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**Lower Mail Response in the 1990 Census:
A Preliminary Interpretation**

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ABSTRACT

The lower than expected mail response to the 1990 Decennial Census increased costs and has been cited by some observers as cause to rethink the entire census design for 2000. This paper discusses results from two surveys that help to account for the low mail response. One, the Outreach Evaluation Survey, was conducted by the Census Bureau primarily to evaluate the effect of programs designed to heighten awareness of the census and to explain its uses and purposes. The survey comprised two waves of interviewing: one in the winter of 1990 prior to the start of outreach activities, and the other in late April and early May. The other survey, the Survey of 1990 Census Participation, emerged from a Joint Statistical Agreement between the National Opinion Research Center and the Census Bureau, to measure a variety of characteristics that might be related to census mail response. Interviewing for this survey occurred primarily in June and July.

This paper reports findings of a preliminary analysis of the data from the two surveys, with particular emphasis on examining correlates of respondents' self-reports of census mail response. The paper presents and discusses the observed association of each of several survey variables with census response, with attention to interactions with race and ethnicity. Comparisons to similar surveys in 1980 provide a context to assess how changes over time may have brought about the decline in response.

KEYWORDS:

survey participation, nonresponse

1. INTRODUCTION

The mail response to the 1990 Decennial Census was, in a word, disappointing. Plans for the census had assumed a 70-percent mail response rate, defined as the percentage of forms mailed or left by enumerators that are completed and mailed back by respondents. This projection reflected some pessimism, since comparable experience in the 1980 census was approximately 75 percent. By the start of nonresponse field followup around April 23, however, the mail response rate had reached only 65 percent. The shortfall required the Census Bureau to seek and receive a supplemental appropriation of approximately \$118 million to complete the field work necessary to follow up nonresponding households. By early May, mail response had grown an additional percentage point, to 66 percent.

Each census is the single best source of information for planning the next. The mailout/mailback design has relatively short history: it was introduced experimentally in 1960 and used for approximately 60 percent of the country in 1970 and about 95 percent in 1980 and 1990 (including in 1990 approximately 10 percent through update/leave enumeration, in which enumerators, instead of the post office, delivered the questionnaires for respondents to complete and mail back). If, by simple extrapolation, there are grounds to believe that mail response could be as low as 55 percent in 2000, then the next census will require even more resources to follow up nonrespondents than the one just completed, unless there is a fundamental change in design. If, on the other hand, the low response in 1990 can be seen as an aberration, then the several advantages of the mailback design may favor its continuation as the basic design of the census.

This is the tale of two surveys. One, the 1990 Outreach Evaluation Survey (OES), was a nationwide, two-phase survey conducted to evaluate the impact of the Bureau's decennial census promotional and outreach activities and national media campaign. The questionnaire emphasized exposure to these issues and measured knowledge of the census and attitudes towards it, as well as reported mailback of the questionnaire. The sample design was nationally representative, but it oversampled areas covered by District Offices (DOs) thought likely to experience the lowest mail response rates. The Census Bureau collected the data. The survey was planned well in advance and followed several precedents set by evaluations of the 1980 census.

The second survey owes its existence to the low mail response to the 1990 census. Comparisons made in April, 1990 suggested that declines in response cut across a wide variety of geographic areas. For example, response in each State was lower in 1990 than 1980. A group of researchers¹ within the Census Bureau proposed a new survey in late April. The draft questionnaire attempted to evaluate a number of hypotheses about causes of the decline in response, considerably broadening the scope of inquiry compared to the OES. The questionnaire also included a number of items appearing in the OES and previous evaluations, for purposes of comparison. Because of the extremely tight timing, the desirability of using an outside research organization to conduct the interviews, and the virtual necessity to begin work on such a survey without the ability to specify many of the details in advance, the Census Bureau entered into a Joint Statistical Agreement with the National Opinion Research Center (NORC) of the University of Chicago. The Survey of 1990 Census Participation (SCP) was the outcome. NORC assisted in the refinement of the questionnaire, conducted the interviews and managed all other aspects of field work, prepared data files of the results, and is collaborating with the Census Bureau in the analysis.

The preliminary interpretation of nonresponse offered by the title of this paper is an attempt to make a summary of the broad conclusions about mail nonresponse in the 1990 census based on the two surveys. The analysis will doubtless continue to evolve over time, and a number of researchers have planned several subsequent papers from the data.² The majority of analysis reported in this paper derives from respondents' recollections of their census mail response, but we have included preliminary results available for the OES based on matching the sample to the census data capture files to obtain the recorded information on response. Comparable results for the SCP await matching to the census files, scheduled for later this year.

Findings from the 1990 surveys will be compared to results from two predecessors, the 1980 Knowledge, Attitudes, and Practices (KAP) Survey and the 1980 Applied Behavior Analysis Survey (ABAS). The next section of this paper summarizes the design, timing, content, and other aspects of these two surveys, as well as the OES and SCP. An appendix supplements the section by providing details on sample design, estimation, and variance estimation. A third section discusses the levels of mail return rates estimated from the different surveys and possible reasons for differences among them. The fourth section focuses on those issues central to the OES intentions, namely, awareness, knowledge, and attitudes toward the census. The section features OES data primarily, but comparable results from each of the other three surveys are included where appropriate.

The fifth section shifts the focus to the SCP. First, the section reviews general hypotheses about reasons for mail nonresponse reflected in the initial SCP design and then assesses the extent to which the data support these hypotheses. The following section examines other patterns emerging from the SCP and OES data, including variation for traditional demographic variables. The seventh section addresses the evidence and implications of a phenomenon common to the OES and SCP: almost half of the census nonrespondents report not receiving the form instead of not mailing it back.

Finally, we conclude by offering a summary of our initial conclusions and possible directions for future research.

2. THE DESIGN OF FOUR EVALUATION SURVEYS

The four surveys to be discussed here shared the common purpose of investigating the mail return of census questionnaires. Consequently, all four included only regular housing units, omitting from the survey universe dormitories, hospitals, prisons and other census special places enumerated through specific procedures. The surveys also excluded approximately 5 percent of the U.S. not participating in the mailback but canvassed by, in 1980, "conventional enumeration," and 1990, "list/enumerate procedures." In each survey, the household was the unit of analysis. Figure 1 gives

¹ Robert Groves, now Associate Director for Statistical Design, Methodology, and Standards (then, Statistical Standards and Methodology) played the key role in conceiving and initiating the survey. A prototype questionnaire was developed by Elizabeth Martin, Theresa DeMaio, and Jeffrey Moore.

² Two papers are scheduled for presentation at the annual meetings of the American Association for Public Opinion Research in April and three for the meetings of the American Statistical Association in August.

two simple time lines showing the approximate dates of field work for the four studies.

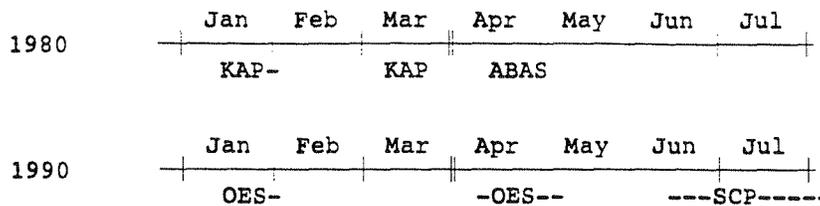


Figure 1 Time line representation for the four surveys. The double bar marks Census Day, April 1.

The KAP Survey and the ABAS provided complementary insights into factors affecting mail response in the 1980 census. The KAP Survey occurred at two points before the 1980 census: in late January and early February (Wave 1), before the census information campaign had substantially begun; and in mid-March (Wave 2) during peak promotional and outreach activity, just before the mailing of census questionnaires. This allowed for "before" and "after" measures designed to assess changes in awareness, knowledge, and attitudes to the census over time. The survey was not longitudinal; households interviewed in Wave 1 were different from those chosen for Wave 2. Because of the timing, neither wave of the survey collected information from respondents about census response. An independent contractor designed the sample and conducted the survey interviews by personal visit, turning the results over to the Census Bureau. Wave 1 yielded 2431 interviews for a response rate of 64 percent, and Wave 2 gave 2446 interviews for 79 percent. The Census Bureau was then able to match approximately 85 percent of the households from the second wave to census data to determine whether the household later responded to the census by mail. Moore (U.S. Bureau of the Census 1982) provided further details of the KAP Survey.

Regrettably, the original data file from the KAP Survey is lost. We recently had the data keyed from the original forms and questionnaires, and edited them, managing to replicate almost completely earlier unweighted tabulations. We have also been able to include the same basic weights based on the inverse probability of selection; however, we are unable to replicate the noninterview adjustment incorporated in the original weighting. Consequently, there are now modest differences between weighted tallies from the new file and findings reported earlier. For example, the original KAP estimate was that 90.0 percent of matched households returned their forms, whereas the reprocessed answer is now 90.2. Where they are available, we have shown previously reported estimates from the KAP Survey for the sake of historical consistency, but have assigned them standard errors based on the new data (since, for the most part, these standard errors were not included in the initial analysis); otherwise, both the estimates and standard errors are from the reprocessed data.

Each of the four surveys employed oversampling of target populations or subdomains to varying degrees, and, consequently, none is self-weighting. Specifics of the KAP sample selection, however, gave it the widest variation in weights. The direct estimates of sampling error provided in this paper appear somewhat unstable over similar characteristics in the KAP Survey, and we attribute this instability to the effects of the weights.

The primary focus of the ABAS was on the different stages of census response, that is, receiving the envelope, opening it, starting to fill out the form, completing and mailing it. The Census Bureau drew the sample directly from the census and conducted the interviews through personal visit in April. Results included here are all on the basis of the respondents' reports, which formed the basis of the primary analysis. The study included 8550 interviews with a response rate of 94 percent. DeMaio (U.S. Bureau of the Census 1983) reported the findings, and her tabulations are the source of all ABAS estimates reported here. No standard errors have been computed for these estimates, but the large sample size of the study provides a measure of reassurance about the reliability of the conclusions.

The OES in 1990 combined elements of the KAP Survey and the ABAS. Like the KAP Survey, the OES employed two waves. Also like the KAP Survey, the first OES wave was in late January and early February, to provide a "before" measure of awareness, knowledge, and attitudes. Unlike the KAP Survey but essentially paralleling timing for the ABAS, Wave 2 of the OES occurred between April 9 and May 9, so that sampled households should have received the census form and had a chance to mail it back. The OES may have interviewed some households before they mailed back a questionnaire, however. Like the

ABAS, the Census Bureau drew the sample for the OES from census information and conducted the interviews by personal visit. Specifically, sampled housing units for the OES were selected from precensus address files as of December, 1989, and do not include later additions to the census. Respondents were asked a set of questions about not receiving the form, not opening it, etc., comparable to the ABAS. Thus, the OES incorporates the critical features of the two 1980 studies. Offsetting this efficiency, however, is the possibility that the "after" measures in the OES, such as knowledge about the census, are affected by the census form itself and the process of completing it. Wave 1 included 2091 households, with a response rate of 94 percent, and Wave 2 included 2059 households, for 95 percent.

Planning for the SCP was initiated at the end of April, 1990. The universe was mail areas in the continental United States, excluding Alaska and Hawaii. The Census Bureau selected the sample of blocks for the survey but NORC drew the sample within blocks and conducted the interviews. Consequently, unlike the ABAS, sampling procedures for the SCP would have included households that never had a chance to receive a form because of omission from the census address registers or because they were added so late to the registers that they were scheduled for enumeration only through nonresponse followup. The interviewing occurred primarily in June and July, with a few interviews in early August. Personal visits provided 92 percent of the interviews, with telephone interviews permitted as a last resort. Approximately 89 percent of the sampled households participated in the survey, for a total of 2478 responding households.

Each study whose interviewing followed Census Day, April 1, had rules to select the household respondent according to the involvement with the census form. In the ABAS, respondent rules sought the person having the most to do with each step of enumeration — finding the envelope, opening it, starting and completing the form, and mailing it. Theoretically, the rules could have required several respondent switches, but no more than three respondents in a household were ever contacted in practice. The OES sought preferably a householder or other responsible adult member as a respondent for most of the interview. The Wave 2 interview began with the same questions as the Wave 1 interview, followed by a series of questions about handling of the form. At the juncture between the Wave 1 questions and the new questions, the Wave 2 interview switched to the respondent having the most to do with the census form. Thus, many OES items, namely the questions carried over from Wave 1, could have frequently been provided in Wave 2 by someone other than the person having the most to do with the form. The SCP instead incorporated a switch of respondents at the beginning of the interview, if necessary, to obtain the person who had the most to do with the census form if the form had arrived, or the person who usually handled the mail for the household, in the case that no form arrived.

3. LEVELS OF REPORTED MAIL RETURN RATES

Table 1 presents census form mail receipt and return figures reported by respondents in the ABAS, from Wave 2 interviews of the KAP Survey and OES, and from the SCP. Table 1 presents two types of measures: self-reported and recorded in the census data after matching. Table 1 displays the effect of distinctions reported by respondents between not receiving a form, and receiving but not mailing back a form, whereas the match to recorded census data provided only the overall mail response.

The comparison of the ABAS and OES estimates of households reporting receiving a form, 94.7 and 91.6 percent, respectively, indicates that approximately three percent fewer households reported having received the census form in 1990. Since both the ABAS and OES were drawn from the census address lists, these "no form" households cannot be attributed to coverage problems in the census lists but instead must arise from a combination of mail delivery problems, failure for the form to be recognized upon arrival, miscommunication or lack of communication within households, and problems of recall. On the other hand, the area sample used by the SCP permits the inclusion of housing units omitted from the census lists, but the plausibly lower estimate from the SCP, 89.9 percent, cannot be judged different from the OES estimate of 91.6 percent by a statistically significant amount. Thus, the comparison of the two 1990 estimates does not provide statistically significant evidence of omissions from the 1990 address frames as a factor affecting reported nonreceipt of the census form. Both 1990 estimates, however, indicate a higher proportion of households reporting not receiving the census form than in 1980.

The SCP and OES estimated mail return rates for those having received a form are similar, 87.5 and 86.5, respectively, and within sampling error of each other. They differ little from the ABAS estimate, 88.7 percent. (In this case, the issue of whether differences between 1980 and 1990 are significant at the 95-percent level

depends critically on the unavailable standard error for the ABAS estimate.) On the other hand, the 1990 mail return rate as a percent of households is clearly less than 1980, according to both 1990 surveys. Of all respondents, the estimated self-reported return percentage was 84.0, 80.1, and 77.8 in the ABAS, OES, and SCP, respectively, indicating a significant drop in mail response in 1990. Again, the OES and SCP estimates do not differ from each other by a statistically significant margin.

Table 1 Percent Receiving and Mailing Back Census Forms, According to Self-Reports and Matching to Census Files
(Standard errors in parentheses)

	Received as % of Total	Mailed Back as % of Recipients	Mailed Back as % of Total
1980 KAP Survey (matched)			90.0 ---
1980 ABAS (self-report)	94.7 ---	88.7 ---	84.0 ---
1990 OES (self-report)	91.6 (.7)	87.5 (1.3)	80.1 (1.2)
1990 OES (matched)			77.0 (1.5)
1990 SCP (self-report)	89.9 (1.1)	86.5 (1.0)	77.8 (1.4)

Note: The estimate from the KAP Survey was obtained in the original processing. The revised estimate is 90.2. See the text for an explanation.

The KAP estimate of response is highest of all, and that this estimate sits so high above the official mail return rate of 83 percent for occupied housing units in the 1980 census requires explanation. The fairly high noninterview rates for the KAP Survey raise the possibility that the noninterviewed KAP households later differentially became nonrespondents to the census. Alternatively, the attention paid to the census by the KAP interview could have inadvertently encouraged KAP respondents to complete and return their form later. Finally, the 15 percent of interviewed KAP households that were unmatched to the census and excluded from the estimates could have disproportionately fallen among nonmail return households.³

We consider the OES measure of response based on the match to the census to be preliminary. It reflects some arbitrary decisions that we will examine in later research.⁴ We have counted as mail respondents only those forms checked in on or before April 23. The results imply a preliminary estimate of reporting bias in respondents' self-reports of approximately 3 percentage points, but later investigations may lead us to revise this estimate. Although we intend further

³ The 1980 Post-Enumeration Program compared a reconstructed April 1, 1980 household based on reinterview with the census enumeration and found a considerably higher level of disagreement for households enumerated in census followup compared to mail response households (Fay, Passel, and Robinson 1988). A tendency for census followup to obtain the current residents instead of the April 1 composition of the household could account for this. Differences in composition in turn could have led to greater difficulty in matching nonmail households. In addition, KAP sample households later moving in April, May or June would have been correctly included in the census and available for matching if they had returned their form by mail but would have been at greater risk of not being included in the census at the KAP sample address if they had not returned the form and been assigned to nonresponse followup.

⁴ The match was on the basis of control number and did not establish whether the census household was the same as the responding OES household. For example, respondents may have answered the census at an earlier address at or around April 1, only to be visited later by a census enumerator at their new address; from the respondents' point of view, they were mail respondents but would have appeared to be nonrespondents in the matched data. We later intend to compare demographic characteristics of the OES respondents with the census composition of the matched households to determine whether the match was likely to have been exact.

refinement of the estimate of mail response from the match to the census, we judge that, on balance, it provides a useful preliminary indication of whether the effects of bias in the self-reported data might seriously affect the OES analysis. Falling between the two OES estimates, the SCP estimate does not differ significantly from either.

All of the estimates of mail return as a percent of total in Table 1 are approximate estimates of the mail return rate, the rate at which households that were sent a form mailed them back. The denominator excludes vacant units and deleted units that are included in the denominator of the mail response rate.

The 1980 census had an official mail return rate of 83 percent, as distinct from its mail response rate of 75 percent. Although an official mail response rate of 65 percent has been established, tabulations and definitions for computing the 1990 mail return rate have not been completed. Preliminary data indicate that this rate may be as low as 73 percent or as high as 76 percent.⁵ Thus, the OES estimate based on the match and the SCP estimate sit within sampling error of the upper end of this range, although all 1990 survey estimates are higher than the lower end.

Several factors may contribute to differences between the 1990 survey estimates and the actual, as yet imprecisely determined, 1990 mail return rate:

- 1) Some portion of Wave 2 interviews in the OES and all of the SCP interviews were conducted beyond the official mail response cutoff date. This overlap may have inflated the mail response estimates for both the OES and SCP by counting households that mailed back a census form after the cutoff.
- 2) OES and SCP mail return rates based on self reports may be biased upwards if respondents erroneously report that they mailed back a form. Table 1 presents preliminary evidence of some net reporting bias in the OES.
- 3) Nonresponding households in both surveys may have had lower census mail rates, thus inflating the survey estimates.
- 4) The frame for the OES omitted later additions to the census registers. On the average, these units may have had a lower mail return rate.
- 5) The SCP may have included some housing units omitted entirely from the census.

4. AWARENESS, KNOWLEDGE, AND ATTITUDES

As an evaluation of the 1990 census outreach programs, the OES was designed under the theory that these programs would have their impact on response to the census through heightened awareness of the census, increased knowledge of census procedures and uses, and positive attitudes towards the census. We will frame the discussion of these issues primarily in terms of results from the OES but include analogous or related findings from the ABAS, KAP Survey, and SCP where appropriate.

Awareness Table 2 compares whether respondents had ever heard of the census at different waves of the KAP Survey and OES, as an indicator of the public's general awareness of the census. For both the KAP Survey and OES, the measure was based on answers to two questions:

Q.10 Have you ever heard of the Census of the United States?

Q.11 [Ask if "No" or "DK" to Q. 10:] The census is the count of all people who live in the United States. Have you ever heard of that before?

At Wave 1, the percentage of households having "ever heard" of the census was already quite high. Nonetheless, the percentage significantly increased between Wave 1 and Wave 2 for both the OES and KAP Survey, although differences between waves were not large in an absolute sense.

Compared to Whites, both Blacks (significant at 90 percent but not 95) and members of Other races had a larger group of respondents who had still "never heard" by Wave 2 of the OES. Overall, very few people have absolutely no awareness of a U.S. census, but, apparently, variations in the size of this core "unaware" group exist according to race and ethnicity. Non-Hispanic Whites and Hispanics had significant increases in awareness over waves in 1990. In 1980, Black and Hispanic awareness lagged that of Whites at both waves.

⁵ Bryant (1991) includes the estimate of 73 percent in her discussion of the 1990 census, based on conservative assumptions. Another, although possibly less valid, computation is to use the vacancy/delete rate of 14.1 percent as of December 28, 1990 to adjust the mail response rate of 65 percent to obtain 76 percent for eligible households that could respond. The true value probably lies between these bounds.

Table 2 Comparisons of KAP and OES Measures of Awareness and Contact

	<u>1980 KAP</u>		<u>1990 OES</u>	
	Wave 1 Jan/Feb	Wave 2 Mar	Wave 1 Jan/Feb	Wave 2 Apr/May
<u>Percent who ever heard of the census</u>				
Total	90.8 (1.3)	95.4 (1.2)	92.9 (.8)	96.7 (.9)
White, non-Hispanic	93.4 (1.7)	97.0 (1.0)	94.7 (.9)	98.5 (.6)
Black, non-Hispanic	81.2 (3.6)	90.0 (2.4)	87.9 (3.7)	88.5 (5.2)
Hispanic	66.1 (11.9)	84.2 (3.8)	87.9 (2.1)	95.9 (1.5)
Other	-	-	82.0 (5.3)	89.5 (4.4)
<u>Percent who heard recently of the census</u>				
Total	40.7 (4.9)	72.5 (2.4)	56.9 (1.8)	90.6 (1.2)
White, non-Hispanic	44.1 (6.6)	73.7 (3.2)	59.2 (2.1)	93.2 (1.0)
Black, non-Hispanic	37.3 (4.0)	65.8 (3.9)	47.0 (5.6)	78.4 (3.9)
Hispanic	24.5 (6.0)	74.8 (6.2)	54.4 (4.1)	89.7 (2.5)
Other	-	-	48.1 (7.8)	80.8 (5.6)
<u>Number of information sources cited, 7-point scale</u>				
Total	0.7 (.09)	1.7 (.17)	1.4 (.06)	3.1 (.08)
White, non-Hispanic	0.8 (.11)	1.6 (.20)	1.4 (.07)	3.2 (.08)
Black, non-Hispanic	0.9 (.13)	1.8 (.15)	1.2 (.23)	2.6 (.36)
Hispanic	0.6 (.13)	2.2 (.23)	1.4 (.13)	3.4 (.10)
Other	-	-	1.1 (.21)	2.6 (.23)
<u>Number of correct answers, 8-point scale</u>				
Total	4.2 (.10)	4.4 (.33)	4.2 (.11)	5.0 (.13)
White, non-Hispanic	4.4 (.14)	4.5 (.43)	4.5 (.13)	5.2 (.14)
Black, non-Hispanic	3.2 (.26)	3.9 (.19)	3.5 (.31)	3.7 (.27)
Hispanic	2.3 (.33)	3.7 (.24)	3.7 (.23)	4.9 (.14)
Other	-	-	3.4 (.39)	4.1 (.31)
<u>Number of correct answers, 6-point scale</u>				
Total	3.5 (.08)	3.6 (.30)	3.5 (.09)	3.9 (.10)
White, non-Hispanic	3.7 (.11)	3.7 (.39)	3.7 (.11)	4.1 (.11)
Black, non-Hispanic	2.9 (.22)	3.4 (.16)	2.9 (.23)	2.8 (.21)
Hispanic	2.1 (.32)	3.3 (.24)	3.1 (.21)	3.9 (.11)
Other	-	-	3.0 (.35)	3.4 (.24)
<u>Attitudes about the census, 6-point scale</u>				
Total			4.8 (.08)	4.7 (.07)
White, non-Hispanic			4.9 (.08)	4.8 (.07)
Black, non-Hispanic			4.5 (.13)	4.4 (.23)
Hispanic			4.5 (.16)	4.6 (.11)
Other			4.8 (.26)	4.7 (.20)
<u>Confidentiality index, 3-point scale</u>				
Total	1.8 (.05)	1.8 (.10)	2.1 (.04)	2.3 (.04)
White, non-Hispanic	1.9 (.04)	1.8 (.12)	2.2 (.05)	2.4 (.04)
Black, non-Hispanic	1.6 (.08)	1.7 (.09)	2.0 (.08)	2.1 (.11)
Hispanic	1.8 (.28)	2.1 (.14)	1.9 (.09)	2.2 (.06)
Other	-	-	2.1 (.16)	2.4 (.10)

Note: Estimates for Other races in 1980 have been suppressed because of extremely large standard errors.

The second part of Table 2 provides a clearer picture of the 1990 outreach effect on awareness. When OES respondents were queried

Q12c Have you seen or heard anything recently — within the last month or so — about the Census of the United States?,

the awareness levels at Wave 1 were higher in 1990 than 1980. One explanation is that the 1990 Census Awareness and Products Program (CAPP) efforts were more frequent and effective than the counterpart program implemented in 1980. Unlike the short-term national media campaign, CAPP personnel conducted census-related activities such as workshops, network meetings, conferences and exhibits throughout the entire year before the census. The higher "starting point" in 1990 could be evidence that CAPP outreach resulted in more extensive awareness, earlier. Comparison of Wave 1 estimates suggests this: for example, the KAP Survey estimated that 5.4 percent⁶ had seen posters, handbills, or other print advertisements, while the comparable OES estimate was 10.1 percent. Table 3 displays these and similar comparisons of specific forms of exposure for the KAP Survey and the OES. Several differences at Wave 1 are quite significant: 25 percent in the KAP Survey hearing about the census through television vs. 37 percent in the OES; 21 percent through newspapers in 1980 vs. 39 percent in 1990; 12 percent through radio in 1980 vs. 18 percent in 1990; and 8 percent through magazines in 1980 vs. 12 percent in 1990.

In Table 2, the percentage point increase between Wave 1 and Wave 2 in those reporting recent contact was much larger than for the more general "ever heard of the census" question, in both the KAP Survey and OES. Overall, and within each race subgroup, the increase over time was large and statistically significant.

It would first appear that a much larger percentage had heard or seen something recently about the census at Wave 2 in 1990 than in 1980. The difference in the timing of the two surveys, however, makes this comparison difficult. In 1980, Wave 2 interviews were completed just before the census forms were mailed. In 1990, the forms had already been mailed out at the time of the second interview. A direct comparison of this item across surveys, then, is not appropriate without acknowledging those in 1990 who started to "hear recently" about the census when they received the form in the mail. When respondents receiving a census form were asked

Q30 Did you know there was going to be a census before you received the census form in the mail, or was the mailing the first news you heard?,

approximately 12.4 percent (s.e.=1.7 percent) of them responded that receiving the form was the first news they had of the census.

In an admittedly rough correction for the Wave 2 timing differences, subtracting this percentage from the 1990 "heard recently" group yields a Wave 2 level much more in line with the 1980 figure (i.e., $90.6 - 12.4 = 78.2$ compared to 72.5). Consequently, it is not clear that there was any substantial increase in recent awareness just before the 1990 census, compared to 1980, beyond the effects of survey timing.

By Wave 2 in 1990, Blacks and Other races lagged significantly behind Whites in their reports of hearing recently about the census. The increased awareness between Wave 1 and Wave 2 for these two groups was still statistically significant, however. By Wave 2, the percentage of Hispanics who reported having heard or seen something recently was not significantly different from Whites, and Hispanics were more likely to have heard recently than Blacks. (The remaining possible between-race comparisons at Wave 2 in 1990 are not statistically significant.) In 1980, the percentage point gain for hearing recently was greater for Hispanics than for Whites or for Blacks, but differences among these three groups at Wave 2 are not significantly different.

The SCP included a similar question, Q18, asking respondents if they had "seen or heard anything within the past few months about the census?" The wording of the question was expanded to "the past few months" compared to the KAP and OES versions in order to refer back to the time around the census. Nonetheless, only approximately 58 percent of the SCP sample responded affirmatively, roughly the same proportion as at Wave 1 of the OES. Those answering "no" to Q18 were asked more specific questions about hearing about the homeless count, lawsuits, mail delivery problems, and low response. When unaided recall is combined with aided recall, 87 percent of respondents in effect reported hearing something about the census, not too far below OES Wave 2 levels.

⁶ In this case and for the balance of Table 3, we report the results from the new KAP data set, because we were unable to closely replicate the earlier result. In this case, the previous result was lower, increasing the difference with 1990.

Table 3 Comparisons of KAP and OES Measures of Exposure Through Specific Media

	1980 KAP		1990 OES	
	Wave 1 Jan/Feb	Wave 2 Mar	Wave 1 Jan/Feb	Wave 2 Apr/May
<u>Percent who heard of census through television</u>				
Total	24.7 (2.1)	51.4 (6.3)	37.3 (1.7)	77.9 (1.4)
White, non-Hispanic	24.4 (2.6)	51.7 (7.8)	38.3 (2.0)	80.6 (1.4)
Black, non-Hispanic	27.3 (3.5)	51.0 (4.0)	34.0 (5.7)	64.1 (8.1)
Hispanic	18.1 (3.7)	61.8 (7.7)	40.1 (3.3)	78.2 (4.0)
Other			26.5 (7.6)	63.5 (7.1)
<u>Percent who heard of census through newspapers</u>				
Total	20.8 (2.3)	29.7 (6.3)	39.4 (1.6)	66.1 (1.8)
White, non-Hispanic	22.3 (3.0)	28.6 (7.5)	43.1 (2.2)	70.1 (1.9)
Black, non-Hispanic	16.3 (2.9)	35.9 (3.7)	25.9 (4.2)	50.2 (6.0)
Hispanic	8.6 (4.2)	39.9 (6.2)	29.6 (3.5)	57.0 (4.0)
Other			23.4 (5.4)	53.1 (6.2)
<u>Percent who heard of census through radio</u>				
Total	11.5 (1.7)	30.4 (2.4)	18.0 (1.5)	47.3 (1.9)
White, non-Hispanic	11.2 (2.1)	30.2 (2.9)	17.2 (1.8)	48.2 (2.1)
Black, non-Hispanic	12.8 (2.2)	32.6 (3.9)	17.4 (4.6)	38.4 (7.8)
Hispanic	13.3 (3.9)	36.0 (5.8)	29.4 (3.8)	55.9 (3.2)
Other			12.2 (3.7)	42.9 (4.7)
<u>Percent who heard of census through magazines</u>				
Total	7.8 (1.6)	9.6 (2.1)	12.2 (1.1)	26.2 (1.4)
White, non-Hispanic	7.3 (1.9)	9.2 (2.4)	12.9 (1.3)	27.8 (1.5)
Black, non-Hispanic	10.9 (3.0)	12.0 (2.4)	11.2 (3.1)	17.9 (3.8)
Hispanic	2.9 (1.7)	17.1 (4.5)	7.2 (1.6)	24.5 (3.1)
Other			15.0 (5.9)	22.8 (5.1)
<u>Percent who heard of census through meetings</u>				
Total	3.3 (0.8)	5.5 (1.3)	4.8 (0.7)	9.1 (0.8)
White, non-Hispanic	2.1 (0.6)	5.1 (1.5)	3.8 (0.6)	8.4 (0.9)
Black, non-Hispanic	9.2 (3.0)	7.3 (1.8)	8.4 (2.8)	12.4 (3.1)
Hispanic	4.1 (1.4)	10.5 (3.1)	6.1 (1.6)	14.0 (2.0)
Other			7.4 (4.8)	7.0 (2.7)
<u>Percent who heard of census through print advertisement</u>				
Total	5.4 (1.0)	16.9 (4.0)	10.1 (1.0)	32.1 (1.3)
White, non-Hispanic	5.5 (1.2)	16.8 (4.9)	9.5 (1.1)	31.5 (1.5)
Black, non-Hispanic	5.0 (1.6)	16.1 (2.3)	13.1 (3.2)	32.5 (4.7)
Hispanic	4.9 (1.6)	19.3 (5.8)	13.6 (2.4)	43.3 (3.7)
Other			6.0 (2.5)	28.0 (6.5)
<u>Percent who heard of census through informal conversations</u>				
Total	11.0 (2.0)	22.6 (5.1)	14.2 (1.1)	52.8 (2.4)
White, non-Hispanic	11.0 (2.5)	20.5 (5.7)	13.8 (1.2)	53.8 (2.6)
Black, non-Hispanic	10.9 (2.1)	31.9 (3.9)	13.8 (3.6)	44.8 (5.4)
Hispanic	7.6 (3.0)	39.1 (6.3)	16.7 (2.7)	62.8 (5.2)
Other			18.2 (5.9)	41.8 (5.2)

Note: All KAP Study estimates are based on the new file.

The SCP also included a question on whether the respondents expected their census form before it arrived, asked at different points of the interview for nonrecipients and recipients.

Q5 (to nonrecipients) Back in late March or early April, were you expecting to get a census form in the mail?

Q47 (to recipients) Now I'd like to get back to the topic we were discussing before — the census form. Before the census form arrived, were you expecting to get a form in the mail?

By combining answers to the separate questions, approximately 81 percent⁷ reported expecting, not far below the 86 percent in the OES who knew of the census before the form arrived. In other words, most respondents who knew something about the census appear to have expected a census form.

The ABAS included similar questions on expecting a form:

Q7 (to nonrecipients) Have you heard any news recently about the census?

Q9 (if "yes" to Q7) Were you expecting to get a census form in the mail?

Q17 (to recipients) Had you heard anything about the census before the census form came?

Q18 (if "yes" to Q17) Were you expecting to get a form in the mail?

The skip pattern in the questionnaire implicitly assumes that persons who had not heard about the census recently would not have expected a form in the mail. Approximately 13 percent had heard no recent news, 6 percent had heard news but not expected a form, and 81 percent expected a form, essentially identical to the SCP proportion.

Table 4 displays mail return rates in the KAP Survey and OES for several measures, the first of which is recent exposure to the census. Respondents reporting recent exposure to the 1990 census were much more likely to have mailed back their census form than those without recent exposure, while the KAP differences were in the same direction but not significant. Exposure had a significantly greater effect, in terms of percentage point differences, in 1990 than 1980, according to OES and KAP comparisons. The similar measure in the SCP based on combining unaided and aided recall of whether the respondent had heard anything about the census in the last few months also showed a significant effect, with 79 percent of those hearing reporting mailing back a form vs. 69 percent of those not hearing anything. Thus, the effect in the SCP is less strong than in the OES.

While differences between decades can be seen for both those with recent exposure and those without, the most notable difference is between the "no exposure" group's mail return rates. These rates were much higher in 1980, suggesting that the baseline tendency to cooperate was much higher. If 1990 participation rates were lower across-the-board to begin with and the effect of exposure was to bring up a low base of cooperation, the outreach campaign could have been very successful at yielding improvements and yet still failed to achieve the same participation levels as 1980.

Comparison of ABAS and SCP findings on a similar item, whether the respondent expected a census form, produces a quite different interpretation. In 1980, those expecting a form returned by mail at approximately an 88 percent rate, those who had not heard anything recently about the census at 66 percent, and those who had heard about the census but not expected a form at 61 percent. Similarly, SCP respondents reporting expecting a form responded at 84 percent vs. 55 percent for those not expecting. These measures indicate an extremely strong effect of awareness in both 1980 and 1990.

During both waves of the OES and the KAP Survey, respondents were asked a battery of questions about various sources used to disseminate census information. These included community groups, magazines, television, newspapers, radio, informal conversation, and print advertisements such as posters, some of which appeared in Table 3. By adding together the number of these various sources cited, an "exposure index" was created as a rough indicator of the volume and variety to which a respondent was exposed to census information and publicity. (The OES also asked questions about local officials and information through school children, which are not included in the index for the sake of comparability.) Those reporting no exposure to the census were treated as having 0 sources. The means of this index appear in Table 2. By Wave 2 in 1990, respondents cited an average of approximately three different sources through which they had recently seen or heard something about the census. The increase in the number of

⁷ This percentage is calculated only for those responding. Item nonresponse was approximately 3 percent. If all households are included in the denominator, the rate is 79 percent.

sources cited between waves was statistically significant overall and within all racial subgroups. Somewhat surprisingly, Hispanics reported the highest mean number of sources at Wave 2. Mean scores to the exposure index at Wave 2 were significantly higher for White respondents than for the Other race category; no other Wave 2 between-race comparisons were statistically significant. Comparable results in 1980 showed the greatest increase for Hispanics and a significantly higher Hispanic score than White at Wave 2.

Table 4 Mail Return by Measures of Awareness, Knowledge, Attitudes and Confidence in Confidentiality

	1980 KAP	1990 OES	
		Self-report	Matched
<u>Reported recent exposure</u>			
Yes	91.1 (2.4)	82.2 (1.4)	78.7 (1.5)
No	86.7 (4.8)	49.8 (4.1)	59.4 (5.0)
<u>Number of sources cited</u>			
Low (0)	87.1 (4.3)	54.0 (4.7)	62.8 (4.6)
Medium (1-2)	93.0 (3.3)	75.8 (3.1)	70.9 (3.6)
High (3-7)	87.9 (2.0)	84.7 (1.4)	81.6 (1.8)
<u>Knowledge index, 8-point scale</u>			
Low (0-4)	89.7 (6.0)	65.4 (3.1)	67.3 (2.9)
Medium (5-6)	90.9 (1.8)	84.1 (2.1)	79.6 (2.2)
High (7-8)	90.7 (2.3)	90.3 (1.8)	85.4 (2.1)
<u>Knowledge index, 6-point scale</u>			
Low (0-2)	85.2 (6.6)	62.0 (4.6)	65.8 (2.8)
Medium (3-4)	92.8 (3.3)	79.5 (2.6)	77.1 (1.8)
High (5-6)	90.1 (1.6)	87.1 (1.8)	82.1 (2.3)
<u>Attitude index</u>			
Low		72.0 (2.7)	71.3 (2.6)
Medium		83.3 (3.2)	76.5 (3.1)
High		85.7 (1.7)	83.7 (2.2)
<u>Confidentiality Index</u>			
Low (0-2)	90.9 (4.2)	73.5 (2.3)	72.4 (2.5)
High (3)	90.7 (2.2)	86.1 (1.3)	82.2 (2.0)

Table 4 summarizes the relationship between the index of total sources of exposure to census information and census mail return rates. Scores from the exposure index were categorized into roughly equal proportions, and the mail return rates for the three resulting groups were examined. A strongly positive trend between the number of sources cited and mail return rates can be seen for 1990. This association is more evident than in 1980, when a clear trend in mail return rates beyond the possible effects of sampling error fails to emerge from the KAP data. (The ABAS results here contradict those from the KAP Survey, however. The ABAS estimated mail response at approximately 65 percent, 82 percent, 87 percent, and 90 percent for those with exposure through 0, 1, 2, or 3 or more sources, respectively.)

In the 1980 KAP Survey, those with no recall of any exposure still mailed back the census form at a higher rate than those with 0-2 sources of exposure in 1990. One hypothesis is that the "saturation" point for number of sources necessary to have any effect has increased in the last ten years. In 1980, exposure to only 1-2 sources may have been enough to encourage a substantial return rate. Ten years later the number of sources required to achieve a similar rate may have risen substantially. One explanation could be the waning public interest in national news and other national media. As people's interest in current events and political issues diminishes, it may become necessary to promote census awareness through local rather than national means.

Another explanation may be changes in the content of news reports about the census compared to 1980. Exposure from television, newspapers, and magazines consists not only of outreach-initiated public service announcements but also of local and national news reports. In 1990, media coverage included reports about potential undercount, statistical adjustment, non-receipt of forms, and counting the homeless population.

Such topics might have been negatively perceived and/or presented, thus "counterbalancing" exposure to the Advertising Council announcements, which presented census information only in a positive context. Those with no exposure in 1980 probably experienced neither positive nor negative stimulus about the census, whereas respondents reporting 0-2 sources in 1990 might have been exposed to only negative media reports. Unfortunately, the "exposure index" used here simply measures the amount of exposure without consideration to the content and/or type of medium being reported, thus making it difficult to confirm this alternative explanation from the OES data.

The SCP offers some evidence on types of information that respondents remembered. As previously noted, Q18 on the SCP questionnaire asked if the respondent had heard anything within the last few months about the census. Interviewers recorded unaided responses and then asked up to four aided recall questions about the homeless count, lawsuits, and people not getting or not returning forms, not asking an item if the respondent had already mentioned it. In unaided recall, the problem with low response was the most salient, cited by approximately 22 percent of all respondents. By combining unaided and aided recall, however, approximately 64 percent had heard of the homeless count, followed closely by 60 percent for low response problems. About 42 percent had heard about mail delivery problems, but only 4 percent about lawsuits. Apparently, many SCP respondents either did not interpret Q18 to refer to the same period as the Wave 2 OES respondents or could not recall hearing about the census after a few months had passed without the aided recall questions that followed.⁸

SCP respondents who reported hearing anything about the census through either unaided or aided recall were asked:

Q24. Did what you saw or heard about the census make you feel more like taking part in the census, less like taking part, or didn't it affect you one way or the other?

Approximately 67 percent of respondents chose the neutral outcome, 30 percent the positive, and only about 4 percent the negative. Reported mail response was indeed significantly reduced for those who regarded the information as negative, but indistinguishable for the other two outcomes to Q24. Consequently, some information may have indeed been adverse, but a relatively small number of respondents perceived that it had a negative impact on their decision to participate in the census.

In addition to the generally neutral or positive respondents' assessments of the effect of what they heard on their response, those reporting through unaided or aided recall hearing about the homeless count were significantly more likely to respond than those who did not: 81 percent vs. 72 percent. Results for hearing about mail delivery problems, 82 percent vs. 75 percent, and for low response, 82 percent vs. 70 percent, were similarly positive. Each of these issues could have created negative impressions about the census, but the awareness of each of them is positively associated with response. Thus, the suggestion here is that general awareness of the census has a strong positive association with response, which is generally not reversed by knowledge of specific census problems.

Knowledge An important goal of the OES was to examine the effects of the outreach effort on knowledge about the census. Table 5 examines individual responses over time to questions asked in the KAP Survey, OES, and SCP. The questions were:

Q16 Do you know how often a census is taken in the United States? (Not in SCP).

Q17a Is the census used to decide how much money communities will get from the government? (KAP: Do you think the census is used to find areas of the country that need government help? SCP: To find areas of the country that need government help. Do you think the census is used for that purpose?)

Q17b Is the census used to decide how many representatives each state will have in Congress?

Q17c Is the census used to see what changes have taken place in the United States?

Q17d Do the police and FBI use the census to keep track of people who break the law? (KAP and SCP: Do the police and FBI use the census to keep track of troublemakers?)

Q17e Is the census used to help business and governments plan for the future?

⁸ Context may have influenced this result. SCP respondents had already been asked a number of questions about the census before this question. Many, based on conversational principles, (e.g., Levinson 1983) may have excluded anything about the census reflected in previous answers.

Q17f How about: to locate people living in the country illegally? Is the census used for that? (KAP and SCP: How about: to locate illegal aliens? Is the census used for that?)

Q20 Does the law require you to answer the census questions? (KAP and SCP: Do you happen to know what the law says about answering the census questions? Do you have to answer the questions, or can you choose not to?)

Significant increases in the percent correctly responding between Wave 1 and 2 were found for six of the eight knowledge items in 1990. Further, at Wave 2, knowledge levels were higher for two of the eight items, Q16 and Q17a, compared to 1980.

Table 5 Knowledge and Attitudes About Census and Census Uses

		1980 KAP		1990 OES		1990 SCP
		Wave 1	Wave 2	Wave 1	Wave 2	
<u>Knowledge Items (% Correct)</u>						
Q.16	How often is census	46.6	43.2	46.7	62.3	-
Q.17a	Community funds	46.1	53.4	50.7	63.4	66.4
Q.17b	Apportion congress	65.4	62.5	63.8	65.9	71.3
Q.17c	Demographic changes	72.1	77.8	75.4	80.8	86.3
Q.17d	FBI/police purposes	57.6	61.3	48.2	57.0	67.8
Q.17e	Government planning	74.3	76.4	77.3	77.0	83.3
Q.17f	Locate illegal aliens	43.3	50.2	38.0	45.5	56.3
Q.20	Census required by law	26.4	35.3	22.9	44.5	38.0
<u>Attitude Items (% Favorable)</u>						
Q.21a	Can trust promise	66.0	73.3	78.4	79.0	64.3
Q.21b	Invasion of privacy	76.4	78.4	80.9	73.4	74.5
Q.21c	Important to count	--	--	95.1	93.3	--
Q.21d	Oth agncs can't see	--	--	59.0	64.1	27.4
Q.21e	Not used against you	65.7	72.2	78.4	81.0	74.9
Q.21f	Census shows pride	--	--	86.9	82.4	--
<u>Confidentiality (% "No")</u>						
Q.18	Anyone outside see?	46.5	48.4	57.2	71.4	73.5

Table 5 shows that the SCP indicates generally increased knowledge of the census by respondents in June and July, compared to Wave 2 of the OES. Only knowledge of whether the census is mandatory is significantly lower in the SCP. Except for the effect of the census on community funds, the remaining SCP knowledge items in Table 5 are significantly higher than in the OES.

Table 2 presents two measures of census knowledge: an 8-point scale based on all of the preceding questions, and a 6-point scale emphasizing census uses, excluding the two questions, Q16 and Q20, primarily concerned with census procedures. Those respondents reporting no awareness of the census were not asked the questions and were assigned a score of 0. Scores on both indices increased significantly overall, and, with the exception of Blacks, for each of the racial/ethnic groups. (The large standard errors on the Black estimates obviate a definitive conclusion about whether Blacks failed to improve; the conclusion is simply that the sample data do not provide firm evidence of improvement.)

In 1990, Whites not only had the highest score on knowledge of census facts at the time of the first interview but also experienced a significant increase over time and at Wave 2 had a significantly higher score than Blacks or Other races. Hispanics also increased their knowledge between interviews and achieved higher scores at Wave 2 than Blacks and Other races. As already noted, Blacks did not significantly increase their score over time and at Wave 2 had the lowest score for all racial groups. This finding represents evidence that the 1990 thrust to educate minorities was not equally successful across all targeted racial and ethnic groups.

These findings contrast with 1980 results, which showed no significant gains in knowledge for Whites but gains for Blacks and especially Hispanics. Large standard errors in 1980 affect the estimates for Whites in the second wave, so that the White estimates, while higher, are not significantly different from the estimates for Blacks or Hispanics.

The comparison in Table 4 of mail return rates by level of census knowledge follows the pattern set earlier by the effect of census exposure on response. Again, a strongly positive trend emerges in 1990, but not 1980. An analysis of the SCP, based on the seven SCP variables in Table 5, also indicates a similar trend, that is, as knowledge levels increase, mail-back participation increases as well. Compared to the last decennial census, the relationship between knowledge and response is stronger. The mail return rates for those with low knowledge in 1980 were, again, better than those with low levels in 1990.

The 6-point index more closely follows the original KAP analysis than the 8-point index, emphasizing census uses and importance over knowledge of census procedures. Those with low knowledge had the lowest estimated response in 1980, but differences in response compared to the other two knowledge groupings are not significant. Subsequent multivariate analysis detected greater importance for this form of knowledge, specifically, that knowledge had a positive effect on mail response for lower income households (U.S. Bureau of the Census 1982).

While the overall association of knowledge and response is clear in 1990, Table 6 attempts to identify whether some knowledge questions are better indicators than others. The table shows response rates for those answering each of the questions correctly. The SCP clearly points to only one item, knowledge that the census is required by law, as more effective than the others. In the OES, the estimate for this item is also higher than all others, but the difference is only marginally significant. The combined evidence from the two surveys together, however, makes a case for the distinctiveness of this one item in 1990. Standard errors for the KAP values hide any substantive differences among items in 1980.

Table 6 Association of Knowledge and Attitude Items with Reported Census Response, KAP, OES, and SCP: Response for Those with Correct Answer or Favorable Attitude

	1980 KAP	1990 OES		1990 SCP
		Self-report	Matched	
<u>Knowledge Items</u> (% mail response of those answering correctly)				
How often census	91.0 (1.5)	85.4 (2.0)	82.6 (1.8)	
Community funds	89.9 (2.3)	83.6 (1.8)	80.3 (2.2)	79.7 (1.6)
Apptn Congress	92.1 (1.7)	84.6 (1.8)	80.5 (1.8)	80.8 (1.5)
Demog changes	90.4 (1.9)	82.5 (1.6)	78.6 (1.7)	79.2 (1.4)
FBI/police purp.	90.5 (2.0)	85.3 (1.6)	80.9 (2.2)	80.7 (1.6)
Govern planning	91.1 (1.7)	82.2 (1.5)	79.6 (1.6)	78.8 (1.5)
Locate ill. alns	91.7 (2.1)	85.4 (1.7)	79.2 (2.4)	80.6 (1.5)
Required by law	92.1 (6.0)	87.0 (1.2)	81.7 (1.9)	85.1 (1.5)
<u>Attitude Items</u> (% mail response of those answering favorably)				
Can trust promise	90.4 (2.9)	84.3 (1.3)	79.9 (1.6)	80.9 (1.4)
Invasion of privacy	90.6 (2.8)	83.0 (1.5)	79.8 (1.7)	81.0 (1.5)
Important to count	91.6 (2.2)	82.7 (1.4)	79.0 (1.5)	
Oth agncs can't see		83.8 (1.3)	81.0 (1.9)	81.0 (1.9)
Not used agnst you	91.4 (2.7)	83.3 (1.4)	79.1 (1.7)	80.1 (1.5)
Census shows pride		83.7 (1.3)	80.2 (1.5)	
Census helps all	90.3 (2.6)			79.9 (1.4)
Most because law	92.3 (2.4)			77.6 (1.8)
Peop don't care	90.5 (2.5)			82.9 (1.5)
Very import. U.S.				79.9 (1.4)
For pols/bus. only	91.1 (2.4)			80.4 (1.5)
Patriotic thing	90.8 (2.4)			81.2 (1.4)
No good purpose	90.5 (2.4)			80.3 (1.4)
Everyone's intrst	90.7 (2.3)			80.2 (1.4)
Helps community				82.1 (1.2)

Note: The percentages give the proportion of those answering correctly or expressing a favorable attitude who mail back the census form. The last column of Table 1 gives the proportions for the overall sample. The standard errors in this table should not be used to test the significance of individual items compared to the overall sample, since there is a high correlation between the estimates.

A question included in the SCP reveals that most respondents had very little knowledge of the census design:

Q10. If a household does not send back a completed census form in the mail, will the people who live there be counted in the census?

Only approximately 12 percent of respondents answered "yes" to this item, which would indicate an understanding of the role of the followup of nonrespondents. Furthermore, a subsequent question to the 12 percent who answered "yes," — "How will they be counted?" — elicited both correct and some less correct answers, such as that the Census Bureau would make guesses. Consequently, to the extent that some respondents make a choice not to mail back the form, it would seem that few could take into account that their decision would add to the expense of the census because someone would have to visit them later.⁹

Attitudes One popular explanation for the lower-than-expected mail response rate is that negative perceptions of federal government spending, control, and performance have resulted in low opinions and trust in government. This is hypothesized to have contributed to an indifferent attitude by many respondents about census participation. Attitudes about government in general will be examined in the next section, with data from the SCP. All three surveys included questions to measure attitudes about the census and the Census Bureau. Table 5 presents results for the individual questions, each asking for respondents' agreement or disagreement with a statement:

Q21a The Census Bureau's promise of confidentiality can be trusted.

Q21b The census is an invasion of privacy.

Q21c It is important for everyone to be counted in the census. (OES only).

Q21d The Census Bureau would never let another government agency see my answers to the census. (SCP: Do you feel that other government agencies could obtain census information about you if they really tried? KAP: absent)

Q21e People's answers to the census cannot be used against them.

Q21f Taking part in the census shows I am proud of who I am. (OES only)

Based on the analysis of the individual items, there is little evidence that the 1990 outreach was responsible for improving people's attitudes toward the census. For three of the six items, no significant change occurred between Waves 1 and 2. Of the three remaining items, two shifted significantly in the direction opposite the expected. The SCP gives lower estimates than Wave 2 of the OES for three of the four comparable items.

The almost complete absence of significantly positive shifts in attitudes and the presence of some negative shifts could be explained by the timing of the 1990 Wave 2 interview. Households had already received their form, and many had already filled them out and sent them back. Having recently seen the form and its contents, respondents may have been likely to judge the census more negatively (especially with regard to privacy concerns) than in 1980 when the form had not yet arrived. This was apparently more true for those respondents who reported receiving the long form; for example, in the OES, 29 percent of the "long-form" respondents agreed that the census was an invasion of privacy compared to 16 percent of the "short-form" recipients.

Another reason for the lack of change in attitudes may be that respondents who "never heard" of the census were excluded throughout the attitude analyses for the OES (although not for the SCP). Similar to the "exposure" and "knowledge" measures, respondents who reported never having heard of the census were not asked a large portion of the questionnaire. These households were assigned scores of "0" to exposure and knowledge, but no assumptions were made about these respondents' attitudes toward the census. As a result, Wave 1 estimates may have been inflated slightly toward favorable attitudes, making an increase over time more difficult to detect. Despite the lack of evidence showing improved attitudes over time, the percentage of favorable attitudes at Wave 2 were quite high for most items and had even increased slightly compared to two comparable items in 1980. Similar results, that is, positive attitude levels with little change over the course of the campaign, were found in 1980 as well (from Table 5 and more extensively in U.S. Bureau of the Census 1982).

The "attitude index" created by summing favorable responses to the six items from Table 5 appears in Table 2. Overall, attitudes between Wave 1 and Wave 2 remained unchanged. Additionally, no differences were found among the four racial/ethnic groups

⁹ It is possible that the question wording may be partially responsible for this result. Respondents are only explicitly told that the person did not mail back a form. In fact, it is possible for some mail nonrespondents not to have been counted in the census, if normal census followup procedures all failed. The wording leaves to the respondent the responsibility of judging what to assume.

over time. On average, however, respondents answered favorably to approximately five of six statements about the census and/or Census Bureau.

T-tests for between-race differences at Wave 2 indicate that Whites had a significantly higher number of favorable responses toward the census compared to Blacks, although the difference is small in absolute terms. None of the remaining between-race comparisons at Wave 2 were found to be significantly different.

A similar positive trend in mail response as was seen for "recent" exposure, sources of exposure, and the census knowledge items appears in Table 4 for the census attitude measure as well. In other words, mail response appears positively associated with favorable attitudes. It is probably inappropriate to view this trend as a "success story" for the outreach campaign, however, considering the lack of increase in favorable attitudes over time. Rather, this finding probably reflects the pre-existing disposition of those with more favorable attitudes being more likely to participate in the census by mail.

The results in Table 6 fail to identify any questions distinctly more associated with response than the others.

Privacy and Confidentiality Increased public concern about privacy and confidentiality is another common hypothesis to explain decreases in 1990 census participation. People may have been less willing to provide census answers because they fear the data will be misused and shared with other government agencies. An additional fear (and one that may have increased since 1980), is the possibility of security breaches by "computer hackers." This threat of illegal access to census records may have added to people's unwillingness to provide the Census Bureau with personal information.

Three comparable questions from the KAP Survey and OES were summed into a "census confidentiality index" designed to measure levels of trust that answers are kept in confidence. Table 5 presents results from the items separately at each interview wave. As measured by percent agreeing that the Bureau will not share its information (question 21d), public belief in confidentiality appears to have increased by Wave 2. The percent agreeing to the remaining two items (questions 21a and 21e) increased over time, but not significantly so. The 1990 levels were actually better at Wave 2 when contrasted individually to the same questions from 1980. The large majority of respondents appear to believe that data are kept confidential and this belief has not decreased since the last decennial census. While there is still room for improvement, the number of persons trusting in confidentiality has not waned since 1980 and therefore doesn't seem a salient explanation for the decreased mailback participation levels.

The rewording of the equivalent of Q21d in the SCP, which, among other changes, added the phrase "if they really tried,"

Q17 Do you feel that other government agencies could obtain census information about you if they really tried?

produced a dramatic downward shift in confidence compared to Q21d from the OES or to Q16 in the SCP. Consequently, the strength of the public's belief in the Census Bureau's ability to guarantee protection of information may be wide but not deep.

To determine whether the "confidentiality index" fluctuated between racial groups, mean scores were calculated by race at both waves of the OES. The results are shown in Table 2. For the total population, trust in the confidentiality of the census had significantly increased by the time peak promotional activities were underway. Within races, both Whites and Hispanics reported a significantly higher degree of trust in the confidential nature of the census at Wave 2 compared to Wave 1. Blacks, conversely, held a lower opinion of the Bureau's confidentiality pledge: their levels remained essentially stable over time and were significantly lower at Wave 2 than for Whites and the Other race category. The remaining between-race comparisons at Wave 2 were not significantly different. Essentially no significant differences appear in 1980.

Table 4 summarizes mail return rates by categories of the census confidentiality index. The pattern here is as before: confidentiality shows a significant association with response in 1990 but not in 1980. While the public's trust in confidentiality may not have substantially declined over the last decade, perhaps those with doubts were more likely to act on their skepticism by withholding cooperation during the last census. On the other hand, the lack of association in 1980 repeats the pattern of finding no significant associations in the results from the 1980 KAP Survey for many of the measures that would have been expected to affect response.

Table 7 displays results from other questions about privacy concerns that appeared in the SCP. The display in Table 7 gives both the marginal distribution of responses to the privacy question and the distribution of mail response according to response to the privacy question. For example, Table 7 shows that 41.9 percent of respondents said that they had ever felt that their privacy is being violated by banks and credit companies; 77.2 percent of this group responded by mail, 12.1 percent did not mail back the return, and 10.7 percent didn't receive it.

Table 7 Additional SCP Questions Pertaining to Concerns about Privacy

	Marginal	<u>Recipency/Mail Response</u>		
		Mailed Back	Didn't Mail	Didn't Receive
"Do you ever feel your privacy is being violated by ..."				
Q39A "Banks and credit companies when they ask about your finances?"				
Yes	41.9 (1.4)	77.2 (2.1)	12.1 (1.3)	10.7 (1.7)
No	54.7 (1.4)	78.9 (1.4)	11.5 (1.1)	9.6 (1.1)
DK/missing	3.3 (.4)			
Q39B "Neighbors who gossip about you and your family?"				
Yes	28.7 (1.5)	70.9 (2.2)	15.5 (1.5)	13.6 (2.0)
No	65.1 (1.4)	81.6 (1.3)	9.7 (.8)	8.6 (1.0)
DK/missing	6.2 (.8)			
Q39C "The government when it collects tax returns?"				
Yes	21.7 (.9)	75.2 (2.7)	13.7 (1.8)	11.1 (1.7)
No	74.1 (1.0)	79.1 (1.4)	11.2 (1.0)	9.7 (1.2)
DK/missing	4.1 (.6)			
Q39D "The government when it takes the census?"				
Yes	14.4 (1.0)	68.3 (3.1)	20.2 (2.4)	11.5 (2.1)
No	82.1 (1.0)	80.2 (1.4)	10.1 (.9)	9.7 (1.2)
DK/missing	3.6 (.5)			
Q39E "Computers which store a lot of information about you?"				
Yes	54.5 (1.3)	78.6 (1.9)	12.5 (1.3)	8.9 (1.4)
No	38.9 (1.5)	77.1 (1.5)	10.8 (1.1)	12.1 (1.4)
DK/missing	6.5 (.7)			
Q39F "The people who ask questions on public opinion surveys?"				
Yes	21.6 (1.1)	75.7 (2.6)	15.8 (2.0)	8.5 (1.6)
No	72.8 (1.2)	78.9 (1.4)	10.5 (.9)	10.5 (1.2)
DK/missing	5.6 (.6)			

Note: The percentages in the first column sum to 100, as do percentages across each row formed by the remaining three columns.

Table 7 exhibits wider variation among items than Table 6. Some items, particularly Q39D which asked if the census had violated their privacy, have a more pronounced association with mail response than others. The difference in mail return rates for Q39D is primarily due to low rates of mailing back for form recipients who felt that the census violated their privacy, rather than differences in the rates at which they reported receiving the form. The 14.4 percent of respondents who answered "Yes" to question Q39D provide evidence of a subgroup with conscious opposition to the census. There is no significant difference in mail response, on the other hand, according to response to Q39E asking about privacy violations by computers, even though this concern is shared by many. The question about neighbors who gossip, Q39B, yielded significant differences in mail response. In summary, knowledge and attitude items seem to display approximately the same positive association with mail response, but the various items measuring concerns about privacy have much more variable associations with mail response.

Advertisements for the Census SCP respondents were asked about exposure to advertisements for the census through both unaided and aided recall. If a respondent reported hearing or seeing something about the census during the past few months, the respondent was asked an open-ended question about the source, and a notation was made for those respondents mentioning advertisements. Those not reporting advertisements in this way were subsequently asked a direct question about whether they had seen or heard any. When responses from unaided and aided recall are combined, slightly over half, 57 percent, reported exposure to advertisements in the campaign. Exposure was significantly related to census response to about the same degree as other measures of awareness: those exposed reported responding to the census at approximately 80 percent vs. 75 percent for those who were not.

5. HYPOTHESES ABOUT LOWER MAIL RESPONSE

The content of the SCP was largely shaped by the intention to investigate a number of hypotheses about lower mail response. The submission to the Office of Management and Budget (U.S. Bureau of the Census 1990) listed the following hypotheses:

- a. Limited time at home and increased requests for information have produced lower participation.
- b. The large amount of mail received by households limited the visibility of the census questionnaire.
- c. Persons with greater knowledge of the uses of census data tend to participate.
- d. Those who know of friends' and/or relatives' participation status are influenced by that knowledge.
- e. Those with ongoing experiences in citizen involvement are more likely to participate.
- f. Those with high trust in government/political efficacy are more likely to participate.
- g. Those who doubt the confidentiality of the data tend not to comply.
- h. Those aware of positive/negative media stories about the census are affected by that awareness.
- i. Those who have problems reading the form tend not to participate.
- j. Those threatened by government intrusion in their lives tend not to participate.
- k. Those with household structures without blood or marriage ties tend not to participate.

The Census Bureau also entered into a number of Joint Statistical Agreements with several researchers to conduct focus groups with census mail respondents and nonrespondents to discuss possible causes for the low response. Groves and Moore (1990) summarized principal themes emerging from the focus groups by the following list:

- l. **THE FORM LOOKS TOO HARD** The design of the census questionnaire and related materials increases the perceived burden of completing the form because it makes filling out the form appear more difficult than it really is.
- m. **THE FORM REQUIRES TOO MUCH EFFORT** People who feel that the questions are too burdensome or take too much effort to answer tend not to return the questionnaire.
- n. **NON-TRADITIONAL HOUSEHOLDS** Persons living in households without an adult member at home during the day, no clear head of household role, or stable membership, perceived a greater burden for completing the questionnaire.
- o. **UNCLEAR ELIGIBILITY** Persons who are unsure of their eligibility for enumeration tend not to return the form.

- p. **TOO MUCH JUNK MAIL** Persons interpreting the census request as another request from unknown, unsolicited sources (e.g., junk mail) tend not to return the questionnaire.
- q. **LACK OF TRUST IN GOVERNMENT** Those with low trust in government or political efficacy tend not to return the questionnaire.
- r. **PRIVACY AND CONFIDENTIALITY** Privacy and confidentiality concerns affect response in the following ways:
 1. The confidentiality pledge is valuable only for information considered sensitive and not already revealed. Little of the short form information is affected by this; some of the long form is affected.
 2. Those who do not distinguish statistical information from personally-identified information do not value the pledge of confidentiality.
 3. Those aware of breaches of security in computer networks or who doubt the ability of the Bureau to fulfill the pledge of confidentiality tend not to return the form.
- s. **LOCAL GOVERNMENT IS INEFFECTIVE** Publicity linking census cooperation to funding allocations for local government services may be counter-productive for persons with low trust in their local government.
- t. **MONOLITHIC, "BIG BROTHER" GOVERNMENT** Those who do not distinguish the Census Bureau from other government agencies make their decision to comply based on general attitudes toward the government.

Those who believe they have already supplied the information to the government tend not to comply.
- u. **"WHAT'S IT FOR?"** Those who do not know how the requested information will be used tend not to comply.
- v. **PATRIOTISM/CIVIC DUTY** Those with high levels of patriotism or commitment to civic duty tend to return the questionnaire.

Only a few of these items fit into the framework of awareness, knowledge, and attitudes toward the census, including concerns of confidentiality, namely, c., g., h., r., and u. In this section we examine a number of the remaining hypotheses that can be addressed through the SCP.

Limited time at home/increased demands on time Hypotheses a. and m. touch on limited time at home and other demands on time. Table 8 presents selected SCP items related to these hypotheses. The first combines two questions, Q78B and Q78C, to determine whether all adults in the household worked full time. The table shows that 40.1 percent report all adults to be working full time, and that these households responded at an estimated 75.9 percent rate. Those with an adult at home would presumably on average have more time to take care of duties such as responding to the census, but differences in reported mail response are marginally significant, at most.

Other variables were also included on the questionnaire to measure competing demands on time. For example, a possible hypothesis is that the experience of participating in other surveys may have disinclined respondents from the census, but the relationship is instead positive; in particular, based on Q35, the 38 percent of the sample reporting participating in other surveys were significantly more likely to have reported mailing back the form and significantly less likely to have reported never getting the census questionnaire. About 85 percent of the respondents reported that people came by or called, either to sell something or about charity (Q37), but these respondents were more likely to report mailing back the form and less likely not to have received it, or to have received it and not mailed it back. In other words, some implications of hypotheses a. and m., for example, that respondents with greater external demands on their time would be less inclined to participate in the mail census, are reversed in the data. More in accord with expectations, approximately 13 percent of respondents complained about the government's requests for information (Q34), and marginally significant downward shifts in mail response are observed for this group.

Table 8 also includes variables related to the more specific theme of finding time to answer the census. Questions 73 and 74 were asked only of persons who had started the

Table 8 SCP Questions Pertaining to Limited Time at Home, Requests for More Information, Effort Required to Respond

	<u>Recipency/Mail Response</u>			
	Marginal	Mailed Back	Didn't Mail	Didn't Receive
Q78B/Q78C: All adults work full time?				
All full-time	40.1 (1.7)	75.9 (1.8)	13.8 (1.3)	10.3 (1.4)
One or more not	58.4 (1.7)	79.1 (1.6)	10.8 (1.1)	10.1 (1.2)
NA/missing	1.4 (.3)			
Q34: Government bothers too much with requests for information?				
Yes	13.3 (.8)	72.6 (2.8)	16.2 (2.2)	11.2 (2.0)
No	85.2 (.9)	78.8 (1.5)	11.4 (1.0)	9.8 (1.2)
NA/missing	1.5 (.3)			
Q35: Respondent participated in other surveys?				
Yes	37.5 (1.5)	82.9 (1.8)	10.7 (1.1)	6.5 (1.3)
No	60.1 (1.4)	75.5 (1.5)	12.4 (1.2)	12.1 (1.3)
NA/missing	2.4 (.4)			
Q37: People come by or call to sell or about charity or other cause?				
Yes	85.1 (1.1)	80.1 (1.5)	10.8 (.9)	9.1 (1.1)
No	12.8 (1.0)	64.7 (2.6)	18.7 (2.7)	16.6 (2.4)
NA/missing	2.1 (.4)			
Q73: Felt important to fill out right away (of those who started the form)?				
Yes	65.3 (1.3)	95.9 (.6)	4.1 (.6)	
No	16.2 (1.0)	81.7 (2.1)	18.3 (2.1)	
NA/missing	18.4 (1.1)			
Q74: Hard to find time to complete form (of those who started the form)?				
Yes	14.4 (.8)	79.9 (2.4)	20.1 (2.4)	
No	67.6 (1.3)	95.8 (.6)	4.2 (.6)	
NA/missing	18.0 (1.1)			
Q75: Deadline for sending back form (of those who opened the envelope)?				
Yes	65.8 (1.4)	91.4 (1.0)	8.6 (1.0)	
No	10.0 (.8)	82.9 (2.4)	17.1 (2.4)	
Don't know	11.4 (.7)	80.7 (2.6)	19.3 (2.6)	
NA/missing	12.9 (1.1)			
Q76: Too late to mail after 4/1/90 (of those who opened the envelope)?				
Yes	13.8 (1.0)	83.6 (2.4)	16.4 (2.4)	
No	55.4 (1.6)	91.6 (1.0)	8.4 (1.0)	
Don't know	17.6 (1.0)	85.8 (1.8)	14.2 (1.8)	
NA/missing	13.1 (1.1)			

census form. The majority of respondents believed that it was important to fill out the form right away, and this belief is clearly linked to response. Most mail respondents to the census did not report difficulty finding time (although long-form recipients responding by mail were more likely to report this difficulty), whereas a substantial proportion of those not returning the census questionnaire had this complaint. The universe for Q75 and Q76 expanded to include those who had opened the envelope but not started it. The majority believed that there was a deadline, but a significant proportion did not believe or know this. Those who believed that there was a deadline responded at a significantly higher rate. However, beliefs about the deadline were a two-edged sword: according to responses to Q76, respondents who mistakenly believed that it was already too late immediately after April 1 were less likely than average to return a form. In other words, apparently the ideal

circumstances would be for respondents to think that it is important to complete the form right away and to know that there is a deadline, but also to be aware that it was still possible to send in the form after April 1.

The SCP also included several open-ended items dealing with reasons for nonresponse. Analyses of these data, as yet incomplete, will indicate how many respondents ascribe their failure to complete and return the census form to problems of finding time or procrastination.

Table 9 Questions Pertaining to the Volume and Handling of Mail, Appearance of the Form

	<u>Recipiency/Mail Response</u>			
	Marginal	Mailed Back	Didn't Mail	Didn't Receive
Q43/Q53: "About how many pieces of mail does this household receive on a typical day?"				
0-2	20.5 (1.4)	68.5 (2.5)	16.9 (2.0)	14.6 (2.0)
3-4	39.6 (1.3)	80.5 (1.7)	11.2 (1.3)	8.3 (1.2)
5-96	34.5 (1.9)	83.0 (2.1)	8.5 (1.3)	8.4 (1.6)
NA/missing	5.4 (.6)			
Q44/Q54: "Do people here usually look at their mail right away, or does it tend to pile up for a few days?"				
Right away	86.6 (.9)	79.9 (1.4)	10.6 (.9)	9.6 (1.1)
Piles up/no pattern	11.9 (.9)	65.7 (3.3)	22.2 (2.8)	12.1 (2.2)
NA/missing	1.5 (.3)			
Q45/Q55: "People have many different ways of handling their mail. What about your household? Is there one person here who usually sorts through all the mail, do different people do it, does everyone look for their own mail, or what?"				
One person	62.9 (1.4)	78.0 (1.5)	11.6 (1.1)	10.4 (1.0)
Different people	20.7 (1.2)	80.6 (1.9)	10.8 (1.4)	8.5 (1.7)
Everyone own mail	13.1 (.9)	75.5 (2.9)	14.8 (2.4)	9.7 (1.9)
NA/missing	3.3 (.5)			
Q46/Q56: "Some people throw away certain kinds of mail automatically, almost without looking at it. Do you ever do that?"				
Yes	64.4 (1.5)	79.6 (1.6)	12.2 (1.1)	8.2 (1.2)
No	34.4 (1.5)	75.0 (1.8)	11.9 (1.4)	13.1 (1.4)
NA/missing	1.2 (.3)			
Q5 (to nonrecipients): "Back in late March or early April, were you expecting to get a census form in the mail?"				
Q47/Q57 (to recipients): "Now I'd like to get back to the topic we were discussing before -- the census form. Before the census form arrived, were you expecting to get a form in the mail?"				
Yes	78.9 (1.1)	84.0 (1.3)	8.8 (.8)	7.2 (1.0)
No	18.2 (1.1)	55.4 (2.9)	24.6 (2.9)	20.0 (2.5)
NA/missing	2.9 (.4)			
Q77: "Would you say an envelope like this [SHOW ENVELOPE] looks important or like junk mail to you?"				
Important	81.0 (1.1)	80.4 (1.4)	10.1 (.9)	9.5 (1.2)
Junk mail	13.5 (.9)	68.5 (2.8)	20.4 (2.4)	11.1 (2.0)
Other/NA/Missing	5.5 (.6)			

Handling of mail and appearance of the form Hypotheses b. and p. concern the handling of mail within the household, and Table 9 presents SCP variables potentially associated with this issue. Hypothesis p. observes that the growth in "junk mail" during the last decade offers a simple explanation of why respondents might not respond to the census: the form became lost in a sea of mail and perhaps was thrown out by mistake. Under

this assumption, respondents receiving a large number of pieces of mail (Q43/Q53) should be the most affected, but the survey data present just the opposite picture: those receiving the fewest pieces of mail are most likely to report not receiving the form or not mailing the form. Those reporting that they routinely throw out mail without looking at it (Q46/Q56) are significantly more likely to report having received the census form, again opposite this hypothesis.

Question 77 asked respondents to express an opinion about whether they thought the census envelope looked like junk mail. Curiously, those judging that the form looked like junk mail had a significantly larger proportion of persons who reported not returning the form, whereas there was not a significant difference in the proportion of nonrecipients. A possible explanation for this outcome is through a cognitive dissonance model; that is, that nonrecipients at Q77 had no salient requirement for self-justification, whereas nonrespondents had been asked a few questions earlier to explain their reasons for nonresponse and may have accepted the offered opportunity to denigrate the census envelope. On the other hand, the same pattern appeared a decade earlier in the ABAS (U.S. Bureau of the Census 1983), where respondents who reported receiving but not opening the envelope were more likely to say that it looked like junk mail, while nonrecipients were similar to mail respondents on this item. The order of questions in the ABAS differed considerably from the SCP, so that the cognitive dissonance model is not equally applicable to the 1980 findings.

Patterns of handling mail are important, however. Whether a single person handles all mail or not (Q45/Q55) appears to have no significant association with census response, but a substantial difference can be observed between those respondents reporting the mail is handled right away instead of letting it pile up or having no set pattern of handling the mail (Q44/Q54). Although the latter group of households have a lower response, the difference appears to arise from a significantly higher proportion not mailing back the form instead of differences in nonreceipt.

With respect to hypothesis i., question 64 asked respondents who received the census form in the mail and opened the envelope "When you first saw the form, did it look as if it would be hard or easy to fill it out?" An estimated 25.3 percent (s.e.=1.4) of short-form recipients and 56.3 percent (s.e.=3.0) of long-form recipients reported that it looked hard. Long-form recipients reported mailing back the form at a significantly lower rate than short-form recipients. Conditional on the type of form, however, the effect of the initially perceived difficulty was not significant.

Table 9 shows substantial differences in mail response according to whether the respondent expected a form or not. The 18 percent of respondents who did not expect a form were responsible for approximately 39 percent of the total nonresponse.

Here again, future analysis of the open-ended responses will indicate how often respondents cited misplacing the form among the rest of the mail or other aspects of handling the mail as reasons for nonresponse. The open-ended responses will also provide a separate measure of what proportion of respondents mentioned difficulty of the form as a factor in not completing it.

Table 10 Questions Pertaining to Ongoing Citizen Involvement

	Marginal	Recipiency/Mail Response		
		Mailed Back	Didn't Mail	Didn't Receive
Q82: "Are you involved with any groups or organizations which are active in this community -- such as church or other religious organizations, a social club, union, PTA, a neighborhood organization, or some other community group?"				
Yes	49.4 (1.6)	83.2 (1.5)	9.1 (1.0)	7.7 (1.1)
No	49.7 (1.5)	72.3 (1.9)	15.1 (1.3)	12.7 (1.4)
NA/missing	.8 (.3)			
Q83: "Are you registered to vote?"				
Yes	73.8 (1.3)	81.8 (1.4)	10.1 (.9)	8.1 (1.1)
No	24.9 (1.3)	67.1 (2.3)	17.1 (2.0)	15.8 (1.9)
NA/missing	1.4 (.3)			

Ongoing citizen involvement Table 10 presents two measures of citizen involvement: participation in organizations and voter registration. Both measures are correlated with census response in the expected direction. Involvement affects both reported reciprocity and mail response, by approximately equal amounts. Thus, the data lend support to hypotheses e. and v. Analysis of the open-ended responses should provide further information on these hypotheses, since many respondents cited patriotism or duty as explanations for why they completed the census form.

Table 11 Questions Pertaining to Trust in Government/Political Efficacy

	Marginal	Reciprocity/Mail Response		
		Mailed Back	Didn't Mail	Didn't Receive
Q30: "In your opinion, how much do you think we can trust the government in Washington to do what is right -- just about always, most of the time, some of the time, or almost never?"				
Just about always	6.1 (.6)	74.9 (4.5)	12.3 (3.7)	12.8 (3.4)
Most of the time	31.1 (1.1)	80.9 (1.7)	9.5 (1.1)	9.6 (1.5)
Some of the time	47.9 (1.1)	78.7 (1.7)	12.5 (1.2)	8.8 (1.2)
Almost never	11.8 (.9)	69.8 (3.7)	15.5 (2.3)	14.7 (2.9)
NA/missing	3.1 (.4)			
Q32A: "These days a person doesn't really know whom he can count on."				
Agree	65.0 (1.5)	75.7 (1.8)	13.4 (1.3)	10.9 (1.3)
Disagree	29.2 (1.4)	82.8 (1.7)	8.8 (1.1)	8.4 (1.4)
Don't know	4.6 (.7)	82.2 (5.1)	9.3 (3.4)	8.5 (2.9)
NA/missing	1.2 (.3)			
Q32B: "People like me don't have any say about what the government does."				
Agree	40.5 (1.3)	74.7 (2.1)	13.9 (1.5)	11.4 (1.5)
Disagree	55.0 (1.3)	81.1 (1.5)	9.9 (1.0)	8.9 (1.2)
Don't know	3.2 (.4)	71.0 (4.7)	18.0 (4.2)	11.0 (3.7)
NA/missing	1.2 (.3)			
Q32C: "Government agencies usually try to do what is best for the people."				
Agree	63.0 (1.4)	78.8 (1.5)	11.0 (1.0)	10.2 (1.2)
Disagree	28.4 (1.3)	76.5 (2.4)	13.0 (1.6)	10.5 (1.9)
Don't know	7.2 (.7)	78.6 (3.5)	14.5 (3.1)	6.9 (1.9)
NA/missing	1.2 (.3)			
Q32D: "I don't think public officials care much what people like me think."				
Agree	40.6 (1.5)	75.8 (1.8)	12.8 (1.0)	11.4 (1.5)
Disagree	51.6 (1.4)	80.5 (1.7)	10.5 (1.1)	9.0 (1.3)
Don't know	6.5 (.8)	74.8 (4.3)	15.3 (3.9)	9.9 (2.6)
NA/missing	1.3 (.3)			
Q32E: "The government already knows more about me than it needs to."				
Agree	51.8 (1.4)	76.6 (1.8)	12.7 (1.2)	10.8 (1.4)
Disagree	37.1 (1.2)	80.1 (1.6)	10.4 (1.1)	9.4 (1.3)
Don't know	9.9 (.9)	78.7 (3.6)	12.8 (2.5)	8.6 (1.8)
NA/missing	1.3 (.3)			
Q32F: "Most people who go into public office want to help others."				
Agree	58.6 (1.5)	80.9 (1.4)	9.9 (1.0)	9.2 (1.2)
Disagree	31.9 (1.1)	74.0 (2.3)	13.9 (1.5)	12.0 (1.8)
Don't know	8.2 (.8)	73.8 (4.0)	17.6 (3.3)	8.6 (2.3)
NA/missing	1.4 (.3)			

Trust in government Table 11 presents a series of measures related to trust in government from hypotheses f. and q. Few respondents, only about 6 percent, go so far as to say that they trust government to do what is right, (Q30), "just about always,"

and the unexpectedly lower mail response for this group is within sampling error of the average. At the other extreme, however, those who say "almost never" have significantly lower response. Other measures of attitudes follow patterns seen earlier: there is a persistent advantage in reported mail response for those with favorable opinions. Only two, Q32C, that "Government agencies usually try to do what is best for the people," and Q32D, "I don't think public officials care much about what people like me think," fail to reach statistical significance individually. The effect of positive attitudes appears spread between reciprocity and return of the form, although differences for these components do not generally obtain significance separately.

Future analysis of the open-ended responses should indicate how often respondents cite lack of trust in government as a reason for their nonresponse.

Non-Traditional Households The majority of households are composed of people related to each other through blood, marriage, or adoption. Table 12 shows that mail response for households with all persons related does not differ significantly from single-person households. The 7.8 percent of households with one or more unrelated individuals, however, responded to the census at substantially lower rates. Thus, the SCP data strongly support hypotheses k. and n. On the other hand, most nonresponse still originates from households with related persons.

Table 12 Mail Response by Type of Household

Type of Household	Marginal	Reciprocity/Mail Response		
		Mailed Back	Didn't Mail	Didn't Receive
All related	70.6 (1.5)	80.0 (1.5)	10.1 (.9)	9.9 (1.3)
Some unrelated	7.8 (.9)	56.4 (4.6)	28.1 (4.1)	15.5 (3.1)
One person	20.8 (1.2)	78.6 (2.2)	12.5 (1.5)	8.9 (1.4)
NA/missing	.7 (.2)			

Other Hypotheses Most of the remaining hypotheses will be addressed in subsequent analyses through information from open-ended questions. Respondents mentioning difficulty reading the form as a reason for nonresponse will provide evidence about hypothesis i. The open-ended questions also provided opportunities to solicit remarks about government intrusion (j. and t.) and unclear eligibility (o.).

The SCP data provide little direct information about the effect of respondents' knowledge of whether their friends' and relatives' participation in the census influenced their own, hypothesis d. Question 7 asked if the respondent had talked with anyone about whether to mail back the form, but only about 11 percent responded affirmatively. On the other hand, the wording of the question, "Did you talk to anyone -- or did anyone talk to you -- about whether you should or should not fill out a census form and mail it back?", probably led many respondents to exclude casual conversations about the census that did not explicitly raise the question of whether someone should participate. The SCP data also are not well suited to tap disaffection specifically with local government, hypothesis q.

In summary, the list of hypotheses at the beginning of this section find mixed, although predominately positive, support from the SCP data. Some hypotheses, such as the positive effects of awareness and knowledge about the census, and participation in other civic activities and duties, and the negative effects of lack of trust in government and non-traditional household composition, are generally directly borne out by the SCP data. Other hypotheses, such as the anticipated effects of multiple demands on time, junk mail, and the first impression of the form's difficulty are shown to be more complicated issues than anticipated. There is evidence that some respondents are affected by privacy concerns, but this did not seem to be the dominant factor affecting most respondents' decisions to participate. Consideration of some hypotheses awaits further analysis of the data.

6. OTHER FACTORS AFFECTING RESPONSE

Table 13 compares estimates of 1990 mail response from the OES and SCP for two basic demographic characteristics, age and race/ethnicity. A pronounced association between age and census response emerges: mail response increases steadily with age. Response for those under 30, many of whom are asked to respond to the census for the first time, is quite low. The next age group, 30-39, shows a much higher response rate, but there

are further increases thereafter. Results from the 1980 KAP Survey, not presented in the table, show a similar effect of age. That mail response shows a steady increase with age up to the oldest age groups in the table suggests that cohorts may develop an increasing familiarity with the census over decades of exposure in a manner that benefits response.

Table 13 1990 Mail Return by Age and Race/Ethnicity

	1990 OES		1990
	Self-report	Matched	SCP
<u>Age</u>			
14-29	68.5 (2.4)	64.0 (3.2)	61.8 (2.4)
30-39	76.7 (1.6)	71.4 (1.9)	75.5 (2.3)
40-49	82.7 (2.5)	78.3 (3.0)	80.4 (2.0)
50-59	83.7 (2.9)	80.5 (2.6)	82.8 (2.3)
60-69	84.3 (3.6)	84.7 (3.7)	89.6 (2.3)
70+	88.8 (2.6)	90.8 (2.1)	90.0 (1.8)
<u>Race/Ethnicity</u>			
White, Non-Hispanic	83.7 (1.3)	80.2 (1.8)	81.5 (1.5)
Black, Non-Hispanic	65.5 (3.7)	63.8 (4.2)	63.4 (3.2)
Hispanic	75.5 (2.7)	65.6 (3.2)	70.3 (3.5)
Other	61.6 (8.8)	64.4 (10.1)	59.7 (5.4)

The strong effect of age argues for multivariate analysis in subsequent work. In particular, one might ask whether each variable shown to be moderately associated with census response displays the association because of its own direct effect on census response or because of a correlation with age. Conversely, it is possible to ask whether the direct effect of age demonstrated in table 13 itself arises because of correlation with a number of variables that are predictive of census response.

In contrast to the dramatic age effect, there was almost no significant effect for sex of the respondent. In the SCP, male respondents report nonreceipt of the census form at a higher rate than females (12.6 vs. 8.5 percent, with standard errors 1.7 and 1.0 percent, respectively); 12.0 percent for both sexes report not completing and returning the form after receipt.

Table 13 also presents results by race and ethnicity. As with other studies, the mail response rates of Blacks and Hispanics, but also persons of other races, are lower than that for Non-Hispanic Whites. Except for Hispanics, there is a high consistency of reporting across the two surveys. For Hispanics, however, the difference between the level of self-reported response and response based on the match is comparatively large, especially considering that the estimates are based on essentially the same sample cases and are therefore highly correlated. This inconsistency suggests additional caution may be required in interpreting subsequent analyses for Hispanics.

Table 14 displays SCP results for two traditional measures of socio-economic status, education and household income, as well as for two variables more specifically linked to census enumeration, type of building and reliability of mail delivery. Education is associated with response, especially for those with less than grade school education, but there are no additional significant improvements in mail response with education beyond high school. Similarly, income makes a difference, but again primarily at the lower end of the distribution. Response appears to peak in the income level \$35,000 - 49,999, although each of the two higher intervals does not differ significantly from the result for \$35,000 - 49,999. The mail response for the large group missing income could easily be accounted for by a U-shaped distribution of nonresponse for income, that is, increased nonresponse at the low and high ends of the income distribution, which has been observed, for example, in the Current Population Survey. If income nonresponse was U-shaped in the SCP, then the income nonrespondents would have been disproportionately census mail nonrespondents as well.

When the data are tabulated by type of building, households in 2-4 unit apartment buildings stand out with particularly lower mail response. Each of the other types is not significantly different from the modal group, single-family houses. Respondents in 2-4 unit apartment buildings show significantly higher rates of reporting both nonreceipt of the form and not completing the form after receiving it.

Respondents were also asked (Q40) to rate the reliability of their mail delivery. The vast majority of respondents characterize their mail delivery as either very reliable or somewhat reliable; the 3.9 percent who responded "not reliable" reported a significantly higher rate of nonreceipt of the census form.

Table 14 Mail Response by Other Characteristics

	Marginal	<u>Reciency/Mail Response</u>		
		Mailed Back	Didn't Mail	Didn't Receive
<u>Education</u>				
< grade school	2.7 (.5)	62.6 (6.2)	17.4 (5.2)	20.0 (5.5)
< high school	15.0 (1.0)	72.6 (2.8)	13.8 (1.9)	13.6 (2.1)
High school grad	35.5 (1.2)	79.7 (1.9)	11.1 (1.3)	9.2 (1.5)
Some college	20.6 (1.1)	78.6 (2.2)	12.6 (1.8)	8.9 (1.5)
4-year college	15.6 (1.1)	79.6 (2.6)	10.8 (1.9)	9.6 (2.0)
Postgraduate	9.0 (1.2)	84.0 (3.9)	8.4 (2.6)	7.5 (2.5)
NA/missing	1.6 (.3)			
<u>Household Income</u>				
< \$10,000	13.8 (1.2)	69.5 (2.6)	13.4 (2.0)	17.1 (2.3)
\$10,000 - 19,999	18.3 (1.0)	73.9 (2.5)	15.3 (2.2)	10.8 (1.7)
\$20,000 - 34,999	22.2 (1.1)	78.8 (2.0)	11.0 (1.4)	10.2 (1.8)
\$35,000 - 49,999	13.9 (.9)	85.5 (2.1)	8.0 (1.5)	6.5 (1.4)
\$50,000 - 74,999	10.2 (.8)	83.0 (2.8)	10.3 (2.1)	6.7 (1.9)
\$75,000 or more	5.0 (.7)	79.0 (6.4)	10.1 (3.3)	11.0 (6.0)
Refused/missing	16.7 (1.9)	77.5 (2.9)	14.1 (2.8)	8.4 (1.6)
<u>Type of Building, 4/1</u>				
1-family house	60.0 (3.0)	81.8 (1.7)	9.6 (.8)	8.6 (1.4)
Attached 1-family	3.3 (.7)	80.4 (4.9)	12.8 (3.6)	6.8 (3.1)
2-4 apartments	10.9 (1.4)	62.8 (3.0)	20.6 (3.2)	16.6 (2.4)
5+ apartments	19.5 (3.3)	75.5 (3.4)	13.6 (3.0)	10.8 (2.2)
Trailer	5.0 (.9)	76.8 (4.3)	13.2 (3.5)	10.0 (3.6)
NA/missing/other	1.2 (.2)			
<u>Reliability of Mail Delivery</u>				
Very reliable	73.7 (1.3)	79.4 (1.4)	11.6 (1.1)	9.0 (1.0)
Somewhat reliable	20.9 (1.0)	76.6 (2.3)	11.9 (1.4)	11.4 (1.8)
Not reliable	3.9 (.5)	65.0 (6.0)	16.8 (4.5)	18.3 (4.3)
NA/missing/other	1.5 (.3)			

7. NOT RECEIVING A CENSUS FORM

Comparison of ABAS, OES, and SCP results in Section 3 identified the increase from 1980 to 1990 in the proportion of respondents reporting that they did not receive a census form as a major component, and perhaps the majority, of the overall increase in nonresponse to the census. This important finding hinges upon the accuracy of respondents' memory and observation. As already noted, there are reasons that respondents may have incorrectly perceived that they did not receive a form: the form was lost or unrecognized among the incoming mail or handled without comment by another member of the household.

Although respondents can report to the Census Bureau if a form never arrives, the responsibility rests principally with the bureau to ensure delivery of forms to each housing unit in the mail area of the country to the extent possible. The balance of responsibility for the mail census then falls to the respondent, until the respondent mails the form back again. Consequently, one might expect nonrecipients to differ in characteristics from nonresponding recipients, since form reciency presumably would depend on community attributes associated with incompleteness in delivery, whereas factors related to nonresponse should depend on individual choice not to respond.

Remarkably, however, characteristics of nonrecipients appear generally quite similar to the characteristics of nonresponding recipients across a wide spectrum. This generalization applies to many of the variables showing the highest association with response, including whether the respondent expected a form and age. This pattern would lend credence to a suspicion that there was only essentially one group of nonrespondents, who randomly divided themselves into two groups according to whether they recognized, recalled, and chose to report that they got a form.

It is consequently worthwhile to identify variables for which nonrecipients and nonresponding recipients differed. Question 39D, which asked if the respondents felt their privacy was violated by the government when it takes the census, produced a significantly higher proportion of agreement only among nonresponding recipients, compared to nonrecipients or mail respondents. Nonrecipients differed significantly from nonresponding recipients and mail respondents with respect to language spoken in the household. The association of reciprocity with the reported reliability of mail delivery was noted in the previous section.

There is a strong association between the reported reasons for not responding to the census and what respondents could recall about the census. As noted earlier, hearing about the census generally had a positive association with mail response, even for negative information about the census. Overall, about 43 percent of respondents had heard about census mail delivery problems when unaided and aided recall are combined, but 45.2 percent (s.e.=1.4) of mail respondents had heard of these problems, compared to only 27.0 percent (s.e.=2.9) for nonresponding recipients. Form nonrecipients, however, had heard of mail delivery problems at a rate of 45.5 percent (s.e.=3.9), within sampling error of the rate for mail respondents. Conversely, 65.9 percent (s.e.=1.6) of mail respondents heard of the problems with low mail response, vs. 55.8 percent (s.e.=3.0) of nonresponding recipients and 37.5 percent (s.e.=3.8) of nonrecipients. Again, mail respondents are, on the average, the best informed of the three groups on census problems, but mail nonrespondents and nonrecipients are more report greater awareness of the form of census problem reflected in their own category of nonresponse. Of course, this association is not necessarily causal; it may instead signify that mail nonrespondents may pay greater attention to subsequent information about their own reasons for nonresponse.

Thus, the association of privacy concerns with nonresponse and problems with mail delivery with nonreceipt, and greater general awareness of their own reason for nonresponse provides some evidence that nonrecipients respond to other SCP questions in a consistent manner, as if in their own mind they had never received a form.

Three remaining pieces of evidence support the interpretation that respondents' reports of nonreceipt may have been based on fact in many cases. One concerns the reported 5.6 percent (s.e.=0.6) of SCP respondents who received more than one census form. Although duplicate forms were intentionally sent to some areas of New York City, this high national percentage suggests that some households may have received forms intended for other housing units, through address and delivery problems. The reported rate of such duplication was higher in 2-4 unit apartment buildings (marginally significant at 8.4 percent with s.e.=1.7), where higher rates of nonreceipt were also reported. Thus, the number of duplications provides a context in which some households may not have received a form. Duplicate forms are in the denominator of the mail response rate, and may contribute to the drop in the rate compared to 1980.

Secondly, 6.4 percent of respondents reported that their household lived at a different address on Census Day. A significantly higher proportion of movers (20.0 percent, s.e.=3.8) reported nonreceipt of the form. The timing of their moves may have led these persons actually not to receive a form, although disruption surrounding the move could have increased the chances that a delivered form would not be noticed.

Thirdly, 3.6 percent of the SCP sample was selected from blocks with precensus counts of two or fewer units. In some cases, the actual number of units was found to be much larger. For example, new construction may add many units to a block too close to the census to be included in the precensus count. Households in this part of the sample would have been at increased risk for nonreceipt because many such households may have been added to the census after the initial mailout or omitted from the census entirely. This sample is extremely small, but it is worth noting that the estimated nonreceipt of forms for this group, 29.0 percent (s.e.=16.3), appears higher than average, although the actual statistical significance is a complex question.¹⁰

¹⁰ The significance of the difference is increased by applying a "pq/n" generalization of the variance estimate to derive a design effect and then applying the design effect to the overall estimate of 10.1 percent. The pronounced clustering evident in the variance estimate is itself symptomatic of delivery or inclusion problems.

Consequently, the evidence on the validity of the reporting of nonreciprocity is mixed, but the magnitude of the estimates suggests that future attention to this issue is warranted. If the increase in the proportion reporting not getting a form in 1990 is indicative of a real increase in delivery problems, then dramatic improvements in response for 2000 are unlikely unless this aspect of response is taken into account.

8. SOME CONCLUSIONS

The inclusion of "preliminary" in the title of this paper recognizes that any conclusions from the analysis thus far are tentative. The conclusions appearing in this section divide into two groups: methodological findings pertaining to the interpretation and reliability of the survey data, and substantive findings concerning possible causes of census nonresponse. Accordingly, we will summarize both here, beginning with methodological conclusions.

Overall, there is a pleasing degree of consistency between the OES and SCP on characteristics measured in both surveys. Differences in timing, questionnaires, interviewing procedures and many other aspects were potentially available to account for large differences between the surveys, had such differences occurred. Some attitude and knowledge items did yield somewhat different distributions in the two surveys. In general, however, comparisons of results for the two 1990 surveys are quite favorable.

Comparison of the OES self-reported census mail response with the outcome of the match is also encouraging. A small bias in the self-reports is implied, but the bias does not appear seriously to distort measured associations of census mail response with other variables. This bias appears larger for Hispanics, however, which suggests greater caution in interpreting the findings for this group.

Methodological issues surface more pointedly in trying to interpret changes between 1980 and 1990. In a striking number of instances, patterns of association between survey variables and mail response appear quite similar among the OES, SCP, and ABAS and dissimilar to the findings from the KAP Survey. This grouping suggests that the differences arise more from the timing of the surveys than actual changes between 1980 and 1990. In other words, the absence of strong association between census mail response and a number of attitude and knowledge items observed in the KAP Survey, conducted just before the census, could follow from the KAP interview itself having a dominant effect on the respondents' later participation in the 1980 census over any characteristic measured by the survey. Conversely, the stronger association between reported response and other survey characteristics in the ABAS, OES, and SCP could have been partially caused by the experience of completing the census form; the form educates about the census, so census respondents could be expected to have greater knowledge about the census than nonrespondents. Furthermore, those who completed the form may have been more likely, on average, to take note of publicity about the census after April 1. In other words, the direction of cause and effect may be reversed or obscured for the ABAS, OES, SCP, and similar surveys following the census. Thus, neither the pre-census nor post-census design is ideal to measure the effect of knowledge or attitudes about the census. Consequently, this methodological problem limits the ability to reach conclusions about whether subtle changes in knowledge or attitudes occurred when the only available comparison for many variables is between the pre-census KAP Survey and the post-census OES and SCP.

In spite of methodological concerns, the data point to significant substantive findings. Both the OES and SCP indicate an important component of nonresponse is attributed to nonreceipt of the census form. Of course, these self-reports represent a mixture in unknown proportions of those actually not receiving a form and those who received it but did not recognize it. Comparisons to ABAS results from 1980 suggest that reported nonreceipt has grown and may account for the majority, or close to the majority, of the increase in nonresponse from 1980 to 1990.

One of the strongest predictors of response, at least in the post-census surveys (ABAS, OES, and SCP), is for respondents to have expected to receive a form or to be basically aware of the census. The prior knowledge that a form will arrive and that one should simply fill it out and mail it back is critical, and would seem to be much more important than many of the other measures examined.

Outreach and publicity do seem to help response and appear generally as successful or more successful in 1990 than 1980. The 1990 studies show effects on response in the expected direction. The OES showed the effect of outreach to be less successful for Blacks, however, particularly relative to the large measured success of the campaign for Hispanic Americans.

The survey data on knowledge of when the census form should have been completed and sent back indicate that this was an important predictor of response. Consequently, the decision to mail the census forms out earlier than previous censuses could be revisited. The survey data do not furnish definitive evidence on whether the 1990 strategy harmed response, but the importance of knowledge of when the form was due and of completing it right away suggests the topic merits further attention, possibly in the form of experiments in future test censuses.

The remarkable effect of age on response is worthy of further study. Potentially, each important survey variable that appears associated with census response should be understood in terms of its interaction with the effect of age. The results suggest greater "targeting" of younger respondents by outreach to explain what is asked of them.

The survey results are also important for eliminating or limiting the importance of some explanations as primary factors causing the decline in response between 1980 and 1990. For example, confidentiality concerns appear to be a factor for some respondents, but there is no evidence of a groundswell in public preoccupation with this issue compared to 1980. The survey data fail to provide convincing evidence that the volume of junk mail is a significant factor to explain the change in response. Similarly, exposure to other surveys is not the culprit.

The role of duplicate questionnaires and other aspects of the definition of the mail response rate may have led to the comparison of mail response rates between 1980 and 1990 to exaggerate the actual decline in public cooperation. In other words, the 10 percentage point drop in mail response rates may, in the final analysis, correspond to only approximately a 6-8 percentage point drop in cooperation by households.

We are unable to offer a simple hypothesis or a specific set of hypotheses to account for the decline in response. Nonetheless, the survey data point to factors associated with response that should be helpful in planning the next census, and we look to further analysis to refine the conclusions presented here.

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REFERENCES

Bryant, Barbara Everitt (1991), "The 1990 Census: Protecting Confidentiality While Striving for Complete Population Coverage," Science, in press.

Fay, Robert E., Passel, Jeffrey S., and Robinson, J. Gregory (1988), The Coverage of Population in the 1980 Census, PHC80-E4, Washington, DC: U.S. Department of Commerce.

Groves, Robert, and Moore, Jeffrey (1990), "Hypotheses About Lower Mail Return Rate Generated from Focus Groups," internal Census Bureau document dated September, 1980.

Levinson, Stephen C., (1983) Pragmatics, Cambridge: Cambridge University Press.

U.S. Bureau of the Census (1982), "Evaluating the Public Information Campaign for the 1980 Census--Results of the KAP Survey," Preliminary Evaluation Results Memorandum No. 31, prepared by Jeffrey C. Moore, September 27, 1982.

____ (1983), "Results of the 1980 Applied Behavior Analysis Survey or What People Do With Their Census Forms," Preliminary Evaluation Results Memorandum No. 61, prepared by Theresa J. DeMaio, October 26, 1983.

____ (1990), "Request for OMB Review," Standard Form 83, for the Survey of 1990 Census Participation, submitted to OMB on May 4, 1990.

APPENDIX: SAMPLE DESIGN, ESTIMATION, AND VARIANCE ESTIMATION

The sample design for the OES was stratified to ensure a sufficient representation of Blacks and Hispanics. A total of fifty DOs were sampled from three strata. From each DO, ten block clusters were selected. Within a block cluster, ten housing units from the Address Control File (ACF) in January, 1990 were systematically selected, with half designated as Wave 1 interviews and the remaining half designated Wave 2. This resulted in a total of approximately 2,500 housing units per wave for a total sample size of approximately 5,000.

The sample design for the SCP employed the same first-stage sample of metropolitan areas and counties as the General Social Survey (GSS) of NORC, facilitating the use of NORC's current interviewing staff. Sampled counties handled entirely by List/Enumerate procedures in the census were not included in the SCP sample. For part of the design it was possible to subsample an existing "shadow sample" that had been drawn in conjunction with the 1990 Post-Enumeration Survey (PES). The shadow sample was a twin of the PES sample. In many cases, however, it was necessary to draw new sample from the frames prepared for the PES sampling, to keep the unconditional probabilities of selection into the SCP sample at required levels. The sample was clustered and sampling rates computed so that, assuming an 80 percent response rate for occupied units, there would be approximately 7 sampled units per sampled block or block cluster. Originally, the sample excluded small blocks with precensus counts of 2 or fewer housing units, but a supplemental sample was drawn from this universe. The design was approximately self-weighting, except for sampling at double the usual rate in PES strata with high proportions of Blacks or Hispanics.

Noninterview adjustments, in the form of ratios of total eligible to interviewed housing units, were applied in both surveys. For the OES, the ratios were computed for within each of the DOs, while the ratios were computed at the cluster level in the SCP.

Variances were estimated through replication, specifically, a stratified jackknife approach. Variances for the OES were estimated as if each of the DOs had been sampled from its respective stratum with replacement. Variances for the SCP recognized that some of the primary sampling units in the first-stage design of the GSS were self-representing, that is, effectively strata, so that the clusters within self-representing areas were treated as basic sampling units. Non-self-representing primary units were grouped by similar strata and treated as sampled without replacement from the resulting collapsed strata for purposes of variance estimation. Segments selected from the small block universe were treated as a clustered sample from a separate stratum. The manner of computing the noninterview adjustments assures that its contribution to variance is included for both surveys.