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Report on Cognitive Interviews on Two Six-Person Census Forms: Accordion and Bifold

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Abstract

This report contains the results of cognitive testing of six-person census short forms conducted by the Census Bureau. In May, 1998, cognitive testing of two six-person census short forms was conducted simultaneously by the Census Bureau, the University of Michigan, and Washington State University. The forms tested were the accordion and bifold structures, and the results of the testing by the University of Michigan and Washington State University were distributed in a memorandum dated July 30, 1998. The findings of the Census Bureau's research were similar to those of the contractors-that is, the research demonstrated that the bifold was preferable to the accordion in respondents' ability to navigate through the form and in the completeness of the information obtained.

Keywords: decennial census, short form, cognitive test

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

March 8, 1999

Memorandum for DISTRIBUTION LIST

From Theresa J. DeMaio
Center for Survey Methods Research
Statistical Research Division

Subject: Report of Cognitive Testing of Six-Person Census Short Forms

This report contains the results of cognitive testing of six-person census short forms conducted by the Census Bureau. In May, 1998, cognitive testing of two six-person census short forms was conducted simultaneously by the Census Bureau, the University of Michigan, and Washington State University. The forms tested were the accordion and bifold structures, and the results of the testing by the University of Michigan and Washington State University were distributed in a memorandum dated July 30, 1998. The findings of the Census Bureau's research were similar to those of the contractors–that is, the research demonstrated that the bifold was preferable to the accordion in respondents' ability to navigate through the form and in the completeness of the information obtained.

Attachment

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Introduction

The 1998 Dress Rehearsal is being conducted using a census short form that includes space for respondents to report census information for five household members, and report the names of up to seven additional persons for follow-up by Census Bureau staff. Plans currently being developed to conduct Census 2000 without the use of sampling call for a short form that includes space for respondents to report census information for up to six household members.

In response to this need, two census short forms were developed by Census Bureau staff that meet this objective. The forms contained the same identical content but were structured differently, and required different navigational processes on the part of respondents. One used an accordion format, while the other was designed as a bifold.

Three sets of cognitive interviews were conducted to test these forms. The interviews were conducted at approximately the same time and used the same procedures. One set was conducted by the University of Michigan working with the Gallup Organization; the second set was conducted by Don Dillman at Washington State University; and the third set was conducted by the Census Bureau staff in the Center for Survey Methods Research (CSMR). This report documents the results of the interviews conducted by CSMR.

Mailing Packages

The mailing packages included the outgoing envelope, census form, letter from the Director, and return envelope. The outgoing envelopes were similar in content for the two forms, but differed in size and shape to accommodate the differing form dimensions. The return address was in reverse print (that is, white print on black background) and contained the census 2000 logo and a U.S. Department of Commerce, Jeffersonville, IN address. Beneath the return address were the official government notifications (Official Business, Penalty for Private Use), and other notifications (Return Service Requested, Equal Opportunity Employer). Finally, to the right of the cellophane address window was an orange rectangle with rounded corners containing the Department of Commerce seal, and the notices "U.S. Census Form Enclosed" and "Your response is required by law." (See Figures 1 and 2 for facsimiles of envelopes for the accordion and bifold forms.)

Both the accordion and the bifold forms were designed as one-page questionnaires. The accordion was folded into five pages with width 5" and length 10 3/8". The cover page contained the person count question, WHUHE instruction, and tenure question. Each of the six person pages contained the same content as the Dress Rehearsal questionnaire. The size of the icons was decreased to accommodate the smaller page width of the six-person form as compared

with the five-person Dress Rehearsal form. There was a continuation roster to collect the names of persons 7-12, and an instructional page to help respondents navigate through the accordion form. The address label was on the back page of the form, which also contained the box of telephone assistance instructions. (See Figure 1 for a facsimile of the accordion form.) The Letter from the Director was the same size as the cover page of the form –5" x 10 3/8".

The bifold form was folded into three pages. The first two had width 9" and length 11". The third page was smaller, with width 7 ½". This page folded into the second page, and it enabled the respondent, when he/she opened the booklet, to see that there was another page beneath it that should be completed. The cover page contained the person count question, the WHUHE instruction, the tenure question, and the questions for Person 1. The inside pages of the booklet contained the six person spaces. There was a continuation roster to collect the names of persons 7-12. The address label was on the back page, which also contained the box of telephone assistance instructions. The form was folded horizontally for insertion into the envelope, and the dimensions when the form was taken out of the envelope were 5 ½" by 9". (See Figure 2 for a facsimile of the bifold form.) The Letter from the Director was the same size as the cover page of the form – 9" x 11".

The envelopes were stuffed in the following sequence: the Letter from the Director was on top, the return envelope was underneath, and the questionnaire was next, with the address label at the bottom of the pile. For the bifold, the form was folded with the half of the form containing the address label at the bottom of the pile. The pile was then inserted into the envelope so the address label showed through the cellophane window on the front of the envelope.

Research Methodology

Sixteen cognitive interviews were conducted between May 18 and June 5, 1998. In each interview, the respondent completed both the accordion and bifold forms. Two methodologies were used: concurrent think aloud and retrospective interviewing. The concurrent interviews gave in-depth information about respondents' thoughts and reactions while they were completing the forms. The retrospective interviews provided a more realistic view of how the respondents actually manipulated the forms and reported their answers, without verbal contact with the interviewer. In order to avoid contamination between the method of interviewing and the forms themselves, in one half of each type of interview the accordion was completed first, and in the other half, the bifold was completed first. In both interview methods, a debriefing session was conducted after respondents completed both questionnaires. They were probed for their reactions to a variety of aspects of the components of the mailing package.

Emphasis in recruiting respondents was placed on large households. This was done to maximize the number of person spaces completed by respondents, because the differences between the forms are more evident with households of four persons or more. Secondary emphasis was placed on respondents with minority racial/ethnic classification. The characteristics of the interviewed respondents are presented below:

Gender	Race/Ethnicity	Age	Household Size
4 Males	4 Whites	3 Aged less than 25	1 2-person household
12 Females	11 Blacks	8 Aged 25-54	5 4-person households
	1 Hispanic	4 Aged 55+	6 5-person households
		1 Age not determined	4 6-person households

Staff from CSMR conducted the interviews in the Census Bureau's cognitive research laboratory. Interviews were audiotaped and videotaped.

Results

The results of the interviews are presented in this section. Respondents' behaviors and reactions are presented separately for each piece of the mailing package. At the end of the section, a comparison of respondents' reactions to the two forms is included.

Envelope

Respondents were asked whether they had any reaction, either positive or negative, to the envelope. Overall, the reaction was generally neutral or favorable. When asked about the front of the envelope, which contained the census logo as part of the return address and a box with rounded corners containing the mandatory message, 4 of 16 respondents (25 percent) reported no reaction at all. Of respondents who did have a reaction, three-quarters had a favorable reaction. When asked about the back of the envelope, which contained the census logo and a graphic representation of a pen filling out a response box, there was even less reaction. Half of the respondents (8 of 16) reported no reaction. Three-quarters of respondents who did report a reaction had a positive one. Almost all respondents (15 of 16) said they would open the envelope if they received it at home.

Respondents were asked for their reactions regarding specific aspects of the envelope. First, they were asked whether the envelope looked like it was coming from the federal government or someplace else. More than half (9 of 16) said it looked like it was coming from the federal government. Those who felt differently thought it looked like it was coming from the private sector, like it was part of a sweepstakes, or like junk mail. Two respondents thought there were aspects of both "officialness" and "other" presentation. Almost three-quarters of the respondents (11 of 16) thought the envelope looked official. And two-thirds (10 of 15) said it did not look like junk mail.

Interviewers noted whether respondents noticed the mandatory message on the front of the form during the concurrent interviews. Most of the respondents (10 of 14) noticed the message while verbalizing their reactions to the envelope. When asked about the message, more than half (9) of the respondents said it would make them more likely to return the form, 6 said it would make no difference, and only 1 person had a negative reaction to the message. This is consistent with

previous research, the 1993 Appeals and Long Form Experiment, which documented that the mandatory message adds significantly to mail response.

Letter from the Director

The first thing respondents encountered when taking the contents out of the envelope was the letter from the Director of the Census Bureau. Respondents were asked whether they noticed the letter, and also whether they read it. The vast majority of respondents (in 27 of the 32 forms that were completed, counting both the accordion and bifold forms) said they noticed the letter, and for 24 of the 32 forms, respondents said they read the letter. There was a notable difference between respondents' behavior on the accordion and bifold forms in this regard. The letter was skipped more often on the accordion. Six respondents to the accordion form said they did not read the letter, compared with 2 respondents to the bifold form. According to interviewer observation, 7 respondents to the accordion form skipped the letter and 3 respondents to the bifold form skipped the letter. Interviewer observations also revealed that part of the reason for this is that the letter in the accordion mailing package had a tendency to stick in the envelope when the contents were taken out. Thus, respondents never even realized it was there. The envelopes used for the accordion mailing package were the envelopes used in the dress rehearsal, rather than being specifically tailored to the size of the form. Investigation after the fact has revealed that the dress rehearsal envelope was actually too large relative to the size of the form. As a result, the letter stuck inside and the leading edge of the letter was not visible to respondents. These accidental circumstances point to a critical lesson to be learned in designing mailing packages in the future: the dimensions of all pieces of the mailing package need to be looked at in concert. Small details left unattended may have large unintended consequences unless we pay attention to the way each piece fits together in the final product.

The Questionnaires

Respondents were asked to rate each questionnaire according to how difficult they thought it was to find a place to start filling out the form. Objectively, past experience has shown that the accordion form poses more problems in this regard. Respondents who take the form out of the envelope so the back, rather than the front, of the form faces them sometimes have problems finding the proper place to start. According to respondents' self-reports, however, there was no difference between the accordion and bifold forms in finding a place to start. On a scale from 1 (easy) to 5 (hard), the vast majority of all respondents (13 on the accordion form; 14 on the bifold form) gave an answer of 1. However, the interviewers also observed how respondents fared in finding a place to start filling out the form, and their reports showed a different pattern. Interviewers noted that in 5 of the 16 cases where respondents completed an accordion form, they had problems in finding a place to start. (These problems included putting person 1 in the wrong person space and leaving the household count item blank.) In contrast, only 1 of 16 respondents had a problem on the bifold form. This is an example of the difference between respondents' perceptions vs. their behaviors. As we shall see later, respondents preferred the

accordion form, and this overall assessment may very well have affected their response here in some way.

Another navigational aspect of the form that received attention was whether respondents had trouble putting the form back in the return envelope. In previous interviews this has proved to be problematic, with respondents struggling to figure out how the form goes into the envelope. Three respondents reported problems with the bifold form and one respondent reported problems with the accordion. This is a notable decrease compared to previous research, and it suggests that the addition of instructions on the envelope about having the bar code show through the window are effective. These instructions have been placed on the inside of the envelope showing through the window and on the inside flap where respondents seal the envelope. One suggestion for further improvement is to put the bar code instruction that shows on the front of the envelope in red to emphasize in amid all the busyness of the address and return address, which the respondent doesn't really have to pay attention to.

Respondents were also asked about the design of the cover page. First, they were asked whether they found Question 1, which obtains the population count for the household, to be confusing. Most respondents (12 of 16) reported that they did not find this question confusing. Twelve of 15 respondents said they did not have problems deciding who to include on the census form. Among those who did report problems, the results were surprising: two of the three respondents who reported problems questioned whether they were supposed to include their children. This is not something that had come up in any of our previous interviews. Apparently the word "people" did not necessarily include young children to some of these respondents, and they were unsure whether to include them.

Most respondents reported that they read the residence rules that are included at Question 1. Twelve of the 16 respondents said they read all of the rules; 3 said they read some of the rules, and only 1 respondent said they did not read any of the rules. Respondents were divided as to when they read the rules: 6 respondents read them before they answered the person count question, and 9 read them after they answered the person count question. Generally, respondents who read the rules after they have answered the question are less likely to apply them to their household situation. This is not necessarily a problem, since the rules are consistent with respondents' own conceptions about the composition of their household in the majority of cases. In fact, there were no instances where respondents changed their household counts when they read the rules after answering Question 1.

Respondents were asked whether they read the instruction about seasonal homes and temporary residences (the WHUHE instruction). Most respondents (9 of 15) reported that they read all of it. Three respondents reported that they read part of it. Most respondents (9 of 14) said they did not find it difficult to understand.

Respondents were asked whether they found Question 2, which asks about tenure, to be confusing. This question elicited the most problems of any on the cover page. Six of 16

respondents reported problems. These included questions about specific situations (renting with an option to buy and Section 8 housing) as well as with the wording of the question. Some respondents felt that the "Mark one box" instruction preceding the response categories got in the way. Others were expecting different response categories: based on the question stem, they thought they were being asked whether they lived in a house, apartment, or mobile home, and were surprised then they saw responses about owning and renting.

A few debriefing questions were asked about other questions on the form. Most respondents (15 of 16) had no trouble deciding who the include as Person 1 on the form. Other questions that were mentioned as problematic were age, race, and Spanish origin.

Comparisons Made by Respondents

The questionnaires that respondents completed were the same color as the dress rehearsal forms: yellow with orange outlines and black headings. After respondents had completed both of their forms, they were shown the same form printed in green (but not asked to complete it), and asked for their preference between the two colors. Respondents were fairly evenly split in their preferences: 7 preferred the yellow form, 8 preferred the green form, and 1 expressed no preference.

Respondents were also asked for their preferences between the two different form structures. When asked which they liked more, respondents noted a decided preference for the accordion form. Ten of 16 respondents liked the accordion more, and one had no preference. When asked which form was easier to complete, the preference was in the same direction, but not as pronounced. Half of the respondents (8 of 16) thought the accordion form was easier to complete, four thought the bifold was easier, and four had no preference. When asked which form was easier in terms of unfolding and refolding, the bifold was preferred. Ten respondents thought the bifold was easier to unfold and refold, while six thought the accordion was easier. This latter finding is consistent with the interviewer observations noted earlier about respondents having problems finding the proper place to start filling out the form.

Respondents consistently expressed a preference for the small size of the accordion form. They did not open either form out to its full single-sheet dimensions, and they found the small size of the page on the accordion form more convenient than the larger size of the bifold page. While they seemed to recognize some limitations in manipulating the accordion form, its advantages in terms of general size and convenience were seen to override the disadvantages.

Conclusions

Our conclusion based on this research is that the Census Bureau should adopt the bifold design for a six-person short form in Census 2000. Despite the respondents' expressed preferences for the accordion design, we feel that the quality of the data would suffer if this form were used. In some cases the inability of respondents to properly manipulate this form resulted in person 1

being reported in incorrect person spaces, with consequences for misreporting of relationship of household members. At least one respondent missed the cover page altogether, and as a result the household count question was left blank. While the bifold form was not preferred, it was filled out correctly more often than the accordion. It was not received negatively by respondents, and there is no reason to expect that there would be adverse consequences in terms of mail response.

In making this recommendation, we feel a need to qualify it. The bifold design that we tested worked very well. It begins with a Start Here section that includes both the household count and tenure questions and the Person 1 questions. A conscious decision was made not to include an explicit Person 1 section because a Person 1 header in the middle of the page would draw the attention of the respondent away from the top of the page containing the important household count question. Person 1 is an extremely persuasive header, and respondents tend to pay primary attention to that as the place to start. We know this based on previous testing with other designs of the short form. We feel that the bifold design as we have tested it is the short form that should be adopted for Census 2000.

The structure of the six-person short form was the main objective of this research. However, two supplemental recommendations are suggested based on this work. One relates to the content of the mailing package. The instruction "To return your census form, please make sure the BAR CODE ABOVE YOUR ADDRESS appears in this window" would be more noticeable by respondents if it were printed in red ink to stand out among all the black instructions that are primarily for use by the post office. Once the red instructions are covered up by the inserted form, they would not affect the use of the envelope by the post office.

The second supplemental recommendation deals with the procedures and materials for pretesting census forms. It is extremely important that all the pieces of the mailing package (envelope, letter from the Director, return envelope, census form) be considered as a whole in generating the materials for questionnaire pretesting, in order to maximize the effectiveness and representativeness of the research. Especially important in this process is the envelope, since this item takes the longest to create and is generally one of the last pieces to be developed.

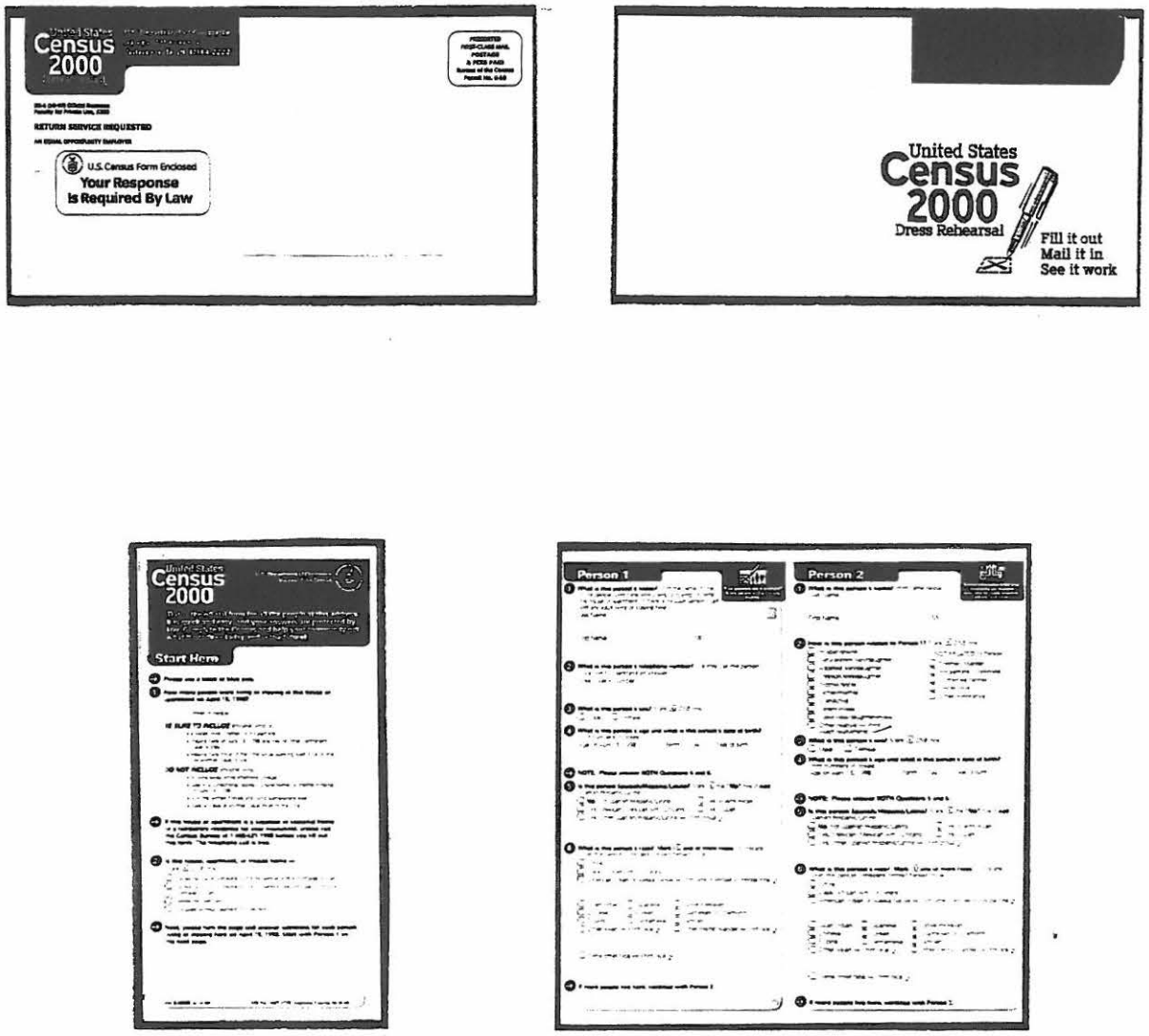

FIGURE 1. Reduced, color copy of accordion form, displaying front and back of envelope, cover page, Person 1 page, and Person 2 page of form. Original form is a booklet with eight, 5" x 10 3/8" pages.

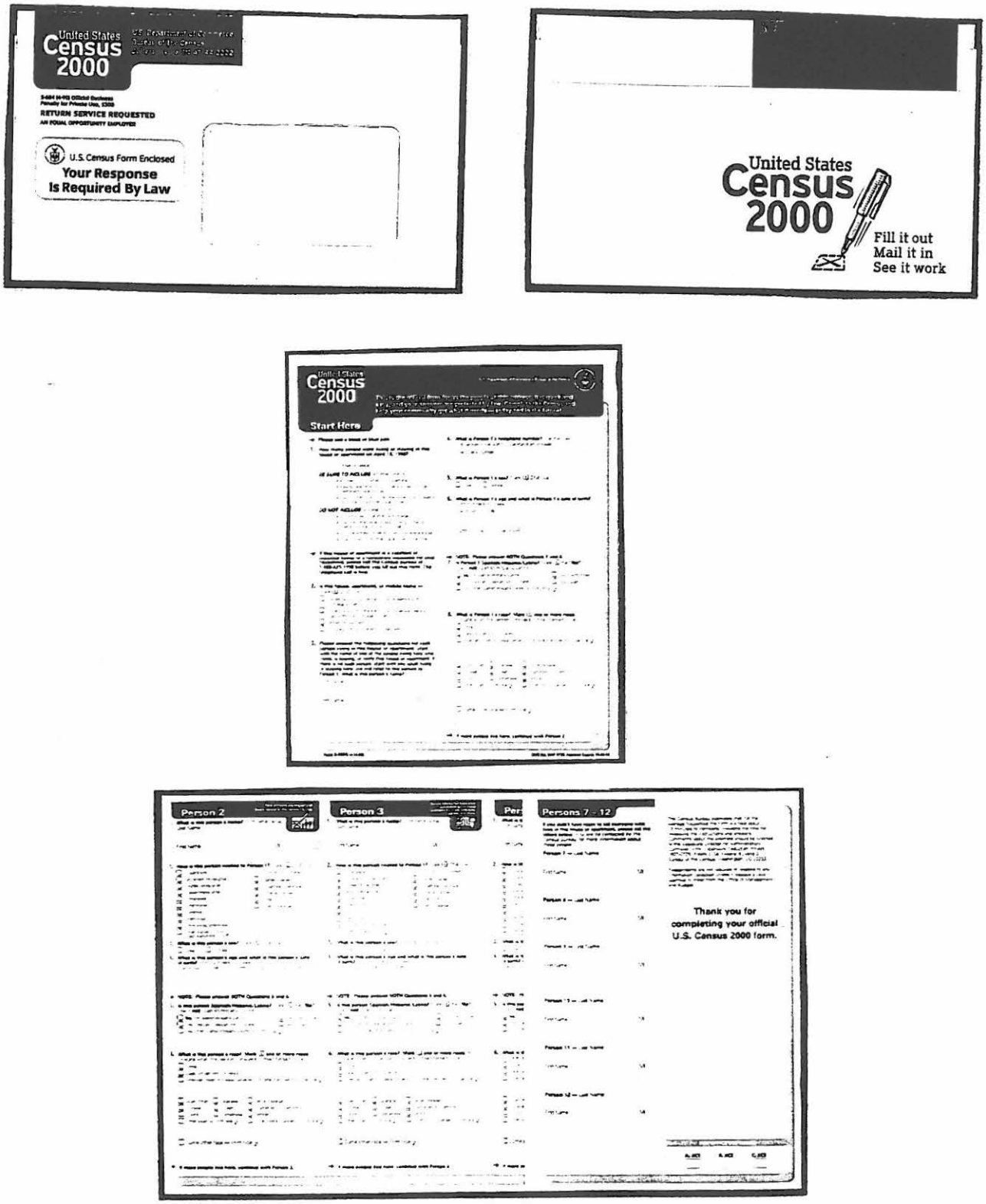

FIGURE 2. Reduced, color copy of bifold form, displaying front and back of envelope, cover page, second page, and last page folded in on third page of form. Original form is a booklet with six pages, four being 9" x 11" and two being 7 ½" x 11".