Results of the Bureau of Transportation Statistics Study of Continuous Measurement

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The Bureau of Transportation Statistics (BTS) study of continuous measurement was begun in mid-1994 and concluded in early 1995. The Census Bureau released the findings from that study in April 1996 in its report *Implications of Continuous Measurement for the Uses of Census Data in Transportation Planning.* The findings were provided to census officials soon after the study's completion to inform the Bureau's decision making for Census 2000.

Purpose of the Study

The Bureau of the Census received a great deal of criticism from Congress over the cost and accuracy of the 1990 census. In response to that criticism, the Bureau conducted an extensive evaluation of alternative methods for conducting the decennial census in 2000. On the basis of that evaluation, the Census Bureau selected a new data collection system called "continuous measurement" for extensive testing and possible implementation as an alternative way of collecting the detailed information obtained from a sample of U.S. households with the long-form questionnaire in previous censuses.

State and metropolitan transportation planning organizations have relied on journey-to-work data from the long form for a broad array of applications since 1960, when transportation questions were first added to the census. A change from the long-form census questionnaire to continuous measurement could have a significant impact on the utility of the data for transportation purposes. To assess this impact, BTS conducted a study of the implications of continuous measurement data for the uses of census data in transportation planning.

Continuous Measurement System

Under a continuous measurement system, the decennial census conducted in 2000 would still collect on a 100 percent basis population and housing unit counts and basic demo-

graphic information such as age, race and Hispanic origin, sex, and household relationship. The transportation characteristics traditionally obtained from a sample of households using the long-form questionnaire, as well as the whole range of social, economic, and housing data collected on the long form, would not be collected as part of the census. Instead, the long form would be replaced by an ongoing, continuous monthly survey of about 250,000 households.

Data from these continuous monthly surveys would be cumulated to produce averages over various periods of time. National estimates could be produced monthly. Annual estimates for large cities, metropolitan areas, and states could be derived by cumulating 12 months of interviews. Five years of interviews would be required to produce estimates for small areas such as census tracts and traffic analysis zones based on a sample of comparable size to the decennial census long form. But a new, moving 5-year average for these small areas would be available each year instead of every 10 years as with the decennial census.

Design and Method of Study

BTS contracted with the COMSIS Corporation to conduct the continuous measurement study. COMSIS assembled a panel of seven experts on the uses of data in the field of transportation planning to assess the implications of continuous measurement. Before the first meeting of the group, extensive background materials were sent to all participants describing uses of census data in transportation planning and the methodology of and proposals for continuous measurement. Panel members were asked to identify issues for discussion at the first meeting.

At the first session, held in September 1994, representatives of the Census Bureau provided the panel with an overview of continuous measurement and presented the Bureau's current thinking on its testing and implementation. The panel also heard a debate on the merits of continuous measurement between Leslie Kish, University of Michigan, and Stephen Fienberg, Carnegie-Mellon University. The panel then identified key continuous measurement issues to be developed into position papers for presentation and discussion at the panel's second meeting.

During the 9 weeks between the first and second sessions, each member of the panel prepared a paper analyzing a specific topical area or issue pertaining to the implications of continuous measurement for the use of census data in transportation planning. The panel reconvened in November 1994 and presented their papers, discussed and debated issues regarding continuous measurement and data needs for transportation planning, determined the findings of the study, and made recommendations.

General Findings

The transportation planning expert panel assembled for this study found that continuous measurement holds promise for providing useful data for transportation planning, but that continuous measurement is an untested process, the results of which need to be compared and evaluated against those obtained from a conventional census. The panel questioned the advisability of a decision by the Census Bureau in 1996 to eliminate the long-form questionnaire for the 2000 census without sufficient testing and the Bureau's ability to implement new systems to put continuous measurement into operation by 1999. The panel recommended that the Census Bureau undertake a test for the 2000 census in which long-form data are collected nationwide and compared with a parallel collection of continuous measurement data for a representative sample of geographic areas. Members of the panel expressed concern about the potential loss of benchmark data at the beginning of a new millennium. They also expressed skepticism about congressional funding of continuous measurement past the first 3 years at the sampling rates currently proposed.

EPILOGUE

On February 28, 1996, the Census Bureau formally announced that it planned to once again use a long-form questionnaire in the 2000 census, but as a bridge to a new continuous measurement system in the next decade. The Bureau is conducting an operational test of continuous measurement in selected metropolitan and rural areas in 1996 in anticipation of initiating the continuous measurement survey, now called the American Community Survey, in 1999. The BTS study of continuous measurement is therefore an important first step in informing the transportation community of the new census data system to which it must adapt after the 2000 census.

The American Community Survey will be a large monthly household survey independent of the census. For the years 1999 to 2001, the survey will consist of the same questions that are asked on the Census 2000 long form and will go to 400,000 households per month. After 2001, the content can vary and the sample size will likely drop to 250,000 households per month.

The overlap between the decennial long-form data and data from the American Community Survey will allow transportation planners to compare the two data sets to determine the implications of continuous measurement for the uses of decennial census data in transportation planning.