

IMPROVING THE EFFICIENCY AND EFFECTIVENESS
OF THE DECENNIAL ENUMERATION

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INTRODUCTION

The mail census procedure was used to enumerate most of the population in the 1980 census. While the mail response to the census was higher than expected, the non-response follow-up took longer and cost more to complete because the United States Postal Service (USPS) failed to deliver census questionnaires to some of the designated units due to the lack of recognizable unique addresses; low productivity of some enumerators; and difficulties in contacting someone in the nonresponse household. The Census Bureau also discovered that the housing unit inventory included about 2.4 million more housing units than estimated. Therefore, the Census Bureau is interested in developing techniques and procedures that will provide a more accurate estimate of the housing unit inventory, maintain or increase the mail return rate so that fewer housing units must be enumerated in nonresponse follow-up, (although projections indicate it will drop from the 1980 level) and improve the productivity of the nonresponse enumerators to reduce the time and costs required to complete the census enumeration. In addition to responding to the conditions that complicated the census enumeration in 1980, the 1990 census-takers face difficulties that stem from changes in the composition of American society and lifestyles. As more persons maintain multiple residences, participate in the work force and/or have smaller families, it is more difficult to reach people to alert them about the census and obtain their cooperation in filling out the questionnaire--by mail or personal interview. This paper presents the procedures the Census Bureau plans to use to improve the number of mail returns and conduct the nonresponse follow-up in mail out/mail back areas more efficiently.

FACTORS THAT AFFECT CENSUS-TAKING

In 1990, the Census Bureau will enumerate most of the population by the mail census procedure. Each percentage of the housing unit inventory that is enumerated by mail saves at least \$10 million in follow-up costs; reduces the number of persons that must be hired, trained and supervised to work as census enumerators; improves the quality of the data through self-enumeration; and expedites the completion of the enumeration. Therefore, the Census Bureau will make every effort to motivate people to complete and mail in their census questionnaires. To achieve this objective, the Census Bureau must improve:

- . Deliverability of the census questionnaire.

- . Participation in the mail census through public awareness about the importance and confidentiality of the census.
- . Interest of the public in opening the census questionnaire packages.
- . Respondent understanding of how to fill the questionnaire.
- . Public understanding about when to mail back their census questionnaires.

To improve the efficiency, timeliness and cost-effectiveness of the overall census program, the Census Bureau also must resolve the factors that will impede the ability or willingness of the census enumerators to complete the nonresponse follow-up on a timely basis. To achieve this objective the Census Bureau must:

- . Improve management and training by using less complicated procedures. . Provide close supervision to the enumerators to assist with questions or difficult situations.
- . Offer productivity incentives to encourage enumerators to complete their assignments on schedule.
- . Develop techniques for the enumerators to contact and interview household respondents who are unavailable during daylight hours.

The Census Bureau designed a program to examine alternative enumeration techniques for the 1990 census to improve the deliverability of the census questionnaire, motivate the public to mail in their questionnaires, provide greater flexibility for completing the nonresponse follow-up, prepare the enumerators to conduct the nonresponse follow-up, and motivate the enumerators to increase their productivity.

IMPROVING THE DELIVERABILITY OF THE CENSUS QUESTIONNAIRES

Although the 1980 precensus address list for mail-out/mail-back areas was very complete, the USPS had difficulty delivering the questionnaires to individual units within multiunit structures because apartment designations were not always accurate. The USPS also had difficulty in recognizing the addresses for some rural mail areas and could not deliver the census questionnaires to these units. To the extent the respondents in these multiunit structures and housing units in rural areas did not receive their census questionnaires, they had to be enumerated in the nonresponse follow-up operation. The Census Bureau tested and will implement two major procedural changes to resolve these deliverability problems in 1990:

1. RURAL AREAS: In general, discrepancies in the addresses listed by enumerator in the census canvass of the rural areas and those used for postal delivery occur when an area uses a rural-type address system (for example, Box 190, Rural Rt 5) for mail delivery and a house number and street name address for receipt of services such as utility, fire, police or emergency services, or vice versa. In 1980, the USPS checked the address list for urban areas to verify the completeness and accuracy of the mailing addresses as well as add the addresses for missing units. Addresses in rural mail areas were excluded from this check. Consequently, when the USPS received the census questionnaires for delivery, it reported that a number of addresses for housing units in rural areas were unrecognizable for delivery by carriers and either returned them to the Census Bureau as undeliverable mail or apparently delivered them randomly in same areas without regard to the address. Since unique control numbers were assigned to addresses, random mail delivery resulted in check-in problems.

For 1990, the Census Bureau will contract with the USPS to check our mailing list for all mail areas (including rural areas) to correct the addresses contained on the address list and to add any addresses missing from the list. When the USPS reports that an address cannot be used to deliver mail, a field operation will be conducted to determine the address the residents of the units use to receive mail.

2. URBAN AREAS: As opposed to rural areas, where census enumerators develop a mailing list from scratch, in urban areas we purchase a list of addresses and then update it. During the field verification of the house number and street name addresses for urban areas, enumerators will verify the apartment designation system used in each multiunit structure to distinguish between individual units, rather than simply verifying the total number of units within the structure, as done in 1980. This procedure will supplement the basic address for the building with additional information (apartment numbers or location description) for the census address file that the USPS can use to deliver the census questionnaires to specific units.

IMPROVING PARTICIPATION IN THE MAIL CENSUS

An evaluation of the 1980 public information campaign indicated that over 90 percent of the American public heard about the census before Census Day, so it clearly was an effective program. However, some segments (for example, high-income groups) of the population were more likely to hear about the census than others, so the Census

Bureau has expanded the scope and techniques of the 1990 outreach census to address this problem of differential media coverage. The Outreach Program is structured to use those techniques that are most effective with particular segments of the population and persons of different cultures and languages. Thus, the Census Bureau expects to contact all segments of the American public about the 1990 census before April 1, Census Day.

The promotion campaign will educate the public about the purpose of the census, why participation is important, and what the census questionnaire will look like so that the recognition factor will prompt more persons to open the questionnaire and complete it when they receive it in the mail. Also, the Census Bureau will use several techniques for 1990 to motivate the individual respondents to complete the questionnaire:

1. TIMING: In 1980, the census questionnaires were mailed about 3 days before Census Day (April 1) and the respondents were instructed to complete the form and mail it back on Census Day. The mail returns were checked in clerically. Many forms were received or checked in by the Census Bureau after nonresponse follow-up started on or about April 14. The General Accounting Office estimated that as many as 3 million late mail returns were enumerated again in non-response follow-up, which meant that thousands of productive work hours and dollars were wasted on these duplicate interviews. The use of automated check-in in 1990 of the mail returns should improve the speed and accuracy of identifying the units that returned their questionnaires.
 - a. Check-in of mail returns--The pattern of mail returns was analyzed during the 1990 test censuses and it was determined that several steps would improve participation and reduce the risk of duplicate enumeration in nonresponse follow-up:
 - (1) Mail the questionnaires to the addresses about 9 days before Census Day to allow the respondents more time to complete them.
 - (2) At least one more week between the check-in of the mail returns and start of non-follow-up to reduce the number of late mail returns that might be included in the nonresponse follow-up. In 1980, about 10 days was scheduled for check-in before the local offices began preparing the assignments for the nonresponse follow-up.

The Census Bureau has decided to send an unlabelled reminder card to all addresses just before Census Day.

This reminder card will go to all addresses because of logistical difficulties and time delays involved in generating mailing labels for just nonresponse households.

2. QUESTIONNAIRE PACKAGE: Data from 1980 and the 1990 test censuses indicate that some respondents disregard the census questionnaire when they get it. If it is perceived as junk mail then it is likely that people will toss the package without ever opening it. The Census Bureau tested options for the appearance and contents of the census questionnaire package to motivate people to complete and return the questionnaire.
 - a. Envelope--Several envelope designs were tested during the 1990 cycle to determine whether a patriotic theme envelope with an abstract flag in red, white, and blue or a plain official envelope would elicit a higher response rate. In a national mail-out test it was found that the mail response rate for the people that received the official-looking envelope was 2.2 percentage points higher than the mail response rate for envelopes with the abstract flag design.
 - b. Motivational insert--Once the respondents open the envelope, it is important that they start reading the questionnaire and fill it out. The questionnaire package contains several pieces, the questionnaire, an instruction guide and a return envelope. When the results of focus groups from the 1985 Census of Tampa, Florida were analyzed, it was apparent that the information about the purposes of the census, the confidentiality of the data and the legal requirement to answer needed to be highlighted even though this information is covered in the publicity and promotional materials. An insert was designed for the 1986 census questionnaire packages that outlines six major reasons why people should cooperate in the census, including the fact it is a legal requirement and the results are used to determine congressional representation. In the 1986 Census of Los Angeles County we conducted a split panel test to study the effect of a motivational insert. We included inserts in a sample of half of the mailing packages and found that the mail response rates for respondents who received an insert with the questionnaire were from one to three percent higher.
3. ASSISTANCE: In 1980 the questionnaire package included an instruction guide that described how or what to report when answering the specific questions. The cover page of the questionnaire provided a telephone

assistance number that the respondents could call if they had any questions as well as a message in Spanish telling the respondents how to request a Spanish-language questionnaire. As part of the Outreach Program, the Census Bureau printed and used translations of the questions in a number of different languages and also set up at least one walk-in assistance center for each district office in the mail areas.

We will employ all of these activities for the 1990 census; however, we have incorporated some modifications to increase the effectiveness of these techniques and provide greater flexibility for the individual district offices to respond to local needs.

- a. We will include an instruction guide in the questionnaire package but also are adding more instructions for the individual questions onto the questionnaire itself so that the respondents can better understand who to report as a member of the household and what to report in response to the specific questions.
- b. We will extend the duration of the telephone assistance operation in accordance with the plans for earlier delivery of the census questionnaires and the later start of the nonresponse follow-up. Also, we will extend the operation to include evenings and Saturdays, particularly for urban areas where a greater proportion of the population may work or attend school.
- c. The census community awareness staff from the regional offices will work with local groups to identify locations for the walk-in questionnaire assistance centers that are in the areas frequented by the local community and physically more accessible than the district offices. Additionally, large local and community organizations, such as a church or tenant council for a housing project, can make arrangements with the district office for someone to visit a specified location to provide questionnaire assistance to their members for a few hours.
- d. We will schedule television shows to explain why and how respondents should fill their census questionnaires. The Census Bureau will arrange for these shows to be scheduled on local channels in English, Spanish and perhaps other languages. We also will negotiate with the major networks to arrange for a time slot during the census week during which someone would walk through each item of the questionnaire to guide the respondents in completing their own questionnaires.

- e. About 1 or 2 weeks before the census questionnaires are delivered the Census Bureau will mail to housing units in areas with large numbers of minority and/or non-English speaking populations a special motivational and instructional card about the census in several different languages (including Spanish and English). This card will alert the residents to the coming delivery of the census questionnaires, the availability of assistance in completing the questionnaires and how to request a Spanish-language questionnaire.

IMPROVING THE NONRESPONSE FOLLOW-UP

The success of any field data collection effort is judged by the timeliness of the operation, the final costs and the quality of the data. As mentioned earlier, the nonresponse follow-up for the 1980 census was hampered by the difficulty enumerators has finding someone at home to answer the questions, their confusion about procedures, lack of adequate supervision, and low productivity. Some of these problems are interrelated; for example, confusion about the proper procedures for handling situations can result in low productivity, as can the inability to find a respondent for the household. These factors will also affect the 1990 nonresponse follow-up. The increases since 1980 of non-English speaking persons, smaller families and single-person households may further impede the ability of the enumerators to complete their assignments on schedule.

The 1990 Outreach Program includes activities that will address the problems stemming from respondent reluctance to be enumerated. The Census Bureau will work with local community organizations and leaders in advance of the census to educate them about how the census is conducted. People will then know why the census is conducted and that if they do not return their form, a census enumerator will visit to obtain the data. We will ask national and local community, political and religious leaders and well-known personalities to publicly endorse the census and reassure the public that the census is important AND confidential. Also, the Census Bureau will sponsor a mass media campaign to let the public know that census enumerators will visit households that did not return their questionnaires and inform the public how to identify the census enumerators and help them complete the important task of doing a complete enumeration.

Many of the changes we are making to the overall census program will improve the nonresponse follow-up. For example, the hourly pay system reimburses the employee for the travel and work time more equitably than the 1980 piece rate system. Also, the automation and

centralization of administrative and processing systems such as the check-in of the questionnaires and list of persons who applied for a census job will improve the efficiency and accuracy of the nonresponse follow-up.

However, the Census Bureau recognized early in the 1990 planning program that it needed to provide the nonresponse follow-up enumerators with more tools for contacting the respondents to obtain the interviews, and also to train enumerators more effectively and provide them with closer supervision.

1. MANAGEMENT AND TRAINING: In some parts of the country, particularly urban areas, the Census Bureau had difficulty in recruiting and retaining a staff of qualified persons to work on the 1980 census and had to lower its test standards to hire enough people to complete the nonresponse follow-up. These difficulties are expected to continue into 1990 as more women take full-time jobs, and as the competition increases with the private sector for entry-level workers. Therefore, the Census Bureau expects to hire more persons who want a second job and persons with less education than those hired for previous censuses in order to complete the nonresponse follow-up on schedule.
 - a. Closer supervision--The supervisory ratios will be lowered from the 1980 levels at the regional and assignment area levels. In 1980, the district office managers (up to 40) within each regional office reported to one person; in 1990, there will be one regional area manager for every six to ten district offices. This ratio will allow the regional offices to monitor the progress of the district offices and respond to requests for assistance in a more timely manner. In 1980, each crew leader for the nonresponse follow-up supervised 12 to 15 enumerators. This work load prevented the crew leaders from spending much time with individual enumerators to assist in the resolution of problem cases, retrain enumerators who were performing poorly in one or more aspects of the job, or carefully review their work. Additionally, the crew leader was unable to meet with the enumerators more than once or twice a week. For 1990, the crew leaders will supervise an average of eight enumerators and most of the crew leaders will meet with their enumerators on a daily basis to review the status and quality of their work, complete the payroll forms, and answer questions or retrain as needed.

- b. Training techniques--In 1980, the training covered the procedures for virtually all possible situations the enumerators might encounter during the nonresponse follow-up operation. For 1990, the Census Bureau will design the training sessions to address the skills and information that are ESSENTIAL to the job. Procedures required for most special cases will be covered in a reference guide. The enumerators will be instructed to check with the crew leaders if they come across any situations that cannot be resolved by the normal procedures. The training for the nonresponse follow-up enumerators also includes a practice field session in which the enumerators complete actual interviews for two half days, and return to the classroom to discuss the experiences, share problems and solutions.
- c. Productivity incentive--The Census Bureau determined that since there is a tendency for enumerators to continue their employment for as long as possible by lowering their productivity, the enumerators must be rewarded for high productivity. The 1990 plan will reward enumerators on the basis of total number of cases completed. The Census Bureau estimates that it may actually save about \$25 to \$30 million using the incentive pay plan because our research indicates it will reduce staff turnover and subsequent training and overhead costs.

2. DATA COLLECTION TECHNIQUES AND TOOLS:

The entire 1980 nonresponse follow-up was conducted by personal visit, which often required the enumerators to make a number of callbacks before reaching a household respondent. Many enumerators worked 6 hours a day but only completed two or three interviews because of their inability to find someone at home. These problems not only resulted in the failure to complete the nonresponse follow-up on schedule but also affected the morale of the staff. The Census Bureau developed and tested alternative procedures to help the enumerators contact the household respondents for an interview and complete the interviews in less time.

- a. Telephone interviews--The enumerators are required to initially visit each unit for an interview. If no one is home, the enumerators will obtain, if possible, the surname and telephone number of the household head from a neighbor, thus, the enumerator may obtain information he/she can use to telephone the household. The enumerator also will leave an

appointment card with his/her name, home telephone and best time to call. Therefore, the respondent has information that he/she can use to call the enumerator. The enumerator is required to make three telephone calls within the next two days following an initial visit before making a return visit.

- b. Scheduling visits--As part of the training and crew leader supervision, the enumerators are advised to visit households at different times of the day and early evening, contact neighbors to obtain information about when is the best time to find someone at home, plan their work for late afternoons and Saturdays and to make their telephone calls in the evenings and on weekends. This information directs the enumerator to make their visits and calls at the times they will most likely find someone at home who can answer the questions. Additionally, the enumerators are required to record the times of their visits on a Callback Record that they can use to determine what times were unproductive and schedule future contacts at other times.
- c. Enumerator-Friendly Questionnaire--The persons who worked as nonresponse enumerators during the previous censuses were required to reword a number of the questions because the questionnaire was designed for self-enumeration and some questions included only instructions and did not contain complete sentences or identify, when appropriate, answer categories as part of the question wording. Consequently, the enumerators reworded the questions as they felt appropriate and explained the instructions on how the questions should be answered using their own words. In order to eliminate the burden of rewording the questions and ensure a more standardized interview structure, the Census Bureau designed an "enumerator-friendly questionnaire" that can be read verbatim by the nonresponse enumerators.

SUMMARY

The 1990 decennial census will be a complex and costly undertaking. However, the Census Bureau has expanded the scope of the Decennial Outreach Program to reach all segments of the population and has designed a number of techniques to improve the probability that each unit on the census address list will receive a census questionnaire in the mail and complete it. New data collection and management techniques will be used to improve the effectiveness and efficiency of enumerating those persons who do not return their questionnaires.

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FOOTNOTE

- ¹/ This paper reports the general results of research undertaken by Census Bureau staff. The views expressed are attributable to the author(s) and do not necessarily reflect those of the Census Bureau.