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

MEMORANDUM FOR Distribution

From: Cynthia Clark
Associate Director for Methodology and Standards

Subject: Evaluation of Telephone Questionnaire Assistance

I am pleased to present the executive summary for the evaluation study 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 for nonrespondents to mail census, 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@census.gov.

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 30th.

Evaluation of the Nonresponse Followup Operation (A1b)
Evaluation of the Mail Return Questionnaire (A2)
Evaluation of Telephone Questionnaire Assistance (A4)
Service Based Enumeration Coverage Yield Evaluation (D1)
Effectiveness of Paid Advertising (E1a)
Promotion Evaluation: Exposure to Paid Advertising and Likelihood of Returning a Census Form (E1b)
Field Infrastructure: EEO Process (G7)
Evaluation of the Housing Unit Coverage on the Master Address File (B1)

Census 2000 Dress Rehearsal
Evaluation Memorandum A4

Evaluation of Telephone Questionnaire Assistance

April 1999

Wendy Davis
and David Phelps
Planning, Research, and
Evaluation Division

For questions regarding this summary or to request a copy of the full report, contact the Planning, Research, and Evaluation Division, Bureau of the Census (301) 457-3525.

EXECUTIVE SUMMARY

Background

All three dress rehearsal sites had Telephone Questionnaire Assistance. Telephone Questionnaire Assistance provided the following services:

answer questions from the public about what the census is, why it is conducted, how to complete a census form or how to complete specific questions on the forms.
mail forms to people who either did not receive a form, or misplaced the one they did receive.
collect census information over the phone, referred to as reverse computer assisted telephone interviewing. This is the first dress rehearsal to include reverse computer assisted telephone interviewing data collection as part of Telephone Questionnaire Assistance.

Methodology

This evaluation addresses three objectives:

1) The first objective is to summarize the operation, which includes:

an assessment of the efficiency of the operation. This is done by calculating the average length of a call, the percent of total calls received that are hang-ups, the percent of callers who had to listen to the top menu in the Interactive Voice Response system more than once, and the percent of callers that were exited from the system as invalid calls.

a listing of each of the reasons for calling Telephone Questionnaire Assistance. As part of this, for each listed reason we will calculate what percent it is of all reasons for calling Telephone Questionnaire Assistance.

an assessment of the Whole Household Usual Home Elsewhere instruction on the cover of the mail forms which indicated the respondent should call Telephone Questionnaire Assistance. This will be done by calculating the percent of total calls categorized as Whole Household Usual Home Elsewhere calls that were true Whole Household Usual Home Elsewhere calls.

a measure of how often non-English Telephone Questionnaire Assistance was used as a percent of total calls.

2) The second objective was to assess the quality of the addresses collected by the two Interactive Voice Response address collection methods (express ID and voice capture methods) and by the Telephone Questionnaire Assistance interviewer address collection method (operator method). Quality will be assessed by comparing the percentage of

addresses collected by each method that contain enough information to be linked to the Decennial Master Address File.

3) The final objective was to assess the success of the Telephone Questionnaire Assistance mailouts in terms of response rates and quality of the data on the returns. This will be done by identifying the percentage of all forms mailed out by Telephone Questionnaire Assistance that were returned. Item missing data rates will be calculated for Telephone Questionnaire Assistance returns and compared to item missing data rates for all other mail returns.

Results & Recommendations

Efficiency of the operation

In regards to the efficiency of the operation, we found that the average length of a call was even lower than what was anticipated and the percent of hang-ups were equivalent to the industry standard, both of which suggest that the Telephone Questionnaire Assistance system was working as expected. However a detailed analysis of callers behavior within the Interactive Voice Response system and interviewers use of the Telephone Questionnaire Assistance instrument suggest there were problems. Within the Interactive Voice Response system almost all callers had to listen to the top menu more than once, suggesting the menus were not clear or were too lengthy to process without hearing it more than once. In addition, though only 5% of all callers were exited out of the Interactive Voice Response system due to too many invalid selections, 89% of those were callers using the voice recognition system implying that there may have been a problem with the voice recognition system. There was also evidence of some problems within the interviewer instrument as well - about 29% of paths selected by the interviewers were not completed correctly, though some paths were more problematic than others.

Given these problems, we recommend more testing of the voice recognition system in Census 2000 prior to production, as well as closer monitoring during production. In addition, the more problematic paths through the Telephone Questionnaire Assistance instrument should be revised, as should the training covering those paths.

Reasons for calling Telephone Questionnaire Assistance

The most frequently selected reason for a call at the Interactive Voice Response system level was to be transferred to an operator. The next most frequent selection across callers (25.3%) and the most frequent for Interactive Voice Response-only callers (45.5%) was to hear an explanation of why they received more than one census form.

As compared to either the 1995 test or the 1990 Census a much larger number of callers called to question or complain about receiving more than one form. In Dress Rehearsal 11% of operator calls, and 25% of calls at the Interactive Voice Response system called for this reason, whereas only about 5% called for this reason in 1995, and less than 10% in 1990. However, there was not a blanket replacement mailing in either of those years.

At the operator level, interviewers selected the miscellaneous or "other" category the most of all the pre-coded reasons for a call, signaling that some of the more relevant categories were missing from their pre-coded list. We recommend adding three more categories in Census 2000 - a category addressing questions about the date for census day, a category about what to do if the form was received at a business or other non-housing unit, and a category which basically lists other government numbers and addresses that callers would like to access (e.g., employment number, address for Office of Management and Budget paperwork reduction).

Assessment of the Whole Household Usual Home Elsewhere Instruction

Approximately 35% of the callers identified as calling as a result of the Whole Household Usual Home Elsewhere instruction were not Whole Household Usual Home Elsewhere cases, suggesting that the instruction is not clearly communicating that it applies only to households for which all members have multiple residences.

However, the decision has already been made to drop this instruction from the Census 2000 forms, so further recommendations are not required.

How often non-English Telephone Questionnaire Assistance was used

Less than 1% of the total calls to Telephone Questionnaire Assistance came in on the non-English Telephone Questionnaire Assistance lines. Since no detailed data were available regarding these calls, no recommendations can be made.

Quality of the addresses collected by the different address collection methods

Both the voice capture and express ID methods produced significantly more addresses containing the needed information to do a match to the Decennial Master Address File than did the operator method. However, this is more reflective of the way addresses were assigned to each method than the ability of each method to collect good address information. Thus, the only recommended change is to modify the probes operators use to collect address information.

Assess the success of the Telephone Questionnaire Assistance mailouts in terms of response rates and data quality of the returns.

About 69% of callers requesting a form actually returned a form. However, the vast majority of these return were not the forms mailed out by Telephone Questionnaire Assistance, rather they were the forms mailed out in the original census mailings. Only between 13% and 15% of the forms mailed out from Telephone Questionnaire Assistance were actually returned. However, given the possible negative perception that would result if Telephone Questionnaire Assistance did not mail form when requested, no changes to the procedures are recommended for Census 2000.

In terms of the quality of the data, the item missing data rates for forms mailed back by Telephone Questionnaire Assistance callers requesting a form are quite comparable to those on the forms

mailed back by other households in Dress Rehearsal. The forms returned by Telephone Questionnaire Assistance callers have slightly higher missing data rates than the non-Telephone Questionnaire Assistance returns for the three household items (tenure, the person count box on the short form, and the long form roster) but the difference is only around 2%. For all other items the difference is close to or less than 1%. Given the small number of Telephone Questionnaire Assistance returns relative to the total number of returns, this difference is basically inconsequential, and no recommendations for changes are warranted.