THE DIMENSIONS AND CORRELATES
OF RESPONDENT BURDEN IN
PERSONAL INTERVIEWS

by

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CHAPTER 1

ORIGIN AND IMPORTANCE OF THE PROBLEM

Background of the Study

This dissertation is based upon a reanalysis of a data base developed by the author over the past two years through a study conducted under contract to the Department of Housing and Urban Development. The focus of both the original study and the reanalysis is upon respondent burden, which is defined here as the negative feelings which may be experienced by people who participate in voluntary personal interviews.

The original project used an experimental design in which two variables were manipulated so that their effect upon respondent burden could be assessed. These variables are:

1. interview length, with 25- and 75-minute interviews used; and
2. panel participation, with one group of respondents receiving a single interview and a second group receiving two interviews. The second interview was administered ten months after the first using essentially the same instrument.

The two variables were crossed so that information from four groups was available for reanalysis: the short (25-minute) single and short repeat interview groups, and the long (75-minute) single and repeat groups. All interviews were administered at the respondents' homes. Respondent attitudes toward the interview were assessed through
a self-administered reaction form, which was handed to the single interview groups at the conclusion of the first interview and to the panel groups at the conclusion of the second session. During the course of the data collection, information was also gathered about respondent demographic characteristics, about the characteristics of the interview situation itself (e.g., the time and day of interview administration), and about respondents' previous participation in other surveys. These data, coupled with information from the reaction form, constitute the data base which was reanalyzed for the present study of the dimensions and correlates of respondent burden.

Importance of the Problem

The study of respondent burden in personal interviews is of interest to social scientists because the personal interview is one of the major methods used by these researchers to gather information. Among the groups dependent upon this technique are diverse federal agencies (e.g., the Bureau of the Census, the Department of Energy, the Department of Health and Human Services, the Department of Labor, and others), as well as academically based sociologists, political scientists, anthropologists, psychologists, etc.

Education researchers also rely heavily upon the personal interview as a major research tool. For example, federally-funded research and evaluation studies in the field of education commonly include a personal interview component. In addition to one-time personal interview studies, panel studies—in which a group of respondents participate in several waves of interviews which ask
essentially the same questions—also play an important part in education research. An ERIC search conducted using the descriptor "longitudinal or follow-up study" showed that 2,686 documents have been classified by ERIC under that rubric, 260 of them for the years 1980-81 alone. Even if we assume that only 10 percent of these documents describe studies using true panel designs, the importance of this technique in education research is clear.

But the use of personal interviews in federally sponsored research, whether in one-time or panel studies, is subject to severe restrictions. The reason for these restrictions is the legitimate federal concern, most recently voiced by the Commission on Federal Paperwork (1977) in its final report, that data gathering activities of various federal agencies may impose undue burden on institutions and individuals. To guard against that contingency, the Office of Management and Budget (OMB), which is part of the Executive Office of the President, is charged with limiting the number of information requests which may be made by these agencies. OMB guidelines (Statistical Policy Division, OMB, 1976) require that special consideration be "given to the burden on individuals, small businesses, and other organizations with limited . . . staffs," and that "these respondents should not be called upon to spend more than one-half hour in responding to a request for information from a federal agency"

1For this dissertation, panel studies, which are defined as stated in the text, are distinguished from situations in which respondents participate in a series of unrelated interviews during a given time period. The effect of the latter situation also is addressed in this research.
Activities requiring, on the average, more than one-half hour of response time per respondent must be explained by a special justification before an OMB clearance allowing the activity to be fielded will be granted. Implicit in this procedure is the assumption that "less is better," i.e., that long interviews will overly burden respondents.

As explained to the author by Robert Raynsford, a former Chief of the Economic Analysis and Special Projects Branch of OMB, this restriction was intended to apply primarily to routine requests for statistical data which are made by federal agencies (and their contractors) to public and private institutions, and to businesses. (An example of such a routine request is the Department of Energy's request for monthly information from retailers on the selling prices of fuel oil.) However, the restriction is also applied to the data requests made of individuals by education researchers and other social scientists.

Although OMB places no special restriction, beyond that stated above, on surveys involving panel designs, the assumption that participation in a survey panel will be burdensome has surfaced from other federal quarters. For example, in reviewing the Annual Housing Survey, a panel survey which provides information about the state of the nation's housing supply, Malmuth (1978), a staff member of the Bureau of the Census, stated that, although eliminating the panel design of the survey would not necessarily lower refusal rates, other reasons should be considered for making this change. Chief among these reasons was to determine "whether the respondent burden needs to be spread among a
larger portion of the population" (p.26). The argument that panel surveys may be a factor contributing to respondent burden has also been advanced by the private sector. For example, in a paper on trends in refusal rates, Kent Marquis (1978) of the RAND Corporation chose to examine panel surveys because he felt that it was distinctly possible that "major declines in response rates [might] be found in short term panel studies which seek continued respondent cooperation" (p.5).

In fact, many of the concerns articulated through federal regulations may have had their origins, at least in part, in the private sector. From time to time, this sector has expressed anxiety about exhausting the good will of the American public through long surveys or by frequent interviews, such as those entailed by panel designs, or by asking respondents to participate in large numbers of unrelated surveys. (These and other private sector concerns are summarized in a volume edited by Sinaiko and Broedling (1976), describing alternatives to the survey method.)

The basic stimulus for the research conducted for this dissertation is that these common assumptions about the causes of respondent burden in personal interview surveys, which have led to severe restrictions on the use of an important data gathering technique, are based primarily upon intuition. For, as will be discussed in Chapter 2, although much folklore exists in this area, few empirical studies have been done exploring the relationship of interview length and panel participation to respondent burden. Moreover, the extent to which respondent burden may be a function of other variables, less within the researcher's control, such as respondent demographic
characteristics, or, as mentioned above, their previous participation in other (unrelated) surveys, is not known empirically. Yet, it is essential that we begin to develop information about the correlates of respondent burden, not only to judge the appropriateness of OMB restrictions, but also because it is likely that a burdened respondent may provide inaccurate data which will defeat even our most sophisticated statistical techniques, or may, ultimately, refuse to respond at all.

But, before we can profitably examine the correlates of burden, it is also necessary to focus upon the construct of burden itself. For, as will also be shown in the next chapter, survey research methodologists contend that "respondent burden" is a poorly understood concept. They imply that the field must attempt to map the dimensions of burden--i.e., the various sorts of negative feelings being experienced--so that future attempts to measure this phenomenon and to study its causes and effects will be better focused.

**Research Questions**

To begin to address these concerns, this dissertation attempts to answer two research questions:

1. What are the underlying dimensions or components of respondent burden as measured through the reaction form used in the study upon which the dissertation is based?

2. In explaining respondent burden, what are the relative contributions of:
a. interview length;
b. panel participation;
c. respondent demographic characteristics; and
d. past participation in other surveys, as reported by respondents?

The first question is examined by factor analysis and the second through regression procedures. As a reading of the questions suggests, respondent burden is studied in a multivariate context. A summary of the variables used in the analysis is shown in Figure 1. On the dependent variable side, the items included in the factor and regression analyses are those which have been used by other researchers who have attempted to measure respondent reactions to an interview. (These attempts are described in Chapter 2.) On the independent variable side, three classes of variables are used in the regression analysis. The two manipulated variables of interest--interview length and participation in a survey panel--were included in the analysis because, as described earlier, both variables have been identified by the federal government as major causes of burden, based on heretofore largely untested assumptions. The respondent attribute variables included in the analysis--i.e., demographic characteristics and previous participation in other, unrelated surveys--are those which have been flagged in various models of the interview process as important considerations in any attempt to understand respondent reactions to a particular interview. Previous participation, or frequency of interview, has also been flagged as a general concern both of the federal government and the private sector, as noted above.
I. VARIABLES ENTERED INTO THE FACTOR ANALYSIS

- Respondent attitudes about the benefits, drawbacks of participating in surveys in general (Qs 3a-e)\(^a\)
- Ratings of the interest (Q4), importance (Q5), difficulty (Q9), general value (Q11), and overall bothersomeness (Q12) of this particular interview
- Views about the accuracy of the answers provided (Q10)
- Views about the interviewer's manner (Q6)
- Attitudes about time-related questions (Qs 7, 8, 16d)
- Suggestions for improving surveys (Qs 16a-f)
- Willingness to be reinterviewed the following year (Q15)

II. INDEPENDENT VARIABLES USED IN THE REGRESSION ANALYSIS

- Manipulated predictor variables
  1. Interview length
  2. Panel participation

- Respondent attribute predictor variables
  1. Demographic characteristics--age, sex, income, employment, status, education
  2. Past participation in other surveys

- Covariates relating to the interview situation
  1. Presence/absence of interruptions
  2. Day of interview administration
  3. Time of interview administration

Figure 1: Types of variables used in the analysis of respondent burden.

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Note. The dependent variables used in the regression analysis are derived from the results of the factor analysis.

\(^a\)Question numbers refer to numbers of items in the reaction form shown in Appendix B.
Information on various nonmanipulated characteristics of the interview—i.e., time and day of interview administration, and presence or absence of interruptions during the interview—was also used in this research. Since little attention has been given to these factors in the literature or in federal policy statements, they were not of interest as independent predictors. However, it was felt that control of these variables was important because such situational aspects of the interview might exercise some influence on respondent reactions. Therefore, these variables were introduced as covariates in the analysis.

Definitions

For the purposes of this study, the variables shown in Figure 1 are defined as follows:

**Respondent burden** refers to negative feelings which are experienced by respondents to personal interviews. (As described in Chapter 2, the definition used here draws heavily upon the work of Bradburn (1978a) who defines respondent burden, not as an objective characteristic of an interview, but, rather, as a subjective phenomenon referring to the respondent's feelings about the interview.) Operationally, such feelings were measured by respondent responses to a reaction form in which they were asked to describe the interview experience in terms of its interest, its length, its overall nuisance value in comparison with other social tasks, etc., and to state their willingness to be reinterviewed the following year. This form
was factor analyzed to identify various dimensions or components of respondent burden. Factor scores computed for each of these dimensions constitute the operational measures of respondent burden for the study.

**Interview length**, the first manipulated variable, is defined as number of minutes of interview time, with either a 25 or a 75-minute interview administered to the respondent. These values (25 or 75-minutes) were selected on the advice of the original project's Advisory Committee, a group which was composed of prominent survey research methodologists, statisticians, and federal government officials, including representatives from OMB. (Members of the Committee and their institutional affiliations are shown in Appendix A of this document.) At the suggestion of the Committee, the attempt was made to maximize experimental variance by making the interview lengths as disparate as possible. It was felt that the lengths chosen would provide a reasonable set of extremes for interview length in personal interviews.

**Panel participation**, the second manipulated variable, is operationalized by administering a single interview to one portion of the sample, and a reinterview, using a similar instrument, to a second portion approximately ten months later. The ten month interval was chosen at the advice of the original project's Advisory Committee, who felt that such an interval was a realistic one for the assessment of panel effects.
Respondent attribute variables are:

1. Demographic characteristics, including sex, age (under 40, 40-60, over 60), education (less than high school graduate, high school graduate, some college or more), employment status (employed, not employed), family income in 1979 (coded in $5,000 intervals); and

2. Previous participation in other unrelated surveys, as reported by respondents in response to Q1 of the reaction form (Appendix B).

Covariates relating to the interview situation are:

1. The presence or absence of interruptions during the interview, such as phone calls, or the entry of other persons as reported by interviewers.

2. Day of interview administration (weekend or holiday vs. weekday); and

3. Time of interview administration (up to 5:00 P.M.; later than 5:00 P.M.);

Limitations

The nature of the original project upon which this dissertation is based imposes a number of limitations on the generalizability of the dissertation's findings:

1. The data were gathered in a situation involving face-to-face, voluntary, household interviews. Thus, the findings should prove informative to education researchers conducting
projects in similar settings, i.e., settings involving personal, voluntary interviews with community members, parents, and students. However, the findings probably should not be applied to other contexts in which education research is typically conducted--i.e., to mandatory data collection from school administrators or other captive audiences such as teachers or support personnel.

2. Further, the study sample consisted predominantly of respondents who were white, female, relatively well-educated, and in the middle income brackets. (The demographic characteristics of these respondents are described in detail in Chapter 3.) All of these respondents lived in the suburbs (of Philadelphia). Therefore, the study findings may not be applicable to other populations, for example, men, blacks, low-income groups, or residents of inner cities or rural areas.

3. The treatment interviews themselves dealt with topics of presumably moderate salience, such as housing and neighborhood conditions, energy costs, and transportation. The results might have been quite different if more (or less) respondent-pertinent topics had been discussed.

4. The reaction form did not represent the entire domain of respondent burden. For example, it contained a limited number of questions on potentially important topics such as data accuracy, the interviewer, and the difficulty of responding to the questions asked. Had more questions been included in these and other areas, additional factors--other than those reported
in Chapter 4--might have emerged as important components of respondent burden. Moreover, although the reaction form drew heavily upon items used in earlier studies of respondents' reactions to interviews, and was pretested for use in the study reanalyzed here, reliability data for the instrument are not available. The lack of such data represents another limitation upon the generalizability of the study findings.

5. Finally, the procedures used to reanalyze the study data eliminated respondents who failed to answer one or more reaction form items included in the analyses. By eliminating respondents with missing data, the procedures may have excluded the most "burdened" individuals.
CHAPTER 2
REVIEW OF RELATED LITERATURE

This chapter reviews the attempts of other researchers to define and measure respondent burden. It then describes the literature regarding the relationship of respondent burden to the experimental and attribute variables of interest in this study.

Defining Respondent Burden

In their discussion of respondent burden at the Second Biennial Conference on Health Survey Research Methods, Rothwell and Bridge (1978), survey research methodologists, noted that logical presentation of the topic should begin with a definition of terms. As they pointed out, however, that first most basic step has not been adequately accomplished because, while most people can agree that respondents should not be "burdened," there is little consensus about how "burden" can be defined, yet alone recognized.

The limited amount of thought that has focused on this issue can be organized into two opposing camps. On the one hand, in federal parlance, the term "respondent burden" is equated with the amount of time or money spent in complying with information requests, or the number of such requests which are made. This use of the term appears in P.L. 96-511, the Paperwork Reduction Act of 1980 (U.S. Code, 1980), in which burden is defined as the "time, effort, or financial resources expended by persons to provide information to a federal agency"
(94 Stat. 2813). It is this definition which is used by the Office of Management and Budget, when it requires agencies (or their contractors) to estimate the burden that any particular data request may generate, as well as the burden which will be generated by all of the agency's requests for the year. (In the latter case, the agency must submit an Information Collection Budget, which lists all of the public use data collection or record keeping projects it proposes to field for that year.)

As Sharp and Frankel (1981) have noted, the federal definition of "respondent burden" is confusing because it uses the same term as both a cause and an effect. As they point out, the federal definition assumes that:

There is a direct relationship between burdensomeness [the effect] and the amount of time consumed by complying with requirements [the cause] and that the reduction of burden could [therefore] be accomplished by requiring fewer and less time-consuming reporting activities from organizations and individuals. (p. 2)

The second school of thought on this issue argues that, rather than being an objective characteristic of a data collection request, respondent burden is a subjective phenomenon. The position of this school has been most forcefully articulated by two authorities on interviewing methodology and field research practices: Sheatsley and Bradburn. According to Sheatsley (1969) the subjective nature of respondent burden (which he calls "harassment" or "abuse") is self evident:

I think it is clear that one cannot devise any objective definition of respondent harassment or abuse. A 30-minute interview is not necessarily a pleasant experience. A 60-minute interview is not necessarily harassment. What defines
respondent abuse is the respondent's own reaction to the task imposed upon him. If he feels abused by the interviewer's demands, we have to assume that he is abused, no matter how interesting or simple we thought our questionnaire was. If he enjoys the experience, however lengthy or complicated or uninteresting the questionnaire may seem to someone else, it is difficult to charge any abuse. (p. 40)

Bradburn (1978a) makes much the same point:

In discussing the variables that we tend to think of in connection with respondent burden, we should consider the conditions under which a particular type of task may be viewed as more or less burdensome. "Burdensomeness" is not to be an objective characteristic of the task, but is the product of an interaction between the nature of the task and the way in which it is perceived by the respondent. (p. 49)

It is this conceptualization of respondent burden as a subjective phenomenon which is used in this research. That is, respondent burden is defined not as a fixed characteristic of an interview, but, rather, as the negative feelings of the persons who participate in that interview.

Measuring Respondent Burden

Respondent burden, as defined above, may be measured through several techniques, including observation of the respondent during the interview, by inference from breakoffs or refusal rates, or by an instrument in which the respondent is asked directly, either by an interviewer or through a self-administered form, a series of attitudinal questions about his or her feelings. The "reaction form" used in the study upon which this dissertation is based is an example of this last technique. As will be described fully in Chapter 3, it was constructed on the premise that the negative feelings experienced by burdened respondents may include boredom, a feeling that one's time is being
wasted, that too much mental effort is being demanded, or that the subject matter is unimportant or overly personal. (In addition, willingness to prolong the interview, given a hypothetical opportunity to do so, and willingness to be reinterviewed were also used in this form as less direct, but good proxy measures of respondents' feelings about the interview.)

While no other research systematically isolating the components of respondent burden (as attempted in this dissertation) has been found, questions designed to tap similar feelings have been used in other efforts to measure reactions to the interview experience by the direct questioning technique. A good illustration comes from a study done by the University of Michigan's Survey Research Center (Goldfield, Turner, Cowan, and Scott, 1978), under sponsorship from the Bureau of the Census, in which a self-administered form was used to investigate people's experiences as survey respondents and their attitudes towards surveys. Items from this form included questions regarding:

1. The **interest** of the survey;
2. Its **length**;
3. Its **difficulty**;
4. Whether overly **personal** questions had been asked; and
5. **Attitudes about the interviewer**.

In addition, an item assessing willingness to be reinterviewed was also asked. Many of these items were adapted for use in the reaction form used in this dissertation research.

This same technique and some of the same questions (i.e., interest, length, and willingness to be reinterviewed) were also used in
another Survey Research Center study (Oskenberg and Cannell, 1977) of attitudes towards personal interviews. Similar questions appear again in a study (Jones, Sheatsley, and Stinchcombe, 1979) done by NORC, the National Opinion Research Center, to determine farmers and ranchers' reactions to participation in Department of Agriculture surveys. Here, however, respondents were also asked about the accuracy of the information provided. (This item was also included in the reaction form used for this dissertation research.) A final example is drawn from the literature in the field of market research in which consumer attitudes toward market research surveys were assessed (Walker Research, 1978). Again, some of the same sorts of items—i.e., interest, length, difficulty, and privacy questions—were used.

In addition to these items, both the Walker Research and NORC instruments, as well as the University of Michigan survey referenced above, attempted to tap respondent feelings about the usefulness of survey participation. The Walker Research instrument included a number of what were termed "image statements," such as:

Answering questions in polls or surveys is in my own best interest;

The research industry serves a useful purpose; and

Answering questions in polls or research surveys is a waste of time."

The responses to these items by a national probability sample of 500 respondents, whom Walker Research interviewed in 1978, suggest that negative feelings about the usefulness of surveys may be a significant aspect of respondent burden for a sizable minority of respondents. Specifically, Walker Research found that 17% of the people interviewed
agreed with the statement that "answering questions in polls or research surveys is a waste of time," and that over one quarter disagreed with the statement that "answering questions in polls or research surveys is in my own best interest" (p. 3).

The NORC instrument also attempted to tap the "uselessness" dimension of respondent burden with questions similar to those asked by Walker Research. Moreover, although they focus more specifically on feelings of uselessness with reference to the individual, rather than to the general public, the NORC findings also appear to underscore the importance of these feelings in coloring respondents' overall reactions to the interview. As NORC stated in its final report (Jones et al., 1979) on the evaluation of USDA surveys:

Respondents feel burdened by surveys they feel are of little use, cannot be trusted to be accurate, hamper their ability to make a profit, or confer benefits on other groups than themselves. (p. 68)

Clearly, then, it has been assumed by the measurement attempts of other researchers, and demonstrated in some of their findings, that feelings about the lack of direct benefits to respondents derived from their participation in surveys are an important component of respondent burden. The items used in earlier research instruments also assume that other components of respondent burden include feelings of boredom, of being overtaxed by perceived time requirements and by the perceived difficulty of the task, and feelings of having one's privacy invaded. The extent to which such discrete components of respondent burden can, in fact, be isolated is, as explained in Chapter 1, a primary question of interest in this dissertation research.
Correlates of Respondent Burden

As described by Bradburn (1978a), the interview is a complex social process in which the researcher seeks to create the least amount of discomfort and the maximum amount of cooperation on the part of the respondent. Because of the complexity of this encounter, we can expect a number of factors to be associated with the burden it may generate. This section describes the literature related to those manipulated and attribute variables of interest in this dissertation, i.e., interview length, panel participation, demographic characteristics of respondents, and their previous participation in other surveys. A brief description of the literature related to the covariates used in the analysis is also included.

Respondent Burden and the Manipulated Variables

In examining interview length and panel participation, the presentation draws upon three sources:

1. "hearsay" or opinion evidence;
2. empirical data; and
3. models of the interview process.

Hearsay Evidence. Warnings that lengthy interviews (both personal and mail) are sources of respondent burden are found throughout the literature. As far back as 1920, Chapin, the author of an article on questionnaire design, advised that:

   The questions should be as few as possible because in most questionnaires the informant's answer is voluntary and a bulky list will appear more formidable than it is, thus discouraging replies. (p. 188)
This sentiment surfaces again in *Scientific Social Surveys and Research*, an introductory text written by Young in 1939. The student is told that "a questionnaire should contain as few questions as possible in order to hold the attention of the respondent" (p. 168).

A few years later, Ruch (1941) warned about the deleterious effects both of long and of frequent interviews, such as those experienced by participants in a survey panel:

> The effects on the respondent of overly long interviews may be regarded as similar to the effects of repeated interviewing. Various observations show that an interview . . . which is too long bores and irritates the respondent and encourages error both in the interviewer and in the respondent. (p. 180)

More recent writings show that these earlier assumptions are still commonly held. For example, in an article appearing in the *Journal of Educational Research* in 1970, Leslie noted that:

> The most valuable advice that can be offered is to never go beyond a 1-or-2-page questionnaire, unless there is no reasonable alternative. (p. 350)

Tortura, a government statistician writing in 1977 about methods of reducing respondent burden for repeated samples, crystalized some of the common federal assumptions in this area. He stated that:

> Reducing respondent burden must be a goal of any agency that repeatedly contacts the public to obtain data. This goal has been emphasized by the Office of Management and Budget (OMB). . . . The principal factors that make up the burden placed on a particular respondent participating in surveys are: (1) the time it takes to complete an interview; and (2) the number of contacts during some time period, for example, a calendar year. (p. 41)

Sharp and Frankel (1981), however, note that such propositions are not always accepted by members of the survey research profession:

> Perhaps because most survey researchers have a store of stories about interviewers who have trouble extricating themselves at
the end of a household survey, with respondents eager to continue the conversation beyond the time allotted for the interview, they feel that at least for household interviews, the concept that burdensomeness is simply a function of length is not a valid one. Furthermore, even with respect to self-administered interviews, where respondents are asked to complete a mail-back questionnaire, there is no clear and consistent evidence that shorter forms per se result in higher response rates. (p. 2)

Empirical evidence. The lack of agreement between common folklore and the survey profession on the effect of interview length and panel participation on respondent burden may stem, in part, from definitional differences, but is also probably due to the fact that there is so little empirical information on this topic. No studies of respondent burden in personal interview panel studies were uncovered in the literature. Similarly, only a few studies of interview length and burden in personal interviews were found. Chief among these is the work done by the Survey Research Center at the University of Michigan which sends questionnaires to a sub-sample of respondents to determine their reactions to SRC personal interviews. Rothwell and Bridge (1978) have summarized 18 such post-survey studies, revealing a positive correlation between interest in the survey and survey length. As the authors point out, two opposing interpretations of this finding are possible. It may be that researchers recognize burdensome topics and compensate by designing shorter interviews, or, conversely, it is also possible that "having granted a long interview, people explain their behavior . . . as having been motivated by the importance or interesting qualities of the interview" (p. 61).

The 1978 Walker Research study referenced earlier is also of interest here. Only 14% of the 94 persons who reported to the Walker
researchers that they had been interviewed in the previous year complained that that interview had been "too long." While this finding suggests that interview length is not perceived as a problem by the general public, it provides little information about respondents' attitudes towards interviews of specific lengths.

Because of the scarcity of studies measuring respondent burden directly, we must turn to proxy measures of this variable. Given the definition of respondent burden used in this research, the best proxy probably would be breakoffs, that is, refusals to continue by respondents who have initially agreed to be interviewed. Unfortunately, information on breakoffs to lengthy or to panel interviews is not available in the literature. A proxy measure which is available for long interviews involves the use of response rates. However, in examining this proxy, several cautions must be observed:

1. First, response rates are a function not only of refusals (which may be burden related), but also of situations having nothing to do with respondent burden, such as persons who are repeatedly not at home, or interviewers who do not speak the language of the respondent.

2. Secondly, as noted by Richardson et al. (1965), in their book on interviewing techniques, refusals themselves may be due to entirely idiosyncratic circumstances, such as the interviewer interrupting "a family quarrel, a physician's visit, or some other crisis" (p. 70), and thus, may stem, at least in part, from considerations other than burden.
3. Further, the refusal component of a study's non-response rate also may be a function of anticipated, rather than of actual burden. That is, if a potential respondent refuses to be interviewed, but has never participated in any interview, let alone the attempted one, it is difficult to make any judgements about the actual burdensomeness of the interview in question.

With these caveats in mind, we may turn (very cautiously) to the analysis done by Marquis (1978) which relates response rate to interview length for a variety of personal interview studies conducted by the National Opinion Research Center (NORC), the Survey Research Center (SRC) at the University of Michigan, and the Bureau of the Census. Marquis summarized these data as follows:

NORC data . . . include two 20-minute national sample studies conducted in 1962 and 1966. Response rates were 90 and 84 percent compared to rates closer to 75 percent for studies using interviews lasting an hour or more in similar years. The SRC economic studies contain a narrower range of variation in average interview length (45-90 minutes). . . . correlation between response rate and length . . . [is] zero or "slight" depending upon assumptions used to correct for secular time trends. The studies conducted by the Census Bureau . . . range from a few minutes to several hours in actual length. Response rates drop to 90 percent only for the extremely long interviews but this may be due to the subject matter (expenditures). (p. 10)

Unfortunately, Marquis does not tell us if potential respondents to the NORC, SRC, and Census studies were informed about the length of the intended interview, and, if so, the extent to which refusals occurred before or after length was announced. Therefore, while some of his data suggest that interview length and response rates may be
related, any cause and effect association between these two variables, or between length and refusals, remains unclear.

Information on refusal rates per se to panel studies is available from several sources. Use of refusals as a proxy for respondent burden in panels is fraught with less problems than those discussed above for interview length. It can be argued that, in the case of panel studies, we have a population which is basically willing to be interviewed, with "hard core" refusers weeded out during the first interview. Although attrition may occur for reasons other than burden perception, it is reasonable to assume that some refusals to subsequent waves are indeed burden related.

The first of the panel studies which may be examined is the National Crime Survey (NCS). This survey is based on a rotated sample of housing units; persons residing at the unit are interviewed at six month intervals for a total period of three years. A Census Bureau analysis (Bushery, 1978) of refusals rates to the NCS shows only a very slight increase in rate based on time-in-sample. For example, for the July-December, 1975, data collection period, the refusal rate for persons asked for the second interview was 1.86% while the rates for those asked for the sixth, seventh and eighth interviews were 2.2%, 2.58%, and 2.5% respectively. Similar patterns were found for the June-July, 1976, and the July-December, 1976, data collection periods. Again, differences in refusal rates between persons interviewed twice and those interviewed six times averaged less than 1%.

On the other hand, an examination of the Quarterly Consumer Expenditure Panels reveals a much larger increase. This survey was
conducted in 1972-73 with a sample of 11,000 households. Each household was interviewed for two to three hours for five consecutive quarters. As shown by Marquis (1978), in 1972 the refusal rates for the five consecutive waves climbed from 3.3% for Wave I to 10.8% for Wave V. The trend for 1973 was similar.

A third panel study which may be examined is the National Longitudinal Survey of the High School Class of 1972 (the NLS), one of the most important panel studies in the field of education. The NLS is basically a mail survey, begun in 1972 with some 19,000 high school seniors who were administered a questionnaire in group settings. Four follow-ups were attempted with this group in 1973, 1974, 1976, and 1979. These used a mail questionnaire, with personal interviews attempted only with people who failed to return (or did not receive) that instrument, but did not specifically refuse further participation in the study. As reported by King (1981), personal interviews were attempted with 38% of the panel in 1973, 31% in 1974, 23% in 1976, and 31% in 1979. Given the focus of this dissertation, information on refusals by this personal interview group is most pertinent. King's data show that refusals rose between the second and third follow-ups, from 4.7% to 9.0% of those contacted, but then remained at 9.2% for the fourth follow-up attempt. (Comparable data for refusals to the first follow-up are not available.)

A final point to be noted in connection with the NLS is that, based on King's data, overall response rates (persons responding to either the mail or phone surveys as a percentage of the total sample) fell slightly between the second and third, and the third and fourth follow-ups, with
response rates for all four waves of 94.2%, 94.7%, 92.1%, and 89.3% respectively.

A final example is noteworthy for illustrating the conventional expectation that panel designs lead to rising refusal rates. This example is drawn from a paper by Love and Turner (1975) who examined refusal rates in the Current Population Survey (CPS), a panel survey based on a sample of 48,000 households. The authors attribute the rising refusal rates in the CPS (1.5% in 1965 to 2.2% in 1975) directly to its panel design feature. In comparing the CPS to the Health Interview Survey, which does not use a panel design, they conclude that the latter has a "lower and more stable refusal rate than [the former] which suffers the cumulative effects of repeated interviews" (p. 4, emphasis added). However, as illustrated in an article in the Public Opinion Quarterly (Steech, 1981), there has been a general trend in recent years toward increasing refusal rates, due to increased urbanization, fear of crime, etc. Thus, the increase in refusal rates to the CPS may merely be a reflection of that general trend.

What the models suggest. Three important models of the interview process relevant to the study of respondent burden have been developed by Sudman and Bradburn, Kahn and Cannell, and Dillman. The models are similar in that they all view the interview as a social process, involving interaction between the interviewer and the respondent.

According to Sudman and Bradburn (1974), three types of variables affect the nature of that encounter and the results produced:
1. variables stemming from the characteristics of the respondent; 
2. those stemming from the interviewer; and 
3. those stemming from the nature of the tasks themselves which the respondent is asked to carry out.

In a later paper (1978b), Bradburn points out that, to understand respondent burden, it is most important to focus specifically on the task variables. He outlines the following characteristics of the interview as a task:

1. the structure of the interview (e.g., does it use open or closed-ended questions?); 
2. the problems of self-presentation it poses (i.e., does it ask threatening questions?); and 
3. the salience of the information requested (e.g., is the information something that is viewed as important? Can it be retrieved easily from memory?).

According to this theory, interview length and panel participation are both variables related to task structure. They may or may not contribute to respondent burden depending upon other conditions of the interview (i.e., the characteristics of the respondent and the interviewer, and the nature of the other task variables). For example, interview length may enhance the importance of the interview in the eyes of the respondent (thus increasing the "salience" of the task), and such increased importance may in turn lead to a reduction in respondent burden. Similarly, being asked to participate in a panel may also
enhance the salience of the task, and thus may also result in reduced burden.

Like Bradburn, Kahn and Cannell (1957) see the research interview as a social encounter which is initiated by the interviewer and focused on a specific content. They suggest that interviews may be ranked along a continuum based upon the total demand they make of the respondent. This demand is created by factors such as the amount of time the interview requires, the effort of recall which must be made, and the threats and fears which the interview generates. (These factors seem comparable to what Bradburn and Sudman have called the task structure and self-presentation variables.) Arrayed against the continuum of interview demand is another continuum of respondent motivation, which, in turn, is influenced by the direct psychological rewards which the respondent may obtain from participation in the interview, and by the respondent's perception of the interview as a means of achieving his or her own goals.

Kahn and Cannell note that "the greater the total demand on the respondent, the greater must be the level of motivation required to meet this demand" (p. 69). Since they define interview length (and presumably frequency of interview) as generating respondent demand, this argument suggests that, other things being equal, lengthy or panel interviews will be perceived as more burdensome than short or one time surveys.

Dillman (1978) also views the interview as a special type of social exchange. He asserts that:
Whether a given behavior occurs [e.g., cooperation in completing an interview] is a function of the ratio between the perceived costs of doing that activity and the rewards one expects the other party [i.e., the researcher or interviewer] to provide at a later time. (p. 12)

Among the perceived costs are time (which Dillman flags as the major cost), physical or mental effort, and risks involved in answering questions of a personal nature. Among the perceived rewards are the positive self-worth experienced by the respondent as he or she is asked for participation, the support for his or her opinions which the respondent may gain, possible material rewards, such as a small token gift, as well as the intrinsic satisfaction that may come from the act of responding to an interesting interview or questionnaire. Dillman notes that the initial decision to respond and to continue the interview also depends upon the trust felt by the respondent toward the interviewer and the sponsoring organization.

Like the work of Kahn and Cannell, then, Dillman's model can be interpreted to mean that respondent burden is a function of two conflicting vectors, one with forces leading to decreased and the other with forces leading to increased negative feelings. This line of reasoning suggests that while long or panel interviews may be on the negative side of the equation (i.e., might tend to increase burden), other positive forces might be set to overcome their influence, so that the net result is a cooperative respondent.

Other Factors in the Equation

While this dissertation is drawn from a study in which two factors (interview length and panel participation) were experimentally
manipulated, it also considers the contribution of other factors to respondent burden. The importance of examining respondent burden in a multivariate context is stressed by Rothwell and Bridge (1978), who note that:

On the independent variable side, one and two factor experiments designed to investigate the causes of respondent burden are inadequate. The outcomes of interviewing are complex, and the causes of these outcomes are also complex. (p. 61)

The suggestion implied by Rothwell and Bridge's remarks is implemented in this dissertation which considers, in addition to interview length and panel participation, the effects of two other categories of variables upon respondent burden, i.e., respondent demographic characteristics, and previous participation by the respondent in other, unrelated, surveys. The literature related to these variables, as well as to the covariates used in this research, is described below.

**Respondent Demographic Characteristics.** The idea that a respondent's demographic characteristics might affect his or her reactions to an interview is suggested by Kahn and Cannell (1957), whose model of the interview process was described earlier. According to their reasoning, the respondent's appearance and demeanor, as influenced by his or her age, education, and socioeconomic status, play an important part in influencing the interaction between the interviewer and the respondent, and, ultimately, therefore, the respondent's reaction to the interview. In their book *The Dynamics of Interviewing*, Kahn and Cannell stated this idea as follows:

Most students of interviewing recognize that the motivation of the respondent depends to a considerable extent upon interviewer
characteristics and behavior. It is less frequently recognized, however, that the interviewer's behavior depends in part upon the respondent—what he says and does, even how he looks. (p. 58, emphasis added)

A related point is made by these same authors in an essay in the *Handbook of Social Psychology* (Cannell and Kahn, 1968):

Each person comes to the interview with many fixed attitudes, personality characteristics, and stereotypes of other groups. Both respondent and interviewer also possess characteristics visible to the other and suggestive of group membership and group identifications—age, sex, race, religious background, income, and educational status.

[Such] background characteristics can be regarded as the source of many attitudes, perceptions, expectations, and motives... The extent to which an individual's age determines his attitudes towards many topics is so much a part of day-to-day observation that little documentation is needed. In the same way, the other background factors—education, race, sex, religion, etc.—play their part in determining the psychological characteristics of the interviewer and respondent, including those perceptions, attitudes, and motives that have particular relevance for the interview process. (pp. 549-550)

Thus, Kahn and Cannell feel that, in addition to affecting respondent-interviewer interactions, respondent demographics may be important in themselves, because people in different demographic subgroups may have different needs, attitudes, and priorities which affect their reactions to the interview. Since information allowing an assessment of interviewer-respondent interaction was not available in the data base analyzed for this dissertation, respondent demographics are studied in this latter sense, as variables with possible importance, in and of themselves, in understanding respondent burden.

Empirical evidence of the relationship between respondent demographic characteristics and respondent burden, as defined for this research, is scarce. We might look at the characteristics of refusers
but, again, refusals may be caused by a host of situational factors other than negative attitudes towards interviews.

Perhaps more pertinent to a discussion of demographics and respondent burden is an examination of the characteristics of "late respondents," i.e., persons who ultimately agree to be interviewed (and, thus, unlike refusers, are indeed respondents), but only respond after more than one visit by the interviewer has been made. While situational factors may again play a part in such late response (for example, persons who were not at home during the first interview attempt), it can be assumed that negative attitudes towards interviews are also considerations.

An analysis of late responders has been done by Hawkins (1977), who looked at response patterns to six general population personal interview surveys conducted in the Detroit area from 1959 to 1973 by the University of Michigan's Survey Research Center. He found that a disproportionate number of these late responders, which he defined as people responding to the surveys after the second interview attempt, were males, well educated (college graduates or more), white collar workers, fairly young (i.e., age 55 or less), and had, on the average, higher family incomes than persons responding to the survey on earlier attempts. To some extent, such late response may have been a function of competing time demands on respondents of high socio-economic status. However, if we assume that late response was at least partially burden related, these findings would seem to support the idea, suggested in the writings of Kahn and Cannell, that respondent burden and respondent demographic characteristics are related.
Parenthetically, it is also interesting to note that, based on a review of the literature on nonrespondents, Hawkins found that the characteristics of late and nonrespondents are not totally alike. While both groups are dominated by males, they are dissimilar in that nonrespondents tend to be poorly educated and concentrated among the older age groups. This discrepancy in characteristics between the two groups again points out the potential danger of using nonresponse, or refusal rates, as proxies for respondent burden.

**Previous Survey Participation.** The second type of respondent attribute variable considered in this research is participation by the respondent in other, unrelated, surveys as reported in response to the first question of the reaction form (Appendix B). One possible connection between previous survey participation and respondent burden is suggested by Richardson et al. (1965) in a book on interviewing techniques:

If the respondent has had a previous interview experience . . . this experience is likely to color his initial perception of any subsequent interviewer. If this experience consisted only of participation in bona fide research interviews, the interviewer's problem would be restricted, one would hope, to counteracting an occasional respondent's unpleasant experience. Unfortunately, with the sharp increase in the incidence of door-to-door salesman who pose as survey interviewers, and with the wide publicity given to the occasional crank who poses as a telephone interviewer of the Kinsey variety, increasing numbers of respondents have had prior experiences which have nothing to do with research interviewing but which cause them to view any interviewer negatively. (pp. 65-66)

Thus, Richardson et al. seem to feel that respondents have difficulty distinguishing between surveys and disguised sales pitches or crank calls, and, that, because of this confusion, previous participation in "surveys" generally will predispose respondents to
react negatively to subsequent interviews. (We do not know, however, if
the situation these researchers described in the 1960s still holds for
the 1980s.)

The importance of previous survey experiences also surfaces in
the work of Wiseman (1980), Professor of Marketing Research at
Northeastern University. Wiseman has developed a model of the factors
entering into the respondent's initial decision to respond. Prominent
among these factors is the "past experience of the individual as a
survey respondent" (p. 2). According to the model, this variable acts
alongside three others, the research design, the interviewer, and
uncontrollable environmental factors, to determine whether or not the
potential respondent actually allows the interviewer in the door.
However, unlike Richardson, Wiseman does not state specifically that, on
balance, previous survey experiences make a negative contribution to
that decision. Although also not mentioned specifically by Wiseman, we
may infer that, after the initial decision to respond has been made, the
respondent's previous survey experience will continue to color his or
her reactions to the interview in progress, with negative prior
experiences eliciting negative reactions and vice versa.

Bradburn (1978a) argues that previous survey participation will
lead to respondent burden chiefly among classes of respondents for whom
"the probability of falling into a sample for independent studies
becomes fairly high" (p. 52). Examples include physicians, mayors,
members of Congress, or chairs of certain university departments. On
the other hand, Bradburn notes that, for the general public,
"overburdening the same households with interviews does not yet seem to
be a problem," and that, "on the whole, the fact that a respondent previously responded to an interview is the best [positive] predictor of subsequent participation" (p. 52). Again, the intuitive leap from this statement to the potential effect of that previous interview on perceptions of the current one may be made without too much difficulty.

Unfortunately, the nature of the respondent's previous survey experience (i.e., whether that experience was generally pleasant or not) can not be determined from the data base analyzed here. However, whether or not there is a relationship between burden and previous survey participation per se, and the relative contribution of this variable vs. others in explaining respondent burden are issues explored in this research.

The Covariates. As described earlier, three non-manipulated characteristics of the interview situation were introduced as covariates in the present research: time and day of interview administration, and the presence or absence of interview interruptions. The importance of attempting to control these variables is suggested in two sources. Richardson (1965) notes that the particular time of day during which an interview attempt is made may "encourage or inhibit the respondent's desire to participate" (p. 69), since certain hours may be more or less convenient. He also notes that interruptions during the interview may cause distractions which influence both the respondent's motivation to continue and his or her responses. Scott (cited in Rothwell and Bridge, 1978) reports, in connection with post survey studies of respondents, that "the single most frequently made suggestion respondents make is that the interviews should be conducted at more convenient times"
(p. 57). However, he also describes efforts to vary interviewing hours to suit respondents' convenience as failures which are costly both in terms of response rates and money.

Variables Not Considered in This Research

It is appropriate here to mention other variables which might be important contributors to respondent burden. The importance of the interviewer has been suggested elsewhere in this chapter. Other factors noted in the literature include the survey sponsor, survey confidentiality provisions, the use of incentives, the amount of effort required by the respondent to answer certain questions, the interest level of the interview, and the effects of advance letters and appointments.

The question of survey sponsorship has received attention in the literature. A few examples include the work of Love and Turner (1975), Sudman and Ferber (1974), and more recently, a study carried out jointly through the Bureau of the Census and the University of Michigan (Goldfield et al., 1978). The Census-Michigan study also addressed the confidentiality variable, as reported by Singer (1978). The use of incentives has been studied, with mixed results, by a number of researchers, as summarized in a bibliography on the topic prepared by the Bureau of the Census (undated, a.). The "effort" variable has been addressed in the theoretical work of Bradburn (1978a), and studied empirically by Frankel (1980). Finally, as reported in another bibliography compiled by the Bureau of the Census (undated, b.), the effect of advance letters and appointments on response rates, and, thus,
perhaps on respondent burden, has also been the subject of some interest.

In the research for this dissertation, these variables were treated as constants or not included at all in the data base. Therefore, the effect on respondent burden of factors such as the interviewer, the interest level of the interview, the survey sponsor, the use of incentives and advance letters, and confidentiality procedures must be left as problems to be addressed by other research.

Chapter Summary

This chapter has reviewed the literature on the topic of respondent burden, with the scarcity of references in that area requiring that inferences be made from work in related fields, such as theoretical models of the interview process and analyses of response and refusal rates.

To begin to address the first research question of interest in this study, the attempts of other researchers to define and measure respondent burden were described. It was noted that respondent burden has been defined both as an objective and as a subjective characteristic of an interview, with the latter definition used in this dissertation research. Instruments attempting to measure respondent burden in this subjective sense, i.e., by eliciting respondent reactions to an interview, have used a number of similar items. A review of these items suggests that other researchers have assumed that the components of respondent burden include feelings of boredom, of being overtaxed by
perceived time requirements and by the perceived difficulty of the task, and of having one's privacy invaded, as well as negative feelings about the lack of direct benefits to respondents derived from their survey participation.

The literature examining the relationship between respondent burden and the manipulated and attribute variables of interest for the second research question was also reviewed. It was shown that, while "hearsay" or opinion evidence warns against the deleterious effects of long and of frequent interviews (such as those experienced by members of a survey panel), survey research methodologists do not always agree with this view. Rather, the models of the interview process which they have developed suggest that respondent reactions to an interview are influenced by a host of factors, including those stemming from the characteristics of the respondent, those stemming from the interviewer, and those stemming from the nature of the interview task. Task variables include not only the length and frequency of a survey, but also its saliency, difficulty, and the threat which it may pose to a respondent's sense of privacy or self-esteem. While long and panel interviews are entered into the debit side of the equation by at least three survey research theoreticians (Kahn, Cannell, and Dillman), others (i.e., Bradburn and Sudman) argue that such interviews sometimes may lead to a decrease in respondent burden by enhancing the importance of the task for the respondent.

Empirical evidence of the relationship between respondent burden per se and interview length or panel participation is scarce, so that proxy measures of burden must be used (with considerable caution). With
response rates as a proxy, the verdict on length and burden is mixed; some studies show substantially lower response rates for long vs. short interviews, but others show only small or moderate correlations between these variables. (However, these studies do not indicate if the length of the intended interview was announced beforehand to potential respondents.) Similarly, an examination of refusal rates as a proxy for respondent burden in panel surveys sometimes shows only a slight (less than 1%) but sometimes a substantial (up to 11%) increase in refusals between the first and last interview waves.

The relationship between respondent demographic characteristics and respondent burden is postulated by Kahn and Cannell, who argue that background characteristics such as sex, education, and income influence a respondent's reactions to the interview both directly, through their immediate effect on respondent attitudes, as well as indirectly, through their effect on the respondent's interaction with the interviewer. The importance of respondent demographic characteristics is also suggested by Sudman and Bradburn as one of three classes of variables influencing the nature of the encounter between respondent and interviewer.

Views about the effect of respondents' participation in other, unrelated, surveys upon their reactions to the current interview are mixed. One source (i.e., Richardson et al.) argues that respondent contact with "surveys" which are frequently disguised sales pitches has damaged the reputation of all personal interview research. But another researcher (Bradburn) contends that, at least for the general population, the fact that an individual has participated in a previous survey is the best predictor of his or her subsequent participation.
The effects upon respondent burden of certain situational characteristics of the interview, used as covariates in this research, also are suggested in the literature. One study indicates that varying the hour and day of interview administration to meet respondents' schedules is the suggestion most frequently made by people contacted in post-interview surveys. However, attempts to comply with this request have been described as costly failures.

As suggested by this review of the literature, respondent burden is a complex phenomenon. On the dependent variable side, it undoubtedly consists of a host of feelings which, in turn, are influenced by a variety of independent variables or conditions. Thus, the importance of considering respondent burden in a multivariate context, as done for this dissertation, is clear.
CHAPTER 3
METHODOLOGY

This chapter describes the overall study design, sampling, instrument development, and data collection procedures used in the original study upon which this dissertation is based. It then describes the analytic procedures used to reanalyze the study data for the present research.

The Overall Study Design

Figure 2 shows the experimental design used in the original study. The two experimental variables—interview length and panel participation, i.e., the single vs. repeat administration of the interview—were crossed so that information from four groups was available for analysis: the short single and short repeat interview groups (lA and lB on the diagram), and the long single and repeat groups (2A and 2B). As mentioned in Chapter 1, the "short" interview was 25-minutes in length, while the "long" one lasted 75 minutes. The repeat interview was administered ten months after the first interview session to a subset of the original respondents. All interviews were conducted in the respondents' homes. Respondent reactions to these treatments were measured through a paper-and-pencil form which was handed to each respondent after his or her particular interview treatment had been completed.
<table>
<thead>
<tr>
<th>GROUP 1</th>
<th>GROUP 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>25 Minute Interview</td>
<td>75 Minute Interview</td>
</tr>
<tr>
<td>1A One Interview (N=75)</td>
<td>2A One Interview (N=75)</td>
</tr>
<tr>
<td>1B Two Interviews (N=100)</td>
<td>2B Two Interviews (N=100)</td>
</tr>
</tbody>
</table>

| PHASE I | | PHASE II |
|---------| |---------|
| Interview | X | X | | Interview | | X |
| Reaction form | X | | Reaction form | | X |
Sampling Procedures

The data used to implement this design were obtained through interviews conducted in the Pennsylvania suburbs of the Philadelphia urbanized area. This area can be characterized as relatively prosperous and predominantly white.

The objective of the sampling plan was to obtain interviews from a probability sample of 500 housing units, assigning each to one of six treatment groups. To meet these requirements, a multi-stage sampling procedure was used. At the first stage, 90 clusters were randomly sampled from all clusters in the suburbs of interest; clusters were formed by grouping adjacent addresses in the Cole Cross Reference Directory (1979). Fifteen clusters were then randomly selected from the set of 90 to be held as part of a reserve sample.

At this point in the procedure, each of the 75 clusters designated for the original sample was twice the size necessary to yield the required number of interviews. Therefore, at the second stage of sampling, half of the housing units in each cluster were randomly selected to constitute the "main" sample. Within each cluster, each selected unit was then randomly assigned to one of the experimental treatments. Thus, the entire experiment was replicated in each cluster.

The remaining units in each of the 75 clusters, as well as the units in the 15 reserve clusters, were designated as substitutes to be used in the event that an interview could not be obtained with an

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2As shown in Figure 2, only four of these groups were used for the data base analyzed for this dissertation. The other two groups were used to assess the impact of another variable on respondent burden, as reported by the author in a separate publication (Frankel, 1980).
original unit in the main sample. All substitutes were assigned to interviewers by the researcher. The substitute received the same treatment intended for the original unit.

Information from a total of 350 persons is included in the project data base from which the responses analyzed for this dissertation were drawn. These 350 persons are those responding to the first interview phase of the original study. The interviews were obtained from contacts with 651 housing units. Fifty four percent of these 651 assignments came from the original and 46% from the substitute portions of the sample. As shown in Table 1, there was no apparent interaction between the use of substitutes and the experimental treatments. Therefore, the substitution procedure is probably not a source of bias in the original study, or in the current reanalysis.

Forty nine of the original 350 first interview respondents were eliminated from the reanalysis sample because, although they were slated for a second interview in the original study, they could not be located or otherwise failed to respond. An additional 96 persons were eliminated from the factor analysis because they failed to answer one or more items on the reaction form. (Item non-response to that form is reported in Appendix B.) Another 22 respondents were eliminated from the regression analysis due to missing data on the predictor variables used in that procedure.

Table 2 contrasts the distributions, by treatment, of the respondents included in the factor and regression analyses, and in the original data base; the demographic characteristics of these groups are reported in Table 3. As shown in both tables, differences among all of these groups are minimal. As was the
<table>
<thead>
<tr>
<th></th>
<th>Length</th>
<th>Number of Interviews</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Short (N) (%)</td>
<td>Long (N) (%)</td>
<td>One (N) (%)</td>
<td>Two (N) (%)</td>
</tr>
<tr>
<td>Original</td>
<td>(175) 54%</td>
<td>(179) 54%</td>
<td>(153) 55%</td>
<td>(201) 54%</td>
</tr>
<tr>
<td>Substitute</td>
<td>(146) 46%</td>
<td>(151) 46%</td>
<td>(127) 45%</td>
<td>(170) 46%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>(321) 100%</strong></td>
<td><strong>(330) 100%</strong></td>
<td><strong>(280) 100%</strong></td>
<td><strong>(371) 100%</strong></td>
</tr>
</tbody>
</table>
Table 2
Distribution of Sample Included in the Factor Analysis, the Regression Analysis, and the Original Data Base, by Treatment Type

<table>
<thead>
<tr>
<th>Treatment Type</th>
<th>Factor Analysis %</th>
<th>Regression Analysis %</th>
<th>Original Data Base %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single short interview</td>
<td>25</td>
<td>24</td>
<td>21</td>
</tr>
<tr>
<td>Single long interview</td>
<td>21</td>
<td>21</td>
<td>21</td>
</tr>
<tr>
<td>Two short interviews</td>
<td>25</td>
<td>27</td>
<td>28</td>
</tr>
<tr>
<td>Two long interviews</td>
<td>28</td>
<td>28</td>
<td>28</td>
</tr>
</tbody>
</table>

(N) (205) (183) (350)

*Percents do not total to 100 due to rounding error.*
Table 3
Demographic Characteristics of Sample Included in the Factor Analysis, the Regression Analysis, and the Original Data Base

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Factor Analysis %</th>
<th>Regression Analysis %</th>
<th>Original Data Base %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>63</td>
<td>64</td>
<td>62</td>
</tr>
<tr>
<td>White</td>
<td>93</td>
<td>93</td>
<td>92</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Under 40</td>
<td>49</td>
<td>49</td>
<td>44</td>
</tr>
<tr>
<td>40 - 59</td>
<td>29</td>
<td>28</td>
<td>28</td>
</tr>
<tr>
<td>60 +</td>
<td>23</td>
<td>24</td>
<td>28</td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grade school or less</td>
<td>5</td>
<td>6</td>
<td>11</td>
</tr>
<tr>
<td>High school only</td>
<td>52</td>
<td>52</td>
<td>46</td>
</tr>
<tr>
<td>College +</td>
<td>44</td>
<td>43</td>
<td>43</td>
</tr>
<tr>
<td>Employment Status</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Full-time worker</td>
<td>48</td>
<td>47</td>
<td>42</td>
</tr>
<tr>
<td>Part-time worker</td>
<td>14</td>
<td>14</td>
<td>12</td>
</tr>
<tr>
<td>Homemaker</td>
<td>25</td>
<td>26</td>
<td>27</td>
</tr>
<tr>
<td>Retired</td>
<td>7</td>
<td>7</td>
<td>11</td>
</tr>
<tr>
<td>Other</td>
<td>6</td>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td>Income</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Under $10,000</td>
<td>17</td>
<td>17</td>
<td>18</td>
</tr>
<tr>
<td>$10,000 - 19,999</td>
<td>27</td>
<td>27</td>
<td>33</td>
</tr>
<tr>
<td>$20,000 - 29,999</td>
<td>32</td>
<td>32</td>
<td>29</td>
</tr>
<tr>
<td>$30,000 +</td>
<td>23</td>
<td>24</td>
<td>20</td>
</tr>
<tr>
<td>Homeowner</td>
<td>71</td>
<td>70</td>
<td>74</td>
</tr>
</tbody>
</table>

(N)  (205)  (183)  (350)

Note. Percents within groups do not necessarily total to 100 due to rounding error.
case for the original sample, the factor and regression samples are predominated by respondents who are female (63-64%), white (93%), relatively prosperous (with over half having family incomes of at least $20,000 in 1979), well educated (with more than 40% having attended college), and homeowners (70-71%). To reiterate what was stated in Chapter 1, the selective nature of the reanalysis samples probably limits the generalizability of this dissertation's findings.

A further limitation of the samples was suggested above; that is, due to the requirements of the analytic procedures, the samples were limited to people who answered all items in the reaction form used in the analysis. Thus, by eliminating respondents with missing data, the procedures may have eliminated the most "burdened" individuals, thereby introducing a potential source of bias to the study.

**Instrument Design**

All versions of the treatment interview (i.e., the 25 vs. 75-minute instruments) are based upon the Annual Housing Survey, a major national survey, sponsored by HUD, which provides basic national statistics about the condition of the nation's housing, home ownership, geographic mobility, neighborhood conditions, energy consumption, transportation, etc. It was decided that the Annual Housing Survey was a good vehicle for a respondent burden study because, while it touches on topics of presumably moderate interest to respondents, it also contains long batteries of questions which are sometimes repetitious. Further, the Annual Housing Survey also uses a panel design, features of which were incorporated in the project.
In addition to items from the Annual Housing Survey, the longer interview instrument contains other items which were especially created or adapted from other sources to achieve the desired interview length. The instruments were arranged in segments by topic area, with "stop points" at the end of each segment instructing the interviewer to end the interview if 25 (or 75) minutes had elapsed.

Every effort was made to keep the interest level constant among all versions of the instrument. A mix of open and closed items was included in each. As shown in Figure 3, the topics covered include demographics, information about housing and neighborhood conditions, neighborhood services, household expenditures, energy usage, and transportation. For the second interview, certain information (e.g., number of living quarters and rooms in the house, and amounts for various bills) was repeated to the respondent for verification, following the pattern used in the Annual Housing Survey.

The reaction form, administered at the conclusion of the treatment interview, was designed to include items which captured those negative attitudes which were flagged as possible components of respondent burden by other researchers. (See Chapter 2.) Thus, the form (which is reproduced in Appendix B) includes questions concerning the extent to which the interview was overly time-consuming, boring, difficult, privacy-intruding, and unimportant. A question asking the respondent to rate the bothersomeness of the survey as compared to other common tasks was also included. Finally, items ascertaining respondent attitudes toward surveys in general, respondent participation in other (earlier) surveys, and respondent attitudes toward the interviewer were
<table>
<thead>
<tr>
<th>Household composition/demographic information</th>
<th>Short Questionnaire</th>
<th>Long Questionnaire</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>First Interview</td>
<td>Second Interview</td>
</tr>
<tr>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>General information about house/apartment</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Energy-related questions (household heating, cooling, insulation, etc.)</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Household repairs</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Electrical appliances, use of electricity, electric bills</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Other fuel, bills</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Neighborhood services</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Neighborhood crime</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Description of neighbors (race, education, social interaction)</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Budgets, credit cards, household expenses</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Previous residences</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Transportation: number and types of vehicles owned</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Transportation: gas purchases, attitudes towards shortages</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Transportation: method used to get to work</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transportation: attitudes towards specific energy saving measures, trips on a specific day</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Specific sources of household income</td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>

Figure 3: Topic areas included in treatment questionnaires.
also written, since previous research (as summarized in Chapter 2) had pointed to these factors as important components or determinants of respondent motivation.

The following procedures were used to develop the form:

1. A draft form, to be used for the first wave of interviews, was developed, encompassing the items referenced above. Some of these items were created especially for this project, while others were drawn from other studies.

2. The draft form was reviewed by the Project Advisory Committee (see Appendix A), and a second draft incorporating its suggestions was prepared.

3. The draft (as well as the treatment questionnaires) was then pretested with 32 respondents drawn from the Northern Virginia suburbs of Washington, D.C. Based upon the pretest data and upon a debriefing held with the pretest interviewers, an additional draft was prepared. This instrument received final approval from the Advisory Committee and was then cleared by OMB.

4. The reaction form used for the repeat interview is substantially the same as the earlier version, except that several items concerning reactions to the panel feature of the survey (which had, of course, been experienced only by the second wave of respondents) were added. This version of the instrument was also reviewed by the Advisory Committee and cleared by OMB.
Interviewer Characteristics, Training, and Assignments

All of the interviewers used in the study (32 in Phase I and 9 in Phase II) were female, and all but one were white. Twenty-eight of the Phase I and all of the Phase II interviewers had previous interviewing experience. Thus "interviewer experience" could not be introduced as a variable in the present reanalysis.

At the beginning of each phase of the study, interviewers were given one full day of training, which emphasized the basic principles of interviewing as well as the specific procedures to be followed for this effort. During the course of the training, the methodological nature of the study was revealed.

To avoid confounding the effects of different interviewers' personalities or "styles" with the effects of the various experimental treatments, interviewer assignments were made so that each interviewer participated in all forms of the interview. Further, during Phase II, we did not want any rapport or possible animosity which had been established earlier between respondents and interviewers to interfere with the assessment of the effects of panel participation per se. Therefore, no interviewer in Phase II was allowed to interview any respondent she had interviewed during the earlier phase. In addition, the interviewers were not aware of whether that previous interview had lasted 25 or 75 minutes.

Data Collection Procedures

Data collection procedures differed somewhat for the first and second wave of interviews. For both data collection began with an
advance letter describing the topics to be covered and the voluntary nature of participation. For the second interview, however, the interviewer was also encouraged to phone the respondent so that a convenient time for the interview could be set. For the first interview—which needed to be out of the field quickly to avoid conflict with the fielding of the 1980 Census—only four call-back attempts were allowed, while for the second, unlimited call-backs were used. An additional reason for the differences in call-back procedures between the two phases was that for Phase I, a substitution procedure was available and acceptable, whereas for Phase II, the design required that the interview be completed with the same respondents who had been interviewed earlier.

At the initial contact, during both phases, the interviewer read an introduction in which she repeated the confidentiality provision of the advance letter and told the respondent how long the interview would last. Reaction forms were handed to all persons consenting to be interviewed at the conclusion of the first session (for single interview respondents) or the conclusion of the second session (panel respondents). Interviewers were instructed not to assist the respondent in completing this form, which the respondent was asked to return to the interviewer in a sealed envelope.

As noted earlier in this document, it was felt that there was a distinct possibility that nonexperimental variables related to the interview situation itself—that is, variables other than interview length or panel participation—might affect respondent reactions to the interview. For example, respondent reactions might vary depending upon
whether the interview was administered during the weekend (when time may be flexible) or during a weekday, upon the time of day during which the interview was given, and upon the presence of intrusive interruptions such as phone calls or visitors. To allow for the analysis of these possibilities, the interviewers were instructed to code such information about the interview at the conclusion of each session.

As reported in Table 4, interruptions did, in fact, occur between about 14% and 24% of the time, reaching their highest level in the single short interview group. There was also some variability in the distribution of interviews of various types by weekday/weekend and by daytime/evening hours (Table 5). These variables, then, were included as covariates in the reanalysis.

**Analysis Plan and Procedures**

Two major techniques were used to reanalyze the study data:

1. The reaction form through which information about respondent attitudes had been gathered was factor analyzed. This analysis was used to determine the underlying dimensions or components of respondent burden, as measured by the form, thus addressing the first research question stated in Chapter 1.

2. A regression analysis was used to address the second research question of interest in the study, i.e., to estimate the relative contribution of the two manipulated variables and the various attribute variables in explaining the dimensions of respondent burden uncovered through the factor analysis.
Table 4
Percent of Interviews Included in the Reanalysis During Which There Were Interruptions, As Reported by Interviewers

Question: Was the interview interrupted by other persons, telephone calls, or other occurrences which appeared to distract the respondent?

<table>
<thead>
<tr>
<th>Treatment Type</th>
<th>Single Short Interview %</th>
<th>Single Long Interview %</th>
<th>Two Short Interviews (^a) %</th>
<th>Two Long Interviews (^a) %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>24</td>
<td>17</td>
<td>14</td>
<td>23</td>
</tr>
<tr>
<td>No</td>
<td>76</td>
<td>83</td>
<td>86</td>
<td>77</td>
</tr>
<tr>
<td>N Reporting</td>
<td>(50)</td>
<td>(42)</td>
<td>(52)</td>
<td>(57)</td>
</tr>
<tr>
<td>Missing Data</td>
<td>( 2)</td>
<td>( 2)</td>
<td>( 0)</td>
<td>( 0)</td>
</tr>
<tr>
<td>Total N</td>
<td>(52)</td>
<td>(44)</td>
<td>(52)</td>
<td>(57)</td>
</tr>
</tbody>
</table>

\(^a\)For these groups, interruptions occurring during the second interview are reported.
### Table 5
Distribution of Respondents Included in the Reanalysis, by Day and Time of Interview Administration

<table>
<thead>
<tr>
<th>Treatment Type</th>
<th>Single Short Interview %</th>
<th>Single Long Interview %</th>
<th>Two Short Interviews a %</th>
<th>Two Long Interviews a %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Day of Interview</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weekend/holiday</td>
<td>33</td>
<td>34</td>
<td>29</td>
<td>35</td>
</tr>
<tr>
<td>Weekday</td>
<td>67</td>
<td>66</td>
<td>71</td>
<td>65</td>
</tr>
<tr>
<td>Time of Interview</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Daytime (up to 5:00 p.m.)</td>
<td>73</td>
<td>72</td>
<td>80</td>
<td>60</td>
</tr>
<tr>
<td>Evening (after 5:00 p.m.)</td>
<td>27</td>
<td>28</td>
<td>20</td>
<td>40</td>
</tr>
<tr>
<td>N Reporting</td>
<td>(52)</td>
<td>(43)</td>
<td>(51)</td>
<td>(57)</td>
</tr>
<tr>
<td>Missing Data</td>
<td>(0)</td>
<td>(1)</td>
<td>(1)</td>
<td>(0)</td>
</tr>
<tr>
<td>Total N</td>
<td>(52)</td>
<td>(44)</td>
<td>(52)</td>
<td>(57)</td>
</tr>
</tbody>
</table>

a For these groups, the day and time of the second interview are reported.
These analytic techniques were chosen because each was considered appropriate to address the research question with which it was associated. That is, factor analysis was considered appropriate for identifying the underlying components of respondent burden because one of its primary capabilities is to generate factors which describe the underlying structure of a set of variables. Since, as described by Kerlinger and Pedhazur (1973), regression analysis is "a method of analyzing the collective and separate contributions of two or more independent variables ... to the variation of a dependent variable" (p. 3), it was considered appropriate for addressing the second research question. The application of each of these procedures is described below.

Procedures Used in the Factor Analysis

Twenty-one variables were entered into the factor analysis. (The types of variables used were listed in Chapter 1; each will be described in detail in Chapter 4.) A number of steps were carried out to generate factors from these variables.

First, the data were recoded, yielding the final coding scheme shown in Appendix B. In general, recoding was done to put all of the codes in the same direction (with lower scores indicating less burdened responses), and to avoid artificial precision in the data (e.g., distinctions between values such as "hard" and "very hard."). To address this last point, variables originally on a four or more point scale were dichotomized or, where substantively sensible, were trichotomized, with "1" indicating a positive, "2" a neutral, and "3" a negative response.
Secondly, once consistent coding had been accomplished, the data were converted to Z scores, and the correlations among the scores were calculated. The resulting correlation matrix was factor analyzed using The Statistical Package for the Social Sciences (Nie, Hull, Jenkins, Steinbrenner, and Bent, 1975), with the following options in place:

1. PA2, the Principal Factors Solution with Iterations, was specified with no maximum set on the number of initial factors to be extracted.³ The PA2 option was chosen because, as described in detail in the footnote, it uses an iterative process to extract the initial factors. Due to the iterations involved, PA2 results in a set of final factors which tend to fit the data better, i.e., which account for more of the variance, than those derived by PA1, a similar process which is not, however, iterative.

2. An orthogonal rotation using the VARIMAX solution was specified to extract the final factors. The VARIMAX solution was chosen because it maximizes the extent to which the different factors all "load on" or correlate with different sets of variables. It thus yields factors which are more readily interpretable than those produced by other solutions, e.g.,

³As noted in the SPSS manual, PA2 is the most commonly used method of factor analysis (Nie et al., 1975, p. 4). Through this method, an initial set of uncorrelated or orthogonal factors is extracted from the original data set such that the first factor explains the largest amount of variance in the data set, the second factor explains the second largest amount, and so on, until all of the variance has been explained. (Since standardized variables are used, the total variance in the data set is, of course, equal to the number of variables in the set.) PA2 differs from other methods of factor analysis because it uses an iterative process to extract the initial factors.
QUARTIMAX, in which factors all with moderate loadings on the same variables may be produced. Only those initial factors with eigenvalues of at least 1.0 were rotated during this step.4

**Procedures Used in the Regression Analysis**

Scores for all terminal factors with eigenvalues of at least 1.0 were used as the criterion variables in the regression analysis. Ten predictor variables were also used in that procedure. Three of these predictors—interview interruptions, interview time, and interview day—were entered first as covariates. The remaining variables were then entered using a forward regression procedure. The forward procedure was used because it enters variables into a regression model according to the magnitude of the variance each explains in the criterion. Thus, it seemed to be an appropriate method for estimating the relative contribution of each independent variable to the criterion. Although also possibly appropriate for this situation, a stepwise solution was not selected because, for reasons of clarity of interpretation, the author did not want to use a procedure which might delete variables already in the equation.

The significance of the overall relationship between each criterion variable and the manipulated and attribute independent variables was tested using the techniques described in Kerlinger and

4 The "eigenvalue" noted in the text is used to compute the percent of variance in the original data set explained by the particular factor with which that eigenvalue is associated. The cut-off of "1" was used, because a factor with an eigenvalue of 1 or more accounts for at least one "variable's worth" of variance. For further details, see Kerlinger and Pedhazur (1973) or Thorndike (1978).
Pedhazur (1973). Following the procedures recommended by these authors, the sum of squares regression, or the sum of squares attributable to all of the predictors, was partitioned into the sum of squares attributable to the covariates and the sum of squares attributable to the independent variables of interest. Only this last quantity was then tested for significance using the following F ratio:

\[
F = \frac{\text{Sum of Squares for the Independent Variables}}{k} \div \frac{\text{Sum of Squares Residual}}{n-k-1}
\]

where \( k \) is equal to the number of coded vectors used to represent the independent variables.

The significance of the relationship of each specific independent variable to the criterion variable was also assessed using a similar F ratio. The relative contribution of each variable to the criterion was noted by examining the proportion of variance it explained when added to the regression equation.

Before entry into the regression models, categorical independent variables were coded using "effect" coding. (See Kerlinger and Pedhazur, Chapter 7, 1973.) Through this method, the direct effect of membership in a particular category of variable (e.g., in the categories for people "under 40" or "employed people") upon the respondent's predicted score for a particular component of respondent burden was assessed.
CHAPTER 4

RESULTS

Introduction

This research has focused on the topic of respondent burden, defined, for the study, as the negative feelings which may be experienced by persons who participate in voluntary personal interviews. A review of federal guidelines relating to respondent burden (see Chapter 1) suggested that such policies are based on the assumptions that long interviews are more burdensome than short ones and that repeated interviewing, such as that experienced by persons participating in a survey panel, also leads to an increase in burden. These assumptions have also been articulated in the private sector, which is concerned about exhausting the good will of the American public.

However, as described in Chapter 2, some survey research methodologists contend that the relationship between interview length, number of interviews, and respondent burden is far from clear and that there may be other mediating factors, such as the characteristics of the respondent, which affect respondent reactions. These researchers also have stated that the construct of respondent burden itself is ill-defined, and that, before further research about the correlates of burden is pursued, the field must step back to explore the meaning of this phenomenon.
To address these concerns, a reanalysis of a data base developed by the author through a previous study was carried out. In this earlier study, respondents participated in one of four experimental treatments: a short (25-minute) single interview, a long (75-minute) interview, or two short or long interviews, with the second administered ten months after the first using a similar interview instrument. Respondent reactions to the interview were assessed via a self-administered reaction form handed to the respondent at the end of the treatment interview. Responses to this form, as well as background information about respondent characteristics and characteristics of the interview itself, constituted the data base for the present research.

During the reanalysis of this data base, two major research questions were of interest:

1. What are the underlying dimensions or components of respondent burden as measured through the reaction form?

2. In explaining the various dimensions of respondent burden, what are the relative contributions of:

   a. interview length;

   b. panel participation;

   c. respondent demographic characteristics; and

   d. past participation in other surveys as reported by respondents?

The first question was explored through factor analysis and the second through regression analysis of the data base. This chapter reports the results of those analyses.
Dimensions of Respondent Burden:
Results of the Factor Analysis

A description of the 21 variables which were factor analyzed is provided in Figure 4. Table 6 shows the factor matrix obtained from these variables, and Table 7 presents the percent of total and common factor variance accounted for by each factor. As these tables indicate, 7 factors were identified, which, considered as a set, account for approximately 63 percent of the total variance in the data. These factors are described below, in order of magnitude of variance explained.

Factor 1

This factor is defined primarily by loadings on six variables: V13, views about the value of the time and effort spent answering the interview questions (with a loading of .72); V6 and V7, ratings of the interest (.71) and importance (.63) of this interview; V1 and V3, views about the general benefits (.52) and interest (.49) of survey participation; and V4, views about the ability of survey participants to affect government decisions (.42). This combination of variables seems to reveal the presence of an attitude which taps feelings of the interest, importance, and benefits of survey participation. Since respondent burden has been defined as negative feelings toward the

5The "total variance" is the sum of the individual variances of the variables which have been factor analyzed. In this case, the total variance is 21, since 21 standardized variables were used. The "common factor variance" refers to that portion of the total variance which is accounted for or explained by the factors.

6A "loading" can be interpreted as the correlation between a variable and a factor.
<table>
<thead>
<tr>
<th>Variable Number</th>
<th>Variable Label</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>V1</td>
<td>Q3A Survey benefits</td>
<td>• Answering surveys is of direct benefit to the people who answer.</td>
</tr>
<tr>
<td>V2</td>
<td>Q3B Too many surveys</td>
<td>• Too many surveys are being conducted these days.</td>
</tr>
<tr>
<td>V3</td>
<td>Q3C Surveys are interesting</td>
<td>• Taking part in surveys can give me a chance to talk about interesting topics.</td>
</tr>
<tr>
<td>V4</td>
<td>Q3D Surveys affect government decisions</td>
<td>• By taking part in surveys, I can affect the government's decisions.</td>
</tr>
<tr>
<td>V5</td>
<td>Q3E Surveys are too personal</td>
<td>• Surveys ask questions that are too personal.</td>
</tr>
<tr>
<td>V6</td>
<td>Q4 Interest of this interview</td>
<td>• Rating of the interest level of the interview just completed.</td>
</tr>
<tr>
<td>V7</td>
<td>Q5 Importance of this interview</td>
<td>• Rating of the importance of the interview just completed.</td>
</tr>
<tr>
<td>V8</td>
<td>Q6 The interviewer in this interview</td>
<td>• Views about the manner of the interviewer conducting interview just completed.</td>
</tr>
<tr>
<td>V9</td>
<td>Q7 Length of this interview</td>
<td>• Views about the length of the interview just completed.</td>
</tr>
<tr>
<td>V10</td>
<td>Q8 Willingness to continue additional minutes</td>
<td>• Stated willingness/unwillingness to continue the interview for 15-30 minutes, given hypothetical opportunity to do so.</td>
</tr>
<tr>
<td>V11</td>
<td>Q9 Difficulty of this interview</td>
<td>• Rating of the difficulty of the interview just completed.</td>
</tr>
<tr>
<td>V12</td>
<td>Q10 Accuracy of answers</td>
<td>• Views about accuracy of information provided regarding utility bills and household expenses.</td>
</tr>
<tr>
<td>V13</td>
<td>Q11 Were time and effort well spent</td>
<td>• Views about &quot;how well spent&quot; were time and effort put into answering interview questions.</td>
</tr>
<tr>
<td>V14</td>
<td>Q12 Nuisance scale for this interview</td>
<td>• Rating of the overall burdensomeness of this interview vis-a-vis other tasks.</td>
</tr>
<tr>
<td>V15</td>
<td>Q15 Willingness to be reinterviewed</td>
<td>• Stated willingness/unwillingness to allow the interviewer to return a year hence.</td>
</tr>
<tr>
<td>V16</td>
<td>Q16A Improve surveys: explain use of answers</td>
<td>• Explain more about how the answers will be used.</td>
</tr>
<tr>
<td>V17</td>
<td>Q16B Improve surveys: explain confidentiality procedures</td>
<td>• Explain more about how the confidentiality of the answers is protected.</td>
</tr>
<tr>
<td>V18</td>
<td>Q16C Improve surveys: hire better interviewers</td>
<td>• Hire better interviewers.</td>
</tr>
<tr>
<td>V19</td>
<td>Q16D Improve surveys: use shorter questionnaires</td>
<td>• Use shorter questionnaires.</td>
</tr>
<tr>
<td>V20</td>
<td>Q16E Improve surveys: ask less personal questions</td>
<td>• Ask fewer personal questions.</td>
</tr>
<tr>
<td>V21</td>
<td>Q16F Improve surveys: ask more open-ended questions</td>
<td>• Give respondents more chance to talk about their ideas and opinions.</td>
</tr>
</tbody>
</table>

**Figure 4:** Description of the variables included in the factor analysis.

**Note:** Question numbers refer to questions in the form shown in Appendix B.
### Table 6
Varimax Rotated Factor Matrix

<table>
<thead>
<tr>
<th></th>
<th>Factors</th>
<th></th>
<th></th>
<th></th>
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<td>.14</td>
<td>.12</td>
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<td>.03</td>
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<td>.03</td>
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<td>.06</td>
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<td>.03</td>
<td>.03</td>
<td>.07</td>
<td>.19</td>
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<tr>
<td>V21</td>
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<td>.16</td>
<td>- .10</td>
<td>.32</td>
<td>.00</td>
<td>- .06</td>
<td>.17</td>
</tr>
</tbody>
</table>

**Eigenvalue:**

4.67 1.41 1.02 8.6 76 58 43
Table 7

Percents of Total and Common Factor Variance

Accounted for by Various Factors

<table>
<thead>
<tr>
<th>Factor</th>
<th>Eigenvalue</th>
<th>Percent of Total Variance</th>
<th>Cumulative Percent&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Percent of Common Factor Variance</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>4.67</td>
<td>24.3</td>
<td>24.3</td>
<td>48.0</td>
<td>48.0</td>
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<td>2</td>
<td>1.41</td>
<td>9.0</td>
<td>33.4</td>
<td>14.5</td>
<td>62.6</td>
</tr>
<tr>
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<td>1.02</td>
<td>6.9</td>
<td>40.3</td>
<td>10.5</td>
<td>73.1</td>
</tr>
<tr>
<td>4</td>
<td>0.86</td>
<td>6.4</td>
<td>46.7</td>
<td>8.8</td>
<td>81.9</td>
</tr>
<tr>
<td>5</td>
<td>0.76</td>
<td>5.9</td>
<td>52.6</td>
<td>7.8</td>
<td>89.7</td>
</tr>
<tr>
<td>6</td>
<td>0.58</td>
<td>5.7</td>
<td>58.3</td>
<td>5.9</td>
<td>95.6</td>
</tr>
<tr>
<td>7</td>
<td>0.43</td>
<td>4.9</td>
<td>63.2</td>
<td>4.4</td>
<td>100.0</td>
</tr>
</tbody>
</table>

<sup>a</sup>Percents do not total exactly to cumulative percents due to rounding error.
interview, this factor is named in the negative as well, as "Perceived Uselessness."

The Perceived Uselessness factor suggests that an important component of respondent burden is the extent to which respondents feel that their participation in surveys is of little importance, does not affect decision makers, and does not confer benefits on themselves or others. It is noteworthy that, for this particular group of respondents, this factor is the most important component of respondent burden in that it accounts for the largest percentage of total (24%) and common factor (48%) variance in the data (Table 7).

Factor 2

The second factor loads on three variables: V10, stated willingness or unwillingness to continue with the interview given a hypothetical opportunity to do so, which had a loading of .85; V9, views about the length of the interview (was it too short, too long, just right?), which had a loading of .77; and V19, views about the use of short questionnaires as a way of improving surveys (.60). This factor, then, clearly taps respondents feelings about the time required for survey participation. For this particular group of respondents, the "Time Concerns" factor was the second most important component of respondent burden, accounting for 9% of the total, and 14% of the common factor variance in the data.

Factor 3

This factor, which is termed "Privacy Concerns" accounts for approximately 7% of the total and 10% of the common factor variance. It
is defined by loadings on variables representing agreement/disagreement with three statements: asking fewer "personal questions" would be a way of improving surveys (V20, which had a loading of .75); surveys ask questions that are "too personal" (V5, with a loading of .70); and "too many surveys are being conducted these days" (V2, with a loading of .46). In this context, the last statement is interpreted as reflecting the same concern as the others, following the reasoning of the researchers conducting the USDA study referenced in Chapter 2 (Jones et al., 1979), from which the "too many" question used in the reaction form was taken. As stated in their report, these authors felt that: "too many does not refer so much to the actual number of survey requests as it does to the feeling of some . . . [respondents] that surveys are an unwelcome intrusion into their private lives" (p. 100).

The three factors just described—Perceived Uselessness, Time Concerns, and Privacy Concerns—are the most important components of respondent burden for this group of respondents. Together these factors account for approximately 40% of the total and 73% of the common factor variance in the data (Table 7).

The Remaining Factors

Although the final four factors are of less importance from a variance point of view (explaining only about one-quarter of both the total and common factor variance), they are worth examining because they suggest dimensions of respondent burden which are consistent with the literature reviewed in Chapter 2. For example, feelings about the difficulty of the interview have been flagged as a possible component of
respondent burden in the measurement attempts of other researchers, as well as by survey research theoreticians. Bradburn and Dillman are cases in point, with the first author noting that "as the task becomes more difficult, ceteris paribus, the burden on the respondent increases" (Bradburn, 1978a, p. 49), and the second stating that the "cost of the interview is high when great . . . effort is required [producing] feelings of inadequacy or even anxiety" on the part of the respondent (Dillman, 1978, p. 15). This component of respondent burden, reflecting respondent feelings about the difficulty of the interview, is suggested by factor 6 which shows a moderate loading on V11, views about the difficulty of the interview (.49), coupled with a lower, but still noticeable loading (.37) on V14, the "overall bothersomeness of this survey" as compared to other social tasks. The fact that the eigenvalue of this factor is lower than 1 may be a function of the fact that only one question asking about difficulty per se was included in the reaction form.

The research reviewed in Chapter 2 also suggests that the interviewer is an important determinant of respondent reactions to the interview. This dimension appears to be revealed in factor 5, which loads heavily (.85) on V8, ratings of the interviewer's manner in conducting the interview. Again, the fact that the eigenvalue of this factor is under 1 may be a function of the limitations of the data base, which contained only two questions relating to interviewers (Qs 6 and

7The "eigenvalue" of a factor is calculated by squaring and summing the factor's loadings. This figure divided by the number of variables used in computing the factor indicates the proportion of total variance accounted for by the factor.
16c), as well as a function of the study design which attempted to treat the interviewer as a constant, by using only female, and primarily experienced, personnel.

Factor 4 shows a high or moderate loading on two variables (V16 and V17), involving agreement or disagreement with the statements that to improve surveys one should: "explain more about how the answers will be used" (.84); and "explain how the confidentiality of the answers is protected" (.51). A lower but still noticeable loading (.32) is seen for V21, involving improving surveys by asking "more open-ended questions." At the risk of reading more into these responses than is warranted, we may place the emphasis on the words "explain" and "open-ended." Given that emphasis, we may conjecture that, in all of these statements, the respondent is asking the interviewer to create an atmosphere in which there is more open exchange between the interview participants, whether it is on the part of the interviewer who is asked to offer more information about the survey, or on the part of the respondent who is asking for the opportunity to express his or her ideas in a more open format. If such an interpretation is accurate, it would explain why V17, the request for an explanation of confidentiality procedures, loads more heavily on factor 4, than on factor 3, Privacy Concerns. Again, however, it must be stressed that the interpretation given here is conjecture.

The final factor, factor 7, does not show any consistent patterning of variables and is therefore uninterpretable.
An Examination of the Variables

How much do we know about the factors underlying respondents' willingness to continue the interview for an additional amount of time, their willingness to be reinterviewed, or their feelings about the difficulty or importance of the interview? Although not specifically called for in the data analysis plan, it is of interest to examine these questions because of their practical importance to researchers who may need to call upon a respondent for a reinterview, for additional time to complete a current interview, etc.

The relevant information is presented in Table 8, which shows the communality of the variables, or the proportion of variance in each accounted for by the seven factors identified in the analysis.\(^8\) An examination of this table indicates that the variables can be placed into three groups. In the first group, the factors account for over 50 percent of the variance of each variable; in the second, the factors account for a moderate amount of variance (i.e., 25-50%); and in the remaining group of three variables less than 25% of the variance is explained.

It is of interest to examine some of these variables individually. To do so, we must look both at Table 8, which reports the communalities, and at the loadings reported earlier in Table 6. The loadings indicate that most of the variables in the first group are

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\(^8\)The communalities are computed by squaring and summing the factor loadings for each variable. As noted earlier, the loadings themselves are directly interpretable as correlation coefficients between each variable and each factor, so that squaring them indicates the variance in the variable accounted for by a particular factor.
Table 8

Communality of the Variables Grouped In Order of Magnitude

<table>
<thead>
<tr>
<th>Variable Number</th>
<th>Variable Label</th>
<th>Communality</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Group I: Over 50% Communality</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Q8 Willingness to continue additional minutes</td>
<td>.83</td>
</tr>
<tr>
<td>8</td>
<td>Q6 The Interviewer in this interview</td>
<td>.78</td>
</tr>
<tr>
<td>16</td>
<td>Q16 Improve surveys: explain use of answers</td>
<td>.73</td>
</tr>
<tr>
<td>20</td>
<td>Q16E Improve surveys: ask less personal questions</td>
<td>.70</td>
</tr>
<tr>
<td>13</td>
<td>Q11 Were time and effort well spent</td>
<td>.69</td>
</tr>
<tr>
<td>9</td>
<td>Q7 Length of the interview</td>
<td>.65</td>
</tr>
<tr>
<td>6</td>
<td>Q4 Interest of this interview</td>
<td>.59</td>
</tr>
<tr>
<td>19</td>
<td>Q16D Improve surveys: use shorter questionnaires</td>
<td>.57</td>
</tr>
<tr>
<td>5</td>
<td>Q3E Surveys are too personal</td>
<td>.52</td>
</tr>
<tr>
<td><strong>Group II: 25-50% Communality</strong></td>
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<td></td>
</tr>
<tr>
<td>7</td>
<td>Q5 Importance of this interview</td>
<td>.46</td>
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<tr>
<td>14</td>
<td>Q12 Nuisance scale for this interview</td>
<td>.44</td>
</tr>
<tr>
<td>17</td>
<td>Q16B Improve surveys: explain confidentiality procedures</td>
<td>.37</td>
</tr>
<tr>
<td>2</td>
<td>Q3B Too many surveys</td>
<td>.36</td>
</tr>
<tr>
<td>4</td>
<td>Q30 Surveys affect government decisions</td>
<td>.36</td>
</tr>
<tr>
<td>3</td>
<td>Q3C Surveys are interesting</td>
<td>.32</td>
</tr>
<tr>
<td>15</td>
<td>Q15 Willingness to be reinterviewed</td>
<td>.31</td>
</tr>
<tr>
<td>1</td>
<td>Q3A Survey benefits</td>
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</tr>
<tr>
<td>11</td>
<td>Q9 Difficulty of this interview</td>
<td>.25</td>
</tr>
<tr>
<td><strong>Group III: Less than 25% Communality</strong></td>
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</tr>
<tr>
<td>21</td>
<td>Q16F Improve surveys: ask more open-ended questions</td>
<td>.18</td>
</tr>
<tr>
<td>18</td>
<td>Q16C Improve surveys: hire better interviewers</td>
<td>.17</td>
</tr>
<tr>
<td>12</td>
<td>Q10 Accuracy of answers</td>
<td>.15</td>
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</table>
That is, their variance is explained chiefly by their correlation with a single factor. This is true, for example, of V10 "Willingness to Continue Additional Minutes," and of V9, "Length of the Interview," both of which are correlated primarily with the Time Concerns factor. V13, "Were Time and Effort Well Spent," and V7 "Interest of this Interview" are further examples of simple variables, since both are correlated primarily with the Perceived Uselessness factor.

On the other hand, two variables stand out as being relatively complex, in that they show moderate correlations with more than one factor. The first of these is of considerable practical importance, namely V15, which is the stated willingness or unwillingness of the respondent to be reinterviewed at a later date. Only 31% of the variance in this variable is explained by the factors, with, as shown in Table 6, 9% attributable to factor 1, Perceived Uselessness, approximately 8% to factor 2, Time Concerns, 7% to factor 3, Privacy Concerns, and the remaining 7% distributed among the other factors.

This finding suggests that, for this group of respondents, stated willingness or unwillingness to be reinterviewed was a complex decision, related in part to the factors uncovered here, but also related to one or more factors, and perhaps to chance elements, which are still unknown. (It is worth mentioning that no attempt was made in the original study to validate respondents' answers to this question, which was asked after the intended number of interviews--one or two--had been completed. That is, no additional interview was actually attempted.)
The second noteworthy complex variable is V14, the "Nuisance Scale," which was derived from question 12, in which respondents were asked to rate the bothersomeness of the survey against other common tasks. This variable shows moderate correlations (.20 to .37) with every factor in the analysis except factor 4, yet over half of the variance in the scale remains unexplained. Thus, as was the case with willingness to be reinterviewed, the overall nuisance rating given to the interview seems to be related to a complex set of considerations.

Summary of the Factor Analysis and Computation of the Factor Scores

Seven factors were identified by the analysis reported here, six of which were interpreted by the author as components of respondent burden:

1. The perceived uselessness of the interview.
2. Concerns about time.
3. Privacy concerns.
4. Concerns about the ability to express attitudes openly during the interview.
5. Feelings about the interviewer.
6. Attitudes about the difficulty of the interview.

However, for this group of respondents, only the first three factors were important, explaining respectively, 48%, 14.5%, and 10.5% of the common factor variance in the data. Therefore, only these factors were retained for use in the regression analysis.

As a preliminary step of this analysis, scores were computed for all respondents on each of the three factors. The meaning of these
scores may be clarified by examining the procedures used to compute them. Each factor score was calculated by multiplying each standardized variable used in the factor analysis by its standardized coefficient, as computed by the analysis. The following formula was used:

$$\text{FACTOR SCORE} = a_1 z_1 + a_2 z_2 + \ldots + a_n z_n$$

where "a" is the standardized score coefficient and Z is the standardized variable. As explained in Chapter 3, the original variables had been coded so that lower scores represented positive or "unburdened" reactions to the interview, middle scores represented neutral responses, and higher scores negative or "burdened" responses. Given the algorithm used to compute Z scores, \( Z = (\text{variable-mean of variable})/\text{standard deviation} \), their values would have a similar interpretation.

Since the factor scores are combinations of Z scores, formed by multiplying each Z by its associated coefficient (which were positive in value for the important variables loading on the factor), it also follows that this same interpretation holds for the factor scores themselves. Again, the scale of scores ranges from negative values (which indicate relatively "unburdened" reactions) to positive values, which are indications of respondent burden.

With that background in mind, the distribution of respondents on the three factors may be examined. The data are presented in Tables 9, 10, and 11. It can be noted that a larger proportion of respondents in this sample appear to be expressing "burdened" feelings along the
Table 9
Distribution of Respondents on Factor 1, Perceived Uselessness

<table>
<thead>
<tr>
<th>Score</th>
<th>(N)</th>
<th>%</th>
<th>Cumulative %</th>
</tr>
</thead>
<tbody>
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<td>-2.00 to -1.50</td>
<td>(2)</td>
<td>1.0</td>
<td>1.0</td>
</tr>
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<td>-1.49 to -1.00</td>
<td>(32)</td>
<td>15.6</td>
<td>16.6</td>
</tr>
<tr>
<td>-0.99 to -0.50</td>
<td>(27)</td>
<td>13.2</td>
<td>29.8</td>
</tr>
<tr>
<td>-0.99 to -0.00</td>
<td>(43)</td>
<td>21.0</td>
<td>50.8</td>
</tr>
<tr>
<td>0.01 to 0.50</td>
<td>(51)</td>
<td>24.9</td>
<td>75.7</td>
</tr>
<tr>
<td>0.51 to 1.00</td>
<td>(22)</td>
<td>10.7</td>
<td>96.4</td>
</tr>
<tr>
<td>1.01 to 1.50</td>
<td>(17)</td>
<td>8.3</td>
<td>94.7</td>
</tr>
<tr>
<td>1.51 to 2.00</td>
<td>(8)</td>
<td>3.9</td>
<td>98.6</td>
</tr>
<tr>
<td>2.01 to 2.50</td>
<td>(3)</td>
<td>1.5</td>
<td>100.1</td>
</tr>
</tbody>
</table>

$\bar{x} = -0.03$  $\text{Minimum} = -1.76$

$SD = 0.87$  $\text{Maximum} = 2.38$

Note. Because of the computational procedures used, the scores presented here only approximate standard scores. Therefore, their means and standard deviations approximate those of standard scores.
Table 10
Distribution of Respondents on Factor 2, Time Concerns

<table>
<thead>
<tr>
<th>Score</th>
<th>(N)</th>
<th>%</th>
<th>Cumulative %</th>
</tr>
</thead>
<tbody>
<tr>
<td>-1.49 to -1.00</td>
<td>(13)</td>
<td>6.4</td>
<td>6.4</td>
</tr>
<tr>
<td>-0.99 to -0.50</td>
<td>(88)</td>
<td>42.9</td>
<td>49.3</td>
</tr>
<tr>
<td>-0.89 to -0.00</td>
<td>(33)</td>
<td>16.1</td>
<td>65.4</td>
</tr>
<tr>
<td>0.01 to 0.50</td>
<td>(13)</td>
<td>6.3</td>
<td>71.7</td>
</tr>
<tr>
<td>0.51 to 1.00</td>
<td>(13)</td>
<td>6.3</td>
<td>78.0</td>
</tr>
<tr>
<td>1.01 to 1.50</td>
<td>(33)</td>
<td>16.1</td>
<td>94.1</td>
</tr>
<tr>
<td>1.51 to 2.00</td>
<td>(12)</td>
<td>5.9</td>
<td>100.0</td>
</tr>
</tbody>
</table>

\[ \bar{X} = -.07 \quad \text{Minimum} = -1.46 \]
\[ SD = .89 \quad \text{Maximum} = 1.93 \]

**Note.** Because of the computational procedures used, the scores presented here only approximate standard scores. Therefore, their means and standard deviations approximate those of standard scores.
Table 11

Distribution of Respondents on Factor 3, Privacy Concerns

<table>
<thead>
<tr>
<th>Score</th>
<th>(N)</th>
<th>%</th>
<th>Cumulative %</th>
</tr>
</thead>
<tbody>
<tr>
<td>-1.49 to -1.00</td>
<td>(12)</td>
<td>5.9</td>
<td>5.9</td>
</tr>
<tr>
<td>-0.99 to -0.50</td>
<td>(74)</td>
<td>36.1</td>
<td>42.0</td>
</tr>
<tr>
<td>-0.49 to -0.00</td>
<td>(47)</td>
<td>23.9</td>
<td>65.9</td>
</tr>
<tr>
<td>0.01 to 0.50</td>
<td>(22)</td>
<td>10.7</td>
<td>76.6</td>
</tr>
<tr>
<td>0.51 to 1.00</td>
<td>(15)</td>
<td>7.3</td>
<td>83.9</td>
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<td>1.01 to 1.50</td>
<td>(18)</td>
<td>8.8</td>
<td>92.7</td>
</tr>
<tr>
<td>1.51 to 2.00</td>
<td>(17)</td>
<td>8.3</td>
<td>101.0</td>
</tr>
</tbody>
</table>

\[ \bar{x} = -.06 \quad \text{Minimum} = -1.35 \]
\[ \text{SD} = .84 \quad \text{Maximum} = 1.84 \]

Note Because of the computational procedures used, the scores presented here only approximate standard scores. Therefore, their means and standard deviations approximate those of standard scores.
Perceived Uselessness dimension (factor 1) than along either of the other two dimensions, with roughly 50% of the group having scores with positive signs on factor 1, as against only about 35% with such scores for factors 2 and 3. These data, then, are yet another way of illustrating that, for these respondents, Perceived Uselessness is a more pressing or important component of respondent burden than are either Time or Privacy Concerns.

Correlates of Respondent Burden: Results of the Regression Analysis

The regression analysis was carried out to determine the relative contribution of the various manipulated and attribute independent variables in explaining the three major dimensions of respondent burden described above. Three "nuisance" variables—interruptions during the interview, and time and day of interview administration—were controlled by entering them first as covariates in the regression models. The remaining variables were then entered by the computer program in a sequence determined by the amount of variance each explained in the burden factor under analysis.

The bivariate correlations among all of the independent variables and covariates used in the regression analysis are reported in Table 12. Significant correlations (p<.01) were found between several of these variables, for example: employment status and sex, education, and age; income and education and age; and previous survey participation and age. (Several of the other correlations reported—for example, between the various education categories—were artifacts of the coding procedure used.)
Table 12
Correlation Matrix for Predictor Variables Used in the Regression Analyses

<table>
<thead>
<tr>
<th></th>
<th>Interview Length</th>
<th>Panel Participation</th>
<th>Income</th>
<th>Employment Status</th>
<th>Sex</th>
<th>Previous Survey Participation</th>
<th>Interview Interruptions</th>
<th>Interview Time</th>
<th>Interview Day</th>
<th>Education (L.T. H.S. Graduate)</th>
<th>Education (H.S. graduate)</th>
<th>Age (Under 40)</th>
<th>Age (40-59)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interview length</td>
<td>1.000</td>
<td>.069</td>
<td>.029</td>
<td>.076</td>
<td>-.046</td>
<td>-.059</td>
<td>.022</td>
<td>-.073</td>
<td>.035</td>
<td>.009</td>
<td>-.118</td>
<td>.140</td>
<td>.031</td>
</tr>
<tr>
<td>Panel participation</td>
<td>1.000</td>
<td>-.051</td>
<td>.008</td>
<td>-.058</td>
<td>-.090</td>
<td>-.035</td>
<td>.027</td>
<td>-.002</td>
<td>-.403</td>
<td>-.172</td>
<td>-.192</td>
<td>.132</td>
<td></td>
</tr>
<tr>
<td>Income</td>
<td>1.000</td>
<td>.069</td>
<td>.133</td>
<td>.175</td>
<td>-.024</td>
<td>-.002</td>
<td>-.002</td>
<td>-.403</td>
<td>.192</td>
<td>.136</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Employment status</td>
<td>1.000</td>
<td>.224</td>
<td>-.007</td>
<td>-.056</td>
<td>.059</td>
<td>.116</td>
<td>-.310</td>
<td>-.132</td>
<td>.387</td>
<td>.268</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Sex</td>
<td>1.000</td>
<td>-.185</td>
<td>-.052</td>
<td>-.005</td>
<td>.132</td>
<td>.019</td>
<td>-.123</td>
<td>-.131</td>
<td>-.029</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Previous survey participation</td>
<td>1.000</td>
<td>.020</td>
<td>.045</td>
<td>-.004</td>
<td>-.155</td>
<td>-.026</td>
<td>.114</td>
<td>.192</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interview interruptions</td>
<td>1.000</td>
<td>-.038</td>
<td>.104</td>
<td>.009</td>
<td>.043</td>
<td>-.134</td>
<td>-.088</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interview time</td>
<td>1.000</td>
<td>.038</td>
<td>.104</td>
<td>-.075</td>
<td>-.079</td>
<td>.068</td>
<td>.005</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interview day</td>
<td>1.000</td>
<td>-.099</td>
<td>-.037</td>
<td>.035</td>
<td>.107</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education (L.T. H.S. graduate)</td>
<td>1.000</td>
<td>.669</td>
<td>-.082</td>
<td>.004</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education (H.S. graduate)</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age (under 40)</td>
<td>1.000</td>
<td>.385</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age (40-59)</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. Variables were coded as shown in Table 14.

*p<.05 (2 tailed test).

*p<.01 (2 tailed test).
Identification of these correlations was potentially important, since, at each stage of the forward regression procedure, the effects of previously entered variables are removed from the effects of the new predictor entered at that stage. Thus, for example, if "employment status" were entered into the regression equation at the first stage, the apparent contribution of "sex" (which is correlated with employment status) would be less than if the first variable had not been used.

However, the problem of high correlations among the predictor variables turned out to be moot in this research, because, as reported in Table 13, the correlations between each of these predictors and the criterion measures themselves were generally not significant. (There were some important exceptions such as the significant correlation (p<.01) between Time Concerns and interview length, and the significant correlations (p<.05) between Perceived Uselessness and several of the non-experimental variables.)

The results of the regression analysis are as might have been predicted from an examination of the bivariate correlations. The findings for factor 1, Perceived Uselessness, are reported in Table 14. The data show that the multivariate relationship of the independent variables to this component of respondent burden is not significant, and that the differences in the amount of variance in the criterion explained by each independent variable are small. Therefore, talking about the relative importance of these variables as contributors to Perceived Uselessness is not meaningful. These points are evidenced by the fact that only about 6% of the variance in Perceived Uselessness is explained by the variables of interest. As shown in Part
Table 13
Correlations Between Factor Scores and Predictor Variables

<table>
<thead>
<tr>
<th></th>
<th>Perceived Uselessness</th>
<th>Time Concerns</th>
<th>Privacy Concerns</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interview length</td>
<td>.134</td>
<td>.442***</td>
<td>.019</td>
</tr>
<tr>
<td>Panel participation</td>
<td>-.001</td>
<td>-.076</td>
<td>-.132</td>
</tr>
<tr>
<td>Income</td>
<td>.136</td>
<td>.137</td>
<td>-.056</td>
</tr>
<tr>
<td>Employment status</td>
<td>.168*</td>
<td>.168*</td>
<td>-.108</td>
</tr>
<tr>
<td>Sex</td>
<td>.012</td>
<td>-.088</td>
<td>-.039</td>
</tr>
<tr>
<td>Previous survey participation</td>
<td>-.005</td>
<td>.064</td>
<td>-.084</td>
</tr>
<tr>
<td>Interview interruptions</td>
<td>.007</td>
<td>.010</td>
<td>.109</td>
</tr>
<tr>
<td>Interview time</td>
<td>.116</td>
<td>-.083</td>
<td>-.064</td>
</tr>
<tr>
<td>Interview day</td>
<td>.177*</td>
<td>.093</td>
<td>.041</td>
</tr>
<tr>
<td>Education (L.T. H.S. graduate)</td>
<td>-.109</td>
<td>-.107</td>
<td>.067</td>
</tr>
<tr>
<td>Education (H.S. graduate)</td>
<td>-.022</td>
<td>-.037</td>
<td>.047</td>
</tr>
<tr>
<td>Age (under 40)</td>
<td>.148*</td>
<td>.102</td>
<td>-.025</td>
</tr>
<tr>
<td>Age (40-59)</td>
<td>-.016</td>
<td>-.003</td>
<td>-.083</td>
</tr>
</tbody>
</table>

*p < .05 (2 tailed test).

**p < .01 (2 tailed test).
Table 14
Regression Analysis of "Perceived Uselessness"

<table>
<thead>
<tr>
<th>Source</th>
<th>Prop. of Variance</th>
<th>Sum of Squares</th>
<th>DF</th>
<th>Mean Square</th>
<th>F</th>
<th>Significance</th>
<th>Correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Covariates</td>
<td>0.04093</td>
<td>5.00376</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Independent variables</td>
<td>0.06503</td>
<td>7.95021</td>
<td>10</td>
<td>0.79502</td>
<td>1.2293</td>
<td>NS</td>
<td>R² = 0.10596</td>
</tr>
<tr>
<td>Residual</td>
<td>0.89404</td>
<td>109.29866</td>
<td>162</td>
<td>0.64674</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>1.00000</td>
<td>122.25263</td>
<td>182</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Variables</th>
<th>B</th>
<th>BETA</th>
<th>F</th>
<th>Significance</th>
<th>Increase in R² Attributable to Variable at Step Entered</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employment status</td>
<td>0.0880</td>
<td>0.1052</td>
<td>1.344</td>
<td>NS</td>
<td>0.0206</td>
</tr>
<tr>
<td>Interview length</td>
<td>0.1037</td>
<td>0.1269</td>
<td>2.822</td>
<td>NS</td>
<td>0.0158</td>
</tr>
<tr>
<td>Income</td>
<td>0.0492</td>
<td>0.1134</td>
<td>1.773</td>
<td>NS</td>
<td>0.0134</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Under 40</td>
<td>0.0841</td>
<td>0.0835</td>
<td>0.853</td>
<td>NS</td>
<td>0.0032</td>
</tr>
<tr>
<td>40-60</td>
<td>-0.1009</td>
<td>-0.0883</td>
<td>1.077</td>
<td>NS</td>
<td>0.0059</td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H.S. graduate</td>
<td>0.0760</td>
<td>0.0864</td>
<td>0.656</td>
<td>NS</td>
<td>0.0020</td>
</tr>
<tr>
<td>L.T. H.S. graduate</td>
<td>-0.0781</td>
<td>-0.0662</td>
<td>0.312</td>
<td>NS</td>
<td>0.0021</td>
</tr>
<tr>
<td>Previous survey participation</td>
<td>-0.0308</td>
<td>-0.0336</td>
<td>0.185</td>
<td>NS</td>
<td>0.0009</td>
</tr>
<tr>
<td>Sex</td>
<td>0.0271</td>
<td>0.0317</td>
<td>0.144</td>
<td>NS</td>
<td>0.0009</td>
</tr>
<tr>
<td>Panel participation</td>
<td>0.0142</td>
<td>0.0173</td>
<td>0.052</td>
<td>NS</td>
<td>0.0003</td>
</tr>
<tr>
<td>Constant</td>
<td>-0.2967</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Variables used were as follows:
- **Covariates**: Presence of Interview Interruptions (1 = Yes, -1 = No), Interview Time (up to 5:00 p.m. = 1, after 5:00 p.m. = -1), Interview Day (1 = weekend/holiday, -1 = weekday).
- **Manipulated Independent Variables**: Panel Participation (-1 = No, 1 = Yes), Interview Length (-1 = short, 1 = long).
- **Attribute Independent Variables**: Income (coded in $5,000 increments), Age (2 vectors for under 40, 40-60, 60+, with members of category coded as 1, and 60+ as -1), Employment Status (1 = employed, -1 = not employed), Sex (1 = male, -1 = female), Education (2 vectors for L.T. H.S. graduate, H.S. graduate, and H.T. H.S. graduate), Previous Participation in Other (unrelated) Surveys (1 = Yes, -1 = No).
II of the table, no single variable accounts for more than 2% of the explained variance, with most variables accounting for less than 1%.

Much the same can be said about the third component of respondent burden, Privacy Concerns (Table 15). Again, neither the overall nor the variable-specific relationships are significant, and the total amounts of variance explained by the set of independent variables (4%) and by any specific variable (1% or less) are so small that describing the relative contribution of individual variables to this factor is not appropriate.

However, a considerably different picture emerges for factor 2, Time Concerns. As shown in Table 16, 28% of the variance in this component of respondent burden can be explained by the variables entered into the regression equation, with 26 accounted for by the independent variables. Further, the overall relationship between Time Concerns and these independent variables is a statistically significant one (p<.01).

Because of this overall finding, an examination of the relative contribution of each specific variable to Time Concerns is appropriate. The necessary information is provided in Part II of Table 16. As might have been predicted from the bivariate correlations reported earlier, the data show that the actual length of the interview given to the respondent is the most important variable contributing to the perception of burden along the Time Concerns dimension. Interview length explains almost 19% of the variance in Time Concerns, and is related to that factor at the .01 level of significance. Moreover, the relationship is consonant with the federal policy concerns described in Chapter 1. As indicated by the "b" coefficients, participating in the long interview
Table 15
Regression Analysis of "Privacy Concerns"

<table>
<thead>
<tr>
<th>I. Source</th>
<th>Prop. of Variance</th>
<th>Sum of Squares</th>
<th>DF</th>
<th>Mean Square</th>
<th>F</th>
<th>Significance</th>
<th>Correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Covariates</td>
<td>.01679</td>
<td>2.00026</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td>R² = .05559</td>
</tr>
<tr>
<td>Independent variables</td>
<td>.03880</td>
<td>4.62397</td>
<td>9</td>
<td>.51377</td>
<td>.7762</td>
<td>NS</td>
<td>Adj. R² = .01107</td>
</tr>
<tr>
<td>Residual</td>
<td>- .94441</td>
<td>112.52754</td>
<td>170</td>
<td>.66193</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>1.00000</td>
<td>119.5177</td>
<td>182</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>II. Variables</th>
<th>B</th>
<th>BETA</th>
<th>F</th>
<th>Significance</th>
<th>Increase in R² Attributable to Variable at Step Entered</th>
</tr>
</thead>
<tbody>
<tr>
<td>Panel participation</td>
<td>-.1099</td>
<td>-.1356</td>
<td>3.075</td>
<td>NS</td>
<td>.0151</td>
</tr>
<tr>
<td>Employment status</td>
<td>-.0709</td>
<td>-.0858</td>
<td>.979</td>
<td>NS</td>
<td>.0109</td>
</tr>
<tr>
<td>Previous survey participation</td>
<td>-.0882</td>
<td>-.0974</td>
<td>1.477</td>
<td>NS</td>
<td>.0094</td>
</tr>
<tr>
<td>Sex</td>
<td>-.0433</td>
<td>-.0514</td>
<td>.383</td>
<td>NS</td>
<td>.0022</td>
</tr>
<tr>
<td>Income</td>
<td>-.0061</td>
<td>-.0144</td>
<td>.028</td>
<td>NS</td>
<td>.0005</td>
</tr>
<tr>
<td>Interview length</td>
<td>.0157</td>
<td>.0194</td>
<td>.064</td>
<td>NS</td>
<td>.0004</td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>L.T. H.S. graduate</td>
<td>.0314</td>
<td>.0270</td>
<td>.050</td>
<td>NS</td>
<td>.0002</td>
</tr>
<tr>
<td>H.S. graduate</td>
<td>-.0106</td>
<td>-.0122</td>
<td>.012</td>
<td>NS</td>
<td>.0001</td>
</tr>
<tr>
<td>Age: 40-60b</td>
<td>-.0109</td>
<td>-.0097</td>
<td>.014</td>
<td>NS</td>
<td>.0001</td>
</tr>
<tr>
<td>Constant</td>
<td>.0658</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. Variables used are as shown in Table 14.

aFor clarity, Ed. H.S. Graduate is grouped under Education, although it was actually entered last into the equation.

bTolerance was insufficient for entry of Age, under 40 into the equation.
<table>
<thead>
<tr>
<th>I. Source</th>
<th>Prop. of Variance</th>
<th>Sum of Squares</th>
<th>DF</th>
<th>Mean Square</th>
<th>F</th>
<th>Significance</th>
<th>Correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Covariates</td>
<td>.01761</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
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<td>Independent variables</td>
<td>.26331</td>
<td>36.93752</td>
<td>10</td>
<td>3.69375</td>
<td>6.1884</td>
<td>p&lt;.01</td>
<td></td>
</tr>
<tr>
<td>Residual</td>
<td>.71908</td>
<td>100.87280</td>
<td>169</td>
<td>.59688</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>1.00000</td>
<td>140.28059</td>
<td>182</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>II. Variables</th>
<th>B</th>
<th>BETA</th>
<th>F</th>
<th>Significance</th>
<th>Increase in R² Attributable to Variable at Step Entered</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interview length</td>
<td>.3958</td>
<td>.4520</td>
<td>44.521</td>
<td>p&lt;.01</td>
<td>.1879</td>
</tr>
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<td>Employment status</td>
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<td>.1907</td>
<td>5.497</td>
<td>p&lt;.05</td>
<td>.0168</td>
</tr>
<tr>
<td>Sex</td>
<td>-.1631</td>
<td>-.1783</td>
<td>5.655</td>
<td>p&lt;.05</td>
<td>.0243</td>
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<tr>
<td>Income</td>
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<td>.1188</td>
<td>2.420</td>
<td>NS</td>
<td>.0143</td>
</tr>
<tr>
<td>Panel participation</td>
<td>-.0665</td>
<td>-.0757</td>
<td>1.231</td>
<td>NS</td>
<td>.0080</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Under 40</td>
<td>-.0777</td>
<td>-.0720</td>
<td>.788</td>
<td>NS</td>
<td>.0056</td>
</tr>
<tr>
<td>40-60</td>
<td>-.0769</td>
<td>-.0628</td>
<td>.678</td>
<td>NS</td>
<td>.0016</td>
</tr>
<tr>
<td>Previous survey participation</td>
<td>.0518</td>
<td>.0527</td>
<td>.566</td>
<td>NS</td>
<td>.0024</td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H.S. graduate</td>
<td>.0665</td>
<td>.0706</td>
<td>.544</td>
<td>NS</td>
<td>.0016</td>
</tr>
<tr>
<td>L.T. H.S. graduate</td>
<td>-.0558</td>
<td>-.0442</td>
<td>.172</td>
<td>NS</td>
<td>.0007</td>
</tr>
</tbody>
</table>

Constant: -.3542

Note. Variables used are as shown in Table 14.

*For clarity, Age 40-60 is grouped under Age, although it was actually entered after Previous Survey Participation.
adds about .4 of a point (or nearly one-half of a standard deviation) to a respondent's predicted score on the Time Concerns factor.

Less important, but still statistically significant (p<.05), in explaining Time Concerns are employment status, and sex, each of which contributes about 2% to the explained variance. The "b" coefficients for these variables show that employed persons have a somewhat higher predicted score on the Time Concerns dimension than do persons who are not employed, and that women have a higher predicted score than do men.

In concluding the examination of this component of respondent burden, it is also important to note that the Time Concerns factor is not related to the other manipulated variable (panel participation), nor to any of the other attribute variables entered into the regression equation.
CHAPTER 5
SUMMARY, IMPLICATIONS, AND SUGGESTIONS
FOR FURTHER RESEARCH

Introduction

This study attempted to examine some of the assumptions inherent in federal policies as well as those made by survey research professionals concerning the relative contribution of a number of independent variables to respondent burden in personal interviews. Before examining this issue, however, the attempt was also made to develop a more precise understanding of the concept of "burden" itself, by identifying its components, or the particular negative feelings which respondents to personal interview surveys may be experiencing. If they stand the test of replication, the findings of this study in both of these areas will have a number of practical implications for those who use personal interviews to conduct research in education and other fields, as well as for the sponsors of such research. These implications are highlighted in this chapter. Suggestions for further research on the topic of respondent burden are also put forth.

Summary of the Study Findings and Their Limitations

The factor analysis of respondents' answers to a self-administered form probing their reactions to a personal interview which
they had just completed yielded three important components of respondent burden:

1. The Perceived Uselessness factor, which loaded on variables relating to the interest, importance, and general benefits of survey participation, as well as views about the ability of survey participants to affect government decisions. This factor was the most important component of respondent burden for these respondents, accounting for the largest percentage of the total (24%) and common factor (48%) variance in the data.

2. The Time Concerns factor which loaded on three variables related to "time": willingness to continue the interview, views about the length of the just-completed interview, and views about the use of short questionnaires as a way of improving surveys. For the respondents studied here, Time Concerns was the second most important dimension of respondent burden, accounting for approximately 9% of the total and 14% of the common factor variance in the data.

3. The Privacy Concerns factor which loaded on three variables representing agreement/disagreement with the statements: asking fewer personal questions would be a way of improving surveys; surveys ask questions that are too personal; and too many surveys are being conducted these days. This factor was third in importance, accounting for about 7% of the total and 10% of the common factor variance in the data.

The regression analysis of each of these dimensions of respondent burden indicated that:
1. Neither Perceived Uselessness nor Privacy Concerns are related to any of the independent variables considered in this analysis. This is, these factors are not related to interview length, to panel participation, to respondent demographic characteristics, or to previous participation by respondents in other, unrelated surveys.

2. The Time Concerns factor is related (p.<.01) to actual interview length, with participants in the long interview expressing more negative feelings along this dimension than persons in the short interview group. Time Concerns were also related (p.<.05) to the respondent's sex (with females expressing more negative feelings than males) and to the respondent's employment status (with employed persons expressing more negative feelings than other respondents).

In interpreting these findings, however, the limitations of the study must be kept in mind:

1. The factors identified by this analysis were based on a form which did not represent the entire domain of respondent burden. For example, the form contained a limited number of questions on potentially important topics such as data accuracy, the interviewer, and the difficulty of responding to the questions asked. Had more questions been included in these or other areas, additional factors might have emerged as important components of respondent burden. Moreover, although it used items from earlier studies of respondent reactions to interviews...
and was pretested for the study, reliability data on the instrument were not available.

2. The findings were drawn from a study which used personal, voluntary, household interviews. Therefore, the findings are not necessarily applicable to other types of data collection activities, such as telephone surveys, or to mandatory data collection from captive audiences such as school administrators or teachers.

3. The study sample consisted predominantly of respondents who were white, female, relatively well-educated, and in the middle income brackets. All of the respondents lived in a suburban area. Therefore, the findings may not be applicable to other populations such as men, blacks, low-income groups, or residents of inner-cities or rural areas.

4. Due to the requirements of the analytic procedures used, the sample was limited to respondents who answered all items in the reaction form used in the analysis. By eliminating respondents who failed to answer one or more of these items, the analysis procedures may have eliminated the most burdened respondents.

5. The treatment interviews dealt with topics of presumably moderate salience, such as housing and energy costs, neighborhood conditions, and transportation. The results might have been different if more (or less) respondent-pertinent topics had been discussed.
Implications of the Study Findings

If they are replicable with other populations or in other settings, the findings summarized above will have implications in a number of areas for researchers and research sponsors:

1. Alleviating feelings of the uselessness of survey participation. The findings indicate that, for the group of respondents studied here, feelings about the uselessness of survey participation are the single most important component of respondent burden. To some extent, this finding may be a function of the instrument used in this research. As indicated earlier, this instrument did not contain items relating to all possible dimensions of respondent burden. Moreover, many of the questions that it did contain logically pertained to the "uselessness" dimension.

Despite these caveats, the finding reported here does enjoy strong support in other research. As described in Chapter 2, both the measurement attempts of other researchers and some of their findings (e.g., Walker Research, 1978) have suggested that feelings about the usefulness, benefits, and importance of survey participation are important determinants of respondent motivation. This suggestion also emerged in the theory developed by Bradburn (1978a), which stressed the importance of the salience of the task to the respondent. Finally, the finding reported here parallels most closely that of the NORC researchers (Jones et al., 1979) who noted that:

In their assessment of survey burden . . . [respondents] were not so much influenced by the number and length or type of surveys, as they [were] by their perception of the quality of surveys and the effects of surveys on their lives. (p. 69)
The probable importance of this factor suggests that to reduce respondent burden in personal interview surveys it is most important to alleviate feelings among respondents that their participation is a useless exercise. Determining how to accomplish this goal, however, will not be an easy task. For, as shown in the regression analysis, we do not yet understand very much about the circumstances which create or influence these feelings. The study findings suggest that Perceived Uselessness is not related to interview length, to panel participation, to respondent demographics, or to previous survey participation.

Absent any hard data in this area, it can only be suggested that researchers attempt to convey to potential respondents the importance and usefulness of the survey method and the likelihood that the survey data will, in fact, be used by the research sponsors. One way of implementing this idea was suggested at a conference of the American Association for Public Opinion Research (AAPOR), in which the speaker (Corson, 1979) noted that many market research organizations have public relations programs in the cities in which they are located, which consist of speaking at organizations about their research, and encouraging favorable articles in local media.

These and similar "image building" and other public relations mechanisms might be adopted by education and other researchers. At a minimum, all researchers might encourage reporting of their major research findings in local and national media. Education researchers might also gain access to local school district media, local and national education associations, and to PTAs and other community groups as outlets for their findings. Careful and convincing explanations "at
the door" about the importance and utility of specific research projects in which the respondent is asked to participate also are suggested as potentially useful ways of conveying to respondents the importance of their participation.

2. The importance of interview length. Time Concerns emerged as a second component of respondent burden in this research. This factor was indeed related to interview length, with "length" explaining about 19% of its variance. Thus, these findings at least partially confirm the common wisdom expressed through federal policies and in the "hearsay" literature that long interviews are more burdensome than short ones.

However, the Time Concerns factor was also found to be a much less important component of respondent burden than was the Perceived Uselessness dimension discussed above, with the latter accounting for 24% of the total variance in the data as opposed to only 9% for the former. Moreover, the Time Concerns factor did not figure heavily in such important considerations as the respondent's willingness to be reinterviewed, accounting for only 8% of the variance in that variable. (Perceived Uselessness also accounted for only about 9%.)

Based on the relative importance of these two components of respondent burden, it appears that the research profession would be well-advised to emphasize the importance and direct utility of its work when contacting respondents, rather than putting the emphasis on minimizing burden or inconvenience as they relate to interview length. On the other hand, we must also avoid "fishing expeditions" which lead to unnecessarily long interviews. Rather, each question asked must be
justifiable in the mind of the researcher by its direct relevance to the research agenda at hand.

3. **Dealing with privacy concerns.** Although less important than the other factors, Privacy Concerns were found to be a component of respondent burden expressed by the respondents to this study. As such, the privacy issue is one which should be addressed by the research profession. Again, however, the study carried out here yields no clues concerning the conditions which may alleviate negative feelings in this area among respondents.

One conventional approach which is sometimes used is to inform respondents beforehand of the extent to which the confidentiality of their responses will be maintained. While some support for this technique can be found in the literature concerning response rates (e.g., Hauck and Cox, 1974), and data quality (e.g., Singer, 1973), the effect of such disclosure upon respondent burden is not known. Moreover, as articulated by Singer (1978), "conventional survey wisdom advocates keeping the introduction short, so as not to lose the respondent's attention" (p. 145). Therefore, the optimum amount of information to be disclosed to respondents before the interview begins is an area needing further attention. However, at this point, disclosure of confidentiality provisions can certainly be supported on ethical, if not empirical, grounds.

4. **The question of survey panels and frequent interviews.** Based on an admittedly limited test (one vs. two interviews), panel participation does not appear to be an important contributor to respondent burden. The "panel" variable was not related to any of the
dimensions of respondent burden identified through this analysis. Thus, the conventional wisdom found in the literature concerning the burdensomeness of panel designs does not find any support in this research.

Similarly, participation in previous, unrelated surveys was also found to be unrelated to the various dimensions of respondent burden. Respondents reporting that they had participated in other interviews were not more burdened by the current interview than were other respondents. Thus, previous participation per se was not revealed as a correlate of burden. However, since respondents' reactions to their previous experiences could not be determined through this research, the effects of those reactions upon current perceptions could not be assessed.

5. Identifying "burdened" respondents. The research reported here included an attempt to determine the relationship between respondent burden and various demographic characteristics of respondents (i.e., sex, age, income, employment status, and education). No relationship was found between these characteristics and two of the dimensions of burden, i.e., Perceived Uselessness, and Privacy Concerns. However, the Time Concerns factor was significantly related (p.<.05) to sex and to employment status, with females and employed persons predicted to have more negative feelings along this dimension than, respectively, males or persons who were not employed.

These findings partially parallel those reported by Hawkins (1977) in which late response was also shown to be related
to employment status. But, Hawkins also found significant differences between late and other respondents in age, income, and education. Such discrepancies suggest that more research is needed to identify the demographic correlates of respondent burden.

Other Suggestions for Further Research

As emphasized in this document, the topic of respondent burden is not one about which a great deal is known. It thus represents a fertile field for continued research. Three broad areas may be identified as deserving of special attention:

1. Measurement of respondent burden. Further research is needed to determine the replicability of the factors identified here. We need to determine if these same sorts of factors emerge in other populations (e.g., low income groups), and in other data collection contexts (e.g., in phone surveys). This type of research should assist the research profession in developing a more tightly defined understanding of the components of respondent burden, and, therefore, a more precise ability to measure this phenomenon.

2. Causes of respondent burden. At this stage of our knowledge, additional ground-breaking research is necessary to begin to determine the conditions or variables which tend to produce negative feelings among survey respondents. The effect of demographic variables was mentioned earlier as a possible area for future study. At a minimum, we also need more information about the effects of the interviewer, the types of tasks the respondent is asked to carry out, and the topics discussed during the interview.
Such preliminary research, which might be done on a small scale, may serve to generate explicit hypotheses about the causes of respondent burden. Given both these hypotheses and some preliminary research results, we may be able to develop a more informed theory of respondent burden which, in turn, would permit a more informed selection of variables and research designs to further our understanding of this complex issue.

3. Effects of respondent burden. The effects of respondent burden represent an area which has received no attention in the literature. The relationship between respondent burden and the quality of the data obtained during the interview is, in particular, an important issue which should be addressed fully through future research efforts.
APPENDIX A

MEMBERS OF THE PROJECT ADVISORY COMMITTEE
DR. CHARLES F. CANNELL  
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MR. JOSEPH W. DUNCAN  
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MR. C. KINCANNON  
Office of Management and Budget  

MR. DAVID A. KOONS  
Bureau of the Census  

DR. KATHERINE C. LYALL  
Center for Metropolitan Planning  
and Research  
Johns Hopkins University
DR. MARGARET MARTIN
Committee on National Statistics
National Academy of Sciences

MR. ROBERT RAYNSFORD
Office of Management and Budget

MS. NAOMI ROTHWELL
Bureau of the Census

DR. SEYMOUR SUDMAN
University of Illinois
APPENDIX B

THE STUDY REACTION FORM AND CODES
USED FOR THE FACTOR ANALYSIS
REACTION FORM

We are asking you to fill out this form because we would like to find out how you feel about surveys in general and about this survey in particular. Most of the questions can be answered simply by circling or writing a number. If you have trouble with any of the questions, please note this on the form, and try to answer as best you can. The interviewer is not permitted to answer questions about this form. When you have finished, the interviewer will return the form to the office in a sealed envelope.
You have just taken part in a survey. The purpose of surveys is to obtain information about how people are getting along, their work, their homes, what they like, or how they feel. This is done by asking questions of a small, but scientifically selected, group of people.

Interviews with social workers, personnel officers, credit investigators, etc. are not surveys, nor are so-called "polls" or "research," which are really sales pitches.

1. Thinking about surveys in this way, had you ever taken part in a survey—either by mail, over the telephone, or in person—

   including the two times we interviewed you?
   
   Yes (ANSWER Q. 2) ........................................ 0
   No (SKIP TO Q. 3) ........................................... 1
   Don't remember/don't know (SKIP TO Q. 3) .......................... 7

2. When was the last time you took part in a survey? (CIRCLE ONE NUMBER ONLY. DON'T INCLUDE THE INTERVIEWS YOU DID FOR US.)

   Within the past month .................................... 0
   Over one month, but less than six months ago ........... 1
   Six months to less than 12 months ago .................. 2
   A year ago or more ........................................ 3
   Don't remember/don't know ................................ 7
To what extent do you agree or disagree with each of the following statements about surveys in general? (CIRCLE ONE NUMBER FOR EACH STATEMENT.)

<table>
<thead>
<tr>
<th></th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
</table>
a. Answering surveys is of direct benefit to the people who answer. | 0 | 1 | 2 | 3 |
b. Too many surveys are being conducted these days | 0 | 1 | 2 | 3 |
c. Taking part in surveys can give me a chance to talk about interesting topics | 0 | 1 | 2 | 3 |
d. By taking part in surveys, I can affect the government's decisions | 0 | 1 | 2 | 3 |
e. Surveys ask questions that are too personal | 0 | 1 | 2 | 3 |
f. The most important way to improve the quality of life in America is by taking surveys frequently | 0 | 1 | 2 | 3 |

CODING FOR FACTOR ANALYSIS: (0,1=1)(2,3=2); NON-RESPONSE=9-11%.

\[a\] Item non-response was calculated on a base of 301, which was the number of people participating in the treatment interviews.
4. Overall, how interesting was the interview you just completed? (CIRCLE ONE NUMBER ONLY.)

Very Interesting ........................................... 0
Somewhat interesting ......................................... 1
Not very interesting ......................................... 2
Not at all interesting ........................................ 3

CODING FOR FACTOR ANALYSIS: (0=1)(1=2)(2,3=3); NON-RESPONSE=9%

5. How do you feel about the importance of this survey? (CIRCLE ONE NUMBER ONLY.)

Not Important .................................................. 0
Somewhat important .......................................... 1
Very Important ............................................... 2

CODING FOR FACTOR ANALYSIS: (0=1)(1=2)(2=3); NON-RESPONSE=3%

6. How did you feel toward the interviewer's manner, that is, the way in which she conducted the interview? (CIRCLE ONE NUMBER ONLY.)

Disliked it very much ......................................... 0
Disliked it somewhat ......................................... 1
Neither liked it nor disliked it ............................. 2
Liked it somewhat ........................................... 3
Liked it very much ........................................... 4

CODING FOR FACTOR ANALYSIS: (3,4=1)(2=2)(0,1=3); NON-RESPONSE=2%

7. How do you feel about the length of the interview which you just completed? (CIRCLE ONE NUMBER ONLY.)

Too short ....................................................... 0
About right .................................................... 1
Too long ....................................................... 2

CODING FOR FACTOR ANALYSIS: (1=1)(0,2=2); NON-RESPONSE=3%
8. We had time to ask our most important questions during this interview, but it would have been useful for our study to ask some additional questions. On the other hand, we could have left some out to make the interview shorter. Please circle the number of the one answer below which comes closest to your feelings:

- I would have been willing to continue with the interview for another 30 minutes. 0
- I would have been willing to continue with the interview for another 15 minutes. 1
- I would have preferred the interview to be 15 minutes shorter. 2
- I would have preferred the interview to be 30 minutes shorter. 3

CODING FOR FACTOR ANALYSIS: (0,1=1)(2,3=2); NON-RESPONSE=7%

9. On the whole, did you find that answering the questions was: (CIRCLE ONE NUMBER ONLY.)

- Very hard. 0
- Hard. 1
- Easy. 2
- Very easy. 3

CODING FOR FACTOR ANALYSIS: (0,1=1)(2,3=2); NON-RESPONSE=3%

10. You were asked to tell us the amounts of some of your utility bills and household expenses. How accurate do you feel your answers were? (CIRCLE ONE NUMBER ONLY.)

- Probably very accurate. 0
- Probably fairly accurate. 1
- Probably inaccurate. 2

CODING FOR FACTOR ANALYSIS: (0=1)(1=2)(2=3); NON-RESPONSE=7%

11. Overall, do you feel that the time and effort you put into answering the questions were: (CIRCLE ONE NUMBER ONLY.)

- Very well spent. 0
- Somewhat well spent. 1
- Not very well spent. 2

CODING FOR FACTOR ANALYSIS: (0=1)(1=2)(2=3); NON-RESPONSE=4%
12. From time to time, we are all called upon to do various things which we may not particularly enjoy. In fact, some of these may be a downright "nuisance." We would like to know how much taking part in this survey today bothered you as compared to doing other common tasks.

(FOR EACH TASK PUT DOWN THE NUMBER ON THE SCALE--1 THROUGH 10--WHICH BEST DESCRIBES HOW MUCH THE TASK BOTHERS YOU.)

Doesn't Bother Me Bother Me at All 1 2 3 4 5 6 7 8 9 10 a Lot

a. Answering the interviewer's questions during this survey . . . . Number on Scale
b. Filling out income tax forms . . . . Number on Scale
c. Balancing checkbook against bank statement. . . . . . . . . . . . Number on Scale
d. Answering a public opinion survey about which political candidate you like better. . . . . . . . . . . Number on Scale
e. Going to the polls to vote on election day . . . . . . . . . . . . . Number on Scale
f. Getting your car inspected by the state. . . . . . . . . . . . . . . . Number on Scale
g. Participating twice in this housing and energy survey . . . . . . . . . . Number on Scale

CODING (Q.12a) FOR FACTOR ANALYSIS: (1,2,3=1)(4,5,6=2)(7,8,9,10=3)
NON-RESPONSE=6%
13. Now, please think back to the interview you did for us last winter. About how long that interview last? (CIRCLE ONE NUMBER ONLY.)

- Less than 1/2 hour ........................................... 0
- Between 1/2 and 1 hour ..................................... 1
- Between 1 and 2 hours ....................................... 2
- Over 2 hours .................................................. 3
- Don't remember ................................................ 7

14. To keep track of changes, we asked you many of the same questions in the interview today that we asked last winter. How did you feel about answering the same questions? (CIRCLE ONE NUMBER ONLY.)

- I enjoyed it ..................................................... 0
- I disliked it .................................................... 1
- Neither enjoyed nor disliked it ............................. 2

15. Would you be willing to be reinterviewed again a year from now so that we could find out whether your housing conditions had changed between now and then?

- Yes ............................................................... 0
- No ................................................................. 1

CODING FOR FACTOR ANALYSIS: (0=1)(1=2); NON-RESPONSE=6%
16. We have had a number of suggestions about ways in which our surveys could be improved. How do you feel about each of these? (CIRCLE EITHER "0" OR "1" FOR EACH SUGGESTION.)

<table>
<thead>
<tr>
<th>Suggestion</th>
<th>Would be an Improvement</th>
<th>Would Not be an Improvement</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Explain more about how the answers will be used</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>b. Explain more about how the confidentiality of the answers is protected</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>c. Hire better interviewers</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>d. Use shorter questionnaires</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>e. Ask fewer personal questions</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>f. Give respondents more chance to talk about their ideas and opinions</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>g. Interview people only one time about a particular topic</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

CODING FOR FACTOR ANALYSIS: (1=1)(0=2); NON-RESPONSE=6-13%

17. What other improvements would you suggest?

18. What did you like best about the survey in which you just took part?

19. What did you like least about this survey?
Finally, we have a question about HUD, the agency which sponsored this survey. HUD—the Department of Housing and Urban Development—is part of the U.S. government. It is responsible for programs concerned with meeting the nation's housing needs, assuring fair housing opportunities, and improving and developing the nation's communities.

20. To what extent do you feel that HUD has affected the quality of housing: (CIRCLE ONE NUMBER ON EACH LINE.)

<table>
<thead>
<tr>
<th></th>
<th>A Great Deal</th>
<th>Somewhat</th>
<th>Not At All</th>
<th>Don't Know</th>
</tr>
</thead>
<tbody>
<tr>
<td>In the nation?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>In the Philadelphia area?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>In your neighborhood?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>For you personally?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>7</td>
</tr>
</tbody>
</table>

THANK YOU VERY MUCH FOR YOUR COOPERATION. PLEASE PLACE THIS FORM IN THE ENVELOPE, SEAL IT, AND HAND IT TO THE INTERVIEWER.
REFERENCES


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The two page vita has been removed from the scanned document. Page 2 of 2
THE DIMENSIONS AND CORRELATES OF RESPONDENT BURDEN
IN PERSONAL INTERVIEWS
by
Joanne Frankel

(ABSTRACT)

This research focused on respondent burden, defined as the negative attitudes experienced by persons participating in voluntary personal interviews. The topic is of interest to education and other researchers who rely upon personal interviews as a data gathering technique. But the use of this technique in federally-sponsored research is subject to severe restrictions, based on federal assumptions that long interviews and repeated interviewing (such as that experienced by members of survey panels) are burdensome. However, survey researchers argue that the relationship between interview length, panel participation, and respondent burden is far from clear, and that there may be other mediating factors which affect reactions to the interview. These researchers also contend that respondent burden is poorly defined, and that, before further research about the correlates of burden is carried out, the field must explore the meaning or dimensions of this phenomenon.

To address these concerns, a reanalysis of a data base developed by the author through a previous study was carried out. In this earlier study, respondents, who were suburban Philadelphia residents,
participated in one of four experimental treatments: one short (25-minute) interview, one long (75-minute) interview, or two short or long interviews, with the second administered ten months after the first using a similar instrument. All versions of this instrument involved topics of moderate salience, such as housing and neighborhood conditions. Respondent reactions to the interview were assessed via a self-administered reaction form, completed at the end of the treatment interview. Responses to this form, as well as background information about respondents, constituted the data base for the dissertation.

The reanalysis of this data base addressed two major questions:

1. What are the underlying dimensions of respondent burden as measured through the reaction form?
2. In explaining these dimensions, what are the relative contributions of interview length, panel participation, respondent demographic characteristics, and past participation by the respondent in other, unrelated surveys?

The first question was explored by a factor analysis, and the second by a regression analysis. Three major components of respondent burden were identified:

1. Perceived Uselessness, which loaded on variables relating to the interest, importance, and general benefits of survey participation, and views about the ability of survey participants to affect government decisions. This factor was the most important, accounting for 48 percent of the common factor variance.
2. Time Concerns, which loaded on three variables related to "time": willingness to continue the interview, views about the length of the just-completed interview, and attitudes about the use of short questionnaires as a survey improvement. This factor accounted for 14 percent of the common factor variance.

3. Privacy Concerns, which loaded on three variables representing agreement/disagreement with statements about the privacy invading nature of surveys. This factor accounted for 10 percent of the variance.

The regression analysis showed no relationship between Perceived Uselessness or Privacy Concerns and any of the independent variables. Time Concerns were significantly related (p.<.01) to interview length, in the direction postulated by federal assumptions, and to (p.<.05) sex, with females more burdened than males, and employment status, with employed persons more burdened than others.

Based on these findings, several recommendations were made, chief among them that researchers use public relations mechanisms to convince potential respondents of the usefulness of survey participation.