Using a Short Follow-up Survey to Compare Respondents and Nonrespondents

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Introduction

This paper presents an analysis of the potential for nonresponse bias in the 1999 National Survey of America's Families (NSAF), a survey of the well being of children, adults under the age of 65, and their families. The NSAF is primarily a random digit dial (RDD) telephone survey, consisting of a short screener interview to determine household eligibility and a longer extended interview during which survey items of interest are gathered for sampled household members. In order to examine the potential for nonresponse bias, a follow-up survey of a sample of respondents and nonrespondents from the NSAF screener interview was conducted by a different survey organization than the one which conducted the main survey. To measure differences between respondents and nonrespondents the follow-up survey included key items from the main survey. In addition, the follow-up survey also contained questions on subjects that were thought to be correlated with willingness to participate in a survey, such as attitudes towards surveys and government, and perceptions of being busy.

NSAF Survey "The Main Survey"

The NSAF survey is funded by a consortium of private foundations in the United States and is conducted by Westat for the Urban Institute. The purpose of the survey is to assess the impact of recent changes in the administration of a number of assistance programs for children and the poor.

The sample is based on two different frames. The largest portion of the sample is RDD and is used to represent households with telephones. An area frame is used to select households that do not have telephones. All interviewers were done by telephone, with interviews in the area frame being conducted using cellular phones supplied to the respondent. The sample of the NSAF is designed to generalize to 13 specific states, as well as the country as a whole. There is also an over sampling of households that were estimated to be under 200 percent of the federal poverty level.

The NSAF consists of both a screening and an extended interview. The screening interview consists of about 3 minutes of questions designed to assess eligibility and select the person that should be administered the extended interview. This involves determining whether there are any persons under 65 years old in the household and whether or not the family is above or below 200 percent of poverty. If there is someone in the right age-range and the household is sampled (based on poverty status), a respondent for the extended interview is selected. The extended interview is between 25 and 45 minutes in length and covers a wide range of topics, including health, education, child care, income, and receipt of social services.

The response rate for the screener interview was 76.7 percent. The final combined response rate (screener response rate multiplied by the extended response rate) ranged from 61 percent to 67 percent, depending on the type of interview (adult vs. family). A total of 46,705 extended interviews were completed between February and October of 1999.

University of Maryland "The Nonresponse Follow-up Survey"

The data collection period for the follow-up survey was between August 25, 1999, and October 18, 1999. Therefore, the follow-up study took place while the NSAF survey was still being completed.

The sample for the follow-up survey consisted of 2,000 finalized telephone numbers from the 1999 NSAF study. The selection of telephone numbers for the follow-up survey was done using an equal probability sample within the following three NSAF screener outcome groups: (1) households that completed the screener without ever refusing (n=500); (2) households

that completed the screener survey but initially refused (n=600); and (3) households that were finalized as nonrespondents to the NSAF screener (n=900). Nonrespondents were mostly refusals, but also included those who received the maximum number of calls according to study protocol, those who never answered but had answering machines, and other nonresponse in the NSAF main study. Some telephone numbers were excluded from the experiment: language problem cases, non-working cases, nonresidential business cases, non-working tritone matches (determined by a computer system that dialed telephone numbers to detect the tritone signal and eliminate those that were nonworking), duplicate cases, hostile refusals, and cases for which the telephone was never answered (NA).

The follow-up questionnaire included some key NSAF questions and demographics questions that were also asked on the NSAF questionnaire (food stamps, health insurance, household composition, education, employment, race, ethnicity). Other questions were added to obtain information that could explain nonresponse, such as respondents' opinions about the importance of research surveys, how much time they feel they have, and how they feel about opinion pollsters. Follow-up respondents were also asked about their opinions about government. In addition, questions were asked about the number of telephone numbers in the household that were used for non-voice communication (e.g., telephone lines used only for computers). The average time to complete the interview was 8.3 minutes.

Data collection for the follow-up study was conducted by the University of Maryland's Survey Research Center. A major reason for having a different data collection organization for the follow-up study was the need to have the follow-up study be as independent of any issues that may have arisen in the original NSAF survey as possible. Sample cases in the main study were mailed letters, brochures, and incentives and were called repeatedly to obtain their cooperation. By having a different data collection organization perform the follow-up, it was hoped that some of the effects of these efforts could be isolated. To further this objective, the sponsor of the follow-up survey was also changed. Child Trends was the sponsor for the follow-up survey.

Respondent selection was the same in both the main and follow-up survey. Any adult member of the household could complete the NSAF screener and likewise the follow-up survey could be completed by any household member 18 years of age or older. Some of the other important features for the follow-up study are described below.

Number of calls. Cases were called nine different times on different days.

Spanish language. Bilingual interviewers were hired and trained for Spanish-speaking households.

Refusal conversion. Refusals were held for 10 days, and one refusal conversion attempt was made.

Letters. Letters were sent to aid in refusal conversion. In order to distinguish this letter from those associated with the main NSAF study, money was not included and the letters were sent priority mail rather than by an overnight service, as they were in the main study. The letters were on the University of Maryland's letterhead.

Response Rate Differences

Table 1 shows three different response rate calculations. The first column is what is usually described as the cooperation rate, which is simply the total completes for the follow-up survey divided by the total completes plus refusals. The second column is the response rate, which is the total completes divided by total completes plus the refusals and the other non-respondent eligible households (home recorders, max calls on callbacks, language and health problems). The third column is labeled the completion rate, this is the percentage of all phone numbers provided for which a completed interview was obtained (completes divided total sample provided).

For the most part the cooperation, response and, completion rates are what one would expect to occur. The respondents who completed the screener without ever refusing were the most likely group to cooperate and respond to the follow-up survey. Respondents that initially refused the NSAF screener were slightly less cooperative, but much more cooperative than the nonrespondents who refused the NSAF. The

Table 1: Survey Rates by Strata

	N	Cooperation Rate	Response Rate	Completion Rate
Completed & Never Refused	600	85.3%	78.1%	70.2%
Completed & Initially Refused	500	63.1%	59.7%	51.0%
Nonrespondents	900	37.9%	29.7%	25.7%
Nonrespondent Refusals	754	35.3%	30.0%	26.4%
Nonrespondent Max Calls	146	69.6%	28.0%	21.9%

nonrespondents that did not refuse the NSAF screener were actually more cooperative than the those who completed the NSAF after initially refusing. However, this max call and other non-respondent group was actually the most difficult group to complete follow-up surveys with (21.9%), even though they were not likely to refuse the survey. This could be an indication that RDD telephone surveys are sometimes misclassifying telephone numbers as nonresponse, when in fact the number may not be associated with a residential household.

Adjustments Made Prior to Analysis

First, we decided not to include the 32 follow-up interviews that were completed with non-respondents that did not refuse the NSAF screener. In addition to the differences in cooperation, other research (Black and Safir 2000; Triplett 2001; Groves and Couper 1998) has shown that this group differs from that of respondents who refuse. Therefore the nonresponse group (n=209) consists of only respondents who completed the follow-up survey but refused the NSAF.

Second, our analysis used a weighting factor that controlled for both the differential sampling within stratum and a follow-up study nonresponse adjustment. Thus, after applying the weight, the percentage of respondents who completed the follow-up study were proportional to the percentage of respondents who either completed the NSAF screener, completed the screener after refusing, or refused and never completed.

Third, we decided to collapse the two groups that completed the NSAF and use completing or refusing the NSAF as the dependant variable in our logistical regression analysis. This was done since our primary objective was estimating the potential for nonresponse bias in the NSAF survey. In addition, we also found that respondents who completed the NSAF but initially refused were more like the initial cooperators than the nonrespondents. This finding is supported by the research on the impact of nonparticipation done by Lin & Shaeffer (Lin and Shaffer 1995).

Analysis of the Behavioral and Attitudinal Questions

In designing the follow-up questionnaire, a number of behavioral and attitudinal questions were asked thinking that they would help explain nonresponse. In total there were ten of these types of questions (Table 2) asked during the follow-up survey. The order in which questions 2, 3 and 4, and questions 6 through 10 were asked was rotated to reduce the effect of any bias that may occur due to the order in which the questions were read.

Table 2: **Behavioral & Attitudinal Questions**

1. How important do you think it is that research is done about education, health care and services in your [fill STATE]. Would you say is it:

Extremely important, ...……	1
Very important, ...	2
Somewhat important, ...	3
Not too important, or.....	4
Not important at all?	5

For each of the following statements, please tell me if you strongly agree, somewhat agree, somewhat disagree, or strongly disagree with each statement.

2. Research surveys help improve the way government works.

3. People like me don't have any say about what the government does.

4. People have lost all control over how personal information about them is used.

5. In general, how do you feel about your time? Would you say you always feel rushed even to do things you have to do, only sometimes feel rushed, or almost never feel rushed?

Now I'd like you opinion of some people and organizations. As I read from a list, please tell me which category best describes your overall opinion of who or what I name.

6. Would you describe your opinion of Congress as...

7. Would you describe your opinion of the Democratic party as...

8. Would you describe your opinion of the Republican party as…

9. Would you describe your opinion of pollsters as …

10. Would you describe your opinion of telemarketers as …

Very favorable, ...	1
Mostly favorable, ...	2
Mostly unfavorable, or.....	3
Very unfavorable?	4

In comparing the mean scores for each of these 10 questions (Table 3) by the three NSAF response and nonresponse groupings (initial cooperators, initial refusals and non respondent refusals) only the question that asks respondents about their opinion of pollsters provided statistically significant findings. This was somewhat surprising since most of these items were expected to produce some differences between respondents, reluctant respondents and final NSAF refusals.

The NSAF refusal group had a significantly lower opinion of pollsters then both the reluctant respondents and respondents. In addition, while all groups usually gave very unfavorable ratings to telemarketers, the refusal group was the least unfavorable. Thus, it appears that those who refused to participate in the NSAF study, but did the follow-up study do not make as much of a distinction between telemarketers and pollsters. This finding could very problematic for surveys that either define themselves or are perceived as being opinion polls. University and others research sponsored studies may want to avoid using terms that make them sound like they are conducting an opinion poll.

Since all of these behavioral and attitudinal questions were items that were thought to be predictors of nonresponse, there was correlation found among the questions. Therefore to further test the significance of the opinion of pollsters we decided to run logistic regression using the behavioral and attitudinal questions as predictors of nonresponse. The results of this regression analysis (first column of Table 4, Model 1) support the finding that non-respondents did have a significantly different opinion of pollsters, while the difference on the other items remained non-significant. While not quite significant at the .05 level, the regression also supports the finding that less cooperative respondents have a higher opinion of telemarketers relative to pollsters.

Comparison of Demographic Characteristics

We did find some differences when comparing the demographic characteristics of the NSAF refusals with those who completed NSAF. Those who completed the NSAF were more likely to be white, and own their own home, but were also more likely to be unemployed. Those who refused were more likely to be from larger households, be black, but were also more likely to have graduated high school or received their GED.

When we used the demographic variables in our logistic regression analysis (Table 4, Model 2) to try to predict whether a person completes the NSAF the employment variable was no longer found to be significant. However, we did find that adults in the household, home ownership, and high school degree or GED were significant predictors of responding to the NSAF. Race was significant at the .1 level, but not at the .05 level.

Do the differences we found in the respondents and nonrespondents demographic characteristics help explain this difference we found in their opinion of pollsters? In order to answer this question we combined in our logistical regression analysis (Table 4, Model 3) the demographics variables that were found to be significant predictors of responding to NSAF response with the respondent's opinion of pollsters and telemarketers. This combination in fact slightly increased both our while reducing the estimates standard error. Thus, further

Table 3: Mean Scores

	Initial Cooperators (n=426)	Initial Refusals (n=260)	Refusals (n=207)
Importance of Research	**1.77**	**1.81**	**1.91**
Research Surveys Help	**2.14**	**2.23**	**2.23**
Cannot Change Government	**2.64**	**2.53**	**2.52**
Lose Control of Personal Info	**1.88**	**1.94**	**1.89**
Feel Rushed	**1.83**	**1.87**	**1.74**
Opinion of Congress	**2.42**	**2.47**	**2.51**
Opinion of Democrats	**2.43**	**2.37**	**2.56**
Opinion of Republicans	**2.58**	**2.53**	**2.6**
Opinion of Pollsters	**2.41**	**2.54**	**2.69**
Opinion of Telemarketers	**3.62**	**3.62**	**3.51**

Table 4: Logistical Regression:

	Model 1:			**Model 2:**			**Model 3:**		
	Beta	SE		Beta	SE		Beta	SE	
Intercept	-0.222	0.755		2.334	0.43		0.962	0.544	
Importance of Research	-0.043	0.111							
Research Survey Help	-0.102	0.127							
Cannot Change Government	0.031	0.083							
Lose Control of Personal Info	0.006	0.107							
Feel Rushed	0.213	0.137							
Opinion of Congress	-0.063	0.149							
Opinion of Democrats	0.078	0.119							
Opinion of Republicans	0.138	0.127							
Opinion of Pollsters	**0.328**	**0.133**	*				**0.334**	**0.111**	*
Opinion of Telemarketers	-0.040	0.130					0.045	0.124	
Employed				-0.197	0.189				
Hispanic				0.192	0.307				
HS/GED				-1.065	0.387	*	-0.851	0.377	*
Spouse Present				-0.091	0.187				
Black				-0.467	0.278		-0.430	0.281	
Homeowner				0.604	0.199	*	0.698	0.202	*
Number of Adults				-0.235	0.078	*	-0.239	0.079	*
Kids 0-5				0.012	0.118				
Kids 6-17				0.015	0.090				
Foreign Born				-0.040	0.312				

Dependent Variable:
0=Refused NSAF, 1= Completed NSAF

*** Indicates Significance at the .05 Level**

strengthening the argument that respondents and nonrespondents differ in their opinion of pollsters.

Analysis of Key NSAF Questions

The follow-up survey included several items that are important to researchers who use the NSAF data. For instance; whether a family is above or below 200 percent poverty; does anyone in the household receive food stamps; does the respondent or any children in the household not have health insurance. We found virtually no differences on these items when comparing the NSAF respondents and non-respondents. This finding reduces the potential impact of nonresponse bias for much on the NSAF analysis.

Summary

In order to improve future surveys, the industry needs to address the apparent paradox that while respondents think positively of the contribution surveys make to improving government, they think negatively of the people who collect the

data. Both respondents and nonrespondents generally favored the use of surveys, but both groups had a low opinion of pollsters and telemarketers. The opinion of pollsters was significantly worse among the NSAF nonrespondents, suggesting that there are some people who still respond to telephone surveys and do not feel quite as negatively toward pollsters. Thus, response rates would increase if we could improve the overall perception respondents have of the data collectors.

If attitudes toward pollsters are related to survey items it is likely that post-stratification weights would not adjust for the potential bias. The post-stratification usually involves making weighting adjustments based on a person's demographic characteristics, which we found to be independent of peoples attitudes towards pollsters. If attitudes towards pollster is correlated to any questions you might ask during a telephone survey there is likely to be some bias in your estimate that will be difficult to account for. Fortunately for the users of the NSAF data, we found no correlation between nonresponse and the key NSAF items.

The finding that nonresponse had little impact upon the NSAF key estimates is further supported by the work of Scheuren (2000). Scheuren used a capture/recapture model to score nonresponse adjustments and found that 60 percent of the NSAF screener nonresponse is ignorable. A follow-up survey of respondents and nonrespondents was also conducted for the 1997 NSAF study. In analyzing the results from the 1997 follow-up survey Groves and Wissoker (1999) found that NSAF nonrespondents tend to be black non-Hispanic. While the post-stratification adjustments achieve census based representation, there is potential bias if black nonrespondents are financially worse off then black respondents. While the current follow-up survey found black non-Hispanic more likely to be non-respondents, this finding was not significant at the 95 percent confidence level.

References

Black, Tamara and Safir Adam (2000), Assessing Nonresponse Bias in the National Survey of America's Families" Joint Statistical Meetings 2000 proceedings Section on Survey Methodology

Brick, Mike, Vaden-Kiernan Nancy, Fowlkes Carl, Cunningham Pat, "Report on the NSAF Cycle 2 Capture/Recapture Study" 1999 NSAF Collection of Papers Report No. 7

Groves, Robert and Wissoker, Douglas, "Early Nonresponse Studies of the 1997 National Survey of America's Families" 1997 NSAF Report No. 7

Groves, Robert and Couper, Mick "Nonresponse in Household Surveys." John Wiley, 1998

Len, I-Fen and Shaeffer Nora "Using Survey Participants to Estimate the Impact of Nonparticipation" Public Opinion Quarterly, 1995 Volume 59:236-258

Scheuren, Fritz (2000), "Quality Assessment of Quality Assessment", American Statistical Association 2000 Proceedings of the Section on Government Statistics and Section on Social Statistics, 44-51

Triplett, Timothy. "What is Gained from Additional Call Attempts & Refusal Conversion and what are the Cost Implications?" September 2001. Unpublished on-going research paper available on the web**:** (http://mywebpages.comcast.net/ttriplett13/tncpap.pdf)