

Issues and Alternatives in Planning the 1990 Census

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The next Census of Population and Housing will be conducted on April 1, 1990, and will mark the 200th anniversary of census taking in the United States. Although 1990 is more than 5 years away and may seem distant now, planning is well under way at the Census Bureau.

With the number of decisions to be made and the long lead times required, early planning is necessary. In preparing for the 1990 census, many difficult choices will have to be made, often among several good alternatives. In most cases there will not be one right answer or a perfect solution. In these cases, a balance between competing alternatives will have to be struck.

The approach to planning the 1990 census is different from that for the 1980 census. Planning for 1990 has begun earlier in the decade, yet some important decisions relating to the conduct of the census will be made later in the decade. As an example of earlier planning, the first major pretest will be conducted in 1985, a year earlier in the decade than the first pretest for the 1980 census. One of the major decisions that will be made later in the decade is what basic methodology to use in taking the census. Last time, the methodology was determined by 1973. The decision on methodology for the 1990 census is to be made by the fall of 1986. This will allow time to examine a wider range of alternative methods and procedures.

What makes early planning for the next census so important is the fact that the census will produce vital data to meet America's statistical needs. Census data will be used to apportion seats in the House of Representatives among the states and to draw congressional and state legislative district boundaries. Census data will be used by federal, state, and local governments to distribute money to the appropriate areas, by social service planners to get help where it is needed, and by business leaders to make sound decisions. The census also serves as a statistical snapshot of the nation at a point in time and as such serves valuable historical purposes.

The 1980 census provided data on place of work, travel time to work, mode of transportation, carpooling, and number of vehicles in the household--information of particular interest to planners in the transportation community. This conference will explore transportation data needs from the 1990 census, a topic that will be discussed in more detail in the following paper.

When one considers that the bicentennial of census taking in the United States is about to be observed, the next census takes on added importance: the Census Bureau wants to take a census that will be worthy of its long heritage. The 1990 census will be the 21st in an unbroken chain since 1790 and will produce data to carry us up to the 21st century.

1980 CENSUS

Progress comes from building on past experience of what worked well and what worked poorly. As a start, therefore, the bureau has made a thorough

examination of the 1980 census. On balance, the 1980 census was a success. Here are its major accomplishments:

- Preliminary estimates showed improvement in coverage over the 1970 census.
- Counts for reapportionment and redistricting were ready by the legally mandated deadlines.
- The public information and outreach programs were highly successful.
- Census data products contained more data for small areas and for ethnic groups than in 1970.

This is not to say that there were no problems with the 1980 census. Enumerating and collecting detailed characteristics for more than 226 million people and 88 million housing units are not simple tasks, particularly when the highly mobile nature of the American people and the diverse conditions and situations in which they live are considered. A careful look at some of the major problems of the 1980 census is a good starting point for 1990 planning. The problems the bureau faced in 1980 included the following:

- There was a shortage of funds that necessitated layoffs and disruption of data entry and processing efforts at a particularly critical time, which was one of the major causes for the delay in data dissemination.
- Large clerical operations independently produced the maps and other geographic materials. This method of production led to delays and inaccuracies in the materials and errors that had to be corrected before the bureau could release the data products.
- Many of the local field offices experienced delays in the receipt of necessary supplies and problems in hiring and retaining enough workers. These problems caused some offices to remain open much longer than budgeted.
- There were such unforeseen occurrences as a transit strike in New York, the eruption of Mount St. Helens, fires in two district offices, floods, and civil disturbances, all of which added to the time required to complete operations in selected offices.
- Finally, there have been a number of legal challenges related to concerns about the accuracy of the 1980 census.

Concentration on difficulties sometimes gives a distorted picture of what was essentially a successful census. Still, the Census Bureau must be realistic in facing shortcomings in the last census and direct its planning efforts toward recognizing the problems, identifying their underlying causes, and doing everything possible to prevent or lessen those difficulties in 1990.

The bureau has already begun to look at ways to alleviate those problems under its control. While the 1990 census was being evaluated, the bureau was busy looking for ways to make improvements in 1990. In the remainder of this paper, five of those areas will be discussed in which improvements are going to be made: collection techniques, automation, outreach and publicity, coverage measurement and improvement, and content.

COLLECTION TECHNIQUES

One area under examination in order to improve the 1990 census is the data collection methodology. For most of the country in 1980, the mail-out mail-back technique was used. The Post Office delivered questionnaires to each housing unit a few days before the census and householders were asked to fill them out and mail them back to a temporary census district office on April 1. Questionnaires were mailed back for about 83 percent of the occupied housing

units. A large work force (270,000 at peak) personally visited nonresponding units and vacant units about 2 weeks after the questionnaires were mailed.

This approach proved successful and is likely to be the basic data collection approach in 1990. However, modifications to this methodology are being considered for certain parts of the country. For example, in difficult-to-enumerate areas such as parts of large cities, where mail-return rates were low in the 1980 census, a two-stage approach will be tested. Basic, short-form data will be collected in the first stage and then sample or long-form data will be collected later.

AUTOMATION

Another major area of improvement will be the increased use of automation. With the vast advances in the electronic industry, many possibilities exist for further automating the census process to save time and money and increase accuracy. Traditionally, the census has been a paper-and-people-intensive task. The use of automated equipment can help to deal with the mountains of paper and the thousands of clerical tasks in a much more efficient and controlled way. Hiring, training, and finding space for all the people who have been needed to perform the numerous operations in past censuses has taken much time and money. Although the 1990 census will also likely require a large number of temporary workers, bureau staff is looking at ways to cut down on the number of labor-intensive activities.

There are many possible ways to automate the census, but only a few of them will be discussed here. Perhaps the most promising is the ability to convert the data to a computer-readable format earlier in the census process. When the 1980 census field offices closed, they shipped questionnaires to three sites for automated processing. For 1990, the bureau is looking at ways to capture data on machine nearer the point of collection. Capturing the data on computer early will allow more time for review and correction. The earlier data are captured by computer, the more the computer can help with the process of editing. Also, the computer record could serve as a backup to the original questionnaires in case they were inadvertently destroyed.

Another major automation improvement, one that is already well under way, is the automation of the production of geographic materials used in the census. As was mentioned earlier, one problem in the 1980 census was the poor quality of the maps used by enumerators and inconsistencies between maps and other geographic listings. The bureau is developing a new system called the Topologically Integrated Geographic Encoding and Referencing, or TIGER, system.

TIGER will combine maps, addresses, and census geographical areas into one base. To do this, the TIGER system will put into the computer the longitude and latitude of geographic boundaries (a process called digitizing). Census Bureau regional offices are already contacting local officials to determine changes that need to be made to update the local maps. In the final stages, the TIGER system will contain geographical information on the entire United States in a digitized file.

With this file, maps and area boundaries can be obtained quickly and accurately. TIGER will also automatically locate housing units within the appropriate geographical area for enumeration and data compilation purposes. Investments in automation may be helpful not only for 1990 but for future decennial censuses and other Census Bureau programs as well. The bureau is collaborating with the U.S. Geological Survey in producing this automated mapping system.

The bureau also intends to automate the address control file for the next census. With an automated file, it will be much easier to determine whether a

specific address has actually been included in the file, update the file, and keep track of which addresses have returned questionnaires. Reminder notices can be sent to those addresses that do not return questionnaires and nonresponding housing units will be investigated by enumerators.

These automation possibilities are exciting, but some words of caution should be added. Whatever systems are developed must be simple, because they will be operated by a temporary work force with minimal training. The systems must also be fail safe. Because the bureau must plan conservatively to avoid a crippling breakdown in any essential automated system, the latest technology must not be chosen. The lead times involved in obtaining new automated data processing equipment are such that decisions must be made several years before 1990. The cost of the new systems must also be reasonable.

Another of the challenges the bureau faces in planning increased automation for the census is to procure equipment for 1990 that will continue to have value to the bureau or be marketable to someone else on completion of the census. It would make no sense to have a junkyard of specialized equipment that will become useless in 1991.

As the bureau looks to increasing automation in the census, care must be taken to ensure that the confidentiality of the data collected is maintained both in fact and in appearance. Only by maintaining the confidentiality of the census process can the bureau ensure a high level of public trust and cooperation. The bureau is proud of its record of protecting confidentiality and is constantly looking for ways to maintain and improve that protection. The arrival of 1984 with its Orwellian overtones and the menacing implications of technology require that efforts be increased to convince individuals that they cannot be harmed by answering the census and that the information they provide is strictly confidential by law.

OUTREACH AND PUBLICITY

Still another major area for improvements in the 1990 census concerns outreach and publicity. Public cooperation is essential to the conduct of a good census. The public must understand the important uses of the census, trust in the confidentiality of the data, and act on this understanding and trust by including themselves in the census and by mailing back their census questionnaires. Therefore, the bureau is working to assure that its outreach efforts for the 1990 census will be better than those of 1980.

As stated earlier, the public information and outreach programs for the 1980 census were highly successful. The bureau made many special efforts to encourage public support for the census. Some of these promotional efforts were designed specifically to reach minority racial and ethnic populations to help reduce coverage differential among these groups and the rest of the population.

In 1980, the bureau formed three minority census advisory committees: one each for blacks, Hispanics, and Asian and Pacific Islanders. Bureau representatives participated in some 50 meetings of national minority organizations. The bureau also conducted regional meetings to obtain advice from the many tribal groups of Native Americans. In addition to these national programs, the bureau created the Community Services Program, for which it hired specialists specifically for their expertise in this area. They contacted local leaders and organizations that could encourage their constituents to cooperate with the census. These various activities and programs were extremely productive and contributed to the overall success of the 1980 census.

To provide general publicity, the bureau asked the Advertising Council to choose an advertising agency to conduct a public service advertising campaign free to the bureau. Independent evaluations show that the public service announcements were worth about \$38 million in air time. This dollar figure which

was for the period of January to June 1980, was greater than the paid advertising media expenditures in an average 6 months for all but two of the nation's largest commercial concerns--McDonald's Restaurants and Ford Motor Company.

A formal evaluation of the publicity campaign showed that it was extremely effective in increasing awareness of the census. In addition, the campaign significantly increased knowledge about the census among lower-income black and Hispanic households and had a positive effect on the mail response behavior of these same households.

In addition to the Advertising Council campaign, the bureau directed a series of major publicity activities at the minority media. For example, the bureau obtained testimonials from prominent minority leaders and celebrities, developed special television and radio spots designed to reach minority audiences, and printed special literature for distribution to minority populations. The bureau also encouraged local communities to set up complete-count committees to help generate local support for the census. More than 4,000 jurisdictions formed such committees.

Since 1980, the bureau has been examining the 1980 promotion efforts with the intention of repeating in 1990 those that were successful and supplementing them with new efforts. The bureau's Information Services Program, which operates in the regional offices, has absorbed the functions of the 1980 census Community Services Program. Thus, bureau staff will be maintaining contacts with community organizations throughout the 1980s, an important outreach effort leading up to the 1990 census. Through the activities of the Information Services Program, the bureau will also be able to fulfill the commitment it made to community groups in 1980 of providing data services to the organizations that were so helpful in publicizing the census.

The bureau has also already taken an important step toward ensuring that it receives national-level advice from minorities in 1990 census planning: it has recommended to the Secretary of Commerce that four minority advisory committees be chartered to aid in planning the 1990 census. The four committees would represent the black, Hispanic, Asian and Pacific Islander, and American Indian and Alaska Native communities. The committees would meet both as separate entities and jointly. Before deciding what course to take with regard to the advisory committees, the bureau convened a conference in January 1984 to discuss with representatives of the minority groups how best to proceed. The bureau is also continuing its program of participation at meetings of national minority organizations.

In preparation for the 1990 census, the bureau will continue to explore ways to reach out successfully to both minority populations and the general public. Many decisions remain to be made about how best to achieve this goal. For instance, the bureau has not yet decided whether to seek a public service campaign through the Advertising Council or to ask for funds to conduct a paid promotional campaign. Given the success of the pro bono advertising campaign for the 1980 census, the bureau would have to have strong justification for converting to paid advertising.

Bureau staff and outside experts met at a conference on outreach in September 1984 to discuss some of these issues. Participants were enthusiastic about their involvement in census planning at such an early stage and many excellent suggestions were offered for consideration and testing as part of the overall outreach plan.

COVERAGE MEASUREMENT AND IMPROVEMENT

After each census since 1950, the Census Bureau has attempted to measure the coverage of the population, that is, how well the people were counted. Although

statistical techniques are not available to measure coverage precisely, these studies have consistently shown that some groups of the population--blacks, for instance--are undercounted at a disproportionate rate to the rest of the population. Some persons have advocated that the census counts be adjusted to account for this disproportionate undercount.

Adjustment is a complex problem that involves statistical as well as legal, political, and perceptual issues. From the statistical standpoint, adequate measures of census coverage are needed for the nation, states, and smaller areas before adjustment can be made. For the 1980 census, the bureau had two major programs to measure coverage of the population. These programs provide a general idea of the degree of coverage in the 1980 census, but they do not provide the bureau with accurate enough information to adjust the 1980 census data for the undercount.

The issue of adjustment will be a major concern in planning the 1990 census. The bureau will continue to examine the use of different undercount measurement and adjustment techniques to determine whether a valid procedure can be developed for adjusting the census counts. A new organizational unit has been created to coordinate, monitor, and analyze undercount-related activities, and the National Research Council's Committee on National Statistics, a panel of technical experts, has also been working on this issue.

Regardless of whether the Census Bureau decides to adjust the 1990 census counts, both an accurate census and accurate measures of coverage in the census are needed. The bureau has embarked on a two-faceted approach that should achieve both of these goals. Both improving overall coverage and reducing differential coverage error by population group are of concern. Ideally, coverage in the 1990 census would be so good as to render academic the issue of whether to adjust the counts. Although such an ideal census is unlikely to occur, the bureau is working hard toward this goal.

Many steps are being taken to work on this problem. The improvements mentioned earlier in automation and collection techniques are aimed at making the census simpler and faster so that there is more time for review and appropriate corrections. Expanding the outreach and publicity efforts will also help to improve coverage. Also, good working relationships and a number of joint ventures with local officials are being established. In 1980 there was a local review program for the first time that allowed officials to review and comment on the census counts before the district offices closed. By working closely with local officials, that program can be made even more successful in the next census.

Finally, all the coverage improvement techniques used in 1980 will be examined and the ones that were effective will be kept or improved, the ones that were not will be dropped, and new ones will be developed. For example, the prec canvass activity used in the 1980 census proved to be very successful. In the prec canvass, census enumerators updated and corrected the precensus address lists by canvassing their assigned area, adding or deleting units or structures from the list, as appropriate, and making sure that housing units were listed in the correct geographical area. That operation will certainly be repeated and ways are being sought to improve it.

CONTENT

Because the purpose of the census is to meet data needs for 10 years, no part of census planning is more important than selecting the census questionnaire content. Census information is collected because it is constitutionally mandated or because federal agencies, state and local governments, business groups, demographers and economists, community organizations, and others have substantiated their need for information.

In determining which questions to ask in the census, the bureau consults with thousands of data users in numerous forums to ensure that it asks the most useful questions. The bureau determines the uses of existing census data and identifies current needs not being met; however, future data needs must also be anticipated. So in planning 1990 census content, the bureau will examine the 1980 census inquiries and ask such questions as the following: Which data will be needed in the 1990s? Are some of the questions no longer useful and can they be dropped from the 1990 census? Will new subject areas become critical in the 1990s? There are many decisions about census content to be made in the next few years. By law, the Census Bureau is obligated to report to Congress by April 1, 1987, on the subject areas for the census and by April 1, 1988, on the actual questions that will be asked.

Whatever decisions the bureau makes, four characteristics about the content of the 1990 census questionnaire are reasonably certain. First, only essential data will be collected--those needed to draw a picture of the American people and their housing and to administer federal, state, and local programs.

Second, many of the questions asked in 1980 will be repeated in 1990 to provide a continuum of vital socioeconomic and housing data: age, sex, race, marital status, income, housing tenure, value, and rent, for example. Thus, although there are likely to be important changes in census content, they will not be radical. The relative stability of census content over the last few decades stems in part from the relevance and usefulness of many basic items and the need to measure how they have changed over time.

Third, there will be no significant growth in the number of questions the bureau asks in 1990. One of the bureau's criteria for planning the 1990 census is to strike the proper balance between the need for information and the length of the questionnaire. This is necessary because the public cooperation essential for a successful census could be undermined by a questionnaire that the public finds too burdensome.

Fourth, the 1990 census form will not contain any question that is intrusive, offensive, or widely controversial. The bureau needs public cooperation for the census to work. In many countries there is a question about religion, but there has never been such a question in the U.S. census, and a law passed by Congress in the 1970s now forbids compelling a respondent to disclose information relative to his religious belief or to membership in a religious body.

As the census subjects are being determined, the bureau will work on the wording and format of individual questions. Wording and format are very important considering that the census is based on self-enumeration.

It must also be determined whether questions need to be asked for all persons and housing units or for only a sample or fraction of persons and housing units. The overall size of the sample must also be determined. The major determinants are the levels of geography and statistical reliability desired. The sample has included about 20 to 25 percent of the population in each of the last four censuses. For the 1980 census, one in six housing units (and its inhabitants) was in the sample, except for places with 2,500 or fewer people, where one in two housing units was in the sample.

Whether a question is asked on a 100-percent basis or on a sample basis depends on whether reliable data are needed for very small areas. For instance, if data on race are needed at the city-block level, the race question must be asked for all persons, because only a 100-percent sample can produce sufficiently accurate block-level data. The sample is adequate for producing basic data for census tracts and larger areas, such as most places, counties, Standard Metropolitan Statistical Areas, and states but not for blocks.

The planning for a census of population and housing is just as complex as carrying out those plans. It is hoped that this discussion has given an overview of the major issues that the Census Bureau faces in planning the next decennial census.