



**UNITED STATES DEPARTMENT OF COMMERCE**  
**Bureau of the Census**  
Washington, DC 20233-0001

MEMORANDUM FOR      Distribution

From:                      Cynthia Clark  
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Subject:                    Contamination of Initial Phase Data Collection in  
                                 ICM Block Clusters

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](mailto: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 in the Census 2000 operation. This report will be available July 30<sup>th</sup>.

# Contamination of Initial Phase Data Collected in ICM Block Clusters

July 1999

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## EXECUTIVE SUMMARY

The Census 2000 Dress Rehearsal used the dual-system estimation method in producing official numbers for Sacramento, Menominee and for coverage measurement in South Carolina. The application of the dual system estimation method requires assuming that there are two independent lists of the population. The first list is the original census enumeration, and the second is a list of those covered by the sampling frame for the sample of the Integrated Coverage Measurement survey in Sacramento and Menominee, and the Post Enumeration Survey in South Carolina.

The independence assumption can fail due to causal dependence, or contamination, between the two lists. Contamination occurs when the event of an individual's inclusion or exclusion from one list affects the probability of their inclusion in the other list. For example, some people who did answer the census may not cooperate with the Integrated Coverage Measurement/Post Enumeration Survey, thinking that they had helped enough. Occasionally a survey sample block resident is asked a question before census day to confirm a survey address listing, making them aware of the census before it actually happens. A small fraction of census followup contacts are made after the beginning of the survey interviewing.

In this evaluation we engaged in testing the validity of the assumption of no contamination. We tested whether Integrated Coverage Measurement/Post Enumeration Survey areas differ from areas where no survey was done. To test for differences between survey blocks and non-survey blocks in the census data, survey blocks are matched with non-survey blocks. The matching was done with respect to the number of housing units as measured by pre-census counts. After the matching was performed, differences in relevant block level variables were tested. For the Census 2000 Dress Rehearsal, we matched each Integrated Coverage Measurement/Post Enumeration Survey block with several independent non-survey blocks. Supplementary control groups provided valuable information in addition to an increase in power and precision.

Estimates of the effects of the Integrated Coverage Measurement/Post Enumeration Survey are found by studying differences in the responses to the census for survey and non-survey blocks. Relevant data are extracted from the census files and aggregated to block level records. The resulting data are then tested for possible differences in the responses.

Very few significant differences were found in population coverage and no significant differences were found in housing unit status and respondent reaction indicators. Overall, no differences attributable to the survey were found when comparing blocks in which the survey was conducted and matched blocks not included in the survey area. Thus, there is no evidence that contamination of the census data is present.

In Census 2000 the survey comparable to the Integrated Coverage Measurement/Post Enumeration Survey will be called the Accuracy and Coverage Evaluation Survey.

The recommendations to continue prevention of contamination are:

- C During listing for the 2000 Accuracy and Coverage Evaluation Survey, the level of contact should remain as low as possible.
- C Overlap between the Accuracy and Coverage Evaluation Survey and census field operations should be minimized, using procedures and scheduling similar to that of the dress rehearsal.

- C In general, the census treatment of households included in the Accuracy and Coverage Evaluation Survey should be as similar as possible to that of households not included in the survey. The differences between the Accuracy and Coverage Evaluation Survey and census processing should be transparent not only to the survey households, but also to those conducting the survey and processing the survey data. Special diligence is important during the time when census and survey activities overlap.

