

Improving the Quality of the U.S. Census of Population and Housing

John H. Thompson
U.S. Bureau of the Census
Decennial Census Directorate
Washington, DC, USA
johnt@census.gov

1. Overview

The 2000 Census of Population and Housing—the largest peacetime mobilization in United States history—was also the most accurate census the United States has ever conducted. Mandated by the Constitution of the U.S., an enumeration of the population has been conducted every 10 years since 1790.

The Census Bureau hired 960,000 temporary employees, identified over 120 million housing units, counted over 281 million people, and processed some 1.5 billion pieces of paper. Every operation was completed on schedule, a higher than expected mail response rate was achieved, hiring goals were met in a time of low unemployment, and a highly efficient and accurate data processing system was implemented.

2. Quality Improvements

The following quality improvements contributed to the success of Census 2000:

Marketing and Partnerships: First, the Census Bureau implemented a multi-faceted, aggressive marketing and partnership program to encourage householders to include themselves in the census by completing and mailing back their census forms. Based on the experience of declining response rates over the preceding three censuses, the Bureau had anticipated that fewer households would return forms by mail in Census 2000. Partnerships—140,000 in all—with state, local, and tribal governments; community and advocacy groups; the private sector; religious organizations; educational institutions; and the Congress were key to building support and removing obstacles to participation in the census. In addition, the Bureau successfully implemented paid advertising for the first time in Census 2000, placing over \$100 million in media buys designed to educate and motivate the public to respond. Paid advertising also allowed the Census Bureau to target ads to groups that had been undercounted at higher rates in past censuses.

Educating Families: As part of the Census in Schools Program, the Census Bureau provided nearly 2 million copies of lesson plans and wall maps to classroom teachers so they could teach lessons on the census. Students in grades K-8 were also given Census 2000 take-home materials to share with their families. Some 45 million take-home materials were distributed.

User Friendly Questionnaires: The Census Bureau designed the questionnaires so that they would be easier to read and fill out. The Bureau also sent advance letters and reminder cards before and after the questionnaires were mailed out to increase response. The Bureau further offered multiple ways to respond, including printing questionnaires in six languages and making available, upon request, materials in 49 languages to assist people in completing the questionnaire. These cumulative outreach efforts were successful. The expected mail response rate of 61 percent was significantly exceeded, reaching about 65 percent by the start of the field operation to follow up on homes for which a questionnaire was not returned.

Staffing: The Census Bureau hired and retained enough highly skilled temporary staff, throughout the course of the census, to complete all operations on time. Because of a resourceful recruiting plan, research on pay rates and recruiting, and the attractive wages that the Census Bureau could offer because of the full census funding that the Congress provided, the Census Bureau was able to recruit some 3.7 million job candidates and eventually hire 960,000 people over the course of the census. Over 500,000

worked on the operation to follow up on those homes for which a questionnaire was not returned, and, through their hard work, the Census Bureau was able to complete the enormous task of personally visiting 42 million homes slightly ahead of schedule.

Quality Checks: Because of the timely completion of the follow-up operation, the Census Bureau had the time and resources to conduct other operations designed to improve coverage, including additional re-enumeration efforts in selected areas. The Census Bureau called these operations AQuality Counts.@ Based on Census Bureau experience and using various quality indicators, the Census Bureau identified about 10 percent of the Nation=s homes that it believed should be visited again in these review, verification, and clean-up operations. The AQuality Counts@ operations helped improve coverage and the census count.

Technology: For Census 2000, the Census Bureau used digital imaging and optical-character recognition technology for the first time to recognize handwritten answers in addition to marked circles or boxes. This was a vast improvement over previous computer systems and allowed the Census Bureau to process the data faster and introduce quality assurance steps to be sure they had captured the data accurately. During the peak of questionnaire receipts, the Census Bureau=s data capture centers processed 3.3 million forms a day. Each bit of information on the captured census forms was transmitted over secured lines to the Census Bureau headquarters, where staff performed quality control checks to ensure they had complete data. The improved data capture systems, with the ability to capture names, also meant that the Census Bureau could offer multiple options for responding to the census with confidence that it could find and remove duplicate responses.

3. The Result: A Highly Accurate Headcount

The operational improvements not only contributed to the ability to meet legal deadlines, but more importantly they also produced an improved count. The Census Bureau conducted an independent survey of approximately 314,000 housing units--called the Accuracy and Coverage Evaluation (A.C.E.)--that was designed to measure net census coverage. It was also designed to measure differences in coverage rates for key groups. According to current estimates from the A.C.E., Census 2000 achieved a net coverage rate for the total population of 98.82 percent. The A.C.E. results thus support the conclusion that Census 2000 achieved both reduced net and differential undercoverage from 1990 census levels.

4.1 The Road Ahead to Census 2010

The Census Bureau has already begun looking toward 2010. The strategy for the 2010 Census is to provide the best mix of timeliness, relevancy, quality and cost for the data it collects and services it provides. This cannot be accomplished without a comprehensive, timely, integrated approach developed early in the decade. In order to be successful, the Bureau must increase the currency of detailed housing and population data while at the same time decreasing the decennial census operational complexity. The overall goal, therefore, for the 2010 Census is to reduce risk and complexity, while continuing to improve the accuracy of census coverage and contain cost.

RESUME

Le recensement de la population et de l=habitat de l=an 2000 aux Etats Unis a nécessité la plus grande mobilisation en temps de paix dans l=histoire du pays. En plus, ce recensement a été le plus précis des recensements conduits à ce jour. Placé sous mandat par la Constitution des Etats Unis, une énumération de la population a été conduite tous les dix ans depuis 1790. Chaque operation a été complétée dans les délais prescrits, un taux de reponse plus grand que prévu a été achevé, les bûts d=embauche ont été achevés malgré le bas chômage, et un système efficace et exacte pour le traitement des données a été mis en place.