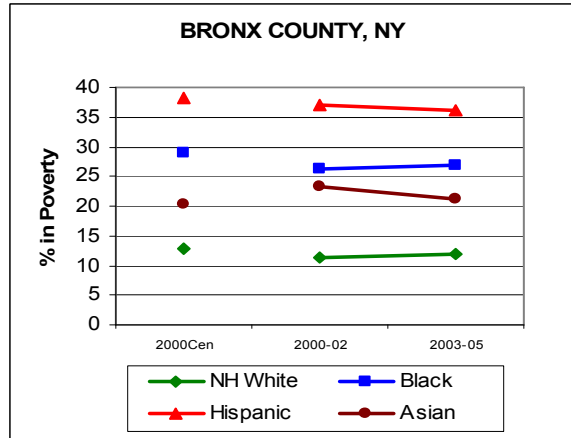

Households by Type

3-Year Estimates

Households By Type

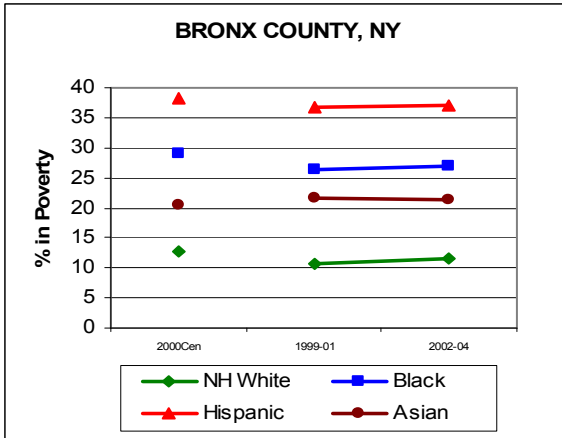5-Year Estimates

Households By Type

Figure 2 - Comparison of Consistency of Poverty Rates for Race/Origin Groups Based on Nonoverlapping 3-Year ACS Estimates: Selected Counties
(Multi-year estimates are centered on midpoint)

Figure 3 - Comparison of Consistency of Selected Variables across Geography Based on 1-Year ACS Estimates: Multnomah and Bronx Counties

Percent Individuals in Poverty

Percent Owner Occupied

Percent Who Speak Language Other Than English at Home

Percent Married-Couple Households