



UNITED STATES DEPARTMENT OF COMMERCE
Bureau of the Census
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MEMORANDUM FOR Distribution

From: Cynthia Clark
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Subject: Error Profile for the Census 2000 Dress Rehearsal

I am pleased to present the executive summary of one of the evaluation studies for the Census 2000 Dress Rehearsal. The dress rehearsal was conducted in three sites — Columbia, South Carolina; Menominee County, Wisconsin; and Sacramento, California. The evaluation studies cover detailed aspects of eight broad areas related to the census dress rehearsal — census questionnaire, address list, coverage measurement, coverage improvement, promotion activities, procedures addressing multiple options for census reporting, field operations, and technology.

The executive summary for each evaluation study is also available on the Census Bureau Internet site (<http://www.census.gov/census2000> and click on the link to “Evaluation”). Copies of the complete report may be obtained by contacting Carnelle Sligh at (301) 457-3525 or by e-mail at carnelle.e.sligh@ccmail.census.gov. Please note that the complete copy of the following reports will not be publically released: reports regarding procedures addressing multiple options for census reporting and the Evaluation of Housing Unit Coverage on the Master Address File.

The evaluations are distributed broadly to promote the open and thorough review of census processes and procedures. The primary purpose of the dress rehearsal is to simulate portions of the environment we anticipate for Census 2000, so we can identify and correct potential problems in the processes. Thus, the purpose of the evaluation studies is to provide analysis to support time critical review and possible refinements of Census 2000 operations and procedures.

The analysis and recommendations in the evaluation study reports are those of staff working on specific evaluations and, thus, do not represent the official position of the Census Bureau. They represent the results of an evaluation of a component of the census plan. They will be used to analyze and improve processes and procedures for Census 2000. The individual evaluation recommendations have not all yet been reviewed for incorporation in the official plan for Census 2000. These evaluation study reports will be used as input to the decision making process to refine the plans for Census 2000.

The Census Bureau will issue a report that synthesizes the recommendations from all the evaluation studies and provides the Census Bureau review of the dress rehearsal operation. This report will also indicate the Census Bureau’s official position on the utilization of these results the Census in 2000 operation. This report will be available July 30th.

Error Profile for the Census 2000 Dress Rehearsal

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EXECUTIVE SUMMARY

This evaluation looks at some of the survey measurement and processing error in the Integrated Coverage Measurement/Post Enumeration Survey using the following three tools:

- Matching Error Study
- Evaluation Followup Interview
- Data Collection Mode Study

Production and evaluation operational problems (see full report for details) made it impossible to conduct any of these studies as originally intended, but we are still able to report some interesting results. Here is a summary of these studies and what we were able to measure.

Matching Error Study

One source of processing error in the Integrated Coverage Measurement/Post Enumeration Survey is clerical person matching error. People collected in the Integrated Coverage Measurement/Post Enumeration Survey in a cluster are matched to people found by the initial phase in the same cluster. The first step in this process is a computer match, where obvious matches are made and possible matches are identified. The possible matches and remaining nonmatches are then matched clerically to find the less obvious matches, first by lower-level matchers, and then by expert matchers. An example of a less obvious match is where the first names differ but some of the characteristics such as sex, age, race, and Hispanic origin match.

The Matching Error Study attempts to measure the error in the clerical matching process by having expert matchers rematch persons within each block cluster in a sample of Integrated Coverage Measurement/Post Enumeration Survey clusters known as the evaluation cluster sample. The results from the rematching operation are compared to the production results to find differences in match status.

The discrepancy rates between the production and Matching Error Study matching operations were less than one percent in each of the three sites: Sacramento, South Carolina, and Menominee. Presumably they would have been higher if the matching experts had not performed a 100 percent quality assurance during the production matching operation. However, the relatively small matching error does suggest that the matching expert coding is highly reliable.

According to the Census 2000 design, after matchers have passed an initial 100 percent quality assurance, matching experts will perform quality assurance on only a sample of cases during production matching. Therefore, the Census 2000 Matching Error Study is expected to measure the actual magnitude of matching error in the Accuracy and Coverage Evaluation and its subsequent effect on the Census 2000 Dual System Estimation.

Integrated Coverage Measurement/Post Enumeration Survey Evaluation Followup Interview

The Evaluation Followup Interview measures aspects of two types of survey error. The first type is measurement error, the error introduced into the survey process by the interviewer, respondent, and instrument. That error is measured by the Evaluation Person Followup Reinterview, a reconducting of the Person Followup Interview in a subset of the clusters in the evaluation cluster sample. The production Integrated Coverage Measurement/Post Enumeration Survey Person Followup is conducted when people from the initial phase and the Integrated Coverage Measurement/Post Enumeration Survey do not match after the initial clerical person matching operation, and collects information to ensure that all correct matches are made and correct residence status are set.

This evaluation attempts to get the true match and residence status by giving the clerical matchers a second set of Person Followup Interview data from the Evaluation Person Followup Reinterview, along with the production Person Followup Interview data, to use when determining the final match and residence status of each person. The comparison of these results with the production data provides a measure of measurement error in the production data.

The index of inconsistency, a statistic that measures the consistency of responses between different measures, was calculated for the person match codes and residence status for each site. For match codes, the index of inconsistency was 56.7 percent in Menominee, 22.9 percent in Sacramento, and 16.9 percent in South Carolina. For the residence status, it was 54.6 percent for Menominee, 32.7 percent for Sacramento, and 21.7 percent for South Carolina. These results are in the range of moderate concern, but given the reduced sample of clusters for the Evaluation Person Followup Reinterview due to evaluation operational problems, no specific conclusions can be made from these results. The Census 2000 Evaluation Followup Interview design will take these results into consideration.

The second type of error the Evaluation Followup Interview attempts to measure is production error due to the decision to not conduct a Person Followup Interview for certain people who did not match between the initial phase and the Integrated Coverage Measurement/Post Enumeration Survey. Research in previous Census tests suggested not including these people in the Person Followup Interview, but to code them as residents in the cluster because it was doubtful that useful information would be gleaned from the Person Followup Interview.

The Person Followup Criteria Evaluation was conducted using the Evaluation Followup Interview form which was a modified Person Followup Interview form. It collected information about all people in the evaluation sample clusters who did not match initial phase people but were excluded from the Person Followup Interview. The results were compared to the production results, both in changes to match and residence status codes as well as dual system estimates. These results were used to determine if any production error from the decision to exclude these people from the Person Followup Interview operation had significant effects on the final data.

Dual system estimates were calculated for the evaluation cluster sample comparing the production results for those clusters with the results from the Person Followup Criteria Evaluation. No significant differences in the estimates were found for Sacramento or South Carolina at the site level nor for any of the poststratification variables (age/sex, tenure, and race/ethnic origin) (estimates for Menominee were not calculated). Therefore, the decision to not send certain people to the Person Followup Interview did not adversely affect the Dress Rehearsal results. Hence, there is no problem using the same criteria to followup people in Census 2000.

Data Collection Mode Study

This study attempts to measure error due to collecting Integrated Coverage Measurement/Post Enumeration Survey Person Interview data over the telephone from the interviewer's home using the computer-assisted personal interview instrument as opposed to collecting the data using the same instrument during a personal visit.

The Integrated Coverage Measurement/Post Enumeration Survey Person Interview was a computer-assisted personal interview designed to be conducted in person by the interviewer after the completion of the initial phase Nonresponse Followup to avoid contaminating the initial phase data in Integrated Coverage Measurement/Post Enumeration Survey clusters. However, to alleviate tight schedule demands it was decided to collect data for selected cases by telephone using the computer-assisted personal interview instrument before the Nonresponse Followup was finished and Integrated Coverage Measurement/Post Enumeration Survey personal visits began. The selected cases included those people who responded to the initial phase by mail early in the process and provided a phone number.

The study was conducted by not allowing data to be collected by telephone for half of the eligible cases in the evaluation sample clusters, while attempting to collect the data by telephone for the other half. The phone and personal visit cases were paired as the sample was selected, and the percentage of matches to initial phase people and item nonresponse rates were compared to attempt to measure if there were significant differences by the mode of data collection in our population of interest.

Because of production problems, the sample size for this evaluation is too small to make any strong conclusions, but we found no evidence that the mode of data collection affected the person match rates or the item nonresponse rates.