PRIVACY AND CONFIDENTIALITY AS FACTORS IN SURVEY RESPONSE

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In recent years there has been much discussion among survey practitioners about perceived growing difficulties in conducting surveys of human populations. In 1973, under a grant from the National Science Foundation, the American Statistical Association brought together a group of social scientists and survey methodologists to explore the problems and to try to determine whether they constituted a threat to the continued use of surveys as a basic tool of social science research. The conference, meeting in May and December, reached five general conclusions [1]: (1) That survey research is in some difficulty; (2) to an undetermined scale that difficulty is increasing; (3) the problem varies in incidence between government, private and academic research; (4) the grounds for concern are great enough to urge the prompt initiation of a more intensive examination of the problem and programs to meet it; and, (5) there are many potential areas for action, some of which could start now.

In Lester Frankel's presidential address to the ASA in 1975 [5], he discussed the problems of maintaining satisfactory response levels in surveys, and gave attention to the public's fears of invasion of privacy and violation of confidentiality of records as a contributing factor. Marketers, political scientists, and other producers and users of survey data have also been actively concerned [2,6,8,10]. Newspaper writers have reported back to the public the concern of survey takers and users about public reaction to surveys [11].

While a number of reasons have been adduced for the reported increasing difficulties in obtaining information through surveys--fear of crime, changes in living and working situations, oversurveying, disillusionment about the validity of survey results, salesmen masquerading as survey takers--concerns about privacy and confidentiality receive prominent mention as a cause. There seems to be general agreement that there is an insufficiency of empirical, quantitative information on current trends in response rates[1] (or in the level of effort needed to maintain response rates) and on the factors that may be associated with changes. One of the putative factors that is especially difficult to quantify is that of privacy and confidentiality concerns.

The Bureau of the Census has undertaken to try to discover what the feelings of the public are and how they affect the public's behavior as respondents in censuses and surveys. As part of this effort, it commissioned the Committee on National Statistics of the National Academy of Sciences to participate with it in an exploratory study. The Committee established a multidisciplinary group of experts, the Panel on Privacy

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Walt R. Simmons, NAS, has made major contributions to the planning and conduct of this study.

and Confidentiality as Factors in Survey Response, chaired by former ASA president William H. Shaw. The Panel has outlined a number of avenues of investigation, and has participated with the Bureau of the Census and with the Survey Research Center of the Institute for Social Research at the University of Michigan in carrying them out. These investigations are in progress; this paper will describe them, with particular emphasis on the two surveys that are major parts of the overall study[2].

The Panel recommended that two fairly small-scale exploratory surveys be taken to test the feasibility of obtaining some quantitative evidence on people's opinions and behavior with respect to surveys. One of them is a survey of recalled past experience as survey respondents (or nonrespondents) and of attitudes about surveys, conducted jointly by the Bureau of the Census and the Michigan Survey Research Center. It is recognized that attitude surveys may not be reliable predictors of behavior. However, it was felt that the kind of attitude survey that was tested might indicate its value in blocking out areas of concern or nonconcern and areas of knowledge or ignorance, and might indicate differences between population groups.

The second kind of exploratory survey that the Panel recommended is of a different nature. It is an experiment in measuring response behavior, in particular, differential response behavior when confronted with promises of confidentiality differing in duration of protection. The legal conditions under which the Census Bureau operates cause it to be especially interested in this aspect, although other data-collecting and dataholding organizations can also be expected to be interested. The Census law (Title 13, U.S. Code) requires the Bureau to keep confidential, even from other Federal agencies, the individually identifiable information it collects. However, there is one ambiguous dimension to the assurance of confidentiality, and that is its duration. The Census law does not specifically state whether the confidential status of the individual data is to endure forever or for some limited period of time. A law pertaining to the National Archives of the United States suggests that confidential government records are not to be kept under lock and key forever. Under an agreement pursuant to that law, the 1900 census records, in the custody of the National Archives and Records Service, have been opened to researchers, and it is the intention of the Archives to open each succeeding set of census records as it reaches 72 years of age. There is much advocacy by researchers for still earlier access to census records, e.g., after 50 years, or even 10 years. Bills have been introduced in the Congress to specify one period of confidentiality or another. The Census Bureau, which has been accustomed to promising confidentiality without an end date, is concerned about whether it can expect good public cooperation in the 1980 census if its

confidentiality promise for that census is equivocal or if it specifies a limited period. It has had no real evidence on what is or is not acceptable to the public. The surveys are designed to cast some light on this question; they are described in some detail in the later portions of this paper.

In addition to the two surveys, the project has been exploring some other avenues. It was recommended that opportunities be sought to conduct semi-structured discussions about privacy and confidentiality with selected small groups. It was felt that interplay within the group might bring out and develop ideas and feelings more clearly than could be done by other means such as individual questionnaires. A number of such small-group discussions have been held, by the Census Bureau and by the Survey Research Center. They have provided a good deal of interesting material for analysis as a separate part of the study, and also were useful in planning the questionnaire content for the attitude survey. These sessions involved, in separate groups, Census Bureau interviewers, Survey Research Center interviewers, SRC staff, members of ethnic and church groups, members of a women's civic organization, and senior citizens. While it is difficult and hazardous to generalize from such experiences, some impressionistic findings suggest themselves. Participants (other than the survey takers themselves, and even some of them had doubts) tended to concur almost unanimously in a disbelief in the confidentiality of individual records. (Findings of the attitude survey were consistent with this expression of skepticism.) Different subjects of inquiry were regarded as having quite different degrees of sensitivity. Income was commonly mentioned as an objectionable topic. Others included sexual behavior, number of children expected, marital discord, and inquiries about neighbors. People saw little concrete evidence of the value of surveys; they said they would be more willing to participate in a survey if the benefits were explained beforehand. People had negative feelings about surveys not only because of their perceived invasion of privacy, lack of confidentiality, and failure to yield tangible benefits, but also because the survey approach was thought of as often employed as a sales or crime ruse. Despite these adverse views, there were indications that people would be willing to cooperate in surveys if approached in a convincing and reassuring manner; it seems clear, however, that this is not easily accomplished.

Another phase of the project is a review of relevant literature and a canvass of selected survey research organizations, both governmental and nongovernmental. A majority of the approximately 30 survey organizations that replied to the inquiry reported that current response rates are lower than they were five to ten years ago, or that it now requires more effort to secure the same level of response. Increases in refusal rates were reported, along with increased difficulties in contacting designated respondents. A mitigating circumstance was the improvements reported by some survey organizations in their sample designs and survey procedures. These

changes may have a positive effect on the quality of survey results counteracting the negative effect of increased difficulties in respondent contacts.

Research Design of the Behavioral Experiment

In order to test the effects on response of varying promises of confidentiality, a designed experiment was developed and carried out. The research design was a classical application of controlled experimentation in the field of human surveys, utilizing randomized blocks. A nationwide multistage probability sample of 502 clusters of 5 households each was selected in 20 Primary Sampling Units (PSUs). Within each cluster, households were assigned randomly to one of 5 treatment groups and personal interviews were conducted by Census Bureau interviewers during September 1976. Interviewer assignments consisted of whole clusters so that each interviewer administered all 5 treatments for a given assignment. The survey was voluntary. The content of the questionnaire was identical in all 5 treatments and consisted of items comparable to those which appear in a decennial census, including population variables such as sex, age, marital status, educational attainment, and income; and housing variables such as tenure, plumbing facilities, value of property, and rent. Only the interviewer's introduction, which was read verbatim to the respondent, was varied as follows: Treatment A--"Your home is among those selected for a nationwide survey being conducted by the United States Bureau of the Census. The survey is authorized by title 13, United States Code; participation in the survey is voluntary, and there are no penalties for refusing to answer any question. However, your cooperation is extremely important to insure the completeness and accuracy of the final results. This survey collects basic information about population and housing, and will help to prepare for the Twentieth Decennial Census which will be taken in 1980. Your answers to this survey will be used only to form statistical totals and averages that will not identify you personally in any way. Your answers are confidential and will never, at any time, be given to any other agency or to the public." Treatment B-Same as A, except the final sentence is "your answers will be kept confidential for 75 years; however, after that time they may be given to other agencies and to the public." Treatment C-- Same as B, except the duration is 25 years. Treatment D--Same as A, except the final two sentences are deleted. Treatment E--Same as A, except the final two sentences are "your answers will be used to form statistical totals and averages. Your individual answers may also be given to other agencies and to the public."

The first-stage selection units, as mentioned, were 20 PSUs chosen throughout the U.S. The second stage of selection consisted of 502 clusters, or segments of housing units. These were noncompact clusters with an expected size of 20 units each. For a randomized block design such as this one, it would have been better to select compact clusters of 5 units each to maximize the homogeneity within each block (cluster). However,

there was no way of insuring in advance that the 5 compact units selected would all be eligible for interview. Since it was critical that for each cluster all 5 (and only 5) treatments be administered, it was desirable to minimize the chances of discarding clusters because they contained vacant or demolished units or others ineligible for the experiment. Therefore it was decided to select 20 noncompact units, have the interviewer canvass them for eligibility, and systematically select 5 of the ones determined to be eligible. Units were determined to be eligible in the precanvass (which involved personal contact where necessary) if they were currently occupied and the residents were not away on vacation or other extended absence.

Also influencing the decision to use noncompact clusters was the need to lessen the possibility of a potential bias in the administration of the survey. Because of the Census Bureau's law (Title 13) governing the confidentiality of data, it was decided the respondents in this research project would ultimately have to be told that the answers they supplied would be confidential forever, irrespective of the particular stated condition of confidentiality given them prior to the interview. A letter, therefore, was left behind with each respondent following the interview. The letters varied somewhat depending upon treatment type, but they essentially explained the nature of the experiment and informed the respondent that the answers were indeed confidential forever in accordance with present law, in spite of what was said at the outset. Because the letter, in effect, let the cat out of the bag, there was concern about possible biases if close-by neighbors were to discuss the experiment when one of them was scheduled to be but had not yet been interviewed. It was expected that using noncompact clusters would reduce the chance of bias of this type from occurring.

The third stage of selection in this experiment involved choosing exactly 5 of the units determined to be eligible out of the original expected 20. This selection was done by the interviewer through the use of a random selection table. Moreover the order in which the 5 selected units was assigned to treatments was also randomized, so that the geographic ordering of the 5 selected units was not always in the same pattern, such as ABCDE. It was felt that this procedure was necessary to inhibit interviewers from, subconsciously perhaps, arranging the sample units in some biased fashion. Another important feature of the sample design was the stratification employed for oversampling nonwhite households. The anticipated overall sample size of 500 households per treatment was too small to detect treatment differences among important subgroups of the population. Therefore, clusters containing a high proportion of nonwhite households were selected with a probability double that of the remaining households. The criterion for stratification was that Census enumeration districts (ED's) which contained 20% or greater nonwhite households in 1970 made up stratum 2 while all remaining ED's made

up stratum 1; new construction units, for which there was no a priori information on racial composition, were included in stratum 1.

In choosing the specific treatments to be tested, several considerations were taken into account. Treatment A households constituted the control group inasmuch as they were given the standard Census Bureau promise of confidentiality. The choice of a 75-year promise of confidentiality as one of the treatments (B) actually represented a very real practical possibility since legislation has been proposed to make confidential Decennial Census records available to historians and other researchers through National Archives access after that period of time. It was important also to use a treatment group that might reflect a more meaningful impact on respondents while they were still alive rather than strictly upon their descendants, since very few adult respondents would be living 75 years hence. Twenty-five years was therefore chosen as a third treatment group (C). The choice of no confidentiality at all was an obvious one, but it was felt that an important distinction in the research design would have to be made between an explicit statement of no confidentiality and an implicit one. One of the objectives of the total program was to ascertain the degree to which confidentiality concerns contribute to survey nonresponse. It was not known a priori whether confidentiality of information is a dominant factor in a respondent's mind when he agrees or does not agree to participate in a survey. As a result, treatments D and E were both used, with D giving no confidentiality by inference and E explicitly stating nonconfidentiality.

There was much concern as to whether our interviewers could carry out this project unbiasedly. Census interviewers have been trained on all other Bureau surveys to know that Census data are confidential. Many of the interviewers use the fact of confidentiality to persuade reluctant respondents to grant an interview. Such behavior could not be tolerated in this experiment. Because of the importance of the survey, it was desirable to use senior-level interviewers rather than newly recruited ones insofar as possible. Presumably, new interviewers would have been less influenced by prior knowledge of Census confidentiality safeguards. The interviewers were given a one-day training session which, among other things, emphasized the nature of the research objectives, and the requirement to avoid mention of data confidentiality in trying to persuade reluctant respondents to participate.

Results of the Designed Experiment

The analysis plan for the designed experiment was to consist of a comparison of refusal rates by treatment; secondly, there was to be an examination of item nonresponse by treatment. Thirdly, the question of differential response validity by treatment was to be addressed if possible. Finally, a series of questions at the end of the interview was to be analyzed to shed some light on how well the respondent paid attention to or remembered the interviewer's opening statement.

With regard to the overall refusal rate, the survey procedures called for the interviewer to record appropriate information about what point in the attempted interview a refusal was actually encountered. It was of key significance in the design objectives to know, for example, whether refusals occurred before or after the interviewer read the introduction. The estimation scheme that was employed was one that preserved the differential probabilities of selection of the sample units but which did not inflate the data to national totals, since no useful purpose could be seen by doing the latter. No adjustment was made for nonresponse, of course, since nonresponse (especially refusals) was the statistic we sought to study. Of the original 502 clusters selected, 14 were eliminated from the survey because fewer than 5 of the expected 20 units in each of these clusters turned out to be eligible for interview. This situation usually occurred because large, sample buildings had been demolished. The final survey thus contained 488 clusters of 5 units each, or 2440 households.

Table 1 shows the nonresponse statistics by treatment for the two strata combined, properly weighted to account for the double probability of selection of stratum 2 households in relation to stratum 1 households.

There is an indication of a possible interviewer effect in the distribution of no-one-home noninterviews. Examination of only those treatments (ABCE) where confidentiality was explicitly mentioned reveals a monotonic increase in the no-one-home noninterviews as the degree of confidentiality decreases. In the course of listing the units for eligibility determination in the sample segments, interviewers often had to inquire at the housing units to obtain current occupancy status. One could conjecture that for households where this initial contact was met with respondent hostility, some interviewers could have acquired the tendency to accept a no-one-home NI more readily if the unit were subsequently sampled and assigned to treatments other than A. The assumption is made that it was easier for the interviewers to approach treatment A households, in spite of exhortations to them in the training to apply equal attention and care to all households in all treatments.

The last line of Table 1 is perhaps the chief result of the entire experiment, for it shows the key refusal rates by treatment for those respondents who were exposed to the treatment variations. For those households where no one was at home or the refusal occurred before the statement was read, the nonresponse should be independent of the statement variation. It is difficult to draw definitive conclusions about the degree of difference by treatment because the observed differences are small and are generally within sampling error.[3] For example, the largest estimated difference between treatments for the key refusal rates, as shown in Table 1, is between Treatment E (2.8%) and Treatment A (1.8%). This difference is estimated at 1.0 percentage point with a standard error of 1.2 percentage points. Hence the observed difference is not significant even at the 68% level of confidence.

Of course, it is not only the magnitude of the treatment differences which is important, but also their pattern. The trend in the key refusal rate of increasing refusal with decreasing assurance of confidentiality suggests other tests for assessing pattern significance. First, however, the heuristic observation can be made that no such trend is present for refusal rates <u>before</u> the statement was read. Such a trend would be indicative of design or execution flaws somewhere. One test which was applied was an attempt to discover the existence of a linear trend in the post-statement refusal rates, the presumption being that the values of the proportion refused should increase as we move from Treatment A to Treatment E. For this purpose scale values must be assigned to the treatments. The values chosen were 3 for Treatment A, 2 for B, 1 for C, 0 for D, and -1 for E. The procedure simply involved testing the null hypothesis that the regression coefficient, b, of p_i on X_i is equal to zero, where p_i and X_i are the proportion refused and the assigned scale value, respectively, for the i-th treatment group. The regression coefficient and its standard error were calculated in accordance with the Snedecor-Cochran [12] procedure, except that weighted values were used to account for the double probability of selection of sample cases in stratum 2. The computed regression coefficient and its standard error were -0.00278 and .00165, respectively (see Table 2). The corresponding t-statistic is -1.69. We would conclude therefore that the trend is statistically significant at the 90% level of confidence.

The test for a linear trend, as carried out in Table 2, has two objections however. First, our data were not chosen in a simple random sample and secondly, the assignment of scale scores (X_i's) is more or less arbitrary. The observed trend can also be examined for significance by using two nonparametric tests which have the advantage of being free from constraining assumptions about the distribution of the population or the nature of the sample design. The first is Spearman's rank correlation coefficient which can be used as a measure of the degree of concordance between the hypothesized and observed ranks of treatment refusal rates. In this experiment it was hypothesized that refusals would increase with decreasing assurance of confidentiality which is precisely what the empirical evidence supports. Table 3 shows that the correlation between the hypothesized and observed rankings is statistically significant with 95% confidence.

Kendall's τ can be similarly employed as a measure of concordance between hypothesized and observed rankings of the treatment refusal rates. This statistic, shown in Table 4 yields statistical significance at approximately the 99% level.

On the whole one could conclude therefore that it is improbable that the observed pattern of refusal rates would occur if in fact the underlying refusal rates were the same for all treatments. With the sample size employed for this study, however, one cannot reliably estimate the magnitudes of the refusal rate differences among treatments.

Aside from the question of the trend in the key refusal rate by treatment, two other observations are noteworthy from Table 1. The first seems to be that irrespective of the stated condition of confidentiality the refusal rates, by nearly any standard, are not large. It is not clear whether this result is due to general lack of concern on the part of the responding public about what happens to information they furnish officialdom or whether there is an undergirding of citizen trust in the Census Bureau insofar as the uses it makes of data it collects. It remains to be seen whether less than total confidentiality affects the validity of response, however. This question will be addressed by a validation study that was undertaken, results of which have not yet been compiled.

The second observation concerns the refusals recorded before the interviewer actually read the statement outlining the confidentiality conditions. Here there is an overall weighted refusal count of 123 which is somewhat higher than the 95 recorded for refusals after the statement. We would interpret this to mean that for a little more than half the people who were inclined to refuse this survey, it appears clear that confidentiality specificity was not the determining factor. This is not to suggest, however, that concern for confidentiality played no role in their decision; it is conceivable that an unknown number of them could have held a priori opinions that this survey (or possibly any other government survey) was not in their best interest vis-a-vis confidentiality safeguards.

Differential analysis for the high nonwhite stratum turned out to be fruitless because the number of key refusals was so small. The raw number of refusals in this sector ranged only from 0 to 2 for a treatment class, and there was only a total of 7 refusals in all of the 5 treatments combined. Also, it was mentioned earlier that item nonresponse was part of the plan for analyzing the treatment effects. It was hypothesized that some respondents might agree to answer some of the survey questions rather than refuse the entire interview outright, but there might be a tendency for individual question refusals to increase as the promise of confidentiality protection decreased. Neither space nor time permits a thorough examination of the data here. In general it can be reported that the sociodemographic items showed very little item nonresponse nor any significant differential by treatment in nonresponse for the item.

It was of methodological interest in this study to determine the relative efficiency of the randomized block design in case a larger scale survey is done. A two-way analysis of variance would have been the appropriate technique for making this determination. There was, however, no computationally convenient method of coping with the complicating problem of missing values due to nonresponse for reasons other than refusal after the confidentiality statement was read; hence the sample size was not constant by treatment. Moreover, the sample was not chosen in a simple random fashion. Some information can be brought to bear

on the question of blocking efficiency by considering the covariances among treatments with respect to the target statistic, that is, refusals. In carrying out the computations it was discovered that the covariance estimates made a trivial contribution to the total variance of the estimated difference between any two treatment refusal rates. By inspection the reason for this result can be attributed to the fact that refusals to more than one treatment rarely occurred within the same cluster or segment. In fact there were only 3 segments in the total of 488 that had multiple refusals and all 3 had only 2 refusals. We conclude therefore that the blocking was not particularly beneficial, at least with respect to the key statistic of interest, refusal after a stated confidentiality variant.

The concluding section of the questionnaire contained a few questions to ascertain how well the respondent remembered the opening confidentiality statement by the interviewer. The frequency distributions by treatment for these items are shown in Tables 5 through 9. According to these results the respondents did a respectable job in listening to and recalling what was said about confidentiality. Seventy-four to eighty-two percent (Table 5) of all persons said they remembered that a statement was read, and for Treatments A, B, C and E, 50-77 percent (Table 6) recalled that confidentiality was mentioned. The distribution of persons who responded that confidentiality was promised is in accord with the actual statements made (Table 7). Tables 8 and 9 are good reflections of the facts. There is some suggestion that there is a carryover effect of Census Bureau reputation and/or publicity that leads people to believe the data are confidential, despite what the interviewer may have said. For example, 40 percent of persons with Treatment D said that confidentiality was mentioned with 26 percent claiming it was promised, even though the interviewer had said nothing about the subject. Moreover, 22 percent of the Treatment E group claimed the interviewer gave them a promise of confidentiality when in fact she did the opposite.

Design of the Attitude Survey

The attitude survey was designed to measure the feelings of the public about privacy and confidentiality, and how these factors might affect survey response. The survey tried to measure indirectly reactions to being surveyed by asking about prior survey experience, and whether prior survey contacts were seen as invasions of privacy, or whether prior contacts had led to unpleasant or adverse situations later, even in cases where confidentiality had been promised. The survey continued in its indirect approach by asking questions concerning trust in survey results, survey organizations and government. These questions, combined with some knowledge questions on surveys, provided a backdrop for questions directly related to confidentiality, and in themselves were an index to a respondent's willingness to be interviewed by the government. Direct questions regarding privacy and confidentiality included whether the respondent knew how long

Census records were confidential, how long should the records be kept confidential, and who really had access to the records. Finally, the respondent was given a self-administered form which asked for his reactions to the survey in which he had just participated.

Because of a concern that responses to the government about the government may be tainted by respondent tendency to be accommodating or polite to the interviewer, the decision was made to divide the data collection with the Survey Research Center at the University of Michigan. Dividing the field work allowed testing to see whether auspices had any significant effect on response to questions about the government. The design employed also permitted internal reliability checks between independently managed half-samples. An essential feature of the design was that it was a national probability sample of the coterminous U.S. which was split into two interpenetrating parts. These parts were then randomly assigned to SRC and Census, with each agency conducting interviews in its assigned half-sample. The sample for the study was drawn by the Survey Research Center.

The sample was located in 44 PSUs of SRC's national sample. At the second stage, segments with an expected size of 8 to 16 housing units were chosen within the primary areas. These segments were listed by the SRC interviewers, and an average of 8 housing units per segment designated for interviewing. Every second selected listing from a random start was assigned to subsample A and the remaining selections assigned to subsample B. This procedure yielded approximately 860 listings per subsample. A random assignment of these two subsamples was then made between Census and SRC. At the third stage, within-housing-unit randomized selection tables were used to make a probability selection of one designated person from all residents 18 years of age or older in each of the selected housing units. Thus, while the housing unit selection probabilities were equal within subsamples, the selection rates within housing units varied by the number of eligible adults.

Regarding the development of the questionnaire, a topic outline with draft questions on major topics together with the transcripts from a series of several small group discussions (previously mentioned) served as the basis around which the initial version of the questionnaire was constructed. The questionnaire was extensively revised during two pretests. The pretests showed that direct questions about the isolated concepts of privacy and confidentiality produced reports of high sensitivity and concern, but that respondents were willing to trade off these values to maximize other values when faced with specific situations. It was as if people were saying "yes, we like apple pie" but then passing up a serving because they were on a diet. Because of the problems encountered with questions about abstract concepts, the focus on the final questionnaire was placed on the respondents' direct experience with surveys. The survey instrument itself served as a standard

treatment, incorporating many "typical" demographic questions, and reactions to the questionnaire were gathered on a self-administered form presented to the respondent at the end of the interview.

Regular staff interviewers were used by both organizations. These interviewers can be characterized as experienced and mature. They were primarily women with more than a high school education and were typical of those working for the two interviewing organizations. All specific interviewer preparation on this study was done by written instructions developed by SRC but used by both organizations. Written instructions rather than classroom training were used to guarantee standardization of procedures and preparation between organizations.

One slight deviation from normal procedures was that no advance letters were sent to the sample housing units. This was done to avoid the possibility that neighbors might become concerned if one received notification that an SRC interviewer would be calling and the other got a letter from Census. We have no evidence that this study's response suffered from not having an advance letter. The two organizations maintained close communication during the interviewing period to coordinate efforts and assure standardization of procedures. All editing and coding of the interview content was handled by the Survey Research Center to assure processing comparability between the two half-samples. The code books were constructed by SRC in consultation with the Census.

Two follow-up efforts were made in conjunction with the attitude survey. The first was an attempt to obtain information from nonrespondents by mail, and the second was a very small reinterview survey (using the attitude questionnaire) of people contacted on previous studies conducted by Census or SRC. The attempt to learn about nonrespondents by mail failed to produce useful information since only ten people returned the mail forms. The reinterview of people contacted on previous studies was designed as a validation of the survey contact questions contained in the attitude questionnaire. These validation results have not yet been fully analyzed.

Results of the Attitude Survey

Aside from the response rate there was very little difference in the results between the SRC and Census half-samples. Most of the results presented here will therefore be for the combined samples. The overall response rate on this study was 81.9% for both SRC and Census combined. Census achieved a response which was 6.7 percentage points higher than SRC. The difference in response rates between the two organizations was found to be concentrated in large SMSAs, in refusals (as opposed to other types of NI) and in interviewing persons over 65. In each instance Census achieved significantly less nonresponse than SRC.

The range of the questions in the attitude survey allows for a great deal of analysis to be done.

Only a few of the highlights of the survey results can be presented here. The survey tried to tap feelings about the relation between Census records and privacy using different techniques. In the most direct approach, respondents were asked, "Do you happen to know whether these records (the individually identifiable survey records) are public so that anyone who might want to see them can, or are they not open to the public?" followed by, "Do you know whether individually identifiable Census records are available to other government agencies or not?" The third question in the sequence was "Do you feel that other government agencies could obtain individual records from the Bureau of the Census if they tried?" Table 10 shows the combined results for both the SRC and Census half-samples and reveals that 18 percent of the respondents believe that Census records are open to the public, another 22 percent believe that Census records are open to other government agencies, and another 40 percent believe that other government agencies could obtain confidential Census records if they really tried. This last question was asked only of those respondents who had not indicated they believed Census records to be open to the public or to other government agencies. Of the respondents who were asked, therefore, whether they believed the Census Bureau could maintain confidentiality, 2 of 3 respondents did not feel the Census Bureau could. Overall, 80 percent of the respondents did not believe or know that Census records are confidential, or did not believe that confidentiality could be maintained. An additional 15 percentage points of the remaining 20 percent said they did not know whether the Census Bureau can maintain confidentiality, leaving only five percent of the respondents who were willing to commit themselves on the inviolable confidentiality of Census records. When asked, however, how long Census records should be kept confidential, 46 percent, close to half, of the respondents said the records should be confidential forever. Those respondents who stated that the records should be open after a time were asked, "How long after (the records) are gathered should it be before they are available for researchers outside the Census Bureau?" Of those who gave a numeric answer, the average number of years was 19.5 years.

Though only five percent of the population know or believe that Census records are completely confidential, 46 percent believe the records should be confidential forever, and an additional 40 percent believe the records should be confidential for some time. This means that whereas most people desire their records be kept confidential, they do not know that Title 13 protects their records, or they are skeptical of the Census Bureau's ability to carry out its legal duty. Other questions indicate a rather low level of knowledge about Census. When asked whether the Decennial Census is mandatory, 50 percent of the respondents said yes, 25 percent said no, and 25 percent did not know. Another question reveals that only 45 percent of the population know that the national government conducts the decennial census, and only 31 percent know that the Census Bureau conducts it.

This low level of knowledge about Census and safeguards on the confidentiality of Census records indicate a cause of skepticism among respondents about the Bureau's ability or willingness to maintain confidentiality. Another possible contributing factor to this skepticism is a distrust of survey organizations and earlier contacts by survey organizations.

When asked about organizations that run surveys, 52 percent of the respondents said they felt people were more likely to give accurate information to some types of organizations than to others, while 41 percent said there was no difference between organizations. Of those who said there was a difference in accuracy of reporting to organizations, 37 percent of the SRC respondents said the National Government was most likely to get accurate reporting, whereas 42 percent of the Census Bureau respondents chose National Government as most likely to get accurate reporting. Of the SRC respondents, 29 percent said that universities were most likely to get accurate reporting, whereas only 16 percent of Census respondents said the same (see Table 11).

When asked which type of organization was least likely to get accurate reporting, "private companies" were chosen by 60 percent and 54 percent of the respondents for SRC and Census respectively. The National Government was mentioned by 17 percent of the SRC respondents and 15 percent of the Census respondents, whereas for mentions of universities as least likely to get accurate information, the percentages were 4 and 15 for SRC and Census respectively (see Table 12). And when asked how often can you trust the results of surveys, 41 percent of the respondents to both organizations said that surveys can be trusted almost always or most of the time, and 51 percent said that surveys can be trusted only some of the time or hardly ever.

The results suggest there is a general lack of trust in survey results in a large part of the population. It might be conjectured here that since trust in the National Government has been a topic of discussion in recent years, a carryover effect on Census as a branch of the government could be showing up. There is more trust in the government's ability to collect accurate information than in other organizations, even when one takes account of the halo effect due to having the government ask questions about itself. But in general people are skeptical. This skepticism seems to translate directly into disbelief when asked about confidentiality. If the public is concerned about the trust it places in the government and in surveys, it would hardly trust or believe in the safeguards associated with surveys that the Census Bureau offers. There is a belief by the general populace that Census records should be kept confidential, but there is little knowledge of or trust in the Census Bureau and its ability to maintain confidentiality.

Why do respondents answer surveys then? In the small group discussions when this question was asked people who did not believe in confidentiality of response stated they had nothing to hide,

so the lack of confidentiality did not deter them from answering. On the attitude survey respondents were asked to complete a self-administered form at the end of the interview. Their answers about things that made them more willing (or less willing) to cooperate indicated that the interviewer's appearance or manner had the most effect on obtaining a response, with a feeling of citizenship also being important. (See Table 14) Although the statement of confidentiality with regard to this study was not as important to respondents as other factors, there was still a sizable number (42 percent) who said that it did make at least some difference in their willingness to be interviewed. As a reason for participation "the topic of the survey" was another "also ran" but again a sizable number (49 percent) said it made at least some difference. Apparently few respondents (2 percent) found it objectionable or uninteresting enough to be a disincentive to participation. If finding the topic objectionable can be taken as an indication of privacy concerns, it does not appear that maintaining privacy was an issue for most respondents on the attitude survey. However, respondents may be dealing with both privacy and confidentiality in a personal sense. The importance respondents attribute to the interviewer's appearance and manner suggests that they were trying to judge whether or not they could trust the interviewer. If the interviewer is perceived as a person who can be trusted to respect privacy and treat answers confidentially, then the respondent may resolve his concerns about these issues without the benefit of prepared statements. To the extent that this personal interpretation is correct, privacy and confidentiality are more important concerns than reactions to guarantees of confidentiality reveal. Other insights into respondent motivations to participate were obtained in the reports of respondents to the attitude survey who had been previously contacted by other surveys. About half of all respondents (54%) reported survey contacts of any kind in the last 4 or 5 years, although not all of these reported contacts may have been bona fide surveys. Reasons for responding or not responding to these contacts are scattered and vary by survey topic and data-gathering mode (mail, telephone, or personal interview). The reasons cited most often for not responding are that the topic was objectionable or uninteresting or the respondent did not want to bother or was too busy.

A multivariate analysis might show that different subgroups of the population are motivated by different combinations of factors. Census and other survey organizations may have to rely on all of these to improve survey response rates.

FOOTNOTES

[1] Some evidence based on recurrent surveys with fairly constant procedures and content is available. For example, see [9].

[2] Note that the views and analysis in this paper are the work of the authors, and do not necessarily reflect the views of the Panel.

[3] The estimator and its variance, the latter derived from Cochran [3] in his discussion of

ratio-to-size estimates, are given respectively, by

$$x'_{1A} = 2 \sum^{n_1} \frac{n_1 m_{i1} x_{i1A}}{\Sigma m_{i1}} \quad \text{and}$$

$$\text{Var } x'_{1A} = \frac{n_1^2}{M_1^2} \sum^{n_1} m_{i1}^2 \left(x_{i1A} - \frac{\sum^{n_1} x_{i1A} m_{i1}}{\sum^{n_1} m_{i1}} \right)^2$$

where x'_{1A} is the estimated number of refusals for treatment A units from stratum 1 and Var x'_{1A} is its variance, 2 represents the differential weighting required for stratum 1 as opposed to stratum 2, n_1 is the number of sample clusters in stratum 1, m_{i1} is the number of eligible units in the i-th cluster of stratum 1, M_1 is $\sum^{n_1} m_{i1}$, and x_{i1A} is unweighted value (0,1) of the Treatment A unit in the i-th cluster of stratum 1. Estimators for other treatments and for stratum 2 are defined similarly. The estimated covariance between any 2 treatments was also computed in order to find the standard error of the difference. The between PSU component of variance is not taken into account by the estimator; thus the variances estimated are conditional upon the particular set of 20 PSUs used in this experiment.

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Table 1.   DESIGNED EXPERIMENT: RESPONSE RATES BY TREATMENT

| | | All Cases | Treatment Type | | | | |
			A	B	C	D	E
Total Sample		4420	884	884	884	884	884
No-One-Home Nonresponse -	Total	159	20	22	40	31	46
	Rate	3.6%	2.3%	2.5%	4.5%	3.5%	5.2%
Adjusted Sample (Total Less No-One-Home)		4261	864	862	844	853	838
Refused Before Statement Read -	Total	123	29	26	21	28	19
	Rate	2.9%	3.4%	3.0%	2.5%	3.3%	2.3%
Readjusted Sample (Total Less No-One-Home and Refusals Before Statement)		4138	835	836	823	825	819
Refused After Statement Read	Total	95	15	16	19	22	23
	Rate	2.3%	1.8%	1.9%	2.3%	2.7%	2.8%

Table 2.   DESIGNED EXPERIMENT:
TEST FOR A LINEAR TREND IN THE PROPORTION
REFUSED BY TREATMENT

Treatment	X_i	Weighted a_i	Weighted n_i	$p_i = a_i/n_i$
A	3	15	835	.0180
B	2	16	836	.0191
C	1	19	823	.0231
D	0	22	825	.0267
E	-1	23	819	.0282
		95	4138=N	.0230=$\bar{p}$

$$b = \frac{\Sigma a_i X_i - (\Sigma a_i)(\Sigma n_i X_i)/N}{\Sigma n_i X_i^2 - (\Sigma n_i X_i)^2/N} = -0.00278$$

$$s_b = \sqrt{\frac{\bar{p}\bar{q}}{\Sigma n_i X_i^2 - (\Sigma n_i X_i)^2/N}} = .00165$$

$$t = b/s_b = -1.69 \quad P = .10$$

Table 3.   DESIGNED EXPERIMENT:
SPEARMAN RANK CORRELATION COEFFICIENT

Measure of the Degree of Concordance Between Hypothesized and Observed Ranks of Treatment Refusal Rates

Treatment	Rank (Hypothesized)	Rank (Observed)	difference	d^2
A	1*	1	0	0
B	2	2	0	0
C	3	3	0	0
D	4	4	0	0
E	5	5	0	0
			$\Sigma d=0$	$\Sigma d^2=0$

*Lowest refusal rate

$$r_s = 1 - \frac{6\Sigma d^2}{n(n^2-1)} = 1 - 0 = 1 \text{ (complete concordance)}$$

For n=5, 5% level of significance for r_s, according to Kendall [7], is 1.000. Hence we can conclude that the correlation between the hypothesized and observed rankings is significant.

Table 4.   DESIGNED EXPERIMENT:
KENDALL'S τ

Measure of Degree of Concordance Between Hypothesized and Observed Ranks of Treatment Refusal Rates

Treatment	A	B	C	D	E
Hypothesized Rank	1	2	3	4	5
Observed Rank	1	2	3	4	5

$$\tau = \frac{N_c-N_d}{n(n-1)/2} = \frac{10-0}{5(4)/2} = \frac{10}{10} = 1 \text{ (complete concordance)}$$

where N_c denotes the number of concordant pairs of observations from the total of $\binom{n}{2}$ possible pairs. N_c is obtained by taking each ranked value for the observed rankings and counting how many ranks to the right of it are greater than it, and adding these counts. N_d denotes the number of discordant pairs. From Conover's Table 11 [4] the critical level for the test statistic ($N_c-N_d = 10$) is estimated to be about $\hat{\alpha} \doteq .01$. Hence we can conclude that the correlation between the hypothesized and observed rankings is significant.

Table 5. Designed Experiment

Do you happen to remember the statement I read at the beginning of this interview? (weighted n = 884 for each treatment)

Treatment	Noninterview	Yes	No	DK or Other
A	7	82	10	1
B	7	70	11	2
C	9	79	11	1
D	9	75	15	1
E	11	74	15	-

Table 6. Designed Experiment

Did you happen to note whether[1] confidentiality was promised by the Census Bureau? (For Yes answers to above)

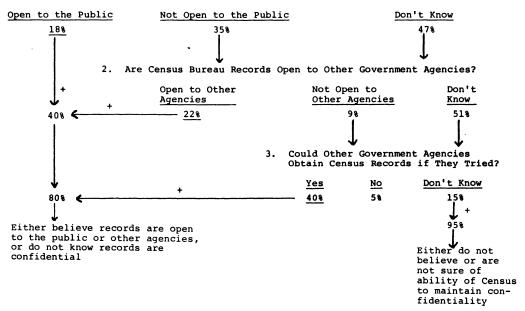| Treatment	Noninterview or not asked	Yes	No	DK or Other
A	18	77	5	-
B	19	76	4	1
C	20	76	3	1
D	24	40	35	1
E	26	50	24	-

[1]It is possible that some respondents anticipated the next question and answered in terms of what the promise was, rather than whether or not they had noted a promise. Thus, for example, a "No" response in condition E may have meant "No, I noted that confidentiality was not promised," rather than "No, I did not note whether confidentiality was promised."

Table 7. Designed Experiment

Was it promised? (Asked of Yes to above)

Treatment	Not Asked	Yes	No	DK or Other
A	23	76	1	-
B	22	75	1	2
C	23	75	1	1
D	59	26	14	1
E	50	22	27	1

Table 8. Designed Experiment

Was there a time limit given? (Asked of Yes to above)

Treatment	Not Asked	Yes	No	DK or Other
A	24	3	71	2
B	23	69	6	2
C	24	67	7	2
D	73	2	23	2
E	77	2	20	1

Table 9. Designed Experiment

What was the limit? (Asked of Yes to above)

Treatment	Not Asked	< 25	25 years	75 years	DK or Other
A	98	-	-	-	2
B	33	1	-	62	4
C	34	3	62	-	1
D	98	1	-	-	1
E	99	-	-	-	1

Table 10. RESPONSES TO QUESTIONS ABOUT CONFIDENTIALITY OF CENSUS BUREAU RECORDS

1. Are Census Bureau Records Open to the Public?[1]

Open to the Public	Not Open to the Public	Don't Know
18%	35%	47%

2. Are Census Bureau Records Open to Other Government Agencies?

	Open to Other Agencies	Not Open to Other Agencies	Don't Know
40%	22%	9%	51%

3. Could Other Government Agencies Obtain Census Records if They Tried?

	Yes	No	Don't Know
80%	40%	5%	15%
			95%

Either believe records are open to the public or other agencies, or do not know records are confidential

Either do not believe or are not sure of ability of Census to maintain confidentiality

[1]The specific wording on the questionnaire for these items was, "Individual survey records identified by names and addresses are kept in the files of the United States Bureau of the Census. These records contain information on such things as occupation, income, race and age. Do you happen to know whether these records are public so that anyone who might want to see them can, or are they not open to the public?" For those responding "not open" or "don't know," they were asked, "Do you know whether individually identifiable census records are available to other government agencies or not." For those responding "not open" or "don't know," they were further asked, "Do you feel that other government agencies could obtain individual records from the Bureau of the Census if they really tried?"

Table 11.   WHICH TYPE OF ORGANIZATION MOST LIKELY TO GET ACCURATE
INFORMATION BY AUSPICES OF COLLECTING AGENT

	Total	National Government	State or Local Government	University sities	Private Companies	Other
Total	100%	40	14	22	10	14
SRC-Michigan	100%	37	11	29	8	16
Census	100%	42	17	16	12	13

Table 12.   WHICH TYPE OF ORGANIZATION LEAST LIKELY TO GET ACCURATE
INFORMATION BY AUSPICES OF COLLECTING AGENT

	Total	National Government	State or Local Government	University sities	Private Companies	Other
Total	100%	16	6	10	57	11
SRC-Michigan	100%	17	8	4	60	11
Census	100%	15	5	15	54	11

Table 13. REPORT OF WHETHER SOMETHING GOOD OR BAD HAPPENED TO RESPONDENT
AS A RESULT OF RESPONDING TO A SURVEY

	Mail	Telephone	Personal
Total	100%	100%	100%
Number of Cases	280	266	201
Yes - Good	10%	4%	10%
Yes - Bad	1	4	1
No	85	88	87
DK/NA	4	4	2

Table 14.   EFFECT OF VARIOUS STIMULI ON WILLINGNESS TO BE INTERVIEWED

	Survey Sponsorship	Interviewer's Manner	Statement on Confidentiality	Topic of Survey	Curiosity	Sense of Good Citizenship
Total	100%	100%	100%	100%	100%	100%
Much more willing	20	41	23	22	16	31
Somewhat more willing	24	26	19	27	22	33
No difference	45	24	46	41	53	29
Somewhat less willing	1	1	1	1	1	—
Much less willing	1	—	1	1	1	1
Don't know/NA	9	8	10	8	7	6