

# 2002 NSAF Response Rates

Report No. 8

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Assessing  
the New  
Federalism

An Urban Institute  
Program to Assess  
Changing Social Policies

Methodology Reports

## PREFACE

*2002 NSAF Response Rates* is the eighth report in a series describing the methodology of the 2002 National Survey of America's Families (NSAF). The NSAF is part of the *Assessing the New Federalism* project at the Urban Institute, conducted in partnership with Child Trends. Data collection for the NSAF was conducted by Westat.

The NSAF is a major household survey focusing on the economic, health, and social characteristics of children, adults under the age of 65, and their families. During the third round of the survey in 2002, interviews were conducted with over 40,000 families, yielding information on over 100,000 people. The NSAF sample is representative of the nation as a whole and of 13 states, and therefore has an unprecedented ability to measure differences between states.

### About the Methodology Series

This series of reports has been developed to provide readers with a detailed description of the methods employed to conduct the 2002 NSAF. The 2002 series of reports include:

- No. 1: An overview of the NSAF sample design, data collection techniques, and estimation methods
- No. 2: A detailed description of the NSAF sample design for both telephone and in-person interviews
- No. 3: Methods employed to produce estimation weights and the procedures used to make state and national estimates for *Snapshots of America's Families*
- No. 4: Methods used to compute and results of computing sampling errors
- No. 5: Processes used to complete the in-person component of the NSAF
- No. 6: Collection of NSAF papers
- No. 7: Studies conducted to understand the reasons for nonresponse and the impact of missing data
- No. 8: Response rates obtained (taking the estimation weights into account) and methods used to compute these rates
- No. 9: Methods employed to complete the telephone component of the NSAF
- No. 10: Data editing procedures and imputation techniques for missing variables
- No. 11: User's guide for public use microdata
- No. 12: 2002 NSAF questionnaire

## **About This Report**

Report No. 8 provides information on the weighted response rates obtained for the 2002 NSAF. The report describes the use of response rates in evaluating the potential bias owing to nonresponse and methods used to calculate the NSAF response rates. Detailed response rate tables are provided for the main NSAF units of analysis, children and nonelderly adults (under age 65). The report also compares response rates across the three rounds of the NSAF and places these changes in the context of changes in response rates for other telephone surveys.

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# CONTENTS

<u>Chapter</u>		<u>Page</u>
1	INTRODUCTION .....	1-1
	1.1 Overview of the Survey .....	1-1
	1.2 Purpose of Reporting Response Rates .....	1-3
	1.3 Summary of Response Rates .....	1-4
2	DEFINITION AND LEVELS OF REPORTING.....	2-1
	2.1 Definition.....	2-1
	2.2 Levels .....	2-2
3	OVERVIEW OF PROCESS TO CONTACT RESPONDENTS .....	3-1
4	RESPONSE RATE FORMULAS .....	4-1
	4.1 Method of Computing Screener Response Rates.....	4-1
	4.2 Method of Computing Household Response Rates .....	4-3
	4.3 Method of Computing Person Response Rates.....	4-4
	4.4 Method of Computing Joint Response Rates .....	4-4
5	RESPONSE RATE TABLES .....	5-1
	5.1 Screener Response Rates .....	5-1
	5.2 Household Response Rates .....	5-3
	5.3 Person Response Rates .....	5-5
6	EVALUATION OF NSAF RESPONSE RATES .....	6-1
	6.1 Comparison to Previous Rounds of NSAF .....	6-1
	6.2 Changing Environment for RDD Surveys .....	6-5
	REFERENCES .....	R-1

## CONTENTS (CONTINUED)

### Tables

<u>Table</u>		<u>Page</u>
5-1	National Screener Response Rates, by Metropolitan and Mailing Status .....	5-1
5-2	Study Area Screener RDD Response Rates, by Metropolitan Status ....	5-2
5-3	Study Area Screener RDD Response Rates, by Mailing Status .....	5-3
5-4	National Household Response Rates, by Metropolitan and Mailing Status .....	5-4
5-5	Study Area Household RDD Response Rates, by Metropolitan Status .....	5-4
5-6	Study Area Household RDD Response Rates, by Mailing Status .....	5-5
5-7	National Child Response Rates, by Sample Type, Metropolitan Status, Screener Poverty Status, Age of Child, and Mailing Status .....	5-6
5-8	Study Area Extended and Joint Child RDD Response Rates .....	5-8
5-9	Study Area Extended and Joint Child RDD Response Rates, by Metropolitan Status .....	5-8
5-10	Study Area Extended and Joint Child RDD Response Rates, by Screener Poverty Status .....	5-9
5-11	Study Area Extended and Joint Child RDD Response Rates, by Child Age .....	5-9
5-12	Study Area Extended and Joint Child RDD Response Rates, by Mailing Status .....	5-10
5-13	National Adult Response Rates, by Sample Type, Metropolitan Status, Screener Poverty Status, Type of Adult, and Mailing Status .....	5-11

## CONTENTS (CONTINUED)

### Tables (continued)

<u>Table</u>		<u>Page</u>
5-14	Study Area Extended and Joint Adult RDD Response Rates .....	5-12
5-15	Study Area Extended and Joint Adult RDD Response Rates, by Metropolitan Status .....	5-12
5-16	Study Area Extended and Joint Adult RDD Response Rates, by Screener Poverty Status .....	5-13
5-17	Study Area Extended and Joint Adult RDD Response Rates, by Type of Adult .....	5-13
5-18	Study Area Extended and Joint Adult RDD Response Rates, by Mailing Status .....	5-14
5-19	Study Area Extended and Joint MKA RDD Response Rates .....	5-14
6-1	National Response Rates, by Round .....	6-2
6-2	RDD Screener Response Rates, by Study Area .....	6-4
6-3	RDD Child Extended Response Rates, by Study Area .....	6-6
6-4	RDD Adult Extended Response Rates, by Study Area .....	6-6
6-5	RDD Study Area Joint Child Response Rates, Rounds 1 and 3 .....	6-8

### Figures

1-1	Study Areas .....	1-2
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# 1. INTRODUCTION

This report gives the response rates achieved in the 2002 National Survey of America's Families (NSAF). In addition to giving the response rates, this report describes the methods used to compute the rates, compares the 2002 response rates with the rates from previous NSAF data collections, and examines the environment for conducting random digit dialing (RDD).

The 2002 NSAF is the third round of the survey; the two earlier rounds were conducted in 1997 and 1999. The content of the 2002 survey was very similar to that of the earlier NSAF data collections in order to provide valid and effective measures of change over time. Two important design changes in the 2002 survey are the elimination of the nontelephone sample for the study areas and the elimination of Milwaukee as a study area separate from Wisconsin. These and other design changes are described later in this chapter because they have implications for analyzing changes in response rates over time.

The response rates presented in this report are weighted to account for the different probabilities used to select the sample. In this important way, the rates reported here differ from those given in other reports in the 2002 NSAF report series. For example, the response rates in *2002 NSAF In-Person Survey Methods* differ from those in this report because of the use of weights. The reasons for using weighted rates are discussed further later in this chapter and more completely in chapter 2.

Chapter 3 gives a brief description of the procedures used in conducting the survey as a means of explaining how the response rates were achieved. These procedures are described in more detail in the two reports in the series covering data collection, *2002 NSAF In-Person Survey Methods* (Report No. 5) and *2002 NSAF Telephone Survey Methods* (Report No. 9).

Chapter 4 details the methods used to compute the response rates. The methods used are relatively complex and related to the procedures used to weight the data. Chapter 5 gives tables of response rates for the overall national sample and for key subgroups. Chapter 6 examines how the response rates from the 2002 NSAF compare with those achieved in Round 1 and Round 2 and provides some information on changes in other RDD survey response rates.

The rest of this chapter gives an overview of the survey, the reasons for reporting response rates from this survey, and the relationship of this report to others in the NSAF methodology series.

## 1.1 Overview of the Survey

The NSAF collects information on the economic, health, and social dimensions of the well-being of children, adults under the age of 65, and their families in 13 states and the balance of the nation. The Urban Institute selected these study areas (see figure 1-1) in because they represent a broad range of fiscal capacity, child well-being, and approaches to government programs. Data are also collected in the balance of the nation to permit estimates for the United States as a

**Figure 1-1.  
Study Areas**

Alabama	Massachusetts	New Jersey	Wisconsin Balance of nation
California	Michigan	New York	
Colorado	Minnesota	Texas	
Florida	Mississippi	Washington	

whole. We briefly outline the sample design here. Complete details are provided in *2002 NSAF Sample Design*, Report No. 2.

The primary goal of the survey in all three rounds is to obtain social and economic information about children in low-income families (those with incomes below 200 percent of the federal poverty level) since the impact of new federalism was likely to be greatest on these children. Secondary goals include obtaining similar data on children in higher income families, plus adults under age 65 (with and without children).

One major change in the design for the 2002 survey was that Milwaukee County, Wisconsin, which had been a separate study area with its own sample in 1997 and 1999, was no longer a separate study area. The Milwaukee County study area was included with the rest of Wisconsin as a single study area.

Another major change in the sample design was to eliminate the nontelephone sample in the study areas representing specific states. The NSAF uses two frames—an RDD survey of households with telephones and an area sample conducted in person for those households without telephones. In 1997 and 1999, this dual-frame approach (see Waksberg et al. 1997) was used for each study area and for the nation. In 2002, only a national-area sample was selected and the same dual-frame method was used to produce national estimates. No separate sample of households without telephones was selected in the study areas, so estimates for the study areas are based only on the RDD sample selected from each area. The weights of the RDD samples in the study areas were adjusted to reduce the potential bias associated with not sampling nontelephone households.

The national-area sample consisted of a subsample of primary sampling units (PSUs) used in the 1999 survey. The 1999 PSUs were subsampled in the study areas, while all the PSUs from the balance of the nation were retained. Since block groups with very high telephone coverage rates as of the 1990 Census were excluded in Round 1 and Round 2 sampling, this same restriction was carried forward to the 2002 survey of nontelephone households.

Another new feature introduced in the 2002 survey was the subsampling of refusal cases. A random sample of telephone numbers was selected, and only those identified in the subsample were followed to completion if they refused the screening interview. The numbers that were not subsampled were classified separately to make it easier to compute response rates.

In the RDD sample, a screener-based subsampling of households was used to sample low-income households at a higher rate than other households. A very short income question was asked during the RDD screening interview, and those that reported an absence of children or reported incomes above 200 percent of the poverty level were subsampled.

Within both the RDD and area samples, household members were subsampled to reduce the respondent burden. If there were multiple children under age 6, one was randomly selected. The same was done for children 6 to 17 years old. Data were collected from the most knowledgeable adult (MKA) in the household for the sampled child. During the MKA interview, data were also collected about the MKA and about his/her spouse or partner. Most questions asked about the MKA were repeated in reference to the spouse or partner; however, some questions on health insurance and health care usage were asked in reference to only one of the two. The target of these questions was randomly assigned to either the MKA or his/her spouse or partner. Questions asked only about the MKA were those related to feelings, religious activities, and opinions.

Other adults in households with children were subsampled, as were adults in adult-only households. Adults were eligible only if they would not have been the MKA for other children in the household if those children had been selected. Self-response was required for sampled adults—with proxy data collected about his/her spouse or partner (if living in the same household). Data were not collected directly from the spouse of a sampled adult. As in the MKA interview, some questions related to feelings, religious activities, and opinions were asked only about the sampled adult.

## 1.2 Purpose of Reporting Response Rates

Response rates are used to assess various aspects of a survey's quality (Madow et al. 1983). One purpose of reporting response rates is to provide a measure of how successfully the survey obtained responses from the sample. This outcome is related to the potential for nonresponse bias, and is the main objective of this report. To accomplish this goal, response rates are weighted so that the weighted response rates indicate the proportion of the population that responded. For example, since the balance of the United States includes half of the total population, the response rates are weighted so the balance of the United States accounts for 50 percent of the overall response rate.

The rationale for using weights in computing the response rate is that the bias of an estimate,  $\bar{y}$ , is a function of the response rate. Suppose the population can be partitioned into strata of respondents ( $R$ ) and nonrespondents ( $NR$ ), and the estimate from the survey is computed from the sample from the respondent stratum (without any modification of the inverse of the selection probability weights). The bias of a survey estimate of a mean is

$$bias(\bar{y}) = (1 - r)(\bar{Y}_R - \bar{Y}_{NR}),$$

where  $r$  is the appropriately weighted response rate and the quantity on the right is the difference in the means between the respondent and nonrespondent strata (Lessler and Kalsbeek 1992). This formulation clearly shows the bias increases as the response rate decreases if the difference in

characteristics between respondents and nonrespondents remains constant. If the response rates are not weighted, this relationship does not hold. Returning to the example, if the balance of the United States response rate is not weighted to account for 50 percent of the population, then the response rate cannot be used in the bias equation.

While weighted response rates are relevant for understanding the potential for bias, the most appropriate rates for operational purposes may be unweighted response rates. Unweighted response rates provide information on how many sampled units (households, persons, etc.) participated and are valuable for evaluating the effectiveness of specific field operations. Unweighted rates are used in other reports (such as the Sample Design, In-Person Survey Methods, and Telephone Survey Methods reports) for this purpose. This report presents weighted rates only, and as a result, the rates may not agree with those in other reports in this series.

Response rate reports from the 1997 and 1999 surveys (NSAF Report No. 8 in the series for each year) also included a section on the results of experiments related to the response rates. But this report does not cover any experiments from the 2002 survey. There were a number of experiments in the 2002 survey related to response rates and other operational issues to improve the quality and efficiency of the study. Because of the number of experiments and their varied nature, a separate report on experiments from the 2002 survey is being prepared.

### **1.3 Summary of Response Rates**

The remaining chapters in the report define the terms and methods used to compute response rates for the 2002 NSAF. The key response rates are summarized in this section, but a more complete understanding of the terms and procedures used in defining these rates may require reading the material in the following chapters. The overall national screener response rate for the 2002 NSAF is 66 percent. This response rate essentially describes the percentage of households that participated sufficiently to determine if there were any members of the households sampled for the survey. The 2002 NSAF national child extended response rate is 84 percent. This rate describes the percentage of completed interviews conducted for those children who were sampled. The product of the screener response rate and the child extended rate gives a national joint child response rate of 55 percent. The adult extended and joint response rates are approximately 2 to 5 percentage points lower than the corresponding child rates. The national adult extended response rate is 79 percent, and the adult joint response rate is 52 percent.

More details on the response rates for the screener, child, and adult interviews are given in chapter 5, including response rates for subgroups. This chapter also presents the response rates for the study areas. Chapter 6 compares the response rates for Round 3 with those for the two earlier rounds. The main finding is that the screener response rate decreased substantially over the 5 years, while the extended response rates remained at about the same level for all three rounds. Consequently, the overall response rates that are the product of the screener and extended rates decreased because of the screener rate decline. The context for the decrease in response rates is discussed in some detail in chapter 6.

## 2. DEFINITION AND LEVELS OF REPORTING

Response rates are essentially the ratio of the number of units interviewed to the eligible number of sampled units, weighted to represent the appropriate proportion of the population. However, the definition of a response rate is more complicated than this simple statement implies. The definition of response rates is discussed in the first section of this chapter.

Since the primary purpose of presenting response rates in this report is analytic, the response rates are reported separately for the main analysis groups—children (under age 18) and adults (age 18 to 64). In addition to these main groups, response rates are presented for key subgroups of interest, such as MKAs, in the second section.

### 2.1 Definition

An essential first step is to define “response rate,” because the term is used in so many different ways. A special report prepared by the Council of American Survey Research Organizations (CASRO) in 1982 made an important effort to standardize the reporting of response rates.<sup>1</sup> The CASRO report recommended defining the RDD survey response rate as the ratio of completed interviews to eligible reporting units.

While the concept is easily understood, the application of it in RDD surveys is not so simple. The American Association of Public Opinion Research (AAPOR) attempted to improve reporting by offering more standardized rules and methods (AAPOR 2000). Despite these efforts, response rate reporting is not uniform across organizations and surveys.<sup>2</sup>

The largest single problem in estimating response rates in RDD surveys is determining the eligibility of some sampled numbers from the RDD sampling frame. Some telephone numbers are never answered, even after being called many times over many days; for other telephone numbers the only response is from an answering machine. The eligibility of these numbers cannot be determined directly, and this makes defining a response rate ambiguous. Brick, Montaquila, and Scheuren (2002) suggest a method for doing this called the survival method. This method was adopted for the 1999 NSAF and is also used for the 2002 survey.

The response rates in the NSAF are computed in stages. First, units with unknown eligibility are assigned as either eligible or ineligible. Once the units with unknown eligibility are assigned, the response rate is the ratio of responding units to eligible units. These ratios are weighted so that the entire population is appropriately represented.

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<sup>1</sup> Another useful guide in calculating response rates is provided by the American Association for Public Opinion Research (AAPOR 2000). A copy can be found at the AAPOR web site (<http://www.aapor.org>).

<sup>2</sup> It is worth noting that the AAPOR (2000) classification of dispositions was not used in any round of NSAF. The AAPOR definition currently classifies households that refuse the screener as ineligible and uses a factor to allocate these (along with the numbers such as ring no answer outcomes) in the computation of the response rate. In NSAF, these cases are considered households that are refused, resulting in a lower response rate than the rate using the AAPOR procedure.

The next step in computing response rates depends on the unit being analyzed. The response rate can refer to a particular part of the interview process, such as the screening interview, or the overall response rate for all types of interviews attempted. For example, to compute the response rate for the child extended interview, the numerator is the number of completed child interviews, and the denominator is the number of children sampled in the households that completed the screening interview. The overall response rate is the product of component rates. In this case, the overall response rate for estimates of children is the product of the extended child response rate and the screener response rate. This definition has important implications that are addressed below.

## 2.2 Levels

As noted earlier, the multistage nature of the sample means that the rates are computed at the screening or household level and multiplied by the rates at the extended interview (or person) level to obtain overall or joint rates. This procedure was used in Rounds 1 and 2 and is repeated here for Round 3.

One important difference in the response rates for 2002 compared with previous rounds is a result of the change in the sampling of households without telephones. The national response rates are directly comparable to rates from earlier rounds, since the 2002 national sample is based on the dual-frame design used in previous years. However, since only RDD samples were selected for the study areas in 2002, the study area response rates reported for 2002 are only computed from the RDD samples. This differs from the 1997 and 1999 study area response rates, which were based on both the RDD and area samples.

For Round 2 a new concept called household response rates was introduced to make the NSAF response rates more comparable to rates from many other household surveys. This rate is also reported for Round 3. The household response rate is the product of the screener response rate and the percentage of sampled households in which at least one person in the household completed an interview. The household response rate is discussed more completely in chapter 4.

The multistage method of computing response rates introduces issues for estimating response rates for subgroups of interest. To calculate the response rate for a subgroup, all the units in both the numerator and denominator of the rate must be classified as members of the subgroup.<sup>3</sup> Thus, data must be available to classify all sampled units, not just respondents, so that the response rate can be computed separately for each subgroup. For example, the overall response rate for children in households reporting low incomes at the screener is the product of the screener response rate for *all* households and the extended child response rate for children in low-income households. It is not possible to estimate response rates separately by poverty status at the household level, since poverty status is only obtained for responding households.

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<sup>3</sup> Sometimes it is necessary to estimate the proportion of units in the subgroup. For example, as mentioned earlier, some telephone numbers are never classified by residential status because they are never answered despite repeated call attempts. The proportion of these numbers that is residential is estimated.

On the other hand, the response rate can be computed by poverty status at the extended interview level, since a measure of poverty is obtained for all households sampled for extended interviews in the screening interview. However, this rate relies on the assumption that the set of households that responded to the screening interview does not differ by poverty status. In this sense the rate for the subgroup at the extended interview is conditioned on the observed rate at the screener. The conditional rate is computed by assuming that all units in the subgroup have the same response rate at the household level. This may not be the actual situation. For example, if low-income households respond in the screener at a different rate than high-income households, then the conditional extended response rate for low-income people will be misleading in that it cannot account for the differential rate at the household level.

At the screener level, data on the RDD sample of telephone numbers are very limited; the telephone numbers can be classified by geography (study area and metropolitan status) and by whether there was an address for the telephone number that could be used to send an advance mailing. For the area sample, similar geographic data are available. At the person level, additional data from the screener that can be used are screener poverty status and whether the household has eligible children. Response rates can also be produced by the age of the child (young or old) and by adult type (MKA or other adult).

Since reporting levels are constrained by the lack of data for nonrespondents, the ability to examine the response rates for some key analytic subgroups of interest is limited. To handle this at least partially, the overall or joint household and person response rates are computed by multiplying the screener response rate for all households by the extended interview response rate for the particular group. As the example of reporting by poverty status illustrates, this method does not account for any differential rates for the subgroup at the screener level. This caveat is important and should be kept in mind when examining the rates for subgroups.

The next chapter describes some procedures used to collect data in the 2002 NSAF that are important to achieving high response rates. It then presents the specific methods for computing the national rates and the rates by study area.

### 3. OVERVIEW OF PROCESS TO CONTACT RESPONDENTS

This chapter gives a brief overview of the procedures used to contact sampled households and to encourage them to respond to the survey. This overview is intended to provide some background on the methods without describing them in detail. The full set of methods and procedures are described in two other reports in this series, *2002 NSAF In-Person Survey Methods* and *2002 NSAF Telephone Survey Methods*. Those reports describe the selection, training, and evaluation of the interviewers in the study. The overview in this chapter largely reviews the handling of refusals rather than other types of nonresponse.

As mentioned earlier, the survey contained both a screening and an extended interview. In the area sample, a prescreening interview was used to determine if the household was eligible (did not have a telephone and had at least one person under 65 years), but this prescreening is not discussed here. The screening interview consists of a three- to five-minute set of questions designed to select persons for an extended interview. This involved determining if there were any persons under 65 years old in the household and whether the family was above or below 200 percent of the poverty level.

In households with at least one age-eligible person that were sampled (based on poverty status), one or more respondents were selected for extended interviews. Each extended interview averaged between 31 and 47 minutes and covered a wide range of topics, including health, education, child care, income, and receipt of social services.

The procedures used to encourage respondents to participate in the study were different for the telephone and area sample. All eligible households in the area sample were contacted in person and offered a cash incentive to participate. The rest of this chapter discusses procedures used in the telephone sample.

Prior to starting data collection, the sampled telephone numbers were checked against commercial lists to obtain addresses. Those numbers with an address were sent an advance letter, a brochure describing the study, and a \$2 bill as an incentive. This procedure was followed for all households except those involved in incentive experiments. The advance mailing was timed to coincide as closely as possible to the initial release date for dialing the telephone number.

Three stages were used in the data collection process to convince respondents to participate in the screener interview. When we reached a person who was at least 18 years old and lived in the housing unit, we considered the call attempt an initial contact. If this person refused to participate by completing the screener interview, a second attempt was made to complete the screener after waiting at least two weeks after the first refusal. A letter was sent to the household to encourage the household to participate in the refusal conversion interview if an address was available. If the respondent refused the refusal conversion attempt, a second refusal conversion attempt was made at least another 10 days later. Again, a letter was sent to the households prior to the second refusal conversion attempt.

A similar process was used at the extended level to encourage participation. The sampled person was asked to participate in the study up to three times—an initial attempt and two attempts at refusal conversion. Incentives were offered to all sampled persons (either \$10 or \$20) to encourage them to participate in the extended interview.

If a respondent expressed extreme hostility, refusal conversion attempts were stopped at both the screener and extended level. These hostile sampled cases did not receive the full treatment described earlier.

The other type of household that did not receive the full refusal conversion treatment was any telephone number that was not subsampled for refusal conversion at the screener level. Note that once the screener was completed, all extended interviews were fully treated and were not subject to subsampling. As mentioned in the first chapter, the conversion attempts were only done in the subsample of telephone numbers in which the household refused the initial screener interview. The subsample was determined using replicate samples that were each a microcosm of the full sample in terms of the proportion from each study area and the balance of the U.S. Subsampling was thus relatively uniform across study areas. The sample design report describes the subsampling in detail.

The methods used to elicit cooperation from respondents in the telephone survey were intensive. The widespread use of monetary incentives in a telephone interview survey is still relatively unusual. These data collection methods were considered necessary in the NSAF to increase the response rates and avoid the greater potential for nonresponse bias. In the next chapters, the response rates achieved from the survey are defined and described.

## 4. RESPONSE RATE FORMULAS

This chapter gives the basic formulas used to compute the response rates for the 2002 NSAF. The four main types of response rates are screener response rates, household response rates, extended interview or person response rates, and joint or overall response rates. The sections below address the methods for computing each type of response rate.

### 4.1 Method of Computing Screener Response Rates

The methods used to compute the response rates for the telephone and in-person samples at the screening level are presented first. The methods are similar but have different components. The national sample uses both the telephone and area sample and the method of combining the response rates for these two samples to compute an overall screener response rate is presented. Since the sample in the study areas is only based on the RDD sample of telephone numbers, the screener response rate for a study area alone is the RDD screener response rate.

For the telephone sample, one screener response rate is calculated in each study area for all household types. The formula for the telephone screener response rate is

$$scr\_tel = \frac{\sum_{i \in \text{respondents}} w_i}{\sum_{i \in \text{residential}} w_i}, \quad (4-1)$$

where  $w_i$  is an adjusted weight for telephone number  $i$ . The weight is the baseweight adjusted to include the sum of the weights for the estimated residential percentage of the telephone numbers that were never answered or were only answered by answering machines. The weight is further adjusted to account for subsampling of refusal cases.

In the 2002 survey, only a subsample of telephone numbers that refused to participate in the initial screening interview was retained and worked by refusal conversion interviewers. The subsample of numbers retained for refusal conversion was weighted by the inverse of the subsampling rate to account for all sampled telephone numbers that refused. This subsampling factor is zero if the telephone number is not subsampled. The refusal subsampling weighting factors varied by study area, with 1.26 as the lowest factor for a study area and 1.68 as the highest. The factors ranged because the proportion of households refused by study area and, to a lesser degree, the proportion of the subsampled households varied by study area. Overall, about 12 percent of the households were subsampled (the adjustment factor was larger than suggested by the 12 percent because only those households that refused the screener were adjusted.) More details on the weighting are given in the weighting and variance estimation reports.

Equation (4-1) is a typical response rate. The numerator is the sum of the weights for all residential telephone numbers where the household responded, even if no one was sampled for an extended interview. The denominator is the sum of the weights for all residential telephone numbers. The only troublesome issue is assigning weights to the denominator for telephone numbers with unknown residential status, handled using the survival method (Brick, Montaquila, and Scheuren 2002). The estimated residential rates were determined over all sampling strata in each study area. The survival method was used in Round 2 but not in Round 1.

As noted earlier, since the samples from the study areas were only RDD samples, the screener response rate for the study areas is given by (4-1). No further computations are needed. However, the national sample included both an RDD sample and an area sample, so the screener response rate for the national sample requires computing the area screener response rate and then combining it with the RDD rate. The following is a description of the area screener response rate needed to compute the national response rate.

There are two factors for the screener response rate for the area sample. The first factor is for nonresponse for the few segments in New York and the balance of the U.S. that were never listed.<sup>4</sup> Since this nonresponse is at the segment level, the factor is also at that level. The equation for the factor is

$$scr\_area1 = \frac{\sum_{\substack{i \in \text{listed} \\ \text{segments}}} w_i}{\sum_{\substack{i \in \text{sampled} \\ \text{segments}}} w_i}, \quad (4-2)$$

where the numerator is the sum of the baseweights of the listed segments and the denominator is the sum of the baseweights of all sampled segments. The segment baseweights include both the PSU and the segment stages of sampling. This factor is denoted as *scr\_area1*.

The second factor is at the household level and reflects the effect of nonresponding households. A household is eligible for the area sample if it does not have a telephone and there is at least one person in the household under 65 years old. This factor, *scr\_area2*, takes account of both the prescreening (searching for eligible households) and screening stages (obtaining the participation of the households in the screening interview). The equation for the second factor is

$$scr\_area2 = \frac{\sum_{i \in \text{elig. resp.}} w_i}{\sum_{i \in \text{elig. resp.} + \text{nonresp.}} w_i}, \quad (4-3)$$

where the numerator is the sum of the weights of the eligible responding nontelephone households and the denominator is the sum of the weights of the eligible responding and nonresponding households. The household weights  $w_i$  include the PSU weight, the segment

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<sup>4</sup> Five segments were not listed because interviewers were not allowed access to the building or the household was in a gated community.

weight adjusted for unlisted segments, and the household weight after adjusting for unknown eligibility.

The area screener response rate is the product of the two factors and is written as

$$scr\_area = (scr\_area1)(scr\_area2). \quad (4-4)$$

For the national sample, the overall screener response rate is the weighted average of the telephone and area sample screener response rates. The screener response rate for each component is weighted by the proportion of total eligible households it represents. More specifically, the weight for the telephone screener response rate was estimated directly from the NSAF as the proportion of the sum of the final weights coming from telephone sample households.

The overall national screener response rate is given by

$$scr\_all = \alpha(scr\_tel) + (1 - \alpha)(scr\_area), \quad (4-5)$$

where  $\alpha$  is the estimated proportion of telephone households. To simplify the presentation of the other response rates given in this report, the same notation ( $scr\_all$ ) is used for the screener response rates for the study areas by simply noting that  $\alpha$  is equal to unity for the study areas.

## 4.2 Method of Computing Household Response Rates

The household response rates are the percentage of households that completed at least one extended interview, given the screener was completed and the household was sampled for an extended interview. The extended interview is considered complete if the respondent has completed through section K, which is near the end of the interview. The household rate is calculated as

$$hh\_rate = (scr\_all)(ext\_hh), \quad (4-6)$$

where  $scr\_all$  is the screener response rate and  $ext\_hh$  is the response rate for completing an extended interview. The second factor is calculated as

$$ext\_hh = \frac{\sum_{i \in \text{elig.HH with at least one complete ext. interview}} w_i}{\sum_{i \in \text{elig.HH sampled for an ext. interview}} w_i}, \quad (4-7)$$

where the numerator is summed over eligible households where at least one extended interview was completed and the denominator is summed over all eligible households sampled for an extended interview. The weight being summed in this case is the household poststratified weight. The formula as written applies to the national sample and the study area samples, recalling that for the study areas the  $scr\_all$  weight is the RDD adjusted weight and the weight being summed in (4-7) is the study area RDD-adjusted household weight.

### 4.3 Method of Computing Person Response Rates

The extended response rates are the percentage of the children and adults sampled in the screener who completed the appropriate extended interview.

The extended child response rate is calculated as

$$ext\_chld = \frac{\sum_{i \in \text{all resp.children}} w_i}{\sum_{i \in \text{all sampled children}} w_i}, \quad (4-8)$$

where the numerator is summed over all respondents, both eligible and ineligible, and the denominator is summed over all sampled cases, regardless of eligibility. An extended interview is complete if the respondent completed through section K of the interview. The weight being summed in this case is the child baseweight, which includes all the household-level weight adjustments as well as the weight for selecting the child within the household. This extended response rate is referred to as *ext\_chld*. Since data on the age of the children were collected at the screener, this rate can be computed separately for younger (under 6) and older (6 to 17) children.

The extended response rate computation for adults is somewhat more complex because of the sampling method. For households with children, the full enumeration of all adults between 18 and 64 years old did not take place until the first extended interview was conducted. As a result, an additional component in the extended response rate at the household level for adults reflects this nonresponse. The additional household nonresponse component is the result of households in which no sampled person completed an extended interview even though the screener interview was completed. This response rate component, *ext\_hh*, was computed using equation (4-7).

The second component is at the person level and is the result of sampled adults who did not respond. It has exactly the same form as given in (4-8) for children and is denoted as *ext\_within*. The extended response rate for adults is the product of the two components:

$$ext\_adlt = (ext\_hh)(ext\_within). \quad (4-9)$$

The adult response rate was calculated for all adults. The only exception is for MKA analysis, which uses the adult MKA without including the spouse/partner. We discriminate between the two by referring to the MKA with spouse/partner data as MKS and the MKA alone as MKA. Adult response rates are computed separately for MKS and MKA.

### 4.4 Method of Computing Joint Response Rates

The joint response rates are the product of the screener and extended response rates. For child interviews, the joint response rate is

$$jnt\_chld = (scr\_all)(ext\_chld). \quad (4-10)$$

For all adults, the joint response rate is computed as

$$jnt\_adlt = (scr\_all)(ext\_adlt). \quad (4-11)$$

For MKS adults, the joint response rate is

$$jnt\_MKS = (scr\_all)(ext\_MKS), \quad (4-12)$$

where  $ext\_MKS$  is  $ext\_adlt$  computed separately for MKS adults. The joint response rate for MKA without including spouses is

$$jnt\_MKA = (scr\_all)(ext\_MKA). \quad (4-13)$$

The formulas given in this chapter were applied to compute the response rates from the 2002 NSAF. The response rates achieved using these formulas are given in the next chapter.

## 5. RESPONSE RATE TABLES

This chapter presents tables of response rates from the 2002 NSAF. The first section contains tables of the screener response rates. The second section contains tables of the household response rates. The third section has tables of the person (extended and joint) response rates for both adults and children. All rates in the tables in this chapter are weighted.

### 5.1 Screener Response Rates

Since the national sample includes both RDD and area samples and the study area samples do not, the national screener response rates are presented first and then the study area response rates. Table 5-1 gives the national screener response rates by sample type, metropolitan status, and mailing status. Since mailing status is only known for the RDD sample, the tabulations by mailing status are only for the national RDD sample.

The overall national screener response rate for the 2002 NSAF is 66 percent. The response rate for the RDD sample is 16 percentage points lower than the rate for the area sample. This difference is typical of the differences between response rates for in-person and RDD samples. The response rate for households in metropolitan areas is almost 10 percentage points lower than the rate in nonmetropolitan areas, and this difference exists for both the area and RDD samples. This finding is very common in surveys (Groves and Couper 1998). The table also shows that within the RDD sample the response rate is about 10 percentage points higher for those telephone numbers for which a mailing address could be obtained. As described in chapter 3, if a mailing address could be associated with the telephone number, advance letters and incentives were used to increase response rates. The difference by mailing status is as expected.

**Table 5-1.  
National Screener Response Rates, by Metropolitan and Mailing Status**

Category	Sample type		
	Area	RDD	Total
Metropolitan status			
MSA	86.8	63.7	64.3
Non-MSA	76.1	73.3	73.4
Mail status			
Mailed	#	66.8	#
Not mailed	#	57.3	#
Total	81.6	65.5	66.0

# No advance letters were sent to households in the area sample, as described in chapter 3.

The next tables are the screener response rates for the study areas. Since these response rates are based on only the RDD sample, they are slightly lower than the national rates. The tables give the response rates by variables known from the sampling frame for all sampled telephone numbers.<sup>5</sup> These variables help explain some of the differences in response rates by study area. For example, table 5-2 gives the study area screener response rates for each study area by metropolitan status. The table shows that the response rates for metropolitan areas are always lower than for nonmetropolitan areas, so study areas with greater concentrations of the population in metropolitan areas are likely to have lower response rates. The table also shows that the overall rates differ by study area. The lowest response rates are for New Jersey and New York, the only two study areas with rates less than 60 percent. Three study areas (Wisconsin, Minnesota, and Mississippi) have screener response rates over 70 percent.

**Table 5-2.**  
**Study Area Screener RDD Response Rates, by Metropolitan Status**

Study area	Metropolitan status		
	MSA	Non-MSA	Total
Alabama	67.4	70.3	68.2
California	61.6	70.9	61.9
Colorado	68.2	72.0	68.8
Florida	61.2	68.2	61.6
Massachusetts	60.7	67.3	60.8
Michigan	66.8	72.1	67.8
Minnesota	70.5	78.3	72.8
Mississippi	67.6	72.2	70.6
New Jersey	55.5	#	55.5
New York	57.1	71.6	58.3
Texas	63.2	69.9	64.3
Balance of U.S.	65.7	73.7	67.9
Washington	67.9	75.2	69.1
Wisconsin	72.9	75.8	73.9

# The entire state of New Jersey is classified as metropolitan.

Table 5-3 gives the study area screener response rate by whether a letter could be mailed to the house with the telephone number. The result shows the households that were “mailable” participated at a greater level in each study area, with a difference between about 6 to 12 percentage points. It should be noted that this difference cannot be directly attributed to the mailings and incentives because households for which addresses could be located may have been naturally more cooperative.

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<sup>5</sup> All the variables (sample type, metropolitan status, and mailing status) were used to form nonresponse adjustment classes for producing the survey weights.

**Table 5-3.  
Study Area Screener RDD Response Rates, by Mailing Status**

<b>Study area</b>	<b>Mailing status</b>		
	<b>Mailed</b>	<b>Not mailed</b>	<b>Total</b>
Alabama	69.5	58.0	68.2
California	63.4	55.3	61.9
Colorado	70.3	58.6	68.8
Florida	62.9	54.6	61.6
Massachusetts	61.6	54.3	60.8
Michigan	68.7	61.0	67.8
Minnesota	73.8	63.4	72.8
Mississippi	71.1	65.5	70.6
New Jersey	56.8	45.4	55.5
New York	59.8	49.2	58.3
Texas	65.3	58.8	64.3
Balance of U.S.	69.1	59.3	67.9
Washington	70.4	62.9	69.1
Wisconsin	74.8	64.5	73.9

## **5.2 Household Response Rates**

The next tables show the household response rates. These rates are comparable to those reported in some other surveys and were first reported in the NSAF beginning in Round 2. The rates are the product of the screener response rate and the response rate for households that complete at least one extended interview. As in the previous section, the national rates are given first and then the study area rates. The household response rates are calculated for the same domains as the screener response rates.

Table 5-4 gives the national household response rates by sample type, metropolitan status, and mailing status. The overall national household response rate is 54 percent, with the area household response rate at 77 percent and the telephone response rate at 53 percent. The difference in the household response rates by metropolitan status is much greater for the RDD sample than for the area sample. In fact, an unusual result is that the household response rate in metropolitan areas is higher than in nonmetropolitan areas for the area sample. However, the sample size for the area sample is relatively small. Looking at the RDD sample by mailing status, the participation rate is much higher for mailable than for nonmailable households. This finding is consistent with the screener response rates.

**Table 5-4.  
National Household Response Rates, by Metropolitan and Mailing Status**

	Sample Type		
	Area	RDD	Total
Metropolitan status			
MSA	80.5	51.1	51.8
Non-MSA	73.7	62.5	63.2
Mail status			
Mailed	#	54.9	#
Not mailed	#	43.3	#
Total	77.3	53.2	53.9

# No advance letters were sent to households in the area sample, as described in chapter 3.

The next two tables give the study area household response rates by metropolitan status and by mailing status. Table 5-5 shows the difference in the household response rates by metropolitan status is 13 to 17 percentage points in California and New York. For the other study areas, the difference is 10 percentage points or less. The variation in the household response rates by study area is slightly less by mailing status, as shown in table 5-6. Wisconsin has the largest difference (16 percentage points), while Texas has a difference of only 4 percentage points.

**Table 5-5.  
Study Area Household RDD Response Rates, by Metropolitan Status**

Study Area	Metropolitan Status		
	MSA	Non-MSA	Total
Alabama	55.1	55.7	55.3
California	46.6	59.7	46.9
Colorado	55.6	60.1	56.3
Florida	48.2	55.4	48.6
Massachusetts	46.3	41.1	46.3
Michigan	53.5	63.0	55.1
Minnesota	59.6	67.9	62.0
Mississippi	54.7	58.3	57.0
New Jersey	41.8	#	41.8
New York	43.1	60.8	44.4
Texas	51.1	58.5	52.2
Balance of U.S.	54.4	63.3	56.7
Washington	55.3	65.4	56.9
Wisconsin	62.5	66.0	63.7

# The entire state of New Jersey is classified as metropolitan.

**Table 5-6.  
Study Area Household RDD Response Rates, by Mailing Status**

Study Area	Mailing Status		
	Mailed	Not Mailed	Total
Alabama	56.8	44.1	55.3
California	49.1	38.5	46.9
Colorado	57.9	46.0	56.3
Florida	50.2	40.7	48.6
Massachusetts	47.3	38.5	46.3
Michigan	56.4	46.5	55.1
Minnesota	63.3	51.2	62.0
Mississippi	57.5	52.6	57.0
New Jersey	43.0	33.0	41.8
New York	46.0	35.4	44.4
Texas	52.8	48.6	52.2
Balance of U.S.	58.4	45.6	56.7
Washington	58.5	49.3	56.9
Wisconsin	65.3	48.8	63.7

### 5.3 Person Response Rates

The next set of tables gives the extended and joint response rates for the child interviews, beginning with the national child response rates in table 5-7. The 2002 NSAF national child extended response rate is 84 percent, and the national joint child response rate, the product of the screener and extended rate, is 55 percent. The child joint response rate is higher than the household response rate because households with children completed the extended interview at a greater rate than households without children (the adult extended interview rates are given later). Since the household rates combine the rates for these two groups, the household rates fall between the child and adult rates.

Table 5-7 shows that the extended child response rate is much higher for the area sample (95 percent) than for the RDD sample (83 percent). This difference carries over to the joint child response rates. Since only a very small percentage of the population does not have a telephone, the overall national child joint response rate of 55 percent is much closer to the RDD rate than the area rate. The table also shows the differences in response rates at the extended level by metropolitan status and mailing status (for the RDD sample) are similar to those found at the screener level.

Table 5-7 also gives the extended and joint child response rates by two characteristics captured in the screener interview, the age of the child and the screener poverty status. The differences in the extended and joint rates by the age of the sampled child are small. Poverty status has three categories, where nonpoor is over 200 percent of the poverty level, poor is under 200 percent of the poverty level, and unknown means the screener items needed to compute the poverty status

were not completed. Since the screener poverty status is the outcome of asking simple questions about income and household size, it is not a reliable measure of poverty. A more accurate measure of poverty status is collected in the extended interviews, but the screener poverty status is the only item available for both respondents and nonrespondents. The child extended and joint rates are not very different for those above and below 200 percent of the poverty level. When the screener poverty status is unknown, the extended response rate for the child interview is about 12 percentage points lower than when the status is known. This difference is consistent with similar experiences in other surveys, and one explanation is that failing to answer such a question in the screening interview is an indicator of an increased propensity to refuse the extended interview.

**Table 5-7.**  
**National Child Response Rates, by Sample Type, Metropolitan Status, Screener Poverty Status, Age of Child, and Mailing Status**

<b>Category</b>	<b>Extended</b>	<b>Joint</b>
Sample type		
Area	95.0	77.5
RDD	83.0	54.4
Metropolitan status		
MSA	82.5	53.1
Non-MSA	87.9	64.5
Screener poverty status		
Nonpoor	84.0	55.4
Poor	84.3	55.6
Unknown	72.4	47.8
Age of child		
0 to 5	84.1	55.5
6 to 17	83.3	54.9
Mailing status (RDD only)		
Mailed	83.8	56.0
Not mailed	79.2	45.4
Total	83.5	55.1

Before presenting the tables of extended and joint child rates for the study areas, it is important to reiterate that the extended response rates by screener poverty status (and age of child) are conditional, as noted in the previous chapter. Thus, the lack of a substantial difference between the extended and joint response rates for those above and below 200 percent of the poverty level does not mean the overall rates are actually equal. Poor or nonpoor households may respond at different rates to the screener interview, but it is not possible to determine this from the data

available. On the other hand, the joint response rates for sample type, metropolitan status, and mailing status are not conditional, because these data are available and used to compute the rates at both the screener and extended rates by subgroup.

Table 5-8 gives the extended and joint child response rates for each study area, again based only on the RDD sample. The extended rates range from a high of 88 percent in Wisconsin to a low of 76 percent in New Jersey, but the variability by study area in the extended rates is less than that in the screener rates. The joint rates are much more variable as a result of the ranges in both the screener and extended interview rates. The lowest response rate is for New Jersey (42 percent) and the highest is for Wisconsin (65 percent).

Tables 5-9, 5-10, 5-11, and 5-12 show the study area extended and joint rates by the same characteristics as those given for the national rates. As with the variables examined in relation to the screener response rates, these data may be informative about how the differences in the compositions of the study areas (e.g., the proportion that are metropolitan) might be expected to affect the study area response rates. All characteristics presented in this section were also used in nonresponse adjustments or poststratification adjustments of the weights.

The extended child response rates do not vary as much by study area as the joint rates do, except in a few study areas such as Massachusetts, which has a very small nonmetropolitan population. Generally, the extended and joint response rates in MSAs are lower than the rates in the non-MSAs in the study areas. Table 5-10 presents the extended and joint child rates by poverty status. As seen with the national child extended rates, the differences by poverty status are not consistently in one direction. The two study areas with largest differences between the poor and nonpoor extended rates are Texas, where the poor rate is about 4 percentage points higher than the nonpoor rate, and Florida, where the poor rate is about 7 percentage points lower than the nonpoor rate. The differences in the joint rates do not exceed 5 percentage points for any study area. Table 5-11 shows that the extended and joint response rates for the child interview do not vary substantially by the age of the sampled child for any study area. Table 5-12 gives the rates for each study area by mailing status. In most study areas, the propensity of those in mailable households to respond at a higher rate noted at the screener level also persists at the extended level. In all but a few study areas (notably Texas and California) the higher rate for the mailable at the screener level is matched by similar difference in the extended rates.

**Table 5-8.  
Study Area Extended and Joint Child RDD Response Rates**

<b>Study area</b>	<b>Extended</b>	<b>Joint</b>
Alabama	83.7	57.1
California	78.4	48.5
Colorado	83.3	57.4
Florida	77.9	48.1
Massachusetts	79.4	48.3
Michigan	82.8	56.1
Minnesota	85.7	62.4
Mississippi	80.1	56.5
New Jersey	75.5	41.9
New York	78.8	45.9
Texas	81.0	52.1
Balance of U.S.	85.8	58.3
Washington	85.6	59.2
Wisconsin	88.2	65.1

**Table 5-9.  
Study Area Extended and Joint Child RDD Response Rates, by Metropolitan Status**

<b>Study area</b>	<b>Extended</b>			<b>Joint</b>		
	<b>MSA</b>	<b>Non-MSA</b>	<b>Total</b>	<b>MSA</b>	<b>Non-MSA</b>	<b>Total</b>
Alabama	84.4	82.0	83.7	56.9	57.7	57.1
California	78.2	84.8	78.4	48.2	60.1	48.5
Colorado	83.2	84.0	83.3	56.8	60.5	57.4
Florida	77.7	82.0	77.9	47.6	56.0	48.1
Massachusetts	79.6	67.6	79.4	48.3	45.5	48.3
Michigan	81.6	88.9	82.8	54.5	64.1	56.1
Minnesota	84.9	87.9	85.7	59.8	68.9	62.4
Mississippi	80.8	79.6	80.1	54.6	57.5	56.5
New Jersey	75.5	#	75.5	41.9	#	41.9
New York	78.5	83.5	78.8	44.8	59.8	45.9
Texas	80.5	84.7	81.0	50.9	59.2	52.1
Balance of U.S.	85.3	87.4	85.8	56.1	64.4	58.3
Washington	85.0	88.4	85.6	57.7	66.5	59.2
Wisconsin	87.9	88.8	88.2	64.1	67.3	65.1

# The entire state of New Jersey is classified as metropolitan.

**Table 5-10.**  
**Study Area Extended and Joint Child RDD Response Rates, by Screener Poverty Status**

Study area	Extended				Joint			
	Screener poverty status				Screener poverty status			
	Nonpoor	Poor	Unknown	Total	Nonpoor	Poor	Unknown	Total
Alabama	84.4	84.1	69.7	83.7	57.6	57.4	47.5	57.1
California	80.4	76.9	69.2	78.4	49.7	47.6	42.8	48.5
Colorado	84.0	83.8	68.9	83.3	57.8	57.7	47.4	57.4
Florida	80.7	73.7	77.9	77.9	49.8	45.4	48.0	48.1
Massachusetts	80.8	77.4	69.1	79.4	49.1	47.0	42.0	48.3
Michigan	83.8	83.0	66.8	82.8	56.8	56.2	45.3	56.1
Minnesota	87.1	84.7	66.2	85.7	63.4	61.7	48.2	62.4
Mississippi	79.5	81.8	69.3	80.1	56.1	57.8	48.9	56.5
New Jersey	77.1	73.3	64.7	75.5	42.8	40.7	35.9	41.9
New York	80.7	78.5	61.9	78.8	47.0	45.8	36.1	45.9
Texas	80.2	84.1	68.6	81.0	51.5	54.0	44.1	52.1
Balance of U.S.	86.2	86.9	73.7	85.8	58.5	59.0	50.0	58.3
Washington	86.6	85.3	70.9	85.6	59.8	58.9	49.0	59.2
Wisconsin	88.4	87.9	85.2	88.2	65.3	64.9	63.0	65.1

**Table 5-11.**  
**Study Area Extended and Joint Child RDD Response Rates, by Child Age**

Study area	Extended			Joint		
	Age of child			Age of child		
	0 to 5	6 to 17	Total	0 to 5	6 to 17	Total
Alabama	85.2	83.1	83.7	58.2	56.7	57.1
California	78.5	78.4	78.4	48.6	48.5	48.5
Colorado	83.5	83.2	83.3	57.5	57.3	57.4
Florida	80.2	77.0	77.9	49.4	47.5	48.1
Massachusetts	79.9	79.2	79.4	48.6	48.1	48.3
Michigan	82.4	83.0	82.8	55.8	56.3	56.1
Minnesota	85.6	85.7	85.7	62.3	62.4	62.4
Mississippi	79.1	80.5	80.1	55.8	56.8	56.5
New Jersey	75.2	75.7	75.5	41.8	42.0	41.9
New York	76.5	79.9	78.8	44.6	46.6	45.9
Texas	82.8	80.3	81.0	53.2	51.6	52.1
Balance of U.S.	86.7	85.5	85.8	58.8	58.0	58.3
Washington	86.0	85.4	85.6	59.4	59.0	59.2
Wisconsin	87.9	88.3	88.2	64.9	65.2	65.1

**Table 5-12.**  
**Study Area Extended and Joint Child RDD Response Rates, by Mailing Status**

Study area	Extended			Joint		
	Mailing status			Mailing status		
	Mailed	Not mailed	Total	Mailed	Not mailed	Total
Alabama	84.8	78.0	83.7	59.0	45.2	57.1
California	78.5	78.0	78.4	49.8	43.1	48.5
Colorado	84.8	73.9	83.3	59.7	43.3	57.4
Florida	79.3	72.2	77.9	49.9	39.5	48.1
Massachusetts	79.8	76.4	79.4	49.1	41.5	48.3
Michigan	83.6	78.8	82.8	57.5	48.1	56.1
Minnesota	86.1	82.5	85.7	63.6	52.3	62.4
Mississippi	80.4	78.1	80.1	57.1	51.2	56.5
New Jersey	76.0	72.7	75.5	43.2	33.0	41.9
New York	79.4	75.9	78.8	47.5	37.4	45.9
Texas	80.9	81.5	81.0	52.9	47.9	52.1
Balance of U.S.	86.8	80.7	85.8	59.9	47.9	58.3
Washington	86.6	81.8	85.6	60.9	51.4	59.2
Wisconsin	88.9	82.1	88.2	66.5	52.9	65.1

The remaining tables in this section are for adults. Table 5-13 gives the national adult extended and joint response rates. The adult extended and joint response rates are approximately 2 to 5 percentage points lower than the corresponding child rates. The national adult extended rate is 79 percent, and the adult joint rate is 52 percent. The table shows the response rates by sample type, metropolitan status, screener poverty status, and mailing status (for the RDD sample). The differences in the rates for the adults are similar to those seen in the national child response rate table.

Table 5-13 also gives adult extended and joint response rates by type of adult, where adults are classified as MKA or the spouse/partner of an MKA (MKS) and all other adults (non-MKS). The MKS national extended response rate is about 5 percentage points higher than the non-MKS rate. At the joint level, the difference is 3 percentage points (54 percent for MKS and 51 percent for non-MKS).

Table 5-14 gives the study area extended and joint response rates for the adult interview. The rates are slightly lower than the corresponding child rates and the variability across study areas is similar to those of the child rates. Table 5-15 gives the adult study area rates by metropolitan status and table 5-16 give the rates by poverty status. No patterns different from those discussed for the child rates are apparent in these tables. Table 5-17 shows that the adult study area rates by type of adult and the MKS rates are generally higher than the non-MKS rates, as noted in the discussion of the national rates. Table 5-18 gives the adult study area extended and joint response rates by mailing status and again the patterns are very similar to those noted previously.

Table 5-19 is the last table of response rates. It gives the response rates for adults identified as the MKA excluding the spouse/partner of the MKA for each study area. The MKA rates are very similar to the MKS rates for a study area, and both are typically between the child rate and the adult rate. The MKA rates differ from the child weights since the number of children per MKA varies and the weights for adults differ somewhat from the weights for children. For analysis of the MKA data, the MKS response rates are the most appropriate.

**Table 5-13.**  
**National Adult Response Rates, by Sample Type, Metropolitan Status, Screener Poverty Status, Type of Adult, and Mailing Status**

Category	Extended	Joint
Sample type		
Area	92.5	75.5
RDD	78.2	51.3
Metropolitan status		
MSA	77.3	49.7
Non-MSA	84.4	61.9
Screener poverty status		
Nonpoor	79.4	52.4
Poor	80.5	53.1
Unknown	63.2	41.7
Type of adult		
MKS	81.5	53.8
Non-MKS	76.9	50.7
Mailing status (RDD only)		
Mailed	79.3	53.0
Not mailed	72.2	41.4
Total	78.7	51.9

**Table 5-14.**  
**Study Area Extended and Joint Adult RDD Response Rates**

<b>Study area</b>	<b>Extended</b>	<b>Joint</b>
Alabama	78.1	53.3
California	71.3	44.2
Colorado	79.1	54.5
Florida	75.4	46.5
Massachusetts	72.3	43.9
Michigan	78.8	53.4
Minnesota	82.8	60.3
Mississippi	77.7	54.8
New Jersey	70.7	39.2
New York	71.8	41.8
Texas	78.6	50.5
Balance of U.S.	81.3	55.1
Washington	80.2	55.4
Wisconsin	83.2	61.4

**Table 5-15.**  
**Study Area Extended and Joint Adult RDD Response Rates, by Metropolitan Status**

<b>Study area</b>	<b>Extended</b>			<b>Joint</b>		
	<b>MSA</b>	<b>Non-MSA</b>	<b>Total</b>	<b>MSA</b>	<b>Non-MSA</b>	<b>Total</b>
Alabama	78.6	76.9	78.1	52.9	54.1	53.3
California	71.2	77.2	71.3	43.8	54.8	44.2
Colorado	78.9	80.1	79.1	53.9	57.7	54.5
Florida	75.1	80.6	75.4	46.0	55.0	46.5
Massachusetts	72.5	58.4	72.3	44.0	39.3	43.9
Michigan	77.3	86.9	78.8	51.6	62.7	53.4
Minnesota	81.9	85.3	82.8	57.7	66.8	60.3
Mississippi	78.8	77.1	77.7	53.2	55.7	54.8
New Jersey	70.7	#	70.7	39.2	#	39.2
New York	70.8	82.2	71.8	40.4	58.9	41.8
Texas	78.0	82.3	78.6	49.3	57.5	50.5
Balance of U.S.	80.2	84.2	81.3	52.7	62.0	55.1
Washington	79.1	85.7	80.2	53.7	64.4	55.4
Wisconsin	82.4	84.7	83.2	60.1	64.2	61.4

# The entire state of New Jersey is classified as metropolitan.

**Table 5-16.**  
**Study Area Extended and Joint Adult RDD Response Rates, by Screener Poverty Status**

Study area	Extended				Joint			
	<u>Screener poverty status</u>				<u>Screener poverty status</u>			
	Nonpoor	Poor	Unknown	Total	Nonpoor	Poor	Unknown	Total
Alabama	78.8	78.1	69.2	78.1	53.8	53.3	47.2	53.3
California	72.7	71.2	57.6	71.3	45.0	44.0	35.6	44.2
Colorado	79.9	78.8	69.1	79.1	55.0	54.2	47.6	54.5
Florida	76.8	73.8	67.0	75.4	47.4	45.5	41.3	46.5
Massachusetts	73.1	72.8	62.4	72.3	44.4	44.2	37.9	43.9
Michigan	80.5	78.0	58.8	78.8	54.5	52.8	39.8	53.4
Minnesota	83.7	83.2	66.5	82.8	60.9	60.6	48.4	60.3
Mississippi	79.4	76.8	65.7	77.7	56.0	54.2	46.4	54.8
New Jersey	72.6	66.7	57.5	70.7	40.3	37.0	31.9	39.2
New York	73.3	72.3	55.1	71.8	42.7	42.1	32.1	41.8
Texas	80.0	79.3	63.0	78.6	51.4	51.0	40.5	50.5
Balance of U.S.	81.9	83.4	64.9	81.3	55.6	56.6	44.0	55.1
Washington	80.9	80.9	65.5	80.2	55.9	55.9	45.2	55.4
Wisconsin	83.7	84.9	68.0	83.2	61.9	62.7	50.2	61.4

**Table 5-17.**  
**Study Area Extended and Joint Adult RDD Response Rates, by Type of Adult**

Study Area	Extended			Joint		
	<u>Type of adult</u>			<u>Type of adult</u>		
	MKS	Non-MKS	Total	MKS	Non-MKS	Total
Alabama	80.8	76.3	78.1	55.2	52.1	53.3
California	75.5	68.5	71.3	46.7	42.4	44.2
Colorado	81.5	77.7	79.1	56.1	53.5	54.5
Florida	78.7	73.6	75.4	48.5	45.4	46.5
Massachusetts	76.1	70.0	72.3	46.2	42.5	43.9
Michigan	81.2	77.2	78.8	55.0	52.3	53.4
Minnesota	85.1	81.2	82.8	62.0	59.2	60.3
Mississippi	80.8	75.2	77.7	57.0	53.1	54.8
New Jersey	75.2	67.9	70.7	41.7	37.7	39.2
New York	76.2	69.2	71.8	44.4	40.3	41.8
Texas	80.9	76.9	78.6	52.0	49.4	50.5
Balance of U.S.	83.5	79.9	81.3	56.7	54.2	55.1
Washington	82.2	78.8	80.2	56.8	54.5	55.4
Wisconsin	86.0	81.2	83.2	63.6	60.0	61.4

**Table 5-18.**  
**Study Area Extended and Joint Adult RDD Response Rates, by Mailing Status**

<b>Study area</b>	<b>Extended</b>			<b>Joint</b>		
	<b><u>Mailing status</u></b>		<b>Total</b>	<b><u>Mailing status</u></b>		<b>Total</b>
	<b>Mailed</b>	<b>Not mailed</b>		<b>Mailed</b>	<b>Not mailed</b>	
Alabama	78.9	72.8	78.1	54.8	42.2	53.3
California	73.0	65.1	71.3	46.3	36.0	44.2
Colorado	80.0	73.7	79.1	56.2	43.2	54.5
Florida	76.2	71.1	75.4	47.9	38.8	46.5
Massachusetts	73.1	66.2	72.3	45.0	36.0	43.9
Michigan	79.8	72.4	78.8	54.8	44.2	53.4
Minnesota	83.4	78.0	82.8	61.5	49.4	60.3
Mississippi	77.9	75.9	77.7	55.4	49.7	54.8
New Jersey	71.1	67.6	70.7	40.4	30.7	39.2
New York	72.7	66.6	71.8	43.5	32.8	41.8
Texas	78.5	79.0	78.6	51.3	46.5	50.5
Balance of U.S.	82.4	74.5	81.3	56.9	44.2	55.1
Washington	80.7	77.3	80.2	56.8	48.6	55.4
Wisconsin	84.4	71.2	83.2	63.1	45.9	61.4

**Table 5-19.**  
**Study Area Extended and Joint MKA RDD Response Rates**

<b>Study area</b>	<b>Extended</b>	<b>Joint</b>
Alabama	80.7	55.1
California	75.4	46.7
Colorado	81.4	56.1
Florida	78.7	48.5
Massachusetts	76.1	46.2
Michigan	81.2	55.0
Minnesota	85.1	61.9
Mississippi	80.7	56.9
New Jersey	75.1	41.7
New York	76.2	44.4
Texas	80.8	51.9
Balance of U.S.	83.5	56.7
Washington	82.2	56.8
Wisconsin	86.0	63.6

## 6. EVALUATION OF NSAF RESPONSE RATES

In this chapter the 2002 NSAF response rates are compared with the rates obtained in earlier rounds and the response rates in the 2002 are placed in the context of response rates in other RDD surveys.

### 6.1 Comparison with Previous Rounds of NSAF

Comparing response rates from the 2002 NSAF with the rates obtained in earlier rounds is somewhat complicated by changes in the survey design and the methods used to compute response rates over time. Despite these complexities, two important findings are clear—the response rates for the screener declined by 12 percentage points or more between 1997 and 2002, and the response rates for the extended interviews remained relatively constant during this period. The data supporting these findings are given after discussing some important changes that make it difficult to be precise about the magnitude of the screener response rate changes over time.

The elimination of the area sample for the study areas in Round 3 is one very important change that has been discussed several times in this report. To deal with this sample design change, the approach used earlier of presenting the national and study area response rates separately is used again. For the study areas, the comparison is restricted to the RDD samples, since Round 3 only had RDD sample at the study area level.

Changing the method of computing screener-level response rates is also important. The survival method of computing the screener response rates was introduced in Round 2. To deal with the change in method, two screener rates for Round 2 are presented: one computed using the same method used in Round 1 for comparison to the Round 1 rate and a second one computed using the survival method for comparison with Round 3.

Table 6-1 gives the national response rates for the screener, the child extended interview, and the adult extended interview by sample type (RDD/area sample) for the three rounds. The table shows that the extended response rates for all interviews are relatively stable over time, and only the screener response rates exhibit major changes in the national response rates over time. Even though two columns of Round 2 rates are shown in the table, only the screener response rates for the RDD sample and the full sample differ because of the method of computing the rates.

One way of viewing the screener response rates in Table 6-1 is that the national screener response rate decreased 12 percentage points between Round 1 and Round 3 (from 78 percent to 66 percent). The problem with this approach is that it probably understates the Round 1 response rate because the rate for that round was not computed using the survival method introduced in

Round 2.<sup>6</sup> If the same assumptions were made in Round 2 concerning the residency rates for the undetermined numbers, then the response rate would have decreased by 5 percentage points between Round 1 and Round 2 (from 78 to 73 percent). Using the survival method of computing the response rate for rounds 2 and 3, the rate fell 11 percentage points. A 16 percentage point decrease is implied by this approach.

**Table 6-1.**  
**National Response Rates, by Round**

<b>Sample type</b>	<b>Round 1</b>	<b>Round 2<sup>a</sup></b>	<b>Difference</b>	<b>Round 2</b>	<b>Round 3</b>	<b>Difference</b>
All						
Screeners	77.8	73.2	-4.6	76.7	66.0	-10.7
Child extended	84.1	81.4	-2.7	81.4	83.5	2.1
Adult extended	76.9	77.5	0.6	77.5	78.7	1.2
RDD sample only						
Screeners	77.4	72.8	-4.6	76.3	65.5	-10.8
Child extended	83.4	80.5	-2.9	80.5	83.0	2.5
Adult extended	79.4	77.0	-2.4	77.0	78.2	1.2
Area sample only						
Screeners	87.0	89.2	2.2	89.2	81.6	-7.6
Child extended	95.7	96.2	0.5	96.2	95.0	-1.2
Adult extended	92.5	93.0	0.5	93.0	92.5	-0.5

a. Computed using method used in Round 1.

Both methods make assumptions (e.g., the second method assumes the response rate for Round 1 would have been about 4 percentage points greater if the survival method could have been used to calculate it) that cannot be easily tested. However, an 11 percentage point change from 1999 to 2002 seems large when compared with the 5 percentage point change between 1997 and 1999, even though one difference is over a three-year period and the other is over a two-year period. Part of the difference may be the result of the low residential rate for the unknown residency rate telephone numbers estimated using the survival method from the 1999 survey (see the discussion in Brick et al. 2002). The residency rate for the unknown numbers was estimated as 7 percent in Round 2, while in Round 3 it was estimated as 33 percent using the same methodology. The Round 2 estimated rate is much lower than that computed in any other survey, but a reason the estimate was so low has not been identified. Using alternative methods of computing the residency rate for Round 2 lowers the response rate for this round compared with the other two rounds and gives a smoother annual decrease in screener response rates over time. As we discuss in the next section, there is some evidence from other surveys that the response rate decline in RDD surveys since 2000 is steeper than it was previously, so the smoother decline may not be as consistent with expectations as it first seems.

<sup>6</sup> The survival method could not be used to compute the Round 1 screener response rate because the numbers released for additional call attempts were not a random sample of all those eligible to be released.

This decrease in response rates took place despite increased efforts to contact households and the increased use of monetary incentives. Brick, Martin, Warren, and Wivagg (2003) describe the increased efforts to contact and elicit participation of the sampled units in the 2002 survey and compare these efforts with those in Round 1. As noted, the prepaid \$2 incentive sent to all households with an address and the \$10 or \$20 incentive to complete the extended interview are the most notable efforts used in 2002 and not in 1997. When this is combined with the ability to mail to a much higher proportion of the sampled numbers, the increased effort is quite substantial. In addition to these efforts, Brick et al. (2003) show that the number of call attempts and the refusal conversion efforts increased over time.

Another design feature that is different between Round 2 and Round 3 is the use of an overlap sample. The 1999 sample contained a subsample of telephone numbers from the 1997 survey, with the telephone numbers of completed screeners subsampled at a higher rate than other numbers. The 2002 sample did not reuse any numbers from the previous sample. In Report No. 8 in the 1999 NSAF series, the screener response rates were examined by whether the number was retained from Round 1 or was sampled for the first time in 1999 (see table 5-6 in that report). The conclusion was that the newly sampled telephone numbers had a slightly higher response rate (2–3 percentage points) than the numbers retained from Round 1. Looking at the study areas, the differences in the screener response rates between the new and retained numbers varied, but the newly sampled numbers had screener response rates that were consistently about 1 to 4 percentage points higher than the retained numbers.

This analysis of the change in response rates due to the overlap was reexamined, and it is appropriate and consistent with findings from other longitudinal efforts. For example, Kalton, Kasprzyk, and McMillen (1989) show that the response rates from the first follow-up in a longitudinal survey are lower than the original response rates. In fact, the typical finding is that attrition is highest in longitudinal surveys in the first re-interview and then drops to a relatively low level for subsequent rounds.

A source of potential confusion in the overlap sample is related to the way the response rate is reported. In NSAF, response rates are always weighted to reflect the proportion of the population sampled. If unweighted numbers were used to compute the response rates, then the operational outcome would show that the retention of sampled numbers gives a higher response rate. For example, in Round 2 the substratum of Round 1 telephone numbers that were complete were subsampled at a high rate because they were expected to have a high residential rate and a high response rate. Since the numbers did have higher residency and response rates, the unweighted response rate for the retained numbers is higher than the unweighted response rate for the newly sampled numbers. However, properly weighted to represent the population, the response rates for the retained sample are lower, as discussed in Report No. 8 of the 1999 NSAF series.

The truly important result is that the screener response rate dropped over each round of the NSAF, and in the five-year period between 2002 and 1997 it decreased by about 12 percentage points. The table also shows that although the response rate decrease has been steeper for the RDD sample, the rate for the area sample also decreased during this time by about 5 percentage

points. The 7 percentage point decrease in the area sample between 1999 and 2002 is not that much smaller than the decrease in the RDD sample response rate over the same period.

Table 6-2 shows the study area screener response rates for the three rounds, only including the RDD sample. Since Milwaukee was not a study area in Round 3, only one rate is presented for all of Wisconsin. For Round 1 and Round 2 a Wisconsin rate was computed as the simple average of the Milwaukee and the balance of Wisconsin rate. The decrease in the screener response rates from Round 1 to Round 2 was very uniform for all the study areas, with the largest decrease of 7 percentage points in New Jersey and the smallest of 3 percentage points in Colorado. The decrease from Round 2 to Round 3 was slightly more variable but still within a rather narrow range. From 1997 to 2002, the decrease in the screener response rates ranged between 6 percentage points (in Colorado) and 15 percentage points (in Alabama).

**Table 6-2.**  
**RDD Screener Response Rates, by Study Area**

<b>Study area</b>	<b>Round 1</b>	<b>Round 2<sup>a</sup></b>	<b>R2 - R1</b>	<b>Round 2</b>	<b>Round 3</b>	<b>R3 - R2</b>	<b>R3 - R1</b>
Alabama	84.1	79.7	-4.4	82.3	68.9	-13.4	-15.2
California	71.1	67.2	-3.9	71.6	62.4	-9.2	-8.7
Colorado	76.0	72.9	-3.1	77.1	69.6	-7.5	-6.4
Florida	75.2	70.0	-5.2	74.3	62.0	-12.3	-13.2
Massachusetts	72.8	67.7	-5.1	71.3	61.1	-10.2	-11.7
Michigan	78.0	73.2	-4.8	76.1	68.3	-7.8	-9.7
Minnesota	83.3	79.1	-4.2	82.3	72.9	-9.4	-10.4
Mississippi	85.0	80.5	-4.5	82.3	72.9	-9.4	-12.1
New Jersey	69.8	62.9	-6.9	67.7	55.5	-12.2	-14.3
New York	71.1	65.6	-5.5	68.8	58.4	-10.4	-12.7
Texas	78.0	72.9	-5.1	76.6	66.0	-10.6	-12.0
Balance of U.S.	80.0	75.5	-4.5	78.7	68.2	-10.5	-11.8
Washington	78.7	73.3	-5.4	76.7	68.9	-7.8	-9.8
Wisconsin <sup>b</sup>	82.3	78.3	-4.0	81.5	73.9	-7.6	-8.4

a. Computed using method used in Round 1.

b. Round 1 and 2 Wisconsin rates are the average of the Milwaukee and balance of Wisconsin rates for that round.

The next two tables show the study area response rates for the child and adult extended interviews, again using only the RDD sample for all years. Table 6-3 shows that the child extended rates did not change very much over the five-year period. While most study area response rates decreased, the decreases were not large. Some study areas actually had higher child extended response rates in Round 3 than in Round 1. The same pattern is seen in the adult extended response rates shown in table 6-4.

## **6.2 The Changing Environment for RDD Surveys**

As noted earlier, NSAF response rates have decreased over the five-year period of the three data collections. The decrease was in the screener, in which the initial contact with the household and the selection of persons for the extended interview takes place. In this section, we examine the environment for RDD surveys over this period to give some context for the changes in NSAF response rates.

In terms of the overall context of response rates in surveys, it is important to understand that the NSAF response rates for the area sample also decreased over the five-year period between 2002 and 1997, as noted previously. Unfortunately, the reporting of response rates for in-person studies is generally presented much more slowly, and no published reports have been found that enable comparing the NSAF experience to other in-person studies. The hypothesis is that survey response rates have decreased irrespective of mode, but no evidence is currently available to evaluate this hypothesis. The next several paragraphs discuss the rationale for this hypothesis for RDD surveys.

When Round 1 and Round 2 were conducted, the literature on response rates in RDD surveys was very limited. An article by Massey, O'Connor, and Krotki (1997) was the only one that reviewed RDD response rates with any specificity. Massey et al. identified RDD surveys conducted in the United States from 1990 to 1995 and attempted to document the response rates for these surveys. Since the response rates were not standardized, the rates summarized in the article are not very comparable.

The lack of standardization in reporting response rates continues to plague comparisons across surveys. For example, many RDD studies classify telephone numbers that ring and are picked up but the person never says anything as having unknown residential status. These numbers have always been classified as refusals in the NSAF and that depresses the NSAF response rates when they are compared with surveys using the other approach.

Despite comparability problems, the Round 1 response rates were clearly above the average response rates in RDD surveys at the time. The relatively high response rates in 1997 were achieved in spite of some factors that are known to lead to lower response rates. For example, the extended interview is relatively lengthy and more than one interview is conducted in many households, so the NSAF's response burden on the household is substantial. A relatively large proportion of the screened households are sampled for extended interviews, but it has been

**Table 6-3.**  
**RDD Child Extended Response Rates, by Study Area**

Study area	Round			Differences		
	Round 1	Round 2	Round 3	R2 - R1	R3 - R2	R3 - R1
Alabama	84.8	82.4	83.7	-2.4	1.3	-1.1
California	78.1	75.5	78.4	-2.6	2.9	0.3
Colorado	82.4	83.3	83.3	0.9	0.0	0.9
Florida	81.7	77.4	77.9	-4.3	0.5	-3.8
Massachusetts	82.3	78.9	79.4	-3.4	0.5	-2.9
Michigan	84.3	82.8	82.8	-1.5	0.0	-1.5
Minnesota	89.3	86.8	85.7	-2.5	-1.1	-3.6
Mississippi	86.0	85.3	80.1	-0.7	-5.2	-5.9
New Jersey	79.5	75.5	75.5	-4.0	0.0	-4.0
New York	80.3	75.2	78.8	-5.1	3.6	-1.5
Texas	81.6	81.0	81.0	-0.6	0.0	-0.6
Balance of U.S.	86.6	83.6	85.8	-3.0	2.2	-0.8
Washington	86.4	84.7	85.6	-1.7	0.9	-0.8
Wisconsin <sup>a</sup>	85.6	86.4	88.2	0.8	1.8	2.6

a. Round 1 and 2 Wisconsin rates are the average of the Milwaukee and balance of Wisconsin rates for that round.

**Table 6-4.**  
**RDD Adult Extended Response Rates, by Study Area**

Study area	Round			Differences		
	Round 1	Round 2	Round 3	R2 - R1	R3 - R2	R3 - R1
Alabama	82.3	80.5	78.1	-1.8	-2.4	-4.2
California	74.5	72.9	71.3	-1.6	-1.6	-3.2
Colorado	80.2	78.4	79.1	-1.8	0.7	-1.1
Florida	78.2	74.3	75.4	-3.9	1.1	-2.8
Massachusetts	77.8	74.2	72.3	-3.6	-1.9	-5.5
Michigan	80.5	77.5	78.8	-3.0	1.3	-1.7
Minnesota	85.7	85.1	82.8	-0.6	-2.3	-2.9
Mississippi	82.6	81.6	77.7	-1.0	-3.9	-4.9
New Jersey	73.5	69.9	70.7	-3.6	0.8	-2.8
New York	75.8	71.2	71.8	-4.6	0.6	-4.0
Texas	77.8	77.1	78.6	-0.7	1.5	0.8
Balance of U.S.	82.1	79.6	81.3	-2.5	1.7	-0.8
Washington	83.3	80.1	80.2	-3.2	0.1	-3.1
Wisconsin <sup>a</sup>	83.2	83.1	83.2	-0.1	0.1	0.0

a. Round 1 and 2 Wisconsin rates are the average of the Milwaukee and balance of Wisconsin rates for that round.

shown that low screening rates tend to increase response rates (Brick and Collins 1997). The NSAF also does not benefit from having a federal government sponsor, which often increases response rates.

More information on response rates in RDD surveys began to appear in 1998. A series of articles on declines in RDD survey response rates was published in 1998 and 1999 in *Survey Research*, a newsletter of the Survey Research Laboratory at the College of Urban Planning and Public Affairs-University of Illinois at Chicago (Survey Research Laboratory 1998, 1999). The articles described declines in response rates consistent with a study of RDD survey response rates conducted by the Council for Marketing and Opinion Research (CMOR 1996) that focused on marketing surveys.

Curtin, Presser, and Singer (2000) examined changes in the estimates due to increasing nonresponse in a particular RDD survey conducted by the University of Michigan. Steeh, Kirgis, Cannon, and DeWitt (2001) reviewed response rates in RDD surveys at the end of the decade. Even more recently, a number of presentations on response rates in RDD surveys were given at the AAPOR annual meetings. Curtin, Presser, and Singer (2003) reprised their earlier analysis by presenting changes in response rates in the Survey of Consumer Attitudes between 1996 and 2002. DiSogra, Grant, Ramirez, Robison, Hoegh, and Davis (2003) studied survey response rate changes in California from 2000 through 2002. Some of this research is discussed here.

Curtin, Presser, and Singer (2000) showed that response rates in the Survey of Consumer Attitudes (SCA) declined only slightly from 1979 to 1996, but more effort was required to obtain the same response rates. Using more recent data, Curtin, Presser, and Singer (2003) found a drop of about 7 percentage points in the response rate between 1997 and 2002. The decrease in the SCA response rates occurred despite the fact that \$5 incentives were mailed to respondents for the first time beginning in January 2000 to avert even more substantial response rate losses. Curtin et al. also pointed out that the rate for both refusals and “other non-interview” rates (primarily noncontact rates) rose during the later period.

DiSogra et al. (2003) examined the response rates in the California Diet Intake Calibration surveys conducted from November 2000 through October 2002 in California. They found that the response rates fell during this period and pointed out the turning point was around September 11, 2001. They also examined the Behavioral Risk Factor Surveillance System (BRFSS) survey in California during the same period. The BRFSS survey had response rate decreases very comparable to those of the California Diet Intake Calibration surveys.

The literature cited earlier indicates that response rates have declined significantly over the five-year period of the NSAF surveys. The NSAF screener response rates have been subject to the same decrease, despite the increased efforts made to achieve high screener response rates. A number of hypotheses have been offered to explain the decreases, ranging from increased use of technological devices for screening telephone calls to privacy concerns associated with the events of September 11, 2001. While the decrease in response rates in RDD surveys may be related to any of these hypotheses or some combination of them, the fact is, RDD surveys are

operating in a climate that makes it very difficult to attain the same response rates possible less than a decade ago.

While response rates alone are a poor measure of survey quality, the lower the response rates, the higher the potential for nonresponse bias, as suggested by the bias equation presented in chapter 1. Some recent studies of the relationship between response rates and nonresponse bias have shown that lower response rates do not necessarily increase nonresponse bias (see, for example, Curtin, Presser, and Singer [2000] and Keeter, Miller, Kohut, Groves, and Presser [2000]). Perhaps more important, Groves and Wissoker in Report No. 7 of the 1997 NSAF series found little evidence of nonresponse bias in the estimates from the Round 1 survey.

Round 3 was not accompanied by an extensive nonresponse follow-up survey or detailed analysis of the patterns of nonresponse such as that done for Round 1. Nevertheless, the findings from the Round 1 survey may still apply, at least to some extent. One reason for this hypothesis is that the operational methods used in the surveys were similar, even though more effort was expended in Round 3 to encourage response. Another outcome supporting the hypothesis is that the patterns in the response rates are similar for the three data collections. The decreases in child joint response rates by study area are given in table 6-5. While all response rate decreases are troubling, differential changes by study area would be even more problematic. Further, the calling procedures in Round 3 resulted in household contact rates that are not dissimilar to those found in Round 1 (in Round 1, 6.1 percent of all telephone numbers ended without contact, in Round 2 and Round 3 the weighted rates were 8.4 percent and 8.5 percent, respectively).

**Table 6-5.**  
**RDD Study Area Joint Child Response Rates, Rounds 1 and 3**

<b>Study area</b>	<b>Round 1</b>	<b>Round 3</b>	<b>R3 - R1</b>
Alabama	70.0	57.1	-12.9
California	55.2	48.5	-6.7
Colorado	62.3	57.4	-4.9
Florida	60.8	48.1	-12.7
Massachusetts	59.6	48.3	-11.3
Michigan	65.1	56.1	-9.0
Minnesota	74.0	62.4	-11.6
Mississippi	71.1	56.5	-14.6
New Jersey	55.0	41.9	-13.1
New York	56.8	45.9	-10.9
Texas	62.6	52.1	-10.5
Balance of U.S.	68.7	58.3	-10.4
Washington	67.8	59.2	-8.6
Wisconsin <sup>a</sup>	70.2	65.1	-5.1

a. The Round 1 Wisconsin rate is the average of the Milwaukee and balance of Wisconsin rates.

In the NSAF, the decline in the screener response rates have largely been the result of a higher percentage of cases that refuse to participate and a higher percentage of cases that do not refuse but never have time to complete the interview. Groves and Couper (1998) suggested that in some circumstances these types of cases are less likely to differ from respondents than the nocontact cases. As a consequence, these cases are generally less likely to result in large nonresponse biases. Groves and Couper (1998) based their findings on the analyses of data from in-person surveys, in particular surveys with high response and contact rates. The applicability of these results to RDD surveys such as NSAF is largely unknown.

In conclusion, obtaining high response rates in RDD surveys is difficult, and despite ever-increasing efforts to raise the rates, the task is becoming even more difficult. The main source of the decrease in the NSAF response rates is households not participating in the screener interview. The vast majority of nonresponse at the screener occurs before the survey is fully introduced (in 2002, 83 percent of all refusals occurred before the introductions were completed). Thus, it is less likely that households with particular attributes (such as low-income households) attrite because of survey content. Without new evidence or studies of the nonresponse bias in the NSAF estimates, the hypotheses that the nonresponse bias is not large cannot be tested with any confidence. Even studies such as Groves and Wissoker (1999) and others mentioned earlier leave considerable ambiguity about the magnitude and effect of nonresponse bias because of limitations inherent in the investigation of nonresponse in RDD studies.

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