

# **USING RANGE TECHNIQUES WITH CAPI IN THE 1995 SURVEY OF CONSUMER FINANCES**

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The Survey of Consumer Finances (SCF) collects dollar amounts of a wide variety of assets, liabilities, payments, incomes, and other items.<sup>1</sup> Experience has shown that (1) item nonresponse on such items is a serious problem, and (2) range cards and decision trees posing sequences of bounding choices can provide important partial information.<sup>2</sup> Respondents may fail to provide complete information for a number of reasons. Some questions may appear overly intrusive to some respondents, and they may refuse to answer. There may also be respondents who could, in principle, know the exact answer to a question, but who do not remember the answer and cannot be persuaded either to take action to uncover the value or to make an estimate of the value. However, there may be cases where the exact answer is not clear even in principle. There may be ambiguity about the concept being probed or there may be a set of coherent responses to a single question: e.g., it may not be clear whether a question about house value is asking for the market value or the assessed value, or the value of the house depends on whether one wants to sell quickly or one wants the highest possible price. It may also be the case that the only way to determine the answer to a question is to take an extraordinary action: e.g., the value of a closely held business may not be knowable until one tried to sell it. All of these factors apply to respondents to the SCF.

The redesign of the 1995 SCF for computer-assisted personal interviewing (CAPI) provided an opportunity to integrate range data more formally into the data collection process than was feasible with a paper questionnaire. A computer subroutine was written to do three things for every potential dollar response: (1) provide a confirmation in words of the amounts reported, (2) provide a place to record ranges reported by respondents who are reporting items for which there is genuine uncertainty about the value, (3) confront every “don’t know” or “refuse” response with a request to use a range card or to go through a dollar decision tree to elude a bounding range.

Range data may provide information for imputation of missing data that cannot be obtained from conditioning on observed information—that is, nonresponse may be nonignorable. However, such information must be weighed against substantially higher respondent burden in

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<sup>1</sup>In the 1995 SCF, there are 479 possible dollar questions, but it is not possible for a given respondent to be confronted with all of them.

<sup>2</sup>Kennickell [1991] provides information on the use of ranges in the 1989 SCF, and Heerings, Hill and Howell [1995] and Juster and Smith [1995] summarize the experience of the Health and Retirement Survey with an elaborate system for collecting range data.

many cases, and decreased interviewer flexibility in awkward situations. Unfortunately, we do not have the luxury of analyzing the results of a controlled experiment in the use of ranges. The evidence presented here suggests a complicated interaction between the range questions and the new mode of administration. The introduction of effective “automated probing” with CAPI could serve to lower the number of completely missing responses. However, if interviewers believe that ranges are equivalent to complete responses, or they find it convenient to “hide behind the computer” in probing initial nonresponses, one might expect the proportion of complete responses to decline as well.

In the next two sections of this paper, I provide some background information on the SCF, and outline the procedures used to collect partial information through ranges for amount questions. Next, I present some time series information on nonresponse patterns in the SCF. The data suggest that (1) item response rates have deteriorated over time, (2) the introduction of the elaborate system to collect ranges in 1995 appears to have reduced the proportion of “don’t know” responses, (3) there may have been a “conversion” of responses that might have been complete responses in the old questionnaire to partial information. Some modeling also indicates that interviewer learning may have steered the outcomes toward a type of response described below as “volunteered ranges.” The data suggest that there is substantial persistence in the use of ranges by individual respondents, and that respondents who use ranges tend to use the same type of range response. The fourth section assembles various pieces of information in an attempt to gauge whether the responses of range respondents are systematically different from those of respondents who provided complete information, and how much information is added to various types of estimates by the inclusion of such information. The evidence here is mixed. The data do suggest that the univariate distributions of outcomes for some types of range are different from those of complete reporters, but the differences are largely in the upper tails—a potentially important problem for the SCF, but not necessarily a critical one in most surveys. Unfortunately, it is difficult to create a universally appropriate significance test of the differences. Regressions using data imputed both with and without the reported range information suggest (not surprisingly) that ranges improve model fit, but any bias effects appear small in the case considered. The final section of the paper summarizes some important findings and suggests changes for the next SCF.

## **I. Background on the Survey of Consumer Finances**

The SCF has been conducted on a triennial basis since 1983 by the Board of Governors of the Federal Reserve System in cooperation with the Statistics of Income (SOI) of the Internal Revenue Service.<sup>3</sup> The Survey Research Center at the University of Michigan collected the data for the survey from 1983 to 1989, and the National Opinion Research Center (NORC) at the University of Chicago has collected the data since that time.

The SCF is intended to provide detailed information on the distribution of a large number of financial characteristics of U.S. households. The 1995 questionnaire took, on average, about 90 minutes to complete, but for some households with very complex finances, the interview lasted over three hours. The most detailed data are collected on assets (including checking, money market, and savings accounts, IRAs and Keogh accounts, savings bonds, other types of bonds, mutual funds, publicly-traded stocks, trust accounts, annuities, businesses, the principal residence, other real estate, vehicles, loans made to others, and other assets) and liabilities (including credit card debt, principal residence mortgage debt, other mortgage debt, lines of credit, automobile loans, education loans, other installment loans, margin loans, loans against pensions and insurance policies, and other loans). Information is also collected on employment history, pension rights, inheritances, marital history, attitudes, and numerous other items.<sup>4</sup>

Some of these variables are relatively broadly-distributed in the population (e.g., credit card debt, principal residence mortgages, and automobile ownership), while many other variables have a highly skewed distribution (e.g., most financial assets, investment real estate, and businesses). A standard area-probability sample would provide sufficient coverage for the first type of variables, but such a sample would provide very inefficient estimates for the distribution of the second type. Moreover, as noted in Kennickell and McManus [1994], there is strong evidence that unit nonresponse is much more likely among wealthy households. Thus,

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<sup>3</sup>There is an earlier series of surveys of the same name associated with the University of Michigan and the Federal Reserve, but these surveys were largely geared toward collecting information on purchase intentions. The earliest comparable U.S. survey was the Survey of Financial Characteristics of Consumer, conducted by the Bureau of the Census for the Federal Reserve in 1963 with a follow-up in 1964 (see Projector and Weiss [1966]).

<sup>4</sup> See Kennickell and Starr-McCluer [1994] for a description of the data in the 1992 survey.

analysis that fails to account for the nonrandomness of the response mechanism would yield biased estimates of many characteristics of the distributions of assets and liabilities that are held disproportionately by wealthy households (e.g., the mean of stock holdings). The SCF addresses these problems by using a dual-frame sample incorporating both an area-probability sample, and a special list sample developed from a sample of tax records that strongly oversamples wealthy households (see Kennickell, McManus and Woodburn [1996]). The great majority of wealthy households in the survey derive from the list sample. Because the frame data allows us to identify some key systematic aspects of unit nonresponse, we have a reasonable hope that the SCF provides a reasonably reliable basis for wealth estimation for the entire population.

There have been substantial variations in the size and composition of the list sample over time. In the 1983 survey, the list sample was selected using an income-based definition, and that group was sent a letter describing the survey and a postcard to be returned if they were willing to participate. This need for active agreement to participate was a condition for using tax data to select the sample. Not surprisingly, the response rate in that part of the sample was quite low—about 10 percent.<sup>5</sup> For the 1989 survey, a more systematic effort was undertaken to stratify the list sample (see Heeringa, Connor and Woodburn [1994]).<sup>6</sup> In an important revision of the approach to obtaining consent from this group, the selected units were mailed and letter with a postcard to be return only if they refused to participate. Response rates improved dramatically. Subsequent years of the survey have built on this model. The size of the list sample was expanded again in 1992 (see Kennickell, McManus and Woodburn [1996]). In 1995, a new model-based approach to stratification was developed to improve the efficiency of the sample (see Frankel and Kennickell [1995]).

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<sup>5</sup>In 1983, 159 area-probability sample cases were deleted because the information provided was unusably incomplete or was insincere. Following past analysis of the 1983 data, I have excluded these cases from the analysis of missing data. A large proportion of the incomplete cases would now be treated as “partial interviews,” or “breakoffs.” Under current practices, such cases must provide information (missing data or otherwise) on a core of critical items to be included in the final set of cases. This effect of this treatment has been to include a much higher fraction of such cases in the final datasets of later surveys.

<sup>6</sup>The complete 1989 SCF was a very complex sample, an overlapping panel-cross-section design. The part of the survey discussed here is the combination of a cross-section sample constructed using the 1983 design and an independent cross-section sample selected in 1989.

Other than the large increase in response rates for the list sample between 1983 and 1989, the rates for the area-probability sample and for comparable strata of the list sample have not varied much over time.<sup>7</sup>

**Table 1: Number of completed cases in the 1983, 1989, 1992, and 1995 SCF, by sample type.**

	Full sample	AP sample	List sample
1983 SCF	4103	3665	438
1989 SCF	3143	2278	865
1992 SCF	3906	2456	1450
1995 SCF	4299	2781	1518

However, rather than being a reflection of a general population stasis, this outcome is the conscious result of a decision to devote ever-increasing resources to maintain acceptable response rates. Table 1 provides information on the number of completed cases in the area-probability and list samples of the surveys discussed in this paper.

## II. Use of Range Data in the SCF

As noted in more detail below, missing data rates for cases that complete the survey are substantial for many of the key dollar variables. This appears to be the common experience of most surveys, though SCF response rates may look somewhat worse for some variables because the survey contains a disproportionate number of wealthy respondents who are much more likely to be asked many of the dollar questions than are other respondents. Given an initial expectation of non-negligible missing data rates, beginning with the 1983 survey the survey has attempted with increasing sophistication to incorporate the possibility of reporting partial information.<sup>8</sup> In

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<sup>7</sup>The area-probability sample response rate has been about 70 percent. It is much harder to state the list sample response rate simply because of the complex nature of the stratification and the strong variations in response rates over the strata. In 1992, the stratum corresponding to the wealthiest households had a response rate of about 14 percent, while that corresponding to the lowest wealth group had a response rate of about 43 percent.

<sup>8</sup>The use of ranges to collect partial information has an interesting history. The earliest evidence I have been able to find is in the 1967 Survey of Consumer Finances conducted by the Survey Research Center at the University of Michigan. In that survey a “yellow card” with ranges was used for respondents who did not want to or not able to give dollar responses for asset values. In the 1977 Survey of Consumer Credit, also conducted by SRC, all dollar values were collected as ranges, reportedly in the belief that response rates would be raised if only ranges were asked. There is also a history of the use of bounding questions in earlier SRC surveys. The 1984 Panel Study on Income Dynamics introduced a decision tree for key asset and income variables. The 1992 Health and Retirement Survey (HRS) and the Asset and 1994 Health Dynamics Survey (AHEAD) employed a more extensive battery of decision trees.

the 1983 survey, respondents were allowed to report dollar ranges, which were later translated into a single value by coders using a set of rules (e.g., “just over a million” might be coded as “1111111”), and a range card was available for the interviewers to use in probing. Unfortunately, none of this information is systematically recoverable from the final coded data. However, the impression gathered from the coders and editors was that range information was an important element of the information collected.

Thus, when the survey was revised in 1989, a more systematic effort was made to record ranges and to use that information in imputation.<sup>9</sup> A range card was created that contained a list of letters associated with a set of ranges, and interviewers were told to use the card with respondents who would otherwise be unwilling to give a response.<sup>10</sup> The card was a separate piece of card stock in the interviewers’ materials. In addition, a “decision tree”—a series of questions designed to bound a partial response—was added to the questionnaire for the key question on total income, traditionally a particularly sensitive question for respondents.

One problem that emerged from the 1989 data was that some respondents had difficulty choosing the correct range. Sometimes there was direct confirmation of this problem from marginal notes, but more often the problem was detected during mechanical screening of the data for inconsistent or otherwise very anomalous values. The most serious practical problem seemed to be that respondents had difficulty understanding how many zeroes were associated with different orders of magnitude. In addition, it appeared upon further analysis that the ranges allowed were also too broad relative to the distribution of many of the variables for which they were used. For the 1992 survey, the number of ranges was expanded and the card was organized in a way intended to help respondents avoid errors in their choice of ranges.<sup>11</sup>

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<sup>9</sup>The 1986 survey was only a limited telephone reinterview of a set of the 1983 SCF respondents. Because it is so different in character from the other waves of the survey discussed here, I will not address the data in that survey. For a discussion of the use of ranges in imputation of the SCF, see Kennickell [1991].

<sup>10</sup>There were 10 ranges identified by the letters from “A” to “J.” The corresponding ranges went from the interval “zero to \$500,” to the open interval “more than \$100,000,000.” A conventional was also created to handle negative range responses.

<sup>11</sup>In 1992, the range intervals were redesigned to be more choices in ranges appropriate for more variables. As a result, 20 ranges were created going from “zero to \$100” to “more than \$100,000,000.”

In the event, the use of ranges actually declined in 1992. My suspicion is that a seemingly innocuous decision to bind the card that contained the ranges with the other interviewer showcards made the interviewers less likely to use the card. In addition, it appeared that the reformatting of the card had done nothing noticeable to the prevalence of seemingly incorrect range responses.

Because of the complexity of the SCF interview, it had long been apparent that the survey should migrate to CAPI as soon as the software became adequate for such a large survey. In 1995, we decided to make this transition, and encouraged by the efforts of the Health and Retirement Survey to elicit ranges in a systematic way (see Juster and Smith [1996]), we designed a special routine (“DKDOL”) intended to capture a variety of types of partial information. Because this procedure is so important to the analysis that follows, I will devote some time to describing it here in detail.

For each of 479 dollar variables in the SCF, the interviewer and respondent had several options (see figure 1).<sup>12</sup> The ideal response was a complete dollar response. In this case, the interviewer typed in a string of numbers, and the laptop computer returned a screen with the amount written out in words, along with a request to the interviewer to confirm that this is what she meant to enter. A respondent who answered either “don’t know” or “refuse” (hereafter noted as DK and REF, respectively) was asked to give a range from a range card (see figure 2).<sup>13</sup> If the respondent agreed to use the card, the interviewer was presented with a screen on which to enter the letter selected from the card.<sup>14</sup> Respondents who refused at this point went to the next question, while respondents who could not give a letter range or who answered DK were then

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<sup>12</sup>There are a few other other dollar response fields in the survey for which ranges were not collected. Because of the questionnaire skip sequences, no respondent could possibly answer all of the dollar questions.

<sup>13</sup>The range card was also reformatted with values larger than \$999,999 being written with the word “million,” rather than writing out the appropriate number of zeroes. The hope (dashed again, alas) was that this would make it more difficult for respondents to choose incorrect ranges.

<sup>14</sup>In the case of these letter ranges and the other letter ranges discussed below, the computer did not return a confirmation screen. We included such screens in the survey pretest, but the interviewers protested that respondents used the range card because the values seemed somewhat more “confidential,” and when they noticed that the interviewers got a translation on the screen, they reportedly felt betrayed.

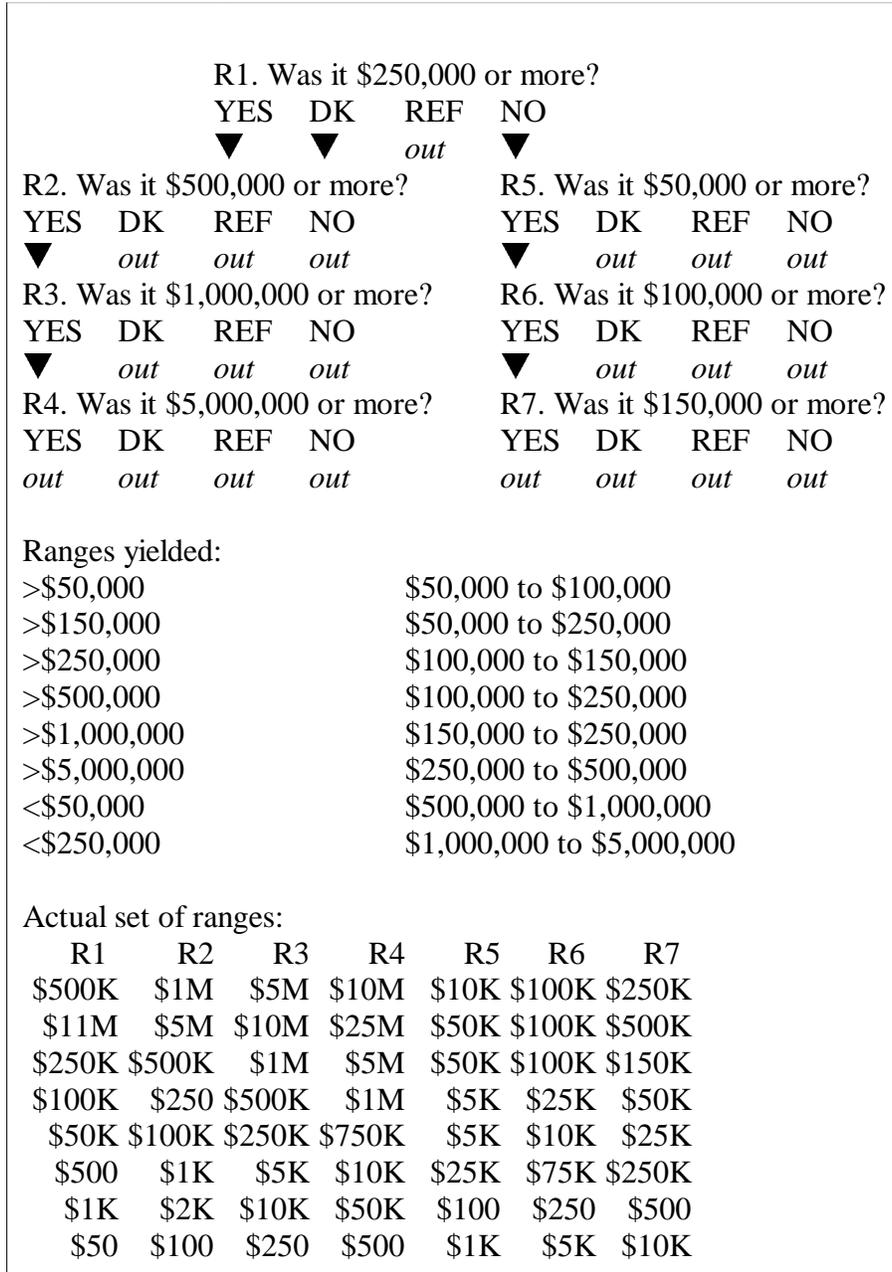
confronted with a decision tree (see figure 3) designed to put respondents into a range. Eight sets of ranges were developed using information from the 1992 SCF to cover the expected outcomes, with particular attention to the upper tail of the distributions. Generally, the entry point in the range sequence was selected to contain the median value from the previous survey. Respondents could refuse to continue at any point in the decision tree. As a check, whatever partial information the interviewer obtained in the decision tree was summarized in words and presented to the interviewer before the program proceeded.

Finally, to allow for respondents who preferred to provide their own ranges, and for those who had used the range card for earlier questions and preferred to continue to do so, the program incorporated a section for reporting “volunteered” ranges. As noted earlier, volunteered ranges were believe to have been important in earlier SCFs. To use this option, the interviewer pressed a special function key. This action generated a screen which offered a choice between entering upper and lower bound dollar figures, or a letter from the range card. The dollar bounding was set up to accept both closed-interval ranges and such open-ended responses as “more than a million dollars.” The screen that accepted the range card value was also set up to accommodate verbatim responses, most of which it turned out could have been entered as upper and lower bound data.<sup>15</sup>

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<sup>15</sup>This verbatim field was also intended to handle negative ranges.

**Figure 3: Example of a decision tree in the 1995 SCF.**



Since the 1989 SCF, we have tried to retain as much information as possible about the original state of variables and transformations applied to them. This information is contained in a set of “shadow variables” that parallel all of the main survey variables. For the 1995 SCF, we defined a large number of codes for each such variable to track the initial response given by respondents (complete response, volunteered ranges of the two types, DK, and REF), and the

large array of secondary responses (paths through the eight classes of decision trees, letter responses from the range card, and upper and lower bound data). This information is retained primarily for use during imputation, but such careful record keeping also imposes a very useful rigor and clarity on data processing. These shadow variables form the basis of a large part of the analysis reported here.

Because of the nature of the findings in this research, it is useful to say a little about the information that interviewers were given about the collection and use of range information. I participated very actively in the design and execution of the interviewer training for the 1995 survey. During a project overview talk I gave to interviewers after they had been through a day and a half of practical exercises with the survey including experience with range information, I made a particular point of focusing on the collection of range data. An appendix contains a copy of the written outline of that part of the talk, which was given to the interviewers with their training materials. The points stressed in the presentation were: (1) complete responses are preferred to range responses, (2) range responses may be legitimate answers for items that vary in value over time or where there is no ready market, (3) range information is strongly preferred to no information when the respondent is unwilling to provide complete information.

During training, interviewers expressed some initial resistance to the decision tree, but they appeared to become more comfortable as they realized they could exit the question sequence by entering a refusal code. During the field period, I queried interviewers and field managers several times on how the process was working, but detected no problems. However, once we began to receive the preliminary data (beginning in August 1995, about a month into the field period) we noticed a suspicious use of the number "1" in some dollar fields by a group of interviewers. Having identified this problem, we contacted the interviewers. Apparently, there had been a misunderstanding about how to enter data in the case of strong respondent refusals. A few interviewers were entering a "1" in dollar fields to indicate a strong refusal under the assumption that the value entered would be "obviously" incorrect to us in processing. After these errors were resolved, subsequent tracking of the process indicated no other obvious systematic problems. After the completion of the field work, we held a comprehensive project debriefing, one important agenda item was the performance of the part of the CAPI program that collected range data. There were two major complaints. Most importantly, the computers used

for interviewing (386 machines) processed the range data very slowly owing to a quirk of the version of Surveycraft in which the program was written. It also appeared that some interviewers felt that the range questions pushed some respondents too far.

### **III. SCF Item Response Rates from 1983 to 1995**

Tables 2 through 4 present information on item nonresponse rates for a set of variables from the SCF for the period 1983 to 1995. The variables are intended to cover a wide range of the types of data collected in the survey for which the data in the 1983 survey are roughly comparable with the later data. The items are shown in the order the underlying questions were asked in the surveys from 1989 forward. The tables differ in their treatment of the set of completed cases. Table 2 displays unweighted data for the full sample in each survey year, table 3 looks at only the unweighted area-probability samples, and table 4 looks at the weighted full sample. Table 2 is included as basic documentation of the SCF data, table 3 is included for ease of comparison with other surveys, and table 4 is given for comparisons over time that are unaffected by the large changes in the size of the list sample.

Overall, the same story emerges from all three of these tables. Item response rates moved inconsistently between 1983 and 1989. Generally, the questions where there were large improvements were ones where the question was rewritten in 1989 in light of serious data problems (e.g., business values). Since 1989, item response rates have deteriorated sharply for most of the items shown.<sup>16</sup> This decline in item response may reflect a tradeoff between unit and item nonresponse. Although there has been a continuing rise in interviewer efforts to maintain approximately constant unit nonresponse rate, the additional effort may yield respondents who on the margin are less cooperative. Evidence from other surveys would be useful on this point.

The record of range data in 1989 and 1992 suggests that such information was a small, but important source of information for as much as a few percent of the respondents who had certain items. For total income, the questionnaire incorporated a decision tree follow-up for respondents who answered DK or REF and who would not agree to use the range card. The decision tree sequence provided range information for 7.9 percent of the sample in 1989 and 9.8

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<sup>16</sup>The improvement in the reporting of the cash value of whole life insurance probably reflects a change in the question wording to improve the ability of respondents to choose between reporting term and whole life insurance.

percent in 1992. Both the DK and other missing data (REF and a small number of other types of missing data including mainly interviewer errors) were also lowered for this question. Although the rate of complete responses also went down, in light of other movements in response rates, it was not obvious that this movement had anything to do with the introduction of the follow-up questions.

Although there is some variability in the use of ranges over the different variables shown for the 1995 survey, some patterns seem clear. First, complete responses declined—sharply in some cases. Second, as might be expected, the proportion of DK responses also declined substantially. Third, other types of missing values moved inconsistently, with some large declines, some large increases, and some rates nearly unchanged. Fourth, the use of the range card went up, generally by a very substantial amount. Fifth, the decision tree ranges provided information on about the same scale as the range card data in 1992. Finally, respondent-provided dollar ranges generally appear to be little used except in the case of business and stock values.

Overall, the 1995 patterns suggest that a part of the population that may have been complete reporters or DK respondents in 1992 became range value reporters in 1995. The decline in DK responses suggests that genuine uncertainty, and possibly some privacy concerns, were well addressed through ranges. Behaviorally, the conversion of complete reporters to range reporters would also be easy to understand. Interviewers are faced with the very difficult problem of extracting information on the value of sensitive items, and it is well-known that some respondents may become hostile when interviewers probe for dollar values. Furthermore, although SCF interviewers are generally highly motivated, in 1995 they faced a compensation system that gave positive rewards for completed cases, some limited punishment for very high rates of missing data, but gave no differential disincentive for collecting high fractions of value information as ranges.

Historically, the SCF has trained interviewers to probe for single dollar amounts rather than accept a DK or REF. There is ample evidence from margin notes in past surveys done on paper that interviewers probed for respondents' best guesses for items where they were unsure of an amount. Some evidence also exists for a comparable treatment of refusals, though this information is largely from conversations with interviewers and from following behavior during

training. The 1995 SCF CAPI program made a fundamental change in the nature of the interviewers' engagement with the questionnaire and the respondent. The program forced the interviewers to ask every applicable question (though interviewers have found paths around all manner of a priori seemingly impassable barriers), and interviewers were very much aware that the program also enforced a form of structured probing for item nonresponse on value questions. From an interviewer's perspective this routine could have a mixture of effects. An interviewer who might otherwise have probed could be assured that even by acting passively, the computer would automatically generate at least the first level of probes that an interviewer would have been expected to do in the past. In relying on computer-generated probes, the interviewer could have deflected the stress of the questioning to the necessity of asking the questions the computer presented—and we have often encouraged interviewers in training to “blame it on us” when an interview gets difficult.

To get more deeply at the behavior that underlies the response patterns in 1995, tables 5, 6, and 7 array the final types of responses for the variables in tables 2, 3, and 4 by the respondents' initial responses. Here the data show a very much higher rate of DK responses than in 1992. Of these DK responses, about half were resolved into ranges, with those ranges about equally divided between range card responses and decision tree choices. This finding lends strong support to the hypothesis about the CAPI-induced changes in interviewer behavior. The conversion rate for refusals is relatively low—overall, about 15 percent. The figures also show a very high use of volunteered ranges, with the largest proportion attributable to the use of the range card. Respondents would not automatically be aware of the existence of the range card, so interviewers must have used it at least initially as a type of probing instrument. If this is the case, then interviewers would also have resolved fewer probes into single values.

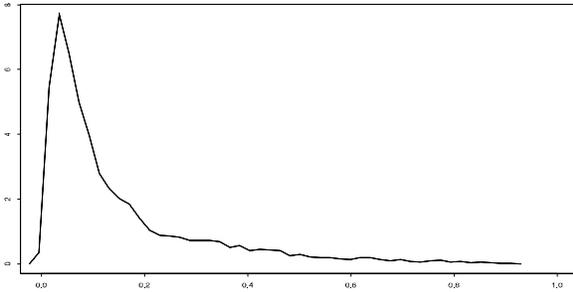
There is some limited information to be brought to bear to analyze these patterns further. We track the sequence of completed cases for each interviewer. In addition, we collected some information from interviewers on their attitudes and characteristics before they began work, as a part of another research project we are conducting on interviewer behavior. In table 8, I present some models of reporting of different types of information, using the following set of explanatory variables: the log of the number of dollar questions the respondent was asked; the age of the household head; a set of indicators equal to one if the case was the interviewer's first

case, second through fifth case, sixth through tenth case, or greater than the tenth case, and otherwise equal to zero; a variable on a scale of one to six indicating the strength with which the interviewer agreed that respondents in general were unlikely to answer financial questions; and a variable on a scale of one to six indicating the strength of the interviewer's discomfort with the idea of asking financial questions. A second model is presented for each dependent variable including the log of total household income.

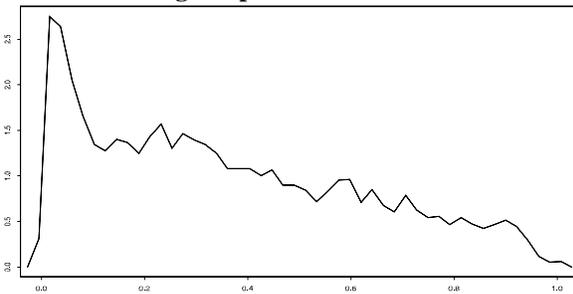
Not surprisingly, the use of ranges at all is positively associated with the number of questions on which such responses could be given. Ranges were less likely to be used later in interviewers' production, though this could reflect the performance of a relatively small number of interviewers who had very high production, and who were often assigned the most difficult cases. Interviewers who either experienced personal discomfort in asking financial questions, or who expected discomfort in the respondent were significantly more likely to accept ranges at all, though their proportion of range responses appears no different than that of other interviewers. However, interviewers who were themselves uncomfortable tended to accept a higher proportion of completely missing data.

Given that interviewers accepted ranges in a particular interview, the data suggest that they were more likely to record a type of voluntary range (recall that these are overwhelmingly entries from the range card) in their later interviews, or if they were uncomfortable about asking financial questions. Even more interestingly, this result also holds for the first range response a respondent gave. The results make sense in light of the fact that interviewers who offered the range card directly were able to bypass the computer-directed offering of the range card and the decision tree, a move that could save both time and stress. The immediate offering of the range card suggests that interviewers viewed the range card as a replacement for more detailed probing to "negotiate" a single value with the respondent, an action that would tend to lower the proportion of complete responses.

**Fig. 4: Distribution of fraction of eligible dollar questions answered with ranges, for those giving at least one range response**



**Fig. 5: Distribution of fraction of dollar questions elapsed until first range response, for those giving at least one range response**



response is given. There is an initial spike in the distribution, followed by a gradual decline. Thus, there appears to be no universal trigger in the questionnaire that caused respondents to begin the use of ranges.

Table 10 gives an indication of the patterns of range use over the questionnaire. At this simple level, the data indicate a moderate degree of persistence of range use. Probit modeling (see table 11) confirms this persistence, even when I control for the number of questions asked in the section and the number of questions asked in the entire interview. Interestingly, the data in table 10 also show signs of an increase in the propensity to use ranges as the interview progresses: in the full sample, 27.6 percent of respondents used at least one range in the first part of the interview (credit cards, housing, and lines of credit), and the proportion rises monotonically to 54.5 percent who used ranges in the last section (employment, pensions, income, and inheritances). Although this trend could be subject matter driven (traditionally, respondents have had only weak knowledge about their pension, and it is well-known that

Respondents varied widely in their use of ranges. As shown in table 9, the median respondent in the full sample (unweighted) gave almost 17 percent of their applicable dollar responses as ranges; the figure for the area-probability sample was about 5 percent. However, 10 percent of the full sample (unweighted) gave over 69 percent of such responses as ranges. The skewness of the distribution is obvious from the kernel density plot of this distribution given in figure 4 for the 73.2 percent of the full sample that reported at least one range.

For respondents who gave at least one range responses, figure 5 shows a kernel density plot of the fraction of applicable dollar questions elapsed until the first range

income is among the most sensitive of questions), or it could reflect growing respondent suspicion or fatigue as the interview progresses.

There is also persistence in respondents' use of a given type of range response. For the unweighted full sample, the area-probability sample unweighted, and the weighted full sample, tables 12 through 14 give the distribution of responses for the second and third range responses arrayed by the first type of range response used. Overall, the largest change seems to be a migration to volunteering a range from the card from the other types of ranges. This result reinforces the earlier results suggesting that respondents learn that volunteering a range from the card is the easiest outcome short of giving a complete response.<sup>17</sup>

#### **IV. Effects of Range Data on Overall Data Quality**

To this point, I have tried to provide a picture of the mechanism that may lie behind the use of ranges in the 1995 SCF. Ultimately, the most important statistical question in most cases is whether the information gained by using ranges adds significantly to the ability to use the survey data for its intended purposes. Two key questions in this line are (1) whether the variance of key estimates is substantially reduced by the introduction of ranges, and (2) whether there is a nonignorable response process (see Little [1983]) that would induce bias in imputation and other estimates in the absence of the true data. If the mechanism introduced to collect the range data may is not neutral, as I believe the data suggest for the 1995 SCF, there may also be a trade-off between the gains from respondents who provided ranges who would otherwise not have given any information, and the loss of efficiency from converting complete responses to range responses.

One simple, and possibly misleading indicator, of the differences between full reporters and range reporters is a comparison of the univariate distribution of the values of the survey variables. For the unweighted full and area-probability samples respectively, tables 15 and 16 report the median, 75th percentile and mean of the variables in tables 2-4 by the type of final type of non-missing response. Cells with 3 or fewer observations are suppressed. There is

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<sup>17</sup>The volunteered card range may have been the fastest route in some cases. The routine that translated dollar amounts of single numbers, decision tree responses, or volunteered dollar ranges into words for the confirmation screen was surprisingly computationally intensive. However, as noted earlier, responses from the range card bypassed the confirmation screen.

tremendous variability in the relative shapes of these distributions. One crude way of summarizing the data is to compute the weighted distribution of outcomes relative to the complete reporters, where the weights are the number of cases giving a particular type of response. The bottom of the table gives the median, mean and standard deviation of this relative measure. The results are similar in form for the full and area-probability samples, but they are stronger for the former. Initial DK and REF cases yield outcomes that are not very different in terms of mean or median outcomes. For the full sample, but not the area-probability sample, the mean values are larger than the value for full reporters, but given the standard deviation of this estimate, it is unlikely that the difference is significant. The difference in the two samples very likely reflects the greater overall likelihood of list cases having a larger number of applicable dollar questions and larger underlying values of the items. There are other ways of aggregating the data—e.g., on the basis of the contribution to an estimate of aggregate net worth—that might give a different impression.

A better way of evaluating the important distributional differences is to control for systematic differences between the different types of respondents. One straightforward, though complex, way of doing this is to impute the data both with and without the use of ranges and compare the two distributions. Beginning with the 1989 SCF, missing data have been imputed using the FRITZ model, an iterative process employing techniques of Gibbs sampling and multiple imputation (see Kennickell [1991]). Normally, range information is used in the imputations to truncate the conditional distributions from which the imputations are drawn.

At the time this paper was written, the 1995 data were still being actively processed. Because the complete imputation process is very time-consuming, it was not possible not possible to create comparable final imputations for the complete dataset. For purposes of this paper, I ran the part of the first iteration of the part of the FRITZ model that imputes financial assets and total income. Because the first iteration is intended only to provide starting values for the iterative model, it entails only single imputation. For the full sample, table 17 shows characteristics of the distribution of the imputations using the range data and comparable figures for the imputations made with the range data completely suppressed. Table 18 shows the same

information for the area-probability sample alone<sup>18</sup>

As one possible summary of these relationships, I computed the weighted mean, median, and standard deviation of the values for the imputations without range constraints relative to those that used the ranges. For the full sample, ignoring the range information barely alters the mean outcome overall. However, as the median estimate of the relative mean (0.33) suggests, this distribution has some odd tail behavior. In fact, the mean of the savings bond imputations without ranges is 9 times that without ranges. Deleting the savings bonds from the aggregation suggests that ignoring the ranges hurts relatively little at the bottom of the distribution, but may be more of a problem at the top. Results for the area-probability sample alone suggest that the differences there are less strong. It would be useful to be able to compute some sort of significance test for the differences incorporating a measure of imputation variance. This is not possible at this time, but I will return to it later as time permits. One should keep in mind that the aggregate I use here is entirely arbitrary. It may not be either the most natural or meaningful one for all purposes.

Quantile-quantile (Q-Q) plots may be a more transparent device for gauging the distortions induced by ignoring the range data in imputation.<sup>19</sup> Figures 6 through 16 are unweighted quantile-quantile plots for the full sample of all the variables in table 17. Generally, the plots differ most at the top of the distribution, with a tendency for the distribution using ranges to be more top-heavy. Two exceptions are certificates of deposits and trusts and annuities. For certificates of deposit, the distribution of the imputations without ranges is generally above those made using the range data until the top three observations. For trusts and annuities, the imputations that do not incorporate range data generally understate the imputations made using the ranges. Given the very small number of cases in upper tails, it is hard to gauge the importance of the differences between the two distributions in each of these plots.

The differences become much less pronounced in the context of the entire distribution of

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<sup>18</sup>The results in table 18 for the area-probability sample are not independent of the results in table 17. In both cases, the underlying moment matrices that underlie the imputations were computed using data for the full sample. For table 18, I merely subsetted the area-probability cases.

<sup>19</sup>Q-Q plots are graphs of the quantiles of distributions plotted against each other. If the figure lies on the 45 degree line, they are the same distribution.

real and imputed values for these variables, as shown in figures 17 through 28. Aggregated to the level of total financial assets (figure 27), the differences become even smaller, probably because of offsetting errors in the component imputations. For total financial assets, it appears that there is a slight tendency to overstate the amount of financial assets until about the top 25 cases in the data, where range responses appear to be particularly important.

Much of the research done using the SCF leans heavily on the sort of partial correlations obtained from regressions and related modeling. To address the importance of the informational gains from range data for this purposes, table 19 presents the results of a set of regressions of the log of total household income on a set of dummy variables for ownership of various financial assets, the log of the maximum of one and the value of the asset, and the log of the age of the household reference person. This model is selected only as an example, and it has no particular importance for any economic theory. I estimated the model on both sets of imputations using OLS, and following the common current practice in economics, I also ran it using a robust regression routine available in Stata. Overall, one would expect the fit on the unbounded data to be noisier, and this is confirmed by the  $R^2$  of the OLS regression, which is three percentage points lower with the unbounded data. For the variables judged significant by the customary 95 percent confidence standard, there were no changes of sign between the different datasets, though a couple of variables were judged significant with the range data, but not with the unbounded data (the dummy variable for ownership of “other bonds” in the OLS model, and the log of savings accounts holdings in the robust model). In almost all cases, the pairs of coefficients lie within the regression confidence interval (estimated without accounting for design effects).

## **VI. Summary and Conclusion**

If the alternative to collecting partial information on value variables as range data is to collect no information at all, collecting range data is the statistically dominant strategy. However, as indicated by data reported in this paper, the tradeoff is more subtle. It seems clear that many responses that would otherwise have been coded DK were resolved as ranges. However, the data also suggest that some interviewers may have collected range information when it might have been possible to probe a respondent for a single value—though even that value may have been an estimate made by the respondent. The data also suggest that there are

complex interactions effects that determine the types of ranges that interviewers and respondents negotiate. It may be possible to improve data collection by making changes in interviewer recruiting and training.

One justification for obtaining range data that is frequently heard is that ranges ought to mitigate the effects of nonignorable item nonresponse. Although the results presented here tend to support the collection of range data as an efficiency-improving measure, there is not strong evidence that imputations would otherwise be biased.

Collection of range data comes at a price in terms of respondent burden, and possibly higher unit nonresponse (or higher costs per interview). Because the SCF contains so many dollar questions, it may be seen as an extreme case. However, many surveys operate near the margin of respondents' tolerance and systematic probing on sensitive items, such as income, may have disproportionately deleterious effects. Evidence in this paper suggests that one could do nearly as well using a simple range card as a probing tool as using the complex range apparatus of the SCF. An important qualification is that interviewers must see the use of the card as important.

The results presented in this paper differ from the experiences of the Health and Retirement Survey, particularly in the assessment of the ability of range data systematically to reduce bias. Clearly, more analysis of both the SCF and HRS data is warranted. Work should also be started on the interaction of interviewers and respondents to gain a better understanding of the underlying cognitive processes that generate the range data.

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**Appendix: Interviewer Training Material on DKDOL**

- a. Dollar amounts are a very important part of the SCF: we have designed a new routine (“DKDOL” will appear in the upper left-hand corner of the screen) to make it easier (we hope) to record figures correctly.
  - i. Every time you enter a dollar answer, the CAPI program will present you with a screen with the amount you have entered written out in words.
    - (1) If you enter a negative number on a screen where this is allowed, the program will confirm that number as a negative number (e.g., “NEGATIVE THREE THOUSAND”).
  - ii. Helps you to catch entry errors, particularly when typing very large numbers, and will help you catch cases where the R reports only a part of a number (e.g., “my house is worth 200”, but R means \$200,000).
- b. We always prefer to have the R give the exact answer to every dollar question, but this is not always possible because the R may genuinely not know the answer, or the R may be hesitant to answer.
  - i. However, experience shows that very many Rs who cannot be persuaded to give a direct dollar response are actually able and willing to give some other sorts of information. Some Rs don’t realize that even partial information or range data can be very helpful to us when we analyze the data.
    - (1) However, we need to be careful that we don’t wind up encouraging the R to give imprecise answers everywhere!
  - ii. Because Rs differ in the type of additional information they are able or willing to give, we have built in several options for recording data that we hope will fit as naturally as possible with the types of answers Rs give (“DKDOL” again will appear in the upper left-hand corner of the screen). (See figure)
  - iii. Sometimes when the R doesn’t know the exact answer or the exact answer may not be easily knowable (for example, the value of R’s house might not be known without a formal appraisal), we know from past experience that it is possible to get some information. But the best thing is always to record an exact dollar figure.
  - iv. Sometimes the R does not know or does not want to share an exact value with you, but the R may be willing to give a range answer. For this reason, we have built two types of range responses into the CAPI program. To access these ranges directly, you enter [F9] in a dollar field, and you will get a screen asking you whether you want to enter one of the two types of ranges.
    - (1) One response is that the R is willing to give a range from the range card that is in the booklet with the showcards. (See figure)
      - (a) Past experience tells us that a large number of Rs can provide at least this much information.
      - (b) Use of a letter also allows Rs who are embarrassed about

- the size of the true number (too large or too small) to avoid saying the number.
- (2) Some Rs will actually volunteer (or you may easily elicit) a dollar range, such as “150,000 to 200,000” or “in the low 10 thousands.” Such responses may be particularly appropriate in the SCF for assets that vary in value.
    - (a) For the “150,000 to 200,000” response you would enter: LOW END OF RANGE=\$150,000 and UPPER END OF RANGE=\$200,000.
    - (b) The “in the low 10 thousands” response could be entered as LOW END OF RANGE=\$10,000 and UPPER END OF RANGE=\$50,000. It is appropriate to confirm such decisions with the R.
- v. Alternatively, the R might respond DK/Ref to a dollar question and not be persuaded to give an exact answer and not give a range at that point.
- (1) The program will present a screen asking whether R can give an answer from a range card using a letter to identify the range. This is the same range field that you can access more directly with [F9].
    - (a) This is a chance to prompt Rs to think about trying the range card.
    - (b) If R refuses at this point, the program will skip to the next question.
  - (2) If R says that he/she cannot give a letter from the card, or does not know which letter would apply, the program will go through a “decision tree.” (See figure)
    - (a) For example: “Is the amount more than \$30,000?” If NO “Is it more than \$5,000?” Etc.
    - (b) If R refuses at any point in the decision tree, the program will skip to the next question so that you do not have to badger the R.
    - (c) The amounts are tailored to each question using data from earlier surveys.
      - (i) These ranges are pretty broad, but they still provide very valuable information because they tell us where the R fits into the overall distribution of an item.
- vi. Again, the idea of these tools in CAPI is to help you record the sorts of responses past interviewers have told us we can expect.
- (1) This sequence may seem complicated when you first see it, but we have tried to make the sequences natural for you (with the help of feedback from other interviewers), so we expect you will get accustomed to it quickly.
- vii. As in the case in which the R gives a single dollar figure, when the R volunteers a dollar range or answers questions in the decision you will be given a screen to confirm the data.

A-3

- (1) The difference from the confirmation screen for single dollar responses is the number confirmed will be a figure somewhere in the range that the R gave.
- (2) You will not be given a confirmation screen if the R gives a letter from the card because you will usually not be able to look at the card to see if the figure makes sense. Some Rs may view the actual number as private and get upset if you try to look.

**Table 2: Reporting rates for various items, percent. Full samples for 1983, 1989, 1992, and 1995 SCF, unweighted.**

<i>Item</i>	<i>Have item</i>		<i>Value reported by respondent</i>					<i>Oth. miss.</i>
	<i>Yes</i>	<i>Unknown</i>	<i>Number</i>	<i>Tree</i>	<i>Card</i>	<i>\$ range</i>	<i>DK</i>	
<i>Credit card balance</i>								
1983	54.6	0.1	97.1	NA	NA	NA	1.1	1.8
1989	67.0	0.0	97.2	NA	0.9	NA	0.5	1.4
1992	72.0	0.2	96.7	NA	0.5	NA	1.5	1.2
1995	76.0	0.4	93.6	0.4	4.1	0.2	0.1	1.7
<i>Principal residence</i>								
1983	67.3	0.0	92.0	NA	NA	NA	5.2	1.6
1989	69.7	0.0	96.3	NA	0.8	NA	1.7	1.2
1992	66.4	0.0	94.5	NA	0.8	NA	3.6	1.1
1995	67.6	0.0	88.9	1.1	7.2	1.1	0.0	1.7
<i>Borrowed on mortgage</i>								
1983	38.6	0.3	92.8	NA	NA	NA	4.2	3.0
1989	41.9	0.0	95.1	NA	0.5	NA	2.0	2.4
1992	40.8	0.2	91.2	NA	1.1	NA	4.1	3.6
1995	42.9	0.3	89.6	1.5	5.9	0.2	0.3	2.6
<i>Owe on mortgage</i>								
1983	NA	NA	NA	NA	NA	NA	NA	NA
1989	41.9	0.0	93.6	NA	1.4	NA	3.1	1.9
1992	40.8	0.2	87.1	NA	0.0	NA	9.4	3.5
1995	42.9	0.3	86.1	1.6	8.5	0.1	0.2	3.5
<i>Mortgage payment</i>								
1983	38.7	0.3	96.7	NA	NA	NA	0.4	2.8
1989	41.4	0.0	96.8	NA	0.5	NA	0.7	1.9
1992	40.5	0.2	94.2	NA	0.5	NA	2.5	2.8
1995	42.2	0.3	92.7	0.4	4.2	0.0	0.1	2.5
<i>Rent</i>								
1983	30.3	0.0	98.1	NA	NA	NA	0.2	1.7
1989	23.1	0.0	98.2	NA	0.0	NA	0.1	1.7
1992	25.2	0.0	96.5	NA	0.3	NA	0.6	2.3
1995	23.8	0.0	95.1	0.4	2.9	1.0	0.0	1.5
<i>Other real estate</i>								
1983	23.3	0.1	92.6	NA	NA	NA	5.3	2.1
1989	34.8	0.0	94.2	NA	1.1	NA	2.8	1.8
1992	34.7	0.3	90.8	NA	1.3	NA	5.4	2.6
1995	32.4	0.6	84.0	1.7	9.5	0.7	0.4	3.7
<i>Business</i>								
1983	16.3	0.2	64.2	NA	NA	NA	24.1	11.7
1989	25.1	0.3	75.9	NA	5.3	NA	15.9	2.9
1992	29.5	0.2	68.6	NA	1.5	NA	25.2	4.7
1995	26.8	0.4	61.9	5.7	18.6	1.0	1.2	11.5
<i>Car loan payment</i>								
1983	25.1	0.2	96.3	NA	NA	NA	1.9	1.7
1989	25.1	0.7	96.8	NA	0.0	NA	1.5	1.6
1992	20.9	0.4	91.1	NA	0.4	NA	4.0	4.5
1995	23.7	0.2	93.0	0.8	4.1	0.0	0.2	1.9

**Table 2: Reporting rates for various items, percent. Full samples for 1983, 1989, 1992, and 1995 SCF, unweighted.**

<i>Item</i>	<i>Have item</i>		<i>Value reported by respondent</i>					
	Yes	Unknown	Number	Tree	Card	\$ range	DK	Oth. miss.
Checking account								
1983	80.3	0.1	92.4	NA	NA	NA	1.8	5.8
1989	87.1	0.2	90.9	NA	2.7	NA	1.5	4.9
1992	87.7	0.4	86.7	NA	1.8	NA	3.8	7.6
1995	88.7	0.3	80.1	1.9	10.4	0.5	0.4	6.7
Money market account								
1983	17.9	0.3	72.8	NA	NA	NA	5.0	22.1
1989	21.0	0.4	85.2	NA	4.4	NA	3.0	7.4
1992	19.4	0.8	73.7	NA	2.3	NA	7.8	16.2
1995	17.3	0.7	71.7	1.8	14.4	0.5	0.9	10.6
Savings account								
1983	59.9	0.3	86.7	NA	NA	NA	4.1	9.2
1989	40.7	0.5	87.5	NA	4.9	NA	2.4	5.2
1992	40.2	0.8	84.1	NA	1.7	NA	3.9	10.2
1995	33.6	0.7	80.2	1.7	11.1	0.1	0.1	6.8
Certificates of deposit								
1983	17.9	0.3	86.9	NA	NA	NA	5.0	22.1
1989	25.2	0.5	83.1	NA	5.4	NA	3.0	8.5
1992	19.6	0.9	73.7	NA	2.3	NA	7.8	16.2
1995	17.0	1.0	69.7	3.4	11.1	0.3	0.3	15.3
IRA/Keogh account								
1983	21.3	0.2	91.2	NA	NA	NA	5.7	3.1
1989	36.0	0.4	89.1	NA	4.2	NA	2.4	4.2
1992	35.5	0.7	82.3	NA	2.3	NA	7.0	8.4
1995	34.6	1.2	74.4	2.6	13.5	0.3	0.4	8.9
Savings bonds								
1983	20.7	0.1	84.2	NA	NA	NA	11.3	4.5
1989	23.8	0.5	89.4	NA	2.9	NA	4.9	2.7
1992	23.0	1.0	84.9	NA	1.8	NA	8.7	4.7
1995	24.0	0.7	76.1	3.2	13.0	0.2	0.8	6.8
Municipal bonds								
1983	5.9	0.5	90.5	NA	NA	NA	2.9	6.6
1989	10.9	1.2	87.7	NA	4.4	NA	2.6	5.3
1992	10.2	1.7	71.3	NA	2.8	NA	12.6	13.4
1995	8.1	1.2	59.8	2.9	15.2	0.9	1.2	20.1
Tax-free mutual funds								
1983	4.1	0.6	88.0	NA	NA	NA	4.8	7.2
1989	4.5	1.0	85.0	NA	5.0	NA	3.6	6.4
1992	5.9	1.7	69.3	NA	2.6	NA	12.1	16.0
1995	8.3	1.6	59.6	2.5	16.6	0.0	0.8	20.5
Stock								
1983	18.7	0.5	82.8	NA	NA	NA	9.8	7.4
1989	30.7	0.5	82.5	NA	6.1	NA	6.1	5.3
1992	30.3	0.9	73.7	NA	2.7	NA	13.8	9.8
1995	28.4	0.9	63.8	2.5	16.0	2.2	1.4	14.1
Trusts and annuities								
1983	6.5	0.5	81.6	NA	NA	NA	10.5	7.9
1989	7.2	0.7	78.2	NA	6.2	NA	10.2	5.3
1992	7.9	1.1	72.2	NA	1.6	NA	9.7	16.5
1995	7.2	0.6	65.9	3.9	16.1	0.6	0.0	13.5
Face value of whole life ins.								
1983	43.0	2.2	85.4	NA	NA	NA	12.0	2.6
1989	43.3	2.0	88.5	NA	2.6	NA	6.9	2.1
1992	39.3	5.0	84.1	NA	0.9	NA	10.9	4.1
1995	38.6	2.2	76.7	2.5	11.1	0.3	0.8	8.6
Cash value of whole life ins.								
1983	41.0	2.2	34.5	NA	NA	NA	44.6	20.9
1989	43.3	2.0	61.0	NA	2.4	NA	33.8	2.8
1992	39.3	5.0	47.8	NA	0.5	NA	46.6	5.0
1995	38.6	2.2	55.5	7.8	15.5	0.5	2.1	18.7

**Table 2: Reporting rates for various items, percent. Full samples for 1983, 1989, 1992, and 1995 SCF, unweighted.**

<i>Item</i>	<i>Have item</i>		<i>Value reported by respondent</i>					
	Yes	Unknown	Number	Tree	Card	\$ range	DK	Oth. miss.
Wage income								
1983	75.6	1.4	91.7	NA	NA	NA	2.9	6.0
1989	72.1	1.3	89.4	NA	4.4	NA	2.1	4.1
1992	70.4	3.5	83.8	NA	3.8	NA	4.1	8.3
1995	73.6	1.0	72.8	1.5	16.7	0.2	0.3	8.4
Business income								
1983	14.3	1.9	83.8	NA	NA	NA	5.5	10.7
1989	23.1	1.8	82.3	NA	5.9	NA	4.6	7.2
1992	22.3	3.5	76.2	NA	2.4	NA	7.5	13.9
1995	20.6	1.5	68.5	2.4	12.8	0.3	0.5	15.6
Non-tax. interest income								
1983	12.2	2.0	81.5	NA	NA	NA	8.6	10.0
1989	15.1	1.8	78.2	NA	5.9	NA	8.0	8.0
1992	15.8	4.0	64.5	NA	2.4	NA	16.5	16.6
1995	15.3	2.0	55.9	2.3	16.7	0.0	1.7	23.4
Taxable interest income								
1983	47.6	1.8	80.2	NA	NA	NA	9.6	13.5
1989	52.2	1.8	78.9	NA	6.2	NA	7.7	7.2
1992	47.9	3.9	70.5	NA	2.5	NA	13.1	13.9
1995	41.3	2.1	66.3	3.2	15.7	0.1	1.1	13.6
Dividend income								
1983	23.5	2.2	80.1	NA	NA	NA	8.5	11.4
1989	28.3	2.4	78.5	NA	5.8	NA	7.2	8.4
1992	28.6	4.2	67.6	NA	2.4	NA	13.1	16.8
1995	29.6	2.2	59.5	2.7	18.0	0.2	1.4	18.2
Capital gains and losses								
1983	10.5	2.1	82.6	NA	NA	NA	6.3	11.1
1989	18.7	1.9	75.5	NA	5.8	NA	10.4	8.3
1992	19.0	4.3	66.9	NA	2.4	NA	15.7	14.9
1995	19.7	2.4	61.8	1.9	15.6	0.0	1.3	19.5
Rent and royalties								
1983	14.2	1.9	90.2	NA	NA	NA	2.9	6.9
1989	18.9	1.8	81.2	NA	6.2	NA	4.0	8.4
1992	20.0	4.0	76.2	NA	1.9	NA	7.7	14.2
1995	17.5	2.0	70.5	1.5	12.5	0.0	0.7	14.9
Unemployment comp.								
1983	9.6	1.9	93.9	NA	NA	NA	2.8	3.3
1989	4.2	1.7	91.0	NA	1.5	NA	3.8	3.8
1992	4.7	3.9	85.9	NA	1.1	NA	4.3	8.6
1995	4.7	1.3	77.5	0.5	9.5	0.0	1.0	11.5
Transfers								
1983	10.0	1.9	93.9	NA	NA	NA	2.2	3.9
1989	3.7	1.8	93.0	NA	4.3	NA	0.0	2.6
1992	2.9	4.0	82.6	NA	0.9	NA	4.3	12.2
1995	5.1	1.1	78.2	0.0	9.1	0.5	0.0	12.3
Welfare income								
1983	10.1	1.9	94.7	NA	NA	NA	2.4	2.9
1989	7.0	1.7	95.9	NA	0.5	NA	3.2	0.5
1992	6.4	3.8	85.5	NA	1.2	NA	5.6	7.6
1995	7.8	1.0	75.4	1.8	8.7	0.0	0.6	13.5
Pension and Soc. Sec. inc.								
1983	28.0	1.8	89.6	NA	NA	NA	1.8	8.6
1989	30.7	1.7	88.8	NA	2.5	NA	2.9	5.8
1992	26.8	3.7	81.7	NA	1.7	NA	4.2	12.3
1995	26.5	1.2	73.3	1.9	11.1	0.0	0.4	13.3
Other income								
1983	2.0	3.7	77.4	NA	NA	NA	7.1	15.5
1989	4.8	2.9	66.7	NA	2.7	NA	4.7	24.0
1992	5.1	4.5	79.5	NA	1.0	NA	6.5	13.0
1995	8.3	1.5	73.6	1.1	8.7	0.0	0.6	16.0
Total income								
1983	100.0	0.0	88.1	NA	NA	NA	3.3	8.7
1989	100.0	0.0	81.1	7.9	4.5	NA	1.2	5.2
1992	100.0	0.0	74.4	9.8	3.5	NA	2.1	7.8
1995	100.0	0.0	69.1	1.5	16.8	0.1	0.5	12.1

**Table 3: Reporting rates for various items, percent. Area-probability samples for 1983, 1989, 1992, and 1995 SCF, unweighted.**

<i>Item</i>	<i>Have item</i>		<i>Value reported by respondent</i>					<i>Oth. miss.</i>
	<i>Yes</i>	<i>Unknown</i>	<i>Number</i>	<i>Tree</i>	<i>Card</i>	<i>\$ range</i>	<i>DK</i>	
<b>Credit card balance</b>								
1983	59.7	0.0	97.2	NA	NA	NA	1.0	1.8
1989	53.4	0.0	96.0	NA	1.0	NA	0.2	2.8
1992	60.4	0.1	95.5	NA	0.8	NA	2.2	1.5
1995	66.3	0.4	91.0	0.5	5.9	0.2	0.1	2.3
<b>Principal residence</b>								
1983	63.9	0.1	92.2	NA	NA	NA	6.1	1.6
1989	55.2	0.0	96.0	NA	0.6	NA	2.4	1.0
1992	54.6	0.0	93.9	NA	0.7	NA	4.5	1.0
1995	56.8	0.0	88.6	1.1	7.5	0.8	0.1	1.9
<b>Borrowed on mortgage</b>								
1983	36.8	0.3	92.0	NA	NA	NA	4.7	3.3
1989	34.0	0.0	95.6	NA	0.1	NA	1.6	2.8
1992	34.9	0.2	90.9	NA	1.2	NA	4.3	3.6
1995	39.9	0.2	89.5	1.5	5.9	0.2	0.3	2.5
<b>Owe on mortgage</b>								
1983	NA	NA	NA	NA	NA	NA	NA	NA
1989	34.0	0.0	91.2	NA	0.8	NA	4.7	3.4
1992	34.9	0.2	85.1	NA	0.0	NA	11.4	3.5
1995	39.9	0.2	84.4	1.9	9.8	0.2	0.2	3.5
<b>Mortgage payment</b>								
1983	36.8	0.3	96.5	NA	NA	NA	0.4	3.0
1989	33.8	0.0	96.6	NA	0.3	NA	0.5	2.6
1992	34.6	0.2	95.4	NA	0.5	NA	1.5	2.6
1995	39.2	0.2	92.7	0.4	3.9	0.0	0.1	3.0
<b>Rent</b>								
1983	33.4	0.1	98.1	NA	NA	NA	0.2	1.7
1989	34.7	0.0	96.0	NA	0.0	NA	0.2	2.3
1992	35.4	0.0	96.9	NA	0.3	NA	0.6	2.2
1995	32.8	0.0	95.3	0.4	2.8	0.1	0.0	1.3
<b>Other real estate</b>								
1983	18.4	0.1	90.5	NA	NA	NA	7.1	2.4
1989	20.9	0.0	90.7	NA	1.7	NA	3.8	3.8
1992	16.9	0.1	88.5	NA	0.0	NA	9.6	1.9
1995	17.3	0.2	82.6	2.9	8.9	1.0	0.4	4.1
<b>Business</b>								
1983	11.8	0.2	58.9	NA	NA	NA	29.7	11.4
1989	12.4	0.1	75.2	NA	6.4	NA	14.9	3.5
1992	12.7	0.0	66.9	NA	1.3	NA	29.9	1.9
1995	12.8	0.2	65.3	5.0	17.4	0.6	1.7	10.1
<b>Car loan payment</b>								
1983	27.0	0.2	96.2	NA	NA	NA	2.0	1.8
1989	28.8	0.7	96.3	NA	0.0	NA	1.5	2.1
1992	24.7	0.2	90.4	NA	0.5	NA	4.1	4.9
1995	28.7	0.2	93.7	0.4	3.8	0.0	0.1	2.0

**Table 3: Reporting rates for various items, percent. Area-probability samples for 1983, 1989, 1992, and 1995 SCF, unweighted.**

<i>Item</i>	<i>Have item</i>		<i>Value reported by respondent</i>					DK	Oth. miss.
	Yes	Unknown	Number	Tree	Card	\$ range			
Checking account									
1983	78.2	0.1	91.8	NA	NA	NA	2.0	6.3	
1989	80.5	0.0	89.3	NA	3.3	NA	1.3	6.1	
1992	82.1	0.2	86.9	NA	1.6	NA	3.7	7.8	
1995	84.2	0.3	80.2	1.9	10.5	0.5	0.4	6.4	
Money market account									
1983	12.1	0.3	82.9	NA	NA	NA	5.6	11.5	
1989	11.9	0.1	82.2	NA	3.7	NA	3.7	10.4	
1992	10.1	0.4	83.8	NA	0.8	NA	4.5	10.9	
1995	9.4	0.3	75.8	2.3	11.9	0.0	0.8	9.2	
Savings account									
1983	61.1	0.2	85.8	NA	NA	NA	4.3	9.9	
1989	43.9	0.1	85.9	NA	7.0	NA	1.8	5.2	
1992	43.0	0.4	82.6	NA	1.9	NA	4.0	11.6	
1995	36.3	0.4	80.6	1.8	10.7	0.2	0.0	6.7	
Certificates of deposit									
1983	11.7	0.2	71.3	NA	NA	NA	5.6	23.1	
1989	20.1	0.3	75.4	NA	7.5	NA	3.5	13.6	
1992	16.2	0.4	71.9	NA	2.0	NA	7.8	18.3	
1995	13.8	0.5	67.6	4.2	11.5	0.0	0.3	16.5	
IRA/Keogh account									
1983	15.6	0.2	87.4	NA	NA	NA	8.0	4.5	
1989	21.0	0.3	86.6	NA	6.3	NA	1.7	5.5	
1992	21.8	0.4	79.4	NA	2.1	NA	8.4	10.1	
1995	21.7	1.0	72.0	3.0	14.1	0.2	0.5	10.3	
Savings bonds									
1983	20.2	0.1	82.6	NA	NA	NA	12.4	5.0	
1989	23.3	0.4	90.2	NA	4.2	NA	3.8	1.9	
1992	22.5	0.4	84.8	NA	1.8	NA	0.0	4.3	
1995	22.9	0.4	76.6	2.5	13.2	0.3	0.8	6.6	
Municipal bonds									
1983	1.4	0.4	78.4	NA	NA	NA	5.9	15.7	
1989	2.5	0.4	67.9	NA	14.3	NA	0.0	17.9	
1992	1.2	0.5	82.8	NA	0.0	NA	10.3	6.9	
1995	1.1	0.6	64.5	3.2	6.5	0.0	0.0	25.8	
Tax-free mutual funds									
1983	1.5	0.5	72.7	NA	NA	NA	10.9	16.4	
1989	1.4	0.5	78.2	NA	0.0	NA	6.3	12.5	
1992	2.5	0.8	71.0	NA	0.0	NA	14.5	14.5	
1995	2.7	1.1	55.4	4.1	17.6	0.0	1.4	21.6	
Stock									
1983	11.3	0.5	73.1	NA	NA	NA	16.0	10.9	
1989	16.6	0.2	78.2	NA	7.4	NA	8.0	6.4	
1992	15.3	0.3	71.7	NA	1.9	NA	20.3	6.1	
1995	14.9	0.6	64.6	3.6	14.2	3.1	1.7	12.8	
Trusts and annuities									
1983	4.0	0.5	73.1	NA	NA	NA	17.2	9.7	
1989	4.2	0.2	70.8	NA	8.3	NA	12.5	8.3	
1992	3.9	0.5	81.4	NA	1.0	NA	8.2	9.3	
1995	4.0	0.4	68.2	3.6	20.0	0.9	0.0	7.3	
Face value of whole life ins.									
1983	39.9	2.4	83.2	NA	NA	NA	14.0	2.8	
1989	35.4	1.2	84.6	NA	2.2	NA	9.0	4.2	
1992	32.1	5.3	84.4	NA	1.1	NA	11.0	3.4	
1995	30.8	2.2	77.0	3.6	10.1	0.4	0.8	8.2	
Cash value of whole life ins.									
1983	38.4	2.4	28.3	NA	NA	NA	49.1	22.6	
1989	35.4	1.2	52.2	NA	2.7	NA	38.3	4.0	
1992	32.1	5.3	40.9	NA	0.6	NA	54.4	4.1	
1995	30.8	2.2	50.9	9.5	16.5	0.6	2.5	20.1	

**Table 3: Reporting rates for various items, percent. Area-probability samples for 1983, 1989, 1992, and 1995 SCF, unweighted.**

<i>Item</i>	<i>Have item</i>		<i>Value reported by respondent</i>					DK	Oth. miss.
	Yes	Unknown	Number	Tree	Card	\$ range			
Wage income									
1983	75.3	1.3	91.2	NA	NA	NA	2.6	6.2	
1989	72.1	0.3	90.1	NA	3.7	NA	2.0	4.3	
1992	72.3	1.9	85.0	NA	3.7	NA	4.3	7.0	
1995	75.4	0.8	74.2	1.7	17.2	0.2	0.2	6.4	
Business income									
1983	11.1	1.8	81.3	NA	NA	NA	7.4	11.3	
1989	12.6	0.6	79.7	NA	9.1	NA	3.5	7.7	
1992	10.5	1.9	77.5	NA	1.9	NA	8.9	11.6	
1995	10.1	0.9	73.4	1.8	11.3	0.4	0.8	12.4	
Non-tax. interest income									
1983	6.3	2.0	74.1	NA	NA	NA	12.1	13.8	
1989	4.1	0.7	76.6	NA	10.6	NA	0.0	12.8	
1992	4.3	2.2	68.6	NA	1.9	NA	16.2	13.3	
1995	3.6	1.1	54.0	4.0	14.0	0.0	3.0	25.0	
Taxable interest income									
1983	43.1	1.9	77.5	NA	NA	NA	10.8	11.7	
1989	41.1	0.8	77.3	NA	6.9	NA	8.4	7.5	
1992	35.8	2.0	71.5	NA	3.1	NA	12.2	13.3	
1995	29.0	1.2	68.9	3.6	15.2	0.1	0.7	11.4	
Dividend income									
1983	16.3	2.3	72.5	NA	NA	NA	11.9	15.6	
1989	15.8	1.3	78.8	NA	6.7	NA	6.7	7.8	
1992	15.3	2.3	69.4	NA	1.6	NA	13.3	15.7	
1995	15.2	1.3	61.8	1.9	19.2	0.2	1.7	15.2	
Capital gains and losses									
1983	5.4	2.1	77.8	NA	NA	NA	7.1	15.2	
1989	8.7	0.8	83.8	NA	6.1	NA	3.0	7.1	
1992	6.4	2.4	72.8	NA	1.9	NA	13.3	12.0	
1995	7.1	1.3	69.9	1.0	15.3	0.0	1.5	12.2	
Rent and royalties									
1983	10.0	2.0	88.3	NA	NA	NA	3.5	8.2	
1989	10.7	0.8	83.5	NA	7.4	NA	1.6	7.4	
1992	8.2	2.3	80.7	NA	1.5	NA	5.0	12.9	
1995	7.0	1.1	77.3	1.0	11.3	0.0	0.5	9.8	
Unemployment comp.									
1983	10.6	1.9	94.6	NA	NA	NA	2.8	2.6	
1989	6.1	0.5	89.9	NA	1.4	NA	5.8	2.9	
1992	6.0	2.3	88.5	NA	0.7	NA	4.1	6.8	
1995	5.6	0.8	81.3	0.6	11.6	0.0	1.3	5.2	
Transfers									
1983	10.6	2.0	94.1	NA	NA	NA	2.3	3.6	
1989	5.6	0.8	98.4	NA	1.6	NA	0.0	0.0	
1992	3.7	2.4	86.8	NA	1.1	NA	3.3	8.8	
1995	6.2	0.7	82.6	0.0	9.3	0.6	0.7	7.6	
Welfare income									
1983	11.3	2.0	94.9	NA	NA	NA	2.4	2.7	
1989	11.4	0.6	97.7	NA	0.0	NA	1.6	0.8	
1992	9.4	2.2	86.6	NA	0.9	NA	6.1	6.5	
1995	11.0	0.7	79.5	1.6	8.5	0.0	0.7	9.8	
Pension and Soc. Sec. inc.									
1983	28.2	1.8	88.9	NA	NA	NA	2.0	9.1	
1989	31.2	0.7	87.6	NA	3.7	NA	3.1	5.6	
1992	28.3	2.0	83.6	NA	1.9	NA	3.2	11.4	
1995	24.5	0.8	73.5	2.6	11.0	0.0	0.1	12.6	
Other income									
1983	2.0	3.7	77.8	NA	NA	NA	6.9	15.3	
1989	7.0	0.9	87.6	NA	2.5	NA	1.3	34.2	
1992	3.4	2.9	80.6	NA	1.0	NA	6.1	12.2	
1995	5.6	0.9	77.1	1.3	10.2	0.0	0.0	11.5	
Total income									
1983	100.0	0.0	87.4	NA	NA	NA	3.5	9.1	
1989	100.0	0.0	82.7	8.8	3.7	NA	0.2	4.5	
1992	100.0	0.0	78.2	8.6	3.0	NA	2.0	6.0	
1995	100.0	0.0	72.8	1.4	15.7	0.1	0.2	9.7	

**Table 4: Reporting rates for various items, percent. Full samples for 1983, 1989, 1992, and 1995 SCF, weighted.**

<i>Item</i>	<i>Have item</i>		<i>Value reported by respondent</i>					
	Yes	Unknown	Number	Tree	Card	\$ range	DK	Oth. miss.
Credit card balance								
1983	58.6	0.0	97.2	NA	NA	NA	1.1	1.7
1989	56.5	0.0	96.8	NA	0.7	NA	0.7	1.9
1992	62.2	0.1	95.7	NA	0.8	NA	2.0	1.6
1995	66.5	0.3	90.8	0.6	5.9	0.2	0.1	2.5
Principal residence								
1983	63.3	0.1	92.5	NA	NA	NA	5.9	1.6
1989	59.7	0.0	95.6	NA	0.5	NA	2.4	1.5
1992	58.9	0.0	93.7	NA	0.7	NA	4.8	0.8
1995	58.9	0.0	88.6	1.3	7.3	1.0	0.0	1.8
Borrowed on mortgage								
1983	36.7	0.3	92.0	NA	NA	NA	4.7	3.3
1989	37.5	0.0	94.2	NA	0.2	NA	3.4	2.2
1992	38.2	0.2	91.1	NA	1.0	NA	4.5	3.4
1995	39.5	0.1	89.5	1.4	6.0	0.4	0.4	2.3
Owe on mortgage								
1983	NA	NA	NA	NA	NA	NA	NA	NA
1989	37.5	0.0	93.2	NA	1.0	NA	3.9	1.9
1992	38.2	0.2	85.8	NA	0.0	NA	11.1	3.1
1995	39.5	0.1	84.3	1.8	10.0	0.1	0.3	3.4
Mortgage payment								
1983	36.7	0.3	96.6	NA	NA	NA	0.4	2.9
1989	37.2	0.0	97.6	NA	0.1	NA	0.6	1.7
1992	37.9	0.2	95.7	NA	0.5	NA	1.5	2.3
1995	38.8	0.1	93.5	0.3	3.6	0.0	0.1	2.5
Rent								
1983	34.2	0.1	98.1	NA	NA	NA	0.2	1.7
1989	33.4	0.0	98.0	NA	0.0	NA	0.1	1.9
1992	31.3	0.0	96.9	NA	0.3	NA	0.5	2.2
1995	31.1	0.0	95.2	0.3	2.5	0.1	0.0	1.8
Other real estate								
1983	18.7	0.1	91.7	NA	NA	NA	6.3	1.9
1989	19.3	0.0	92.1	NA	0.4	NA	5.4	2.0
1992	17.9	0.2	89.7	NA	0.2	NA	8.4	1.7
1995	17.1	0.2	85.8	2.6	7.3	0.9	0.5	3.0
Business								
1983	12.0	0.2	59.0	NA	NA	NA	30.0	12.0
1989	11.5	0.2	73.7	NA	4.7	NA	18.9	2.6
1992	13.2	0.0	70.0	NA	0.9	NA	27.2	1.9
1995	11.5	0.1	68.7	4.8	15.3	1.0	1.8	8.3
Car loan payment								
1983	26.0	0.3	96.4	NA	NA	NA	2.0	1.5
1989	37.2	0.0	97.6	NA	0.1	NA	0.6	1.7
1992	24.6	0.2	90.9	NA	0.4	NA	3.9	4.8
1995	27.7	0.2	92.4	0.9	4.2	0.0	0.4	2.1

**Table 4: Reporting rates for various items, percent. Full samples for 1983, 1989, 1992, and 1995 SCF, weighted**

<i>Item</i>	<i>Have item</i>		<i>Value reported by respondent</i>					<i>Oth. miss.</i>
	<i>Yes</i>	<i>Unknown</i>	<i>Number</i>	<i>Tree</i>	<i>Card</i>	<i>\$ range</i>	<i>DK</i>	
Checking account								
1983	78.5	0.0	78.5	NA	NA	NA	1.8	5.9
1989	81.1	0.2	91.6	NA	1.9	NA	1.7	4.9
1992	83.2	0.3	87.2	NA	1.7	NA	3.7	7.4
1995	84.6	0.3	80.1	2.0	10.7	0.6	0.3	6.3
Money market account								
1983	13.7	0.3	83.1	NA	NA	NA	6.0	10.9
1989	11.8	0.3	84.3	NA	3.9	NA	2.3	9.5
1992	11.1	0.4	84.8	NA	0.9	NA	4.5	9.8
1995	9.9	0.2	74.9	1.3	14.1	0.0	0.5	9.1
Savings account								
1983	61.6	0.2	85.7	NA	NA	NA	4.1	10.2
1989	43.3	0.6	88.0	NA	3.9	NA	2.6	5.5
1992	43.7	0.5	84.3	NA	1.6	NA	4.1	10.1
1995	35.9	0.4	80.6	2.0	10.3	0.2	0.0	6.8
Certificates of deposit								
1983	11.9	0.2	71.7	NA	NA	NA	5.0	23.4
1989	19.5	0.6	79.5	NA	4.9	NA	5.0	10.6
1992	16.6	0.5	73.1	NA	1.7	NA	7.9	17.3
1995	14.2	0.6	67.1	4.4	12.2	0.4	0.1	15.8
IRA/Keogh account								
1983	16.5	0.2	88.2	NA	NA	NA	7.3	4.5
1989	21.8	0.4	89.0	NA	5.5	NA	1.7	3.8
1992	23.0	0.4	79.5	NA	2.4	NA	8.1	10.0
1995	22.0	0.9	74.1	3.2	12.9	0.3	0.9	8.6
Savings bonds								
1983	20.2	0.1	83.0	NA	NA	NA	12.1	4.9
1989	23.6	0.4	91.6	NA	2.7	NA	3.5	2.2
1992	22.1	0.5	84.8	NA	1.7	NA	9.8	3.6
1995	23.1	0.3	77.2	1.9	12.8	0.2	0.7	7.1
Municipal bonds								
1983	2.0	0.4	78.8	NA	NA	NA	4.6	16.6
1989	3.4	0.7	82.1	NA	6.4	NA	3.8	7.7
1992	2.1	0.6	79.7	NA	1.7	NA	12.4	6.3
1995	2.1	0.5	62.1	1.9	13.4	0.1	0.3	22.2
Tax-free mutual funds								
1983	1.8	0.5	75.3	NA	NA	NA	9.6	15.0
1989	1.5	0.8	81.6	NA	3.4	NA	3.4	11.6
1992	2.7	0.9	67.4	NA	1.2	NA	15.3	16.1
1995	3.3	0.8	3.3	7.0	20.3	0.0	0.9	20.7
Stock								
1983	13.0	0.5	73.9	NA	NA	NA	15.6	10.5
1989	15.8	0.4	82.0	NA	5.1	NA	8.2	4.7
1992	16.8	0.5	73.8	NA	1.9	NA	17.9	6.5
1995	15.6	0.5	66.0	3.5	14.5	3.1	1.7	11.2
Trusts and annuities								
1983	4.2	0.5	72.3	NA	NA	NA	17.0	10.7
1989	3.4	0.6	77.0	NA	5.2	NA	12.0	5.9
1992	3.9	0.6	79.5	NA	1.2	NA	7.7	11.5
1995	4.2	0.2	68.3	2.5	18.3	0.1	0.0	10.7
Face value of whole life ins.								
1983	40.0	2.3	83.6	NA	NA	NA	13.6	2.8
1989	35.1	2.1	86.4	NA	1.9	NA	8.7	3.0
1992	33.0	5.1	84.3	NA	1.3	NA	11.2	3.2
1995	31.1	2.2	77.8	3.9	10.1	0.2	0.8	7.1
Cash value of whole life ins.								
1983	38.4	2.3	30.1	NA	NA	NA	48.4	21.5
1989	35.1	2.1	52.7	NA	2.2	NA	42.5	2.6
1992	33.0	5.1	42.2	NA	0.7	NA	53.4	3.7
1995	31.1	2.2	52.5	9.9	16.4	0.5	2.7	18.1

**Table 4: Reporting rates for various items, percent. Full samples for 1983, 1989, 1992, and 1995 SCF, weighted**

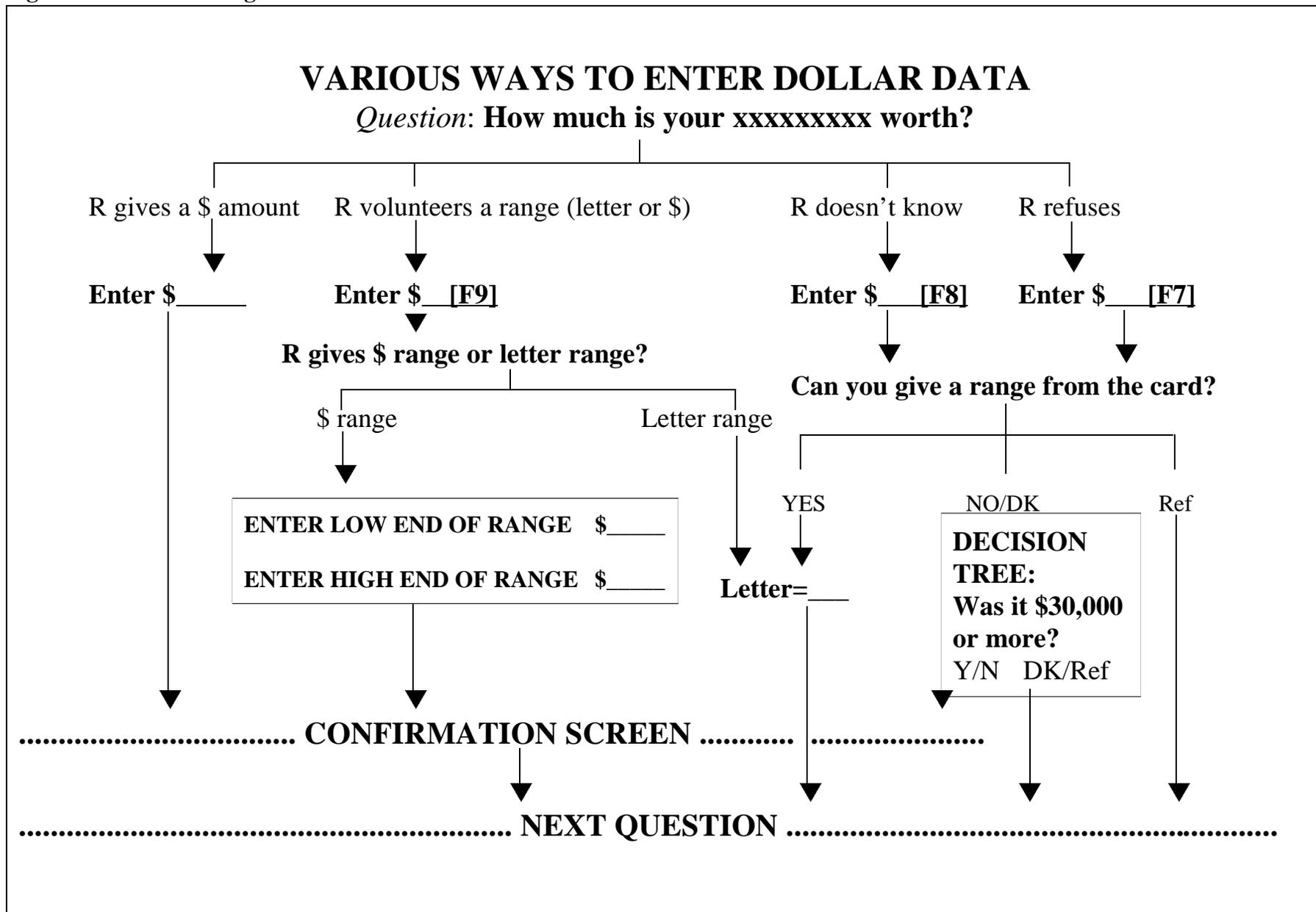
<i>Item</i>	<i>Have item</i>		<i>Value reported by respondent</i>					
	Yes	Unknown	Number	Tree	Card	\$ range	DK	Oth. miss.
Wage income								
1983	75.2	1.5	91.5	NA	NA	NA	2.4	6.1
1989	71.6	1.0	91.3	NA	2.9	NA	2.2	3.6
1992	71.0	2.3	85.6	NA	3.6	NA	4.1	6.7
1995	73.0	0.7	75.1	1.8	16.5	0.2	0.2	6.2
Business income								
1983	10.9	2.0	80.9	NA	NA	NA	6.9	12.1
1989	11.1	1.4	85.8	NA	4.9	NA	3.8	5.6
1992	11.1	2.2	78.3	NA	1.8	NA	7.9	10.0
1995	10.2	0.9	79.2	0.8	9.3	0.4	0.6	9.8
Non-tax. interest income								
1983	7.2	2.3	75.1	NA	NA	NA	12.3	12.6
1989	4.6	1.5	76.4	NA	5.9	NA	10.6	7.0
1992	5.1	2.5	72.5	NA	2.0	NA	14.1	11.4
1995	5.1	1.0	53.2	2.0	19.0	0.0	2.2	23.5
Taxable interest income								
1983	43.9	2.1	78.2	NA	NA	NA	10.3	11.6
1989	41.2	1.5	80.3	NA	4.4	NA	8.8	6.5
1992	38.0	2.4	73.0	NA	2.9	NA	12.3	11.8
1995	30.1	1.2	69.9	2.9	16.0	0.1	0.8	10.4
Dividend income								
1983	17.6	2.5	74.0	NA	NA	NA	11.0	15.0
1989	15.8	2.1	81.0	NA	3.4	NA	7.9	7.6
1992	16.4	2.7	70.9	NA	1.6	NA	12.7	14.8
1995	16.7	1.3	64.2	2.2	17.9	0.3	0.8	14.6
Capital gains and losses								
1983	6.0	2.3	77.3	NA	NA	NA	7.5	15.2
1989	8.2	1.3	85.6	NA	4.0	NA	5.7	4.6
1992	7.7	2.7	73.1	NA	1.7	NA	12.3	11.9
1995	8.0	1.2	72.8	0.9	15.2	0.0	1.2	9.9
Rent and royalties								
1983	10.4	2.2	88.8	NA	NA	NA	3.6	7.6
1989	9.6	1.4	87.5	NA	2.3	NA	1.8	8.3
1992	8.9	2.7	83.0	NA	1.4	NA	5.2	10.4
1995	6.9	1.1	82.0	1.0	9.3	0.0	0.3	7.4
Unemployment comp.								
1983	10.3	2.1	94.6	NA	NA	NA	2.5	2.8
1989	5.1	1.3	92.8	NA	1.2	NA	2.5	3.5
1992	6.0	2.7	87.3	NA	0.7	NA	3.8	8.2
1995	5.7	0.8	83.1	0.4	9.0	0.0	1.0	6.4
Transfers								
1983	10.7	2.1	93.9	NA	NA	NA	2.1	3.9
1989	4.8	1.4	93.2	NA	1.7	NA	0.0	5.1
1992	3.6	2.7	87.0	NA	1.1	NA	3.1	8.8
1995	5.6	0.7	80.1	0.0	11.3	0.0	0.0	8.0
Welfare income								
1983	10.8	2.1	94.8	NA	NA	NA	2.3	2.8
1989	9.8	1.4	95.2	NA	0.2	NA	4.0	0.5
1992	8.5	2.5	86.0	NA	0.8	NA	6.0	7.2
1995	10.3	0.7	78.5	1.9	8.2	0.0	0.8	10.6
Pension and Soc. Sec. inc.								
1983	28.5	2.0	88.9	NA	NA	NA	1.9	9.2
1989	31.1	1.3	88.6	NA	1.8	NA	4.5	5.1
1992	29.1	2.3	83.2	NA	1.9	NA	4.0	10.9
1995	28.5	0.8	73.8	2.4	10.8	0.0	0.1	12.9
Other income								
1983	1.9	3.9	77.9	NA	NA	NA	7.2	14.9
1989	5.0	2.4	68.7	NA	0.8	NA	3.1	27.4
1992	3.9	3.0	78.4	NA	1.1	NA	9.4	11.1
1995	5.8	0.9	81.2	1.3	6.0	0.0	0.0	11.4
Total income								
1983	100.0	0.0	87.6	NA	NA	NA	3.3	9.1
1989	100.0	0.0	82.3	8.6	2.8	NA	1.2	5.0
1992	100.0	0.0	78.1	8.3	2.9	NA	2.1	6.0
1995	100.0	0.0	72.9	1.5	15.4	0.1	0.2	10.0

## RANGE CARD

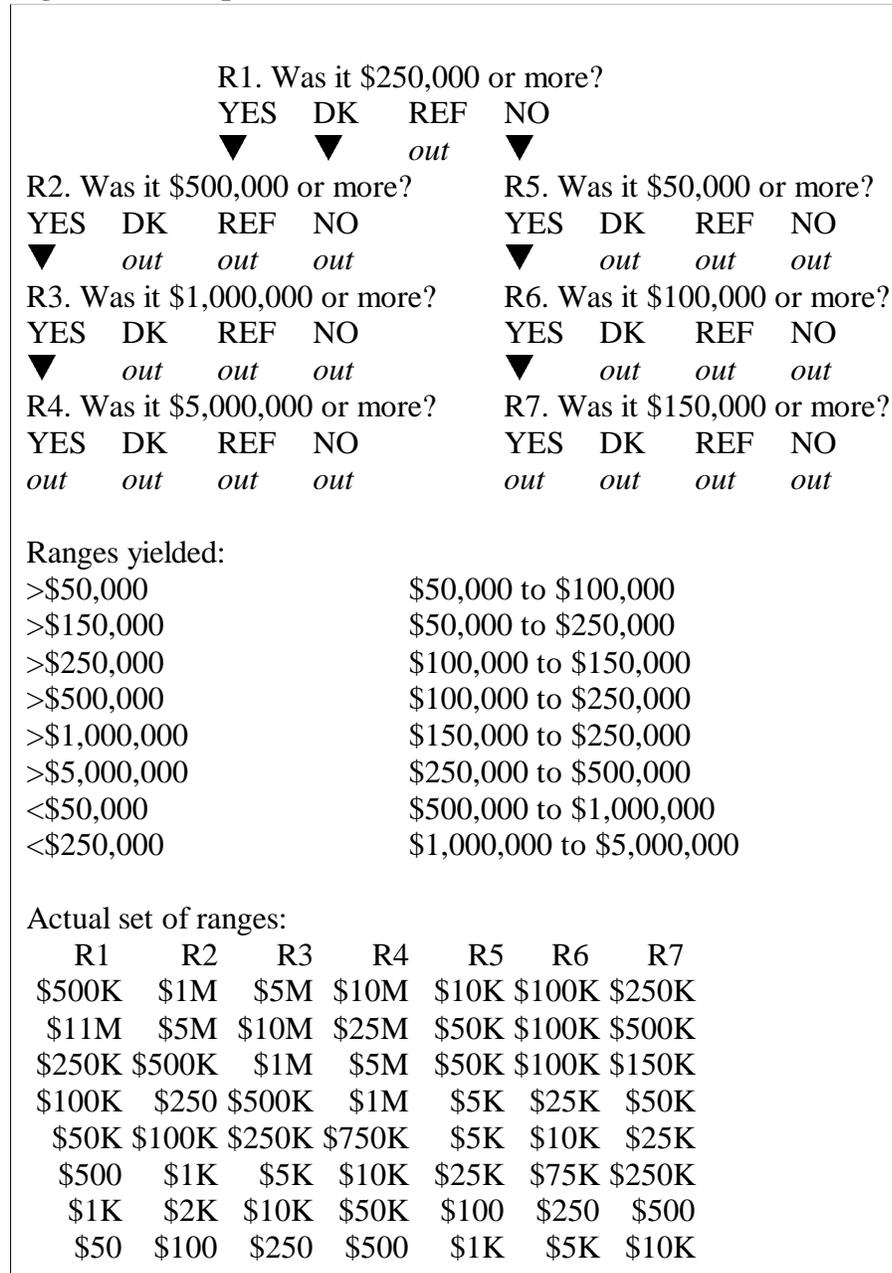
Figure 2: 1995 SCF range card

A	.....	\$1 – \$100
B	.....	\$101 – \$500
C	.....	\$501 – \$750
D	.....	\$751 – \$1,000
E	.....	\$1,001 – \$2,500
F	.....	\$2,501 – \$5,000
G	.....	\$5,001 – \$7,500
H	.....	\$7,501 – \$10,000
I	.....	\$10,001 – \$25,000
J	.....	\$25,001 – \$50,000
K	.....	\$50,001 – \$75,000
L	.....	\$75,001 – \$100,000
M	.....	\$100,001 – \$250,000
N	.....	\$250,001 – \$1 million
O	.....	\$1 million – \$5 million
P	.....	\$5 million – \$10 million
Q	.....	\$10 million – \$25 million
R	.....	\$25 million – \$50 million
S	.....	\$50 million – \$100 million
T	.....	More than \$100 million

Figure 1: Schematic diagram of DKDOL routine. 1995 SCF.



**Figure 3: Example of a decision tree in the 1995 SCF.**



**Table 5: Distribution of type of initial incomplete responses and final responses, selected variables, by initial type of initial incomplete response, percent. 1995 SCF, full sample, unweighted.**

	Initial incomplete response											
	All types		Don't know			Refused				Volunteered range		
			Final response				Final response				Final response	
		All	Dec. tree	Card	Missing	All	Dec. tree	Card	Missing	All	\$ range	Card
Credit card balance	6.4	19.4	17.5	45.0	37.5	24.3	10.0	8.0	82.0	56.3	5.2	94.8
Principal residence	11.0	24.7	31.6	39.2	29.1	11.6	13.5	13.5	73.0	63.8	15.7	84.3
Borrowed on mortgage	10.3	30.5	37.9	37.9	24.1	24.7	10.6	10.6	78.7	44.7	4.7	95.3
Owe on mortgage	13.9	32.0	30.5	41.5	28.0	20.3	7.7	9.6	82.7	47.7	3.3	96.7
Mortgage payment	7.3	10.5	21.4	21.4	57.1	38.3	9.8	9.8	80.4	51.1	0.0	100.0
Rent	5.1	7.7	25.0	25.0	50.0	44.2	13.0	21.7	65.2	48.1	4.0	96.0
Other real estate	15.9	31.7	27.1	34.3	38.6	16.3	8.3	11.1	80.6	52.0	9.6	90.4
Business	38.1	37.3	34.1	26.8	39.0	22.0	9.3	4.1	86.6	40.7	6.7	93.3
Car loan payment	6.9	34.3	20.8	41.7	37.5	25.7	16.7	16.7	66.7	40.0	0.0	100.0
Checking account	19.9	18.1	22.6	32.8	44.5	35.7	15.1	7.7	77.1	46.2	6.3	93.7
Money market account	28.3	21.4	17.8	22.2	60.0	32.9	7.2	7.2	85.5	45.7	4.2	95.8
Savings account	19.7	22.5	17.2	39.1	43.8	31.2	14.6	5.6	79.8	46.3	1.5	98.5
Certificates of deposit	30.0	19.6	32.6	11.6	55.8	45.2	11.1	2.0	86.9	35.2	3.9	96.1
IRA/Keogh account	25.5	26.5	26.0	35.0	39.0	29.7	10.7	3.6	85.7	43.8	4.2	95.8
Savings bonds	23.9	39.8	30.6	28.6	40.8	16.3	7.5	0.0	92.5	43.9	1.9	98.1
Municipal bonds	38.7	25.8	5.3	6.1	14.4	38.6	5.9	3.9	90.2	35.6	8.5	91.5
Tax-free mutual funds	39.4	37.8	11.8	27.5	60.8	29.6	7.5	5.0	87.5	32.6	2.3	97.7
Stock	36.1	28.4	19.2	24.8	56.0	29.8	4.6	5.3	90.1	41.8	15.2	84.8
Trusts and annuities	32.7	32.3	18.8	37.5	43.8	29.3	17.2	6.9	75.9	38.4	5.3	94.7
Face val. of whole life ins.	23.0	42.0	23.8	23.8	52.5	19.2	4.1	4.1	91.8	38.8	4.1	95.9
Cash val. of whole life ins.	44.2	60.6	28.1	17.6	54.3	14.5	5.7	4.7	89.6	24.8	5.0	95.0
Wage income	26.8	15.8	21.8	52.6	25.6	30.7	7.3	5.0	87.6	53.5	2.0	98.0
Business income	29.9	23.6	22.2	27.0	50.8	39.7	6.6	1.9	91.5	36.7	4.1	95.9
Non-tax. interest income	42.9	30.4	8.3	26.2	65.5	38.0	7.6	1.9	90.5	31.5	1.1	98.9
Taxable interest income	33.2	30.0	28.4	19.9	51.7	28.0	4.3	1.2	94.5	42.0	1.2	98.8
Dividend income	39.9	29.4	18.9	22.3	58.8	31.3	4.4	1.3	94.3	39.3	2.0	98.0
Capital gains and losses	37.1	30.3	14.9	21.3	63.8	34.2	1.9	3.8	94.3	35.5	1.8	98.2
Rent and royalties	27.9	19.3	12.2	14.6	73.2	39.2	7.2	1.2	91.6	41.5	1.1	98.9
Unemployment comp.	16.7	16.1	0.0	40.0	60.0	29.0	11.1	0.0	88.9	54.8	0.0	100.0
Transfers	16.5	8.8	0.0	66.7	33.3	35.3	0.0	0.0	100.0	55.9	5.3	94.7
Welfare income	21.1	43.3	20.7	27.6	51.7	25.4	0.0	0.0	100.0	31.3	0.0	100.0
Pension and Soc. Sec. inc.	25.5	20.1	15.5	36.2	48.3	44.1	10.2	1.6	88.2	35.8	0.0	100.0
Other income	33.0	32.4	0.0	12.5	87.5	40.5	13.3	30.0	56.7	27.0	5.0	95.0
Total income	30.7	20.3	12.0	35.7	52.3	32.6	7.0	2.8	90.2	47.1	1.1	98.9
All categories, mean	25.2	29.2	21.0	28.6	48.3	30.8	8.6	6.3	85.1	40.0	4.2	95.8

**Table 19: OLS and robust regressions of log total household income on selected variables, using data imputed with and without range constraints. 1995 Survey of Consumer Finances**

Variables	OLS, ranges	OLS, no ranges	Robust, ranges	Robust, no ranges
Intercept	9.869*	9.702*	10.343*	10.259*
	0.289	0.291	0.163	0.167
Age	-0.223*	-0.187*	-0.278*	-0.259*
	0.076	0.077	0.043	0.044
Checking acct	-0.475*	-0.449*	-0.559*	-0.694*
	0.127	0.129	0.072	0.074
\$ checking acct	0.221*	0.221*	0.221*	0.230*
	0.015	0.015	0.008	0.009
IRA	-0.577*	-0.232	-0.503*	-0.168
	0.208	0.213	0.117	0.122
\$ IRA	0.091*	0.061*	0.081*	0.049*
	0.020	0.020	0.011	0.012
Money mkt acct	-0.114	0.038	-0.440*	-0.592*
	0.277	0.298	0.156	0.171
\$ money mkt acct	-0.020	-0.009	0.055*	0.073*
	0.027	0.029	0.015	0.017
CD	-1.025*	-1.440*	-0.825*	-1.153*
	0.319	0.333	0.180	0.191
\$ CD	0.074*	0.119*	0.065*	0.096*
	0.031	0.033	0.018	0.019
Savings acct	-0.108	0.145	-0.219*	-0.130
	0.152	0.155	0.086	0.089
\$ savings acct	0.043*	0.009	0.043*	0.031*
	0.018	0.019	0.010	0.011
Mutual funds	0.061	0.106*	-0.325*	-0.324*
	0.251	0.249	0.141	0.143
\$ mutual funds	0.009	0.005	0.046*	0.050*
	0.022	0.022	0.012	0.013
Savings bonds	0.091	0.163	0.262*	0.257*
	0.176	0.160	0.099	0.091
\$ savings bonds	0.012	-0.004	-0.179	-0.023
	0.023	0.021	0.013	0.012
Other bonds	-1.381*	-0.735	-1.435*	-1.107*
	0.377	0.334	0.212	0.192
\$ other bonds	0.155*	0.102*	0.149*	0.124*
	0.031	0.027	0.017	0.016
Stock	-1.080*	-0.890*	-0.899*	-0.666*
	0.197	0.205	0.111	0.118
\$ stock	0.153*	0.136*	0.126*	0.100*
	0.019	0.019	0.010	0.011
Whole life ins	-1.393*	-1.216*	-1.788*	-1.537*
	0.222	0.219	0.125	0.126
\$ face whl life ins	0.141*	0.127*	0.176*	0.162*
	0.022	0.023	0.013	0.013
\$ cash whl life ins	-0.006	-0.002	0.008	-0.005
	0.021	0.021	0.012	0.012
R <sup>2</sup>	0.40	0.37	NA	NA
N	4299	4299	4299	4299

**Table 6: Distribution of type of initial incomplete responses and final responses, selected variables, by initial type of initial incomplete response, percent. 1995 SCF, area-probability sample, unweighted.**

	Initial incomplete response											
	All types		Don't know			Refused				Volunteered range		
			Final response			Final response					Final response	
		All	Dec. tree	Card	Missing	All	Dec. tree	Card	Missing	All	\$ range	Card
Credit card balance	9.0	20.0	15.2	51.5	33.3	24.2	10.0	10.0	80.0	55.8	4.3	95.7
Principal residence	11.4	26.1	31.9	36.2	31.9	10.6	15.8	5.3	78.9	63.3	11.4	88.6
Borrowed on mortgage	10.5	27.6	40.6	34.4	25.0	25.0	13.8	10.3	75.9	47.4	5.5	94.5
Owe on mortgage	15.6	33.5	29.3	44.8	25.9	17.9	12.9	6.5	80.6	48.6	3.6	96.4
Mortgage payment	7.3	6.3	20.0	20.0	60.0	47.5	7.9	10.5	81.6	46.3	0.0	100.0
Rent	4.9	8.9	25.0	25.0	50.0	40.0	16.7	16.7	66.7	51.1	4.3	95.7
Other real estate	17.3	38.6	37.5	31.3	46.4	14.5	5.6	5.6	88.9	40.3	13.5	86.5
Business	34.7	45.2	30.4	23.2	46.4	14.5	5.6	5.6	88.9	40.3	4.0	96.0
Car loan payment	6.2	22.4	18.2	36.4	45.5	32.7	6.3	18.8	75.0	44.9	0.0	100.0
Checking account	19.8	16.6	26.0	32.5	41.6	35.6	15.2	7.9	77.0	47.7	5.4	94.6
Money market account	24.3	15.9	30.0	10.0	60.0	39.7	12.0	8.0	80.0	44.4	0.0	100.0
Savings account	19.4	20.9	19.5	41.5	39.0	33.7	15.2	6.1	78.8	45.4	2.2	97.8
Certificates of deposit	32.0	18.0	40.9	4.5	54.5	47.5	12.1	1.7	86.2	34.4	0.0	100.0
IRA/Keogh account	28.1	27.8	27.7	29.8	42.6	30.2	9.8	2.0	88.2	42.0	4.0	96.0
Savings bonds	23.4	38.3	24.6	33.3	42.1	16.8	8.0	0.0	92.0	45.0	3.0	97.0
Municipal bonds	27.6	25.0	0.0	50.0	50.0	62.5	20.0	0.0	80.0	12.5	0.0	100.0
Tax-free mutual funds	40.3	33.3	22.2	22.2	55.6	25.9	14.3	0.0	85.7	40.7	0.0	100.0
Stock	35.4	33.3	22.4	20.4	57.1	26.5	7.7	7.7	84.6	40.1	22.0	78.0
Trusts and annuities	31.1	27.3	22.2	44.4	33.3	18.2	33.3	16.7	50.0	54.5	5.6	94.4
Face val. of whole life ins.	23.0	47.7	30.9	19.1	50.0	16.2	6.3	3.1	90.6	36.0	5.6	94.4
Cash val. of whole life ins.	48.9	67.9	27.6	18.0	54.4	10.1	7.1	7.1	85.7	22.1	5.4	94.6
Wage income	25.6	15.9	23.5	56.5	20.0	26.3	10.6	3.5	85.8	57.8	2.3	97.3
Business income	25.4	23.7	16.7	27.8	55.6	39.5	6.7	0.0	93.3	36.8	3.6	96.4
Non-tax. interest income	46.0	32.6	20.0	13.3	66.7	41.3	5.3	0.0	94.7	26.1	0.0	100.0
Taxable interest income	30.9	30.9	35.1	20.8	44.2	25.3	3.2	0.0	96.8	43.8	1.8	98.2
Dividend income	37.9	31.3	14.0	28.0	58.0	26.3	2.4	0.0	97.6	42.5	1.5	98.5
Capital gains and losses	29.4	27.6	12.5	25.0	62.5	31.0	0.0	11.1	88.9	41.4	0.0	100.0
Rent and royalties	22.3	21.7	10.0	20.0	70.0	34.8	6.3	0.0	93.8	43.5	0.0	100.0
Unemployment comp.	18.2	17.9	0.0	40.0	60.0	25.0	14.3	0.0	85.7	57.1	0.0	100.0
Transfers	17.0	10.3	0.0	66.7	33.3	37.9	0.0	0.0	100.0	51.7	6.7	93.3
Welfare income	20.1	42.6	19.2	26.9	53.8	36.2	0.0	0.0	100.0	31.1	0.0	100.0
Pension and Soc. Sec. inc.	26.1	18.0	18.8	40.6	40.6	48.3	14.0	2.3	83.7	33.7	0.0	100.0
Other income	34.0	35.3	0.0	16.7	83.3	32.4	18.2	36.4	45.5	32.4	9.1	90.9
Total income	27.2	19.2	13.1	38.6	48.3	30.6	8.7	1.7	89.6	50.1	1.1	98.9
All categories, mean	24.4	30.2	22.6	29.0	49.1	29.7	10.3	5.8	83.9	40.2	3.9	96.1

**Table 7: Distribution of type of final response where initial response missing or partial, selected variables, by initial type of incomplete response, percent. 1995 SCF, full sample, weighted.**

	Incomplete response												
	All types	Don't know				Refused				Volunteered range			
		All	Dec. tree	Card	Missing	All	Dec. tree	Card	Missing	All	\$ range	Card	
Credit card balance	9.2	17.3	19.9	50.6	29.5	27.6	10.4	8.8	80.7	55.1	3.7	96.3	
Principal residence	11.3	28.8	37.3	33.7	29.0	8.1	9.8	6.3	83.9	63.1	13.6	86.4	
Borrowed on mortgage	10.5	28.1	37.4	35.4	27.2	23.5	12.8	11.4	75.8	48.4	7.5	92.5	
Owe on mortgage	15.7	36.2	27.7	48.3	24.0	18.5	8.8	11.1	80.2	45.2	2.2	97.8	
Mortgage payment	6.5	7.2	19.8	35.1	45.0	45.3	6.9	11.5	81.6	47.5	0.0	100.0	
Rent	4.9	6.0	24.0	28.5	47.5	48.1	11.3	13.2	75.5	45.9	5.0	95.0	
Other real estate	14.2	44.3	39.5	26.7	33.8	11.4	2.9	16.8	80.4	44.3	14.7	85.3	
Business	31.3	43.0	33.3	22.3	44.4	14.6	7.4	0.2	92.4	42.4	7.6	92.4	
Car loan payment	7.5	32.7	21.9	33.6	44.5	29.0	18.7	18.6	62.7	38.3	0.0	100.0	
Checking account	19.9	15.5	27.0	35.7	37.3	36.4	16.2	8.6	75.3	48.2	6.1	93.9	
Money market account	25.2	18.3	6.8	4.0	89.2	29.1	14.4	10.6	76.0	52.6	0.2	99.8	
Savings account	19.4	21.7	21.7	36.2	42.2	33.9	16.5	5.9	77.6	44.4	2.9	97.1	
Certificates of deposit	32.5	18.1	42.3	9.9	47.8	48.5	12.2	8.0	79.9	33.4	3.9	96.1	
IRA/Keogh account	25.8	27.1	28.6	32.5	38.9	32.2	14.1	3.8	82.1	40.7	2.0	98.0	
Savings bonds	22.8	36.4	20.5	29.6	49.9	17.3	6.2	0.0	93.8	46.3	2.2	97.8	
Municipal bonds	34.4	35.9	4.8	6.4	88.8	25.7	16.0	0.0	84.0	38.4	0.4	99.6	
Tax-free mutual funds	46.0	33.7	26.4	20.4	53.1	37.6	19.7	32.1	48.2	28.7	0.4	99.6	
Stock	34.1	32.3	22.1	20.7	57.1	27.0	9.9	15.0	75.1	40.7	22.3	77.7	
Trusts and annuities	30.6	39.5	14.9	32.8	52.4	11.6	23.3	5.6	71.1	48.9	0.9	99.1	
Face val. of whole life ins.	22.0	48.7	34.0	20.7	45.3	14.6	7.5	0.4	92.0	36.7	2.5	97.5	
Cash val. of whole life ins.	47.3	66.4	30.8	18.8	50.3	10.7	5.4	2.4	92.2	23.0	4.4	95.6	
Wage income	24.8	16.7	28.1	55.5	16.4	27.2	8.7	7.7	83.6	56.0	2.0	98.0	
Business income	20.2	21.7	9.7	34.6	55.7	38.6	4.4	0.4	95.2	39.8	4.8	95.2	
Non-tax. interest income	46.2	29.3	7.0	33.0	60.0	38.9	5.9	0.4	93.8	31.9	0.0	100.0	
Taxable interest income	29.7	31.4	29.4	25.9	44.7	22.6	2.4	0.2	97.4	46.0	0.8	99.2	
Dividend income	35.4	28.3	20.6	25.8	53.6	27.6	1.8	0.2	98.0	44.1	2.2	97.8	
Capital gains and losses	26.0	27.0	12.4	33.9	53.7	26.0	0.2	8.5	91.3	47.0	0.0	100.0	
Rent and royalties	17.0	16.5	5.3	16.6	78.1	34.0	14.2	0.0	85.8	49.4	0.0	100.0	
Unemployment comp.	15.6	15.8	0.0	46.7	53.3	32.9	8.0	0.0	92.0	51.3	0.0	100.0	
Transfers	18.7	7.9	0.0	65.6	43.4	32.5	0.0	0.0	100.0	59.6	5.1	94.9	
Welfare income	20.6	48.1	19.6	23.3	57.1	22.8	0.0	0.0	100.0	29.1	0.0	100.0	
Pension and Soc. Sec. inc.	25.7	17.5	14.2	39.4	46.4	48.5	14.1	1.9	84.0	34.0	0.0	100.0	
Other income	25.8	44.2	0.0	12.5	87.5	30.1	27.1	24.7	48.3	25.7	9.1	90.9	
Total income	27.0	19.5	14.0	38.1	47.9	31.5	8.4	2.9	88.7	49.0	0.8	99.2	

**Table 15: Median, 75th percentile, and mean of reported values of selected variables, by original response status (full report, don't know, refuse, volunteered range). 1995 Survey of Consumer Finances, full sample, unweighted.**

	Median				75th percentile				Mean			
	Full	DK	REF	Vol rng	Full	DK	REF	Vol rng	Full	DK	REF	Vol rng
Credit card balance	1800	625	875	1750	4000	1750	3750	3750	3492	2607	4661	3797
Principal residence (thou)	150	175	813	175	325	375	3000	625	355	325	1186	779
Borrowed on mortgage (thou)	80	63	34	63	155	88	88	175	150	79	104	197
Owe on mortgage (thou)	76	38	38	63	147	75	175	175	137	82	171	183
Mortgage payment 752	1025	500	875	1400	6000	750	1750	1580	2429	2135	2501	
Rent	405	.	300	300	550	.	500	625	476	.	484	1182
Other real estate (thou)	175	100	750	625	500	750	1000	3000	1768	1621	234986	46684
Business (thou)	150	400	300	625	1000	3000	3000	7500	2700	5317	6744	10857
Car loan payment	285	300	250	300	360	375	300	300	308	315	215	323
Checking account	1500	1500	438	1750	5000	6000	2000	6250	14682	19067	4000	151157
Money market account (thou)	15	31	5	38	50	100	75	175	106	419	27	679
Savings account (thou)	2	3	1	2	7	13	6	18	19	18	9	68
Certificates of deposit (thou)	20	10	10	18	75	75	38	63	180	459	28	37
IRA/Keogh account (thou)	28	18	18	38	80	50	25	175	129	99	99	555
Savings bonds	1000	1750	.	2250	5000	6000	.	7500	31570	7308	.	12443
Municipal bonds (thou)	235	175	250	625	1000	625	3000	3000	1432	1563	4154	11751
Tax-free mutual funds (thou)	50	138	5	88	290	400	6	238	479	799	129	1585
Stock (thou)	50	88	55	175	400	625	625	625	905	623	4522	3173
Trusts and annuities (thou)	100	94	625	88	400	625	3000	3000	920	4905	1707	2037
Face val. of whl life ins. (thou)	75	50	338	88	250	150	3000	625	546	676	1129	2299
Cash val. of whl life ins. (thou)	15	6	18	18	50	38	625	88	122	26	178	519
Wage income (thou)	40	38	18	38	70	75	69	88	84	196	173	438
Business income (thou)	20	75	18	175	100	500	38	625	219	1056	51	1564
Non-tax. interest income (thou)	11	9	18	28	60	63	25	175	91	671	76	828
Taxable interest income (thou)	1	1	2	2	10	4	10	18	42	20	77	313
Dividend income (thou)	2	2	2	4	14	18	50	38	45	21	82	397
Capital gains and losses (thou)	6	10	11	18	40	38	50	175	185	551	116	638
Rent and royalties (thou)	9	50	1	38	50	250	163	175	135	386	114	750
Unemployment comp.	1920	.	.	1750	4000	.	.	3750	3133	.	.	3124
Transfers	2750	9188	.	1750	5200	17500	.	3750	5853	9188	.	2608
Welfare income	2000	1750	.	3750	5300	6000	.	6250	3352	3827	.	5461
Pens and Soc. Sec. inc. (thou)	12	13	1	18	21	18	18	38	19	17	7	28
Other income (thou)	4	6	18	4	20	88	38	38	34	31	120	62
Total income (thou)	41	38	18	38	87	175	88	175	171	749	142	767
All categories, relative, median	1.0	0.9	0.6	1.2	1.0	1.1	1.0	1.9	1.0	1.1	0.8	4.5
All categories, relative, mean	1.0	1.6	1.6	2.8	1.0	1.3	2.1	2.3	1.0	1.8	1.7	5.2
All categories, relative, sigma	0.0	3.0	2.4	4.3	0.0	0.9	3.5	1.6	0.0	1.8	2.1	3.3

**Table 16: Median, 75th percentile, and mean of reported values of selected variables, by original response status (full report, don't know, refuse, volunteered range). 1995 Survey of Consumer Finances, area-probability sample, unweighted.**

	Median				75th percentile				Mean			
	Full	DK	REF	Vol rng	Full	DK	REF	Vol rng	Full	DK	REF	Vol rng
Credit card balance	1500	1188	813	1750	3900	1750	3750	3750	2978	2939	4994	3859
Principal residence (thou)	95	88	69	88	150	175	544	175	130	140	297	99
Borrowed on mortgage (thou)	59	38	5	38	90	63	63	88	75	52	33	64
Owe on mortgage (thou)	54	18	15	38	90	38	38	63	67	47	42	95
Mortgage payment 600	.	300	875	860	.	625	875	820	.	389	1164	.
Rent	400	238	300	300	527	300	300	625	429	238	250	1957
Other real estate (thou)	55	55	.	63	125	100	.	98	114	374	.	266
Business (thou)	20	50	.	81	82	175	.	625	112	253	.	80
Car loan payment	275	300	.	300	342	375	.	300	288	283	.	330
Checking account	1000	500	300	875	2000	1750	1500	3750	2298	1965	1107	3264
Money market account (thou)	8	15	5	9	20	31	5	38	18	18	17	50
Savings account (thou)	1	2	1	2	5	6	4	6	6	5	4	13
Certificates of deposit (thou)	10	6	5	18	40	18	24	38	50	23	22	45
IRA/Keogh account (thou)	14	9	25	18	35	38	163	38	46	24	143	40
Savings bonds	850	1750	.	1750	3000	6000	.	6250	5538	4335	.	9116
Municipal bonds (thou)	15	.	.	.	67	.	.	.	165	.	.	.
Tax-free mutual funds (thou)	11	3	.	9	34	11	.	38	28	6	.	18
Stock (thou)	8	10	36	9	30	10	63	38	95	66	130	201
Trusts and annuities (thou)	25	46	.	50	75	175	.	175	213	150	.	605
Face val. of whl life ins. (thou)	45	50	.	38	100	88	.	88	98	142	.	129
Cash val. of whl life ins. (thou)	8	4	10	9	20	18	25	18	31	19	112	70
Wage income (thou)	32	18	18	38	51	38	38	63	40	37	28	44
Business income (thou)	5	28	.	18	18	53	.	63	15	34	.	164
Non-tax. interest income (thou)	3	1	.	1	7	1	.	2	11	1	.	4
Taxable interest income (thou)	0	0	.	0	1	1	.	2	2	1	.	2
Dividend income (thou)	0	1	.	0	2	2	.	2	3	2	.	5
Capital gains and losses (thou)	2	1	.	5	10	1	.	28	13	3	.	22
Rent and royalties (thou)	4	.	.	4	8	.	.	63	9	.	.	31
Unemployment comp.	1800	.	.	1750	4000	.	.	3750	3114	.	.	3084
Transfers	2400	.	.	875	4800	.	.	3750	3641	.	.	2070
Welfare income	1900	1625	.	3750	5260	6250	.	6250	3333	3819	.	5246
Pens and Soc. Sec. inc. (thou)	11	9	1	18	18	18	18	18	14	13	8	17
Other income (thou)	4	.	6	2	10	.	18	4	9	.	12	7
Total income (thou)	30	18	9	38	50	38	28	63	40	39	19	53
All categories, relative, median	1.0	0.6	0.5	1.2	1.0	0.9	0.7	1.2	1.0	0.9	0.6	1.3
All categories, relative, mean	1.0	1.2	1.6	1.9	1.0	0.9	1.0	1.4	1.0	1.0	0.9	1.8
All categories, relative, sigma	0.0	1.7	2.9	2.4	0.0	0.5	0.8	1.1	0.0	0.6	0.7	1.7

**Tables 15/16 attachment: Number of observations with different initial response statuses (full report, don't know, refuse, volunteered range) for selected variables, where the final response was either a full report or a range. 1995 Survey of Consumer Finances, full sample and area-probability sample, unweighted.**

	Full sample				Area-probability sample			
	Full	DK	REF	Vol rng	Full	DK	REF	Vol rng
Credit card balance	1150	25	9	116	904	22	8	92
Principal residence	2585	56	10	203	1397	32	4	113
Borrowed on mortgage	1651	44	10	84	991	24	7	54
Owe on mortgage	1586	59	9	120	935	43	6	83
Mortgage payment	1681	6	10	68	1010	2	7	37
Rent	973	2	8	25	869	2	6	23
Other real estate	1171	43	7	114	397	22	2	37
Business	714	100	13	179	223	8	2	28
Car loan payment	947	15	5	28	745	6	3	22
Checking account	3054	76	62	349	1878	45	38	220
Money market account	531	18	10	96	196	4	5	28
Savings account	1159	36	18	132	815	25	14	89
Certificates of deposit	510	19	13	76	259	10	8	42
IRA/Keogh account	1102	61	16	162	433	27	6	70
Savings bonds	784	58	3	108	488	33	2	67
Municipal bonds	209	15	5	46	21	1	1	1
Tax-free mutual funds	208	20	5	44	40	4	1	11
Stock	779	55	13	183	268	21	6	59
Trusts and annuities	204	18	7	38	73	6	3	18
Face val. of whl life ins.	1274	76	6	147	658	47	3	70
Cash val. of whl life ins.	922	202	11	180	435	129	6	92
Wage income	2301	99	32	450	1555	68	20	309
Business income	627	31	9	97	223	8	2	28
Non-tax. interest income	368	29	10	86	54	5	1	12
Taxable interest income	1180	85	9	245	558	43	2	108
Dividend income	759	61	9	197	262	21	1	68
Capital gains and losses	526	34	6	108	139	6	2	24
Rent and royalties	547	11	7	87	160	3	1	20
Unemployment comp.	155	2	1	17	126	2	1	16
Transfers	172	2	0	19	142	2	0	15
Welfare income	251	14	0	21	243	12	0	19
Pens and Soc. Sec. inc.	842	30	15	103	504	19	14	60
Other income	150	3	13	19	66	2	6	10
Total income	2935	127	42	617	1993	75	24	378

**Table 17: Median, 75th percentile, and mean of imputations for selected variables, where the original response was a type of range; using range information in imputation, and ignoring the range information. 1995 Survey of Consumer Finances, full sample, unweighted.**

	N	25th percentile		Median		75th percentile		Mean	
		W/ranges	W/o ranges	W/ ranges	W/o ranges	W/ ranges	W/o ranges	W/ ranges	W/o ranges
Checking account	487	506	435	1349	1600	6176	5300	74459	10480
Money market account	124	5626	5684	25001	13953	114749	69641	464618	90761
Savings account	186	425	480	2132	1350	10223	6200	45546	9293
Certificates of deposit	103	6750	11000	15776	24000	66250	71000	147826	129186
IRA/Keogh account	240	8875	12000	32500	34000	115000	137500	394017	169705
Savings bonds	169	420	150	2500	1600	7200	12000	12090	108766
Municipal bonds	66	49836	62025	266884	374474	2215268	1320086	8012599	1832122
Tax-free mutual funds	69	18699	11279	87500	74395	252703	451767	993137	558427
Stock	251	10000	10000	100000	75000	800000	475000	3853048	982651
Trusts and annuities	63	26000	12000	92000	75000	1800000	500000	2969279	844637
Face val. of whl life ins.	462	2800	3000	14000	12000	63000	50000	293533	371381
Cash val. of whl life ins.	393	2200	2200	9500	8500	45000	36000	214146	263878
Total income	785	18299	21048	43146	50783	163516	150030	879127	293804
<i>Memo items:</i>									
Mean ratio of value w/o range to w/ range	3398	1.00	1.03	1.00	0.98	1.00	0.89	1.00	0.97
Median ratio of value w/o range to w/ range	3398	1.00	1.07	1.00	0.89	1.00	0.86	1.00	0.33
Std dev ratio of value w/o range to w/ range	3398	0.0	0.24	0.0	0.23	0.0	0.28	0.0	1.89
Excluding savings bonds									
Mean ratio of value w/o range to w/ range	3229	1.00	1.07	1.00	1.00	1.00	0.85	1.00	0.55
Median ratio of value w/o range to w/ range	3329	1.00	1.07	1.00	1.05	1.00	0.86	1.00	0.33
Std dev ratio of value w/o range to w/ range	3329	0.0	0.19	0.0	0.22	0.0	0.22	0.00	0.44

**Table 18: Median, 75th percentile, and mean of imputations for selected variables, where the original response was a type of range; using range information in imputation, and ignoring the range information. 1995 Survey of Consumer Finances, area-probability sample, unweighted.**

	N	25th percentile		Median		75th percentile		Mean	
		W/ranges	W/o ranges	W/ ranges	W/o ranges	W/ ranges	W/o ranges	W/ ranges	W/o ranges
Checking account 2018		302	275	250	816	735	2331	2450	2452
Money market account	37	2000	2066	8000	8686	25000	18000	34396	51021
Savings account	127	210	400	1375	1189	5050	3922	7052	5596
Certificates of deposit	60	4375	7900	10500	16500	33000	52500	34411	43432
IRA/Keogh account	103	6000	5500	17500	20693	38000	48000	46459	86595
Savings bonds	102	500	125	1750	1500	6000	12000	10868	119678
Municipal bonds	3	NA	NA	NA	NA	NA	NA	NA	NA
Tax-free mutual funds	16	2206	4856	8425	12224	21799	493927	50185	223046
Stock	86	1770	4000	8800	11400	34000	40000	155953	87523
Trusts and annuities	27	24000	<del>50000</del>	51000		625000	200000	501754	374356
Face val. of whl life ins.	120	10000	14000	37500	40000	99500	143500	117244	327454
Cash val. of whl life ins.	227	1440	1800	6500	5500	20000	17400	31526	43895
Total income	472	15083	14287	32719	29199	52388	55564	50801	45133
<i>Memo items:</i>									
Mean ratio of value w/o range to w/ range	1679	1.00	1.14	1.00	0.97	1.00	1.32	1.00	1.79
Median ratio of value w/o range to w/ range	1679	1.00	0.95	1.00	0.89	1.00	1.06	1.00	0.89
Std dev ratio of value w/o range to w/ range	1679	0.0	0.48	0.0	0.17	0.0	2.12	0.0	2.43
Excluding savings bonds									
Mean ratio of value w/o range to w/ range	1577	1.00	1.20	1.00	0.98	1.00	1.28	1.00	1.12
Median ratio of value w/o range to w/ range	1577	1.00	0.95	1.00	0.89	1.00	1.06	1.00	0.89
Std dev ratio of value w/o range to w/ range	1577	0.0	0.43	0.0	0.18	0.0	2.18	0.0	0.66

**Table 9: Number of range responses used and percent of dollar questions answered with a range response.**

	Full sample unweighted	AP sample, unweighted	Full sample, weighted
<i>Number of ranges used</i>			
Mean	4.8	3.6	3.6
25th percentile	0	0	0
Median	2	2	2
75th percentile	5	4	4
90th percentile	13	9	9
100th percentile	78	65	78
<i>Percent of \$ responses given as ranges</i>			
Mean	25.5	10.0	13.2
25th percentile	0.0	0.0	0.0
Median	16.7	5.1	6.5
75th percentile	43.2	13.3	17.6
90th percentile	69.2	29.6	38.1
100th percentile	100.0	84.8	100.0
<i>Memo item:</i>			
Percent not using ranges	26.8	29.8	29.5

**Table 10: Percent distribution of respondents who used range responses in different parts of the questionnaire. 1995 SCF**

Sections of questionnaire	Full sample unweighted	Area-probability sample, unweighted	Full sample, weighted
None	26.8	29.8	29.5
1 only	4.0	4.4	4.4
2 only	3.9	2.5	2.8
3 only	5.1	5.3	5.4
4 only	16.4	19.5	19.0
1, 2 only	1.1	0.9	0.8
1, 3 only	1.5	1.4	1.3
1, 4 only	3.8	4.5	4.6
2, 3 only	1.8	1.0	1.1
2, 4 only	4.8	4.4	4.0
3, 4 only	8.0	8.3	8.5
1, 2, 3 only	1.3	0.7	0.9
1, 2, 4 only	2.2	1.8	1.8
1, 3, 4 only	4.9	5.5	5.7
2, 3, 4 only	5.6	3.6	3.9
All sections	8.8	6.3	6.3
<i>Memo items:</i>			
Percent using ranges at all in sections			
1	27.6	25.5	25.8
2	29.5	21.2	21.6
3	37.0	32.1	33.1
4	54.5	53.9	53.8
Section 1 includes questions about credit cards, housing, and lines of credit.			
Section 2 includes questions about investment real estate, businesses, vehicles, and several types of consumer loans.			
Section 3 includes questions about financial assets.			
Section 4 includes questions about employment, pensions, income, and inheritances.			

**Table 12: Percent distribution of second and third range responses for respondents who gave at least one range response. 1995 SCF, full sample, unweighted**

	First range response			
	Tree	Card requested	Card volunteered	\$ range
<i>Second range type</i>				
No further ranges	37.3	25.3	14.4	19.0
Tree	42.0	12.7	7.8	8.9
Card requested	8.9	38.9	6.6	9.3
Card volunteered	8.9	20.3	68.6	15.8
\$ range volunteered	3.0	2.7	2.5	47.0
<i>Third range type</i>				
No further ranges	56.0	43.7	27.8	36.4
Tree	29.3	11.1	5.6	11.7
Card requested	5.3	26.7	5.4	6.1
Card volunteered	7.1	16.0	58.1	18.2
\$ range volunteered	2.4	2.5	3.1	27.5
<i>Memo item</i>				
Percent giving resp.	26.9	27.8	37.4	7.8

**Table 14: Percent distribution of second and third range responses for respondents who gave at least one range response. 1995 SCF, full sample, weighted**

	First range response			
	Tree	Card requested	Card volunteered	\$ range
<i>Second range type</i>				
No further ranges	39.3	29.6	15.9	22.2
Tree	40.6	14.3	8.8	12.7
Card requested	9.0	36.0	6.8	9.7
Card volunteered	9.0	17.2	67.4	14.8
\$ range volunteered	2.9	2.9	1.0	40.5
<i>Third range type</i>				
No further ranges	58.4	50.0	31.6	45.3
Tree	28.1	9.4	4.9	10.2
Card requested	6.4	23.6	5.0	7.7
Card volunteered	5.7	15.1	56.3	17.0
\$ range volunteered	1.4	1.8	2.3	20.0
<i>Memo item</i>				
Percent giving resp.	28.4	27.1	38.2	6.4

**Table 13: Percent distribution of second and third range responses for respondents who gave at least one range response. 1995 SCF, area-probability sample, unweighted**

	First range response			
	Tree	Card requested	Card volunteered	\$ range
<i>Second range type</i>				
No further ranges	37.1	25.8	15.0	19.6
Tree	42.3	12.4	7.8	9.1
Card requested	9.0	39.1	6.6	9.6
Card volunteered	8.8	20.0	68.4	15.2
\$ range volunteered	2.8	2.8	2.2	46.5
<i>Third range type</i>				
No further ranges	55.8	44.7	28.7	37.8
Tree	29.2	11.1	5.5	12.2
Card requested	5.6	26.2	5.3	6.1
Card volunteered	7.0	15.7	57.9	17.4
\$ range volunteered	2.3	2.4	2.6	26.5
<i>Memo item</i>				
Percent giving resp.	26.6	28.0	37.6	7.8

**Table 8: Models of response as a function of the number of rank of cases in the production of interviewers and other variables. 1995 SCF.**

	Used range at all Probit		1st rng was vol		# miss/#Qs OLS		# ranges/# Qs		# vol rng/#rngs	
Constant	-1.00*	-1.16*	0.18	0.00	-0.17*	0.02	0.47*	0.41*	0.44*	0.34*
	0.26	0.28	0.29	0.30	0.03	0.03	0.05	0.06	0.10	0.10
Log(# \$ Qs asked)	0.40*	0.50*	-0.01	0.09	0.08*	0.07*	0.00	0.02	0.03*	0.06*
	0.04	0.05	0.05	0.06	0.01	0.01	0.01	0.01	0.02	0.02
Log(age)	0.10	0.10	-0.16*	-0.12	0.01	-0.01*	-0.05*	0.05*	-0.05*	-0.04
	0.06	0.06	0.07	0.07	0.01	0.01	0.02	0.01	0.03	0.02
Log(income)		-0.02		-0.03		-0.01*		0.00		0.00
		0.01		0.01		0.00		0.00		0.00
# of case for iwer: 2 to 5	-0.12	-0.16	0.03	0.03	-0.00	0.00	-0.02	-0.03	0.00	0.00
	0.10	0.12	0.11	0.12	0.01	0.01	0.02	0.02	0.04	0.01
# of case for iwer: 6 to 10	-0.13	-0.15	0.06	0.08	-0.01	0.00	-0.04	-0.05*	0.02	0.02
	0.11	0.12	0.11	0.12	0.01	0.01	0.02	0.02	0.04	0.04
# of case for iwer: >10	-0.26	-0.28	0.22*	0.22*	-0.02	-0.01	-0.04	-0.05*	0.07*	0.07*
	0.10	0.11	0.10	0.11	0.01	0.01	0.02	0.02	0.03	0.04
Number of obs	4290	3747	2035	2744	4290	3747	4290	3747	3143	2743

**Table 8: Models of response as a function of the number of rank of cases in the production of interviewers and other variables. 1995 SCF.**

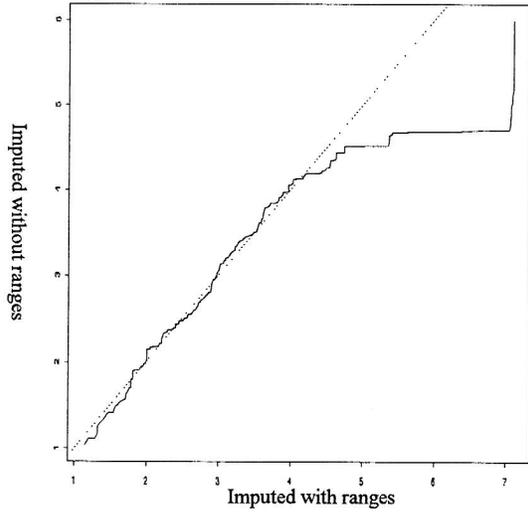
	Used range at all Probit		1st rng was vol Probit		# miss/#Qs OLS		# ranges/# Qs OLS		# vol rng/#rngs OLS	
Constant	-1.40*	-1.61*	0.27	0.12	-0.24*	-0.04	0.49*	0.43*	0.44*	0.35*
	0.28	0.30	0.31	0.34	0.04	0.03	0.06	0.06	0.10	0.11
Log(# \$ Qs asked)	0.41*	0.53*	0.01	0.12	0.09*	0.07*	0.00	0.02	0.04*	0.06*
	0.04	0.06	0.05	0.06	0.01	0.01	0.01	0.01	0.02	0.02
Log(age)	0.08	0.09	-0.18*	-0.15	0.01	-0.01*	-0.05*	-0.05*	-0.05*	-0.04
	0.06	0.07	0.07	0.07	0.01	0.01	0.01	0.01	0.02	0.02
Log(income)		-0.02		-0.03*		-0.01*		0.00		0.00
		0.01		0.01		0.00		0.00		0.01
# of case for iwer: 2 to 5	-0.10	-0.14	0.05	0.05	-0.00	0.00	-0.03	-0.03	0.01	0.01
	0.11	0.12	0.12	0.12	0.01	0.01	0.02	0.02	0.04	0.04
# of case for iwer: 6 to 10	-0.10	-0.12	0.09	0.12	-0.01	0.00	-0.04	-0.05*	0.02	0.03
	0.11	0.12	0.11	0.12	0.01	0.01	0.02	0.02	0.04	0.04
# of case for iwer: >10	-0.22*	-0.24*	0.28*	0.29*	-0.01	-0.01	-0.04*	-0.05*	0.08*	0.09*
	0.10	0.11	0.10	0.11	0.01	0.01	0.02	0.02	0.03	0.04
Iwer believes Rs reluctant to answer financial Qs	0.05*	0.06*	-0.04*	-0.05*	0.00	0.00	0.00	0.00	-0.01	-0.02*
	0.02	0.02	0.02	0.02	0.01	0.00	0.00	0.00	0.01	0.01
Iwer not comfortable asking financial Qs	0.06*	0.06*	0.02	0.03	0.01*	0.01*	-0.00	-0.00	0.01*	0.02*
	0.02	0.02	0.02	0.02	0.00	0.00	0.00	0.00	0.01	0.01
Number of obs	4149	3628	3028	2649	4149	3628	4149	3628	3028	2743

**Table 11: Probit models of likelihood of giving a range response in various sections conditioned on having given range responses earlier in the interview. 1995 SCF, full sample.**

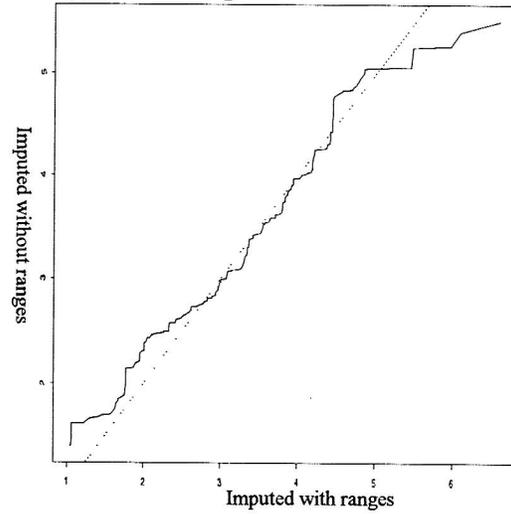
	Ranges in sect 2		Ranges in sect 3		Ranges in sect 4	
Constant	-3.02*	-3.29*	-0.62	-0.59*	1.19*	0.56*
	0.29	0.32	0.32	0.35	0.25	0.28
Log(# \$ Qs asked overall)	-0.17*	-0.17*	-0.46*	-0.52	-0.40*	-0.49*
	0.06	0.08	0.07	0.08	0.06	0.07
Log(# \$ Qs asked in section)	0.50*	0.54*	0.57*	0.66*	0.47*	0.88*
	0.03	0.03	0.04	0.08	0.08	0.09
Log(age)	0.52*	0.55*	0.14*	0.17*	-0.36*	-0.35
	0.07	0.07	0.06	0.07	0.06	0.06
Log(income)		0.01		0.01		0.01
		0.01		0.01		0.01
Ranges given in section 1	0.74*	0.78*	0.65*	0.71*	0.37*	0.51*
	0.05	0.05	0.05	0.05	0.05	0.28
Ranges given in section 2			0.64*	0.70*	0.53*	0.56*
			0.05	0.05	0.05	0.06
Ranges given in section 3					0.69*	0.67*
					0.05	0.05
Number of observations	3990	3747	3990	3747	3990	3747

**Figures 6-16: Q-Q Plots of Imputations Made Using and Not Using Range Data**

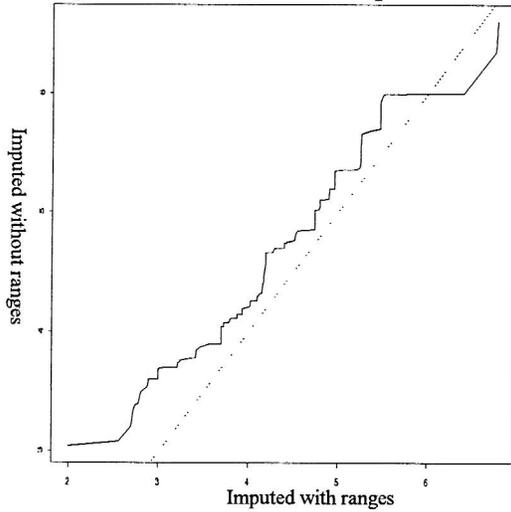
**Fig. 6: Checking account**



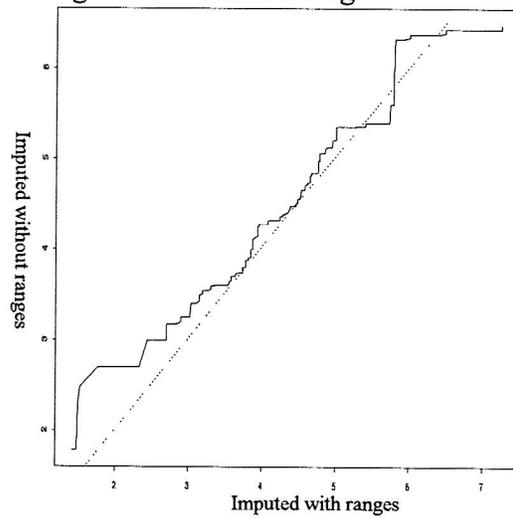
**Fig. 7: Savings account**



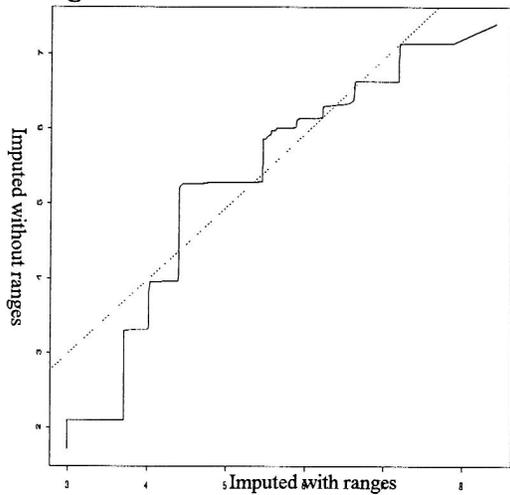
**Fig. 8: Certificates of deposit**



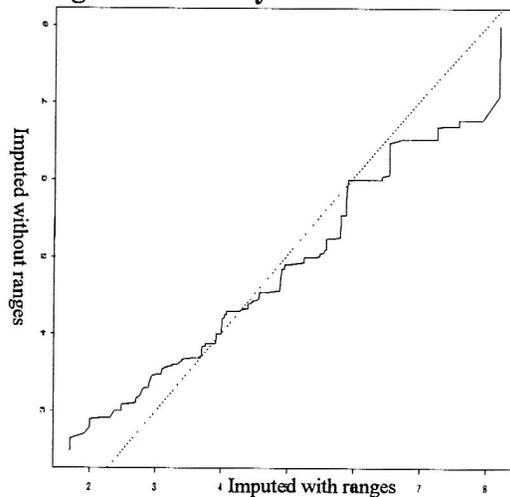
**Fig. 9: IRAs and Keoghs**



**Fig. 10: Stock mutual funds**

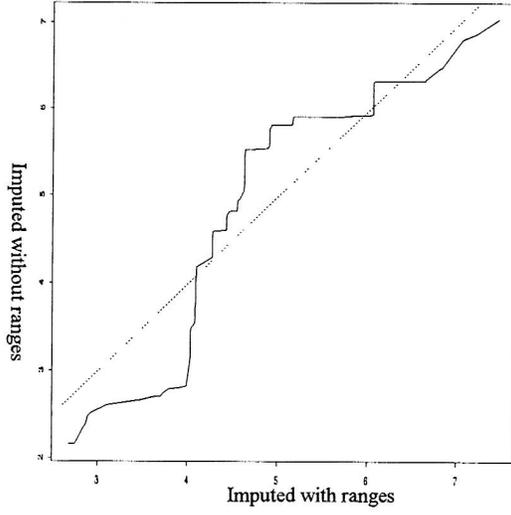


**Fig. 11: Publicly-traded stock**

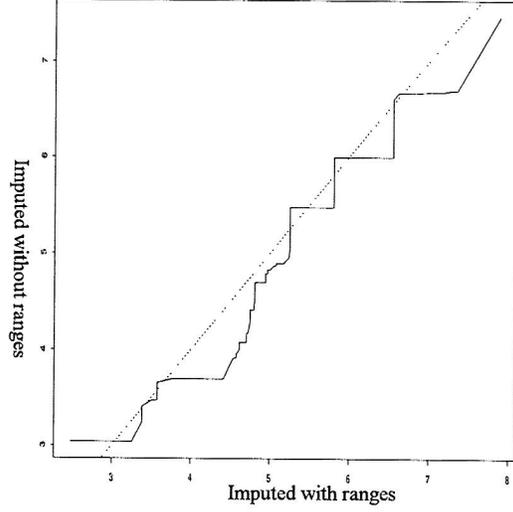


**Figures 6-16: Q-Q Plots of Imputations Made Using and Not Using Range Data**

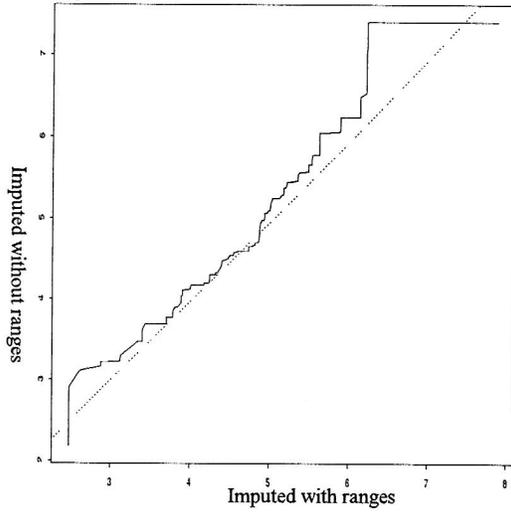
**Fig. 12: Tax-exempt bonds**



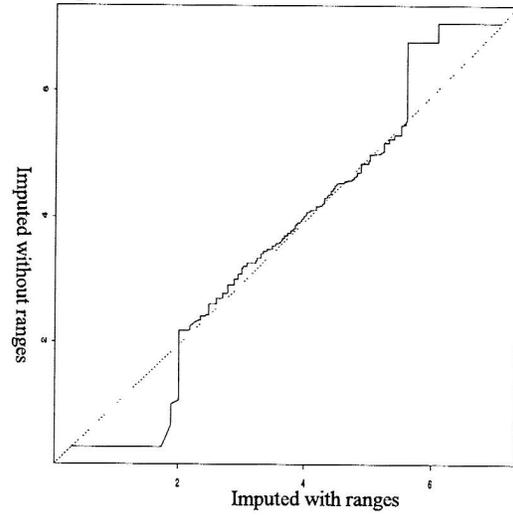
**Fig. 13: Trusts and annuities**



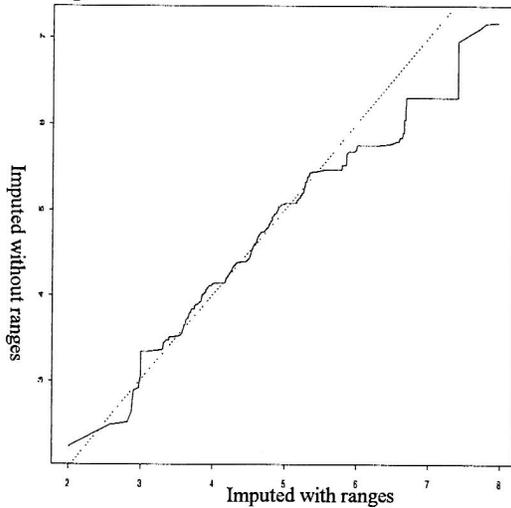
**Fig. 14: Face value whole life ins.**



**Fig. 15: Cash value whole life ins.**

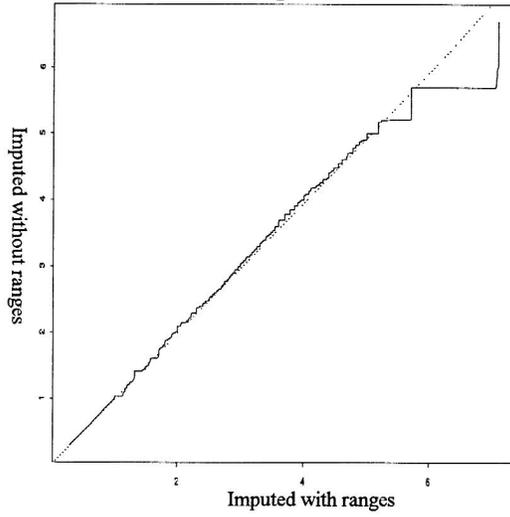


**Fig. 16: Total income**

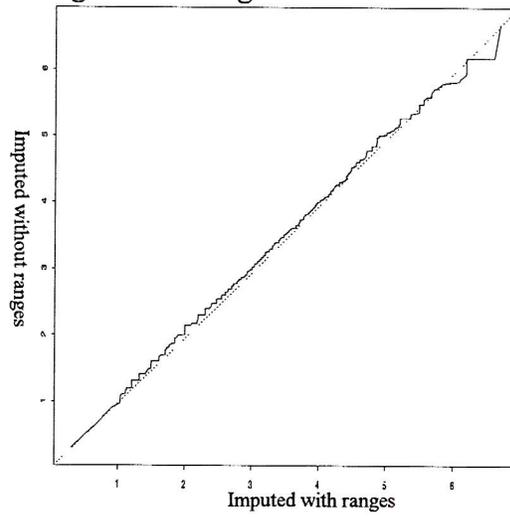


**Figures 17-28: Q-Q Plots of Full Distributions Imputed Using and Not Using Range Data**

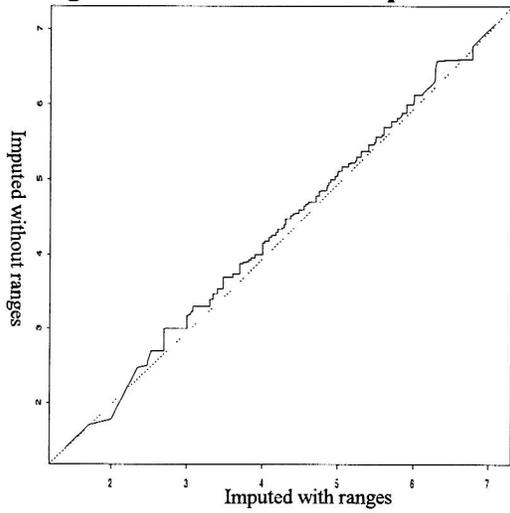
**Fig. 17: Checking account**



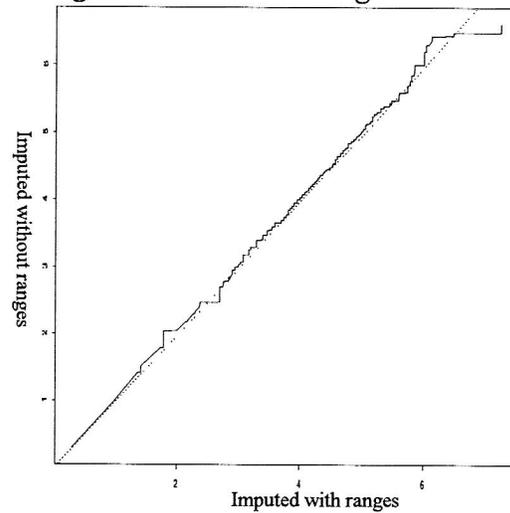
**Fig. 18: Savings account**



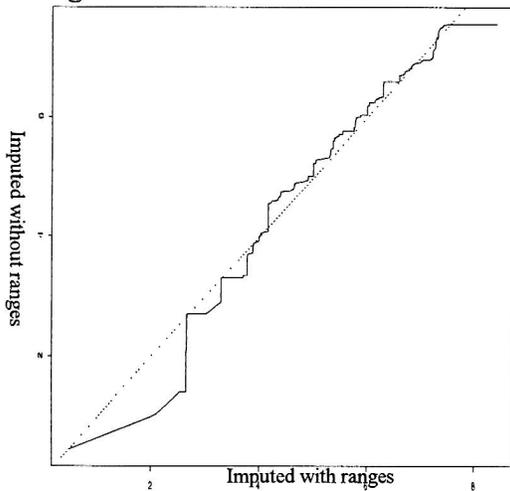
**Fig. 19: Certificates of deposit**



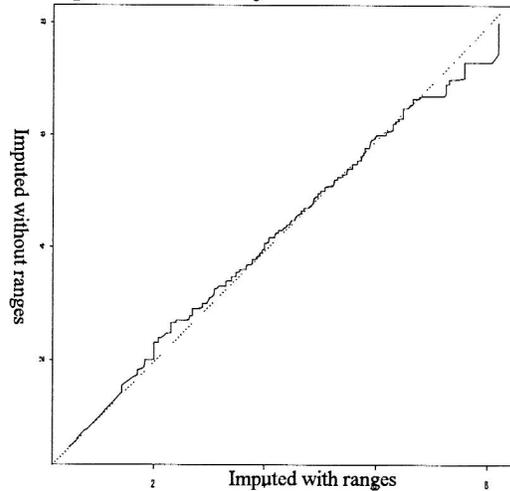
**Fig. 20: IRAs and Keoghs**



**Fig. 21: Stock mutual funds**

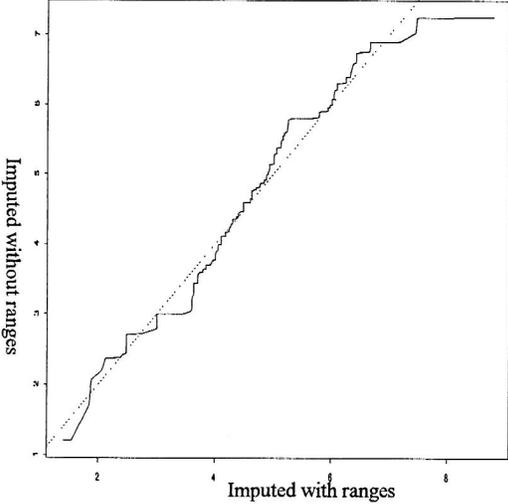


**Fig. 22: Publicly-traded stocks**

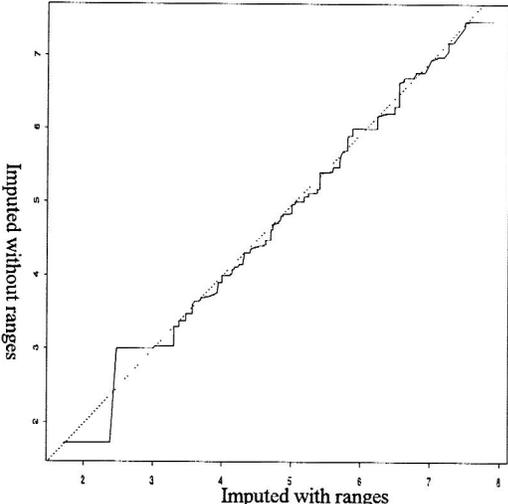


**Figures 17-28: Q-Q Plots of Full Distributions Imputed Using and Not Using Range Data**

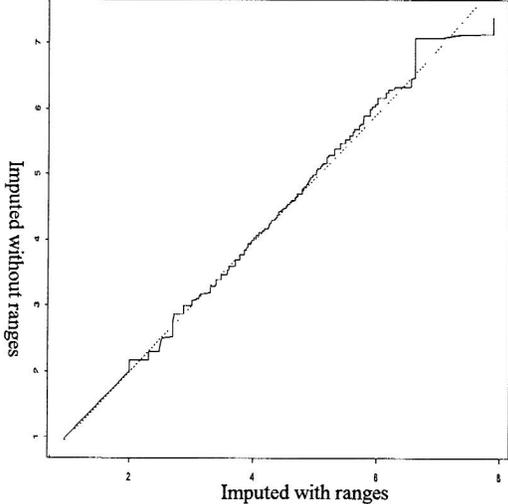
**Fig. 23: Tax-exempt bonds**



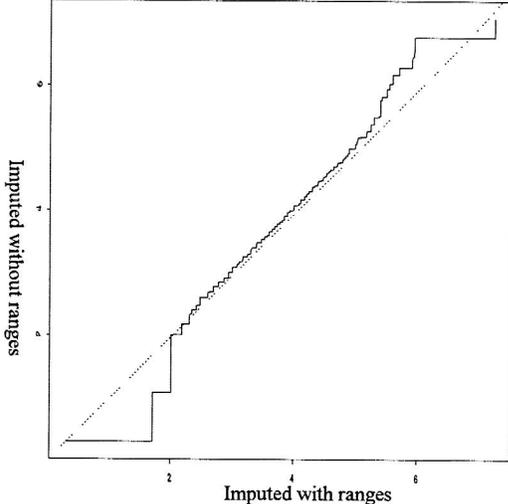
**Fig. 24: Annuities and trusts**



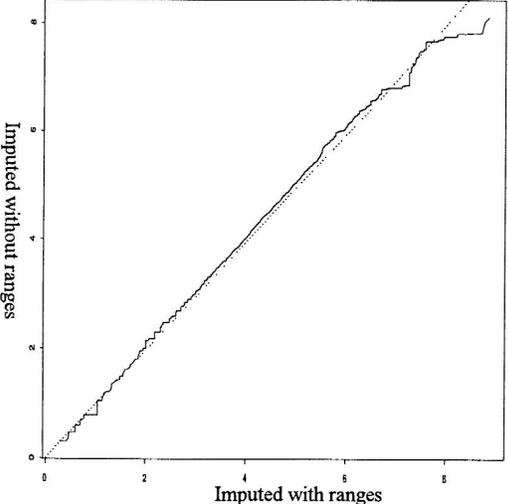
**Fig. 25: Face value whole life ins.**



**Fig. 26: Cash value whole life ins.**



**Fig 27: Total financial assets**



**Fig. 28: Total income**

