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Customer Service in the
Food Stamp Program

Final Report

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Michael Ponza
James C. Ohls
Lorenzo Moreno
Amy Zambrowski
Rhoda Cohen

Submitted to:

U.S. Department of Agriculture
Food and Nutrition Service
Office of Analysis and Evaluation
3101 Park Center Drive
Alexandria, VA 22302

Project Officers:
Margaret Andrews
Patricia McKinney

Submitted by:

Mathematica Policy Research, Inc.
P.O. Box 2393
Princeton, NJ 08543-2393
(609) 799-3535

Project Director:
James C. Ohls

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EXECUTIVE SUMMARY

The Food Stamp Program (FSP), administered by the Food and Nutrition Service (FNS) of the U.S. Department of Agriculture (USDA), provides financially needy households with benefits that are used for the purchase of food from authorized retailers. To receive food stamps, households must meet eligibility requirements (primarily related to income and assets). In 1997, the program provided more than $22 billion in benefits to 22 million individuals in 9 million households.

One objective of the National Food Stamp Program Survey (NFSPS), conducted between June 1996 and January 1997 by Mathematica Policy Research, Inc. (MPR), was to obtain and analyze survey information from program participants and eligible nonparticipants to assess key aspects of FSP customer service. In this report, data from the NFSPS are used to address three important areas of interest to FNS that relate to the quality of FSP customer service: (1) the monetary and nonmonetary costs of participating, (2) client satisfaction with services provided, and (3) the accessibility of the FSP to eligible households.

PRINCIPAL FINDINGS

Following are principal findings of the survey:

Customer Satisfaction. Respondents were asked during the interviews how satisfied they were with various aspects of the FSP. These aspects included the application, recertification, and issuance processes, as well as the FSP overall. Respondents were also asked about satisfaction with FSP caseworker performance.

Overall, the data suggest that the typical FSP client is quite satisfied with the program services that he or she receives. These results hold consistently whether the relevant questions ask about overall levels of satisfaction with the program, satisfaction with specific aspects of the program, or satisfaction with services received from caseworkers.

The satisfaction is not unanimous, however. In response to each of these questions, 10 to 25 percent of participants express unhappiness with the program. For example, approximately 25 percent of participants were strongly or somewhat dissatisfied with the availability of caseworkers for in-person meetings or telephone consultations and with caseworkers' ability to keep the participant informed.

Multivariate logit analysis was used to estimate the association between characteristics and the likelihood of being dissatisfied, separately for (1) the application process, (2) the recertification process, (3) the issuance process, (4) caseworker performance, and (5) the overall program. Across most aspects of the FSP examined, households dissatisfied with the FSP are more likely to reside in urban areas and have low monthly FSP benefits compared with households that are satisfied. Those dissatisfied are also more likely to feel there is stigma associated with program participation,

and their participation costs tend to be higher (as measured by the time and out-of-pocket costs of applying for or being recertified for benefits).

Accessibility of the Program to Eligible Households. The FSP is designed to provide assistance to all financially needy people eligible for the program. However, a substantial number of households estimated to be eligible for food stamps do not receive them.

Misperceptions about FSP eligibility appear to deter many eligible households from participating in the FSP. About three-quarters of nonparticipating households estimated to be eligible said they were not aware that they were eligible for the FSP. Although this was less true of the 44 percent of nonparticipants who had applied or participated in the past, most households with prior exposure to the FSP also reported being unaware of their eligibility. It is possible that households that once applied for or received food stamps and were determined ineligible are unaware that, because their circumstances or the eligibility rules themselves have since changed, they are now eligible.

Those who believed they were eligible most frequently gave reasons for their nonparticipation related to administrative burdens they perceived to be associated with applying (such as the time and monetary costs of traveling to the FSP office or other places) or mentioned not needing food stamps as the most important grounds for not applying for food stamps.

For most people, stigma may not be a major factor in making the decision to participate. Only 7 percent of eligible nonparticipants mentioned a stigma-related factor as their most important reason for not participating.

This finding notwithstanding, many eligible nonparticipants perceive that stigma is associated with program participation. Nearly half of eligible nonparticipants answered affirmatively to one or more of the four survey questions about feeling stigma from receiving or using food stamps. While nonparticipants were more likely to perceive stigma than current participants, the difference was generally small (44 percent versus 38 percent).

However, the multivariate analysis of the characteristics associated with participation in the FSP found that perceptions of stigma had a statistically significant effect on participation among FSP-eligible households, after controlling for other characteristics (such as benefit size and household composition). Eligible households associating higher levels of stigma with receiving and using food stamps were less likely to participate. For example, households who answered affirmatively to all four questions about stigma associated with program participation were 20 percentage points more likely not to participate in the FSP than those not perceiving any stigma associated with program participation.

Costs of FSP Participation. Clients incur significant costs in complying with program requirements. The average application involves nearly five hours of client time, including at least two trips to the FSP office or other places. The comparable numbers for recertifications are nearly 2.5 hours and at least one trip. On average, the out-of-pocket monetary costs involved are about $10.31 for applications and $5.84 for recertifications, with most of this money being spent on transportation.

Stigma does not appear to be a significant problem for most FSP participants. However, there is a sizable minority of respondents whose survey responses suggest that they experience considerable stigma from their participation in the program. On a scale covering four possible aspects of stigma asked about, 20 percent of participants reported just one type of stigmatizing experience, and 18 percent reported two or more types.

CONCLUSIONS

The FSP is designed to target its benefits to those who need them most. In order to achieve this targeting, however, the program determines eligibility through a complex set of rules and procedures that require applicants to supply extensive information about income sources and living arrangements. These requirements present certain demands on eligible households, which may make participation costly or inconvenient and may cause some eligible households not to participate because they are unable or unwilling to comply.

Overall, however, evidence from the NFSPS indicates that participating households are pleased with the services provided by the program. Most FSP households were satisfied with the application, recertification, and issuance processes, with the performance of their caseworkers, and with the FSP overall.

Further, the study shows that the costs of participating (inclusive of the opportunity cost of time spent participating) are relatively small in relationship to the monthly benefit. For example, the one-time average out-of-pocket costs of applying ($10) are approximately six percent of the average monthly benefit ($166), and the costs of being recertified for benefits ($6), which are usually incurred once or twice each year, represent approximately four percent of the monthly benefit. To be sure, taking into account the opportunity cost of the time spent meeting these requirements increase the costs somewhat. However, they still appear to be relatively modest in relation to benefit levels.

Evidence from the NFSPS suggests that the burdens that households perceive to be associated with complying with FSP administrative requirements are not the major cause of nonparticipation. For nearly three-quarters of nonparticipating households estimated to be eligible, lack of awareness of eligibility was the most important reason for not applying for food stamps.

Under the Personal Responsibility and Work Opportunity Reconciliation Act of 1996, states have been given increased flexibility in administering the FSP. Thus it is possible that patterns observed in the data for this study may evolve over the coming years.

DATA AND METHODS

The objective of the survey was to obtain information about experiences with and attitudes toward the FSP both from FSP participants and also from eligible and "near-eligible" households that might have been affected by the program. To that end, the household surveys were based on samples obtained from two frames: (1) a list frame consisting of administrative lists of FSP participants,

which yielded a sample of FSP participants; and (2) a random-digit-dialing (RDD) frame, which yielded samples of FSP-eligible and near-eligible nonparticipants, as well as some FSP participants. Overall, MPR completed surveys of 2,454 FSP participants, 450 FSP-eligible nonparticipants, and 405 near-eligible nonparticipants. The data have been weighted to make them nationally representative of these populations.

Since most of the research questions addressed in this report are descriptive, most findings are based on tabular and cross-tabular analysis. In some instances, however, multivariate techniques were used to examine the role of various factors when others are held constant.

The data assembled for the study represent a solid basis for examining the research questions on customer service. As with all survey data, however, they have limitations that should be noted in interpreting the analysis. The three most important of these are:

1. ***Lags between participant sampling and data collection*** meant that considerable numbers of participants had dropped off food stamps by the time they were contacted. Since many of the research questions involved active participants, these dropouts were not interviewed. As a result, the sample has more long-term food stamp participants and fewer short-term participants than would have been expected.

2. ***The lack of nonparticipants without telephones*** meant that the sampling methodology effectively limited the nonparticipant sample to households with telephones. While the sample has been post-stratified in an attempt to correct for this by giving greater weight to households that appear to be most similar to households without phones, the correction is probably not complete. To the extent that nonparticipants without phones are different from those with phones, the non-telephone households are not reflected in the analysis.

3. ***The accuracy of nonparticipant eligibility determination is only approximate,*** since nonparticipant eligibility was determined with a short screening instrument that could not fully replicate all the complex eligibility criteria the FSP uses in assessing applicant eligibility. Furthermore, even for the full interviews, in which more-detailed data on income, household expenses, and living arrangements were obtained, the data were not sufficient to fully replicate the information obtained during an FSP application. As a result, the determinations of "FSP-eligible" and "FSP-near-eligible" used in the analysis must be taken as approximations; some households were undoubtedly misclassified.

I. INTRODUCTION

The Food Stamp Program (FSP), the largest of the 15 nutrition assistance programs administered by the Food and Nutrition Service (FNS) of the U.S. Department of Agriculture (USDA), is the cornerstone of America's strategy for ensuring that all Americans have enough to eat. Households participating in the FSP receive benefits that are used to purchase food from authorized food retailers. Households must meet eligibility requirements--primarily related to income and assets--in order to receive food stamps. In 1997, the program provided more than $22 billion in benefits to 22 million individuals in 9 million households.

Because the FSP is such an important part of the nation's policy for providing assistance to low-income households, it is essential that the program be assessed periodically to see how well it is achieving its objectives. The National Food Stamp Program Survey (NFSPS), conducted in 1996 by Mathematica, was designed to obtain and analyze survey information from program participants and eligible nonparticipants to assess key aspects of how well the program is meeting the needs of low-income households requiring food assistance. Three areas of the FSP structure and operations are of particular interest in the current study:

1. Customer service

2. Food security and benefit adequacy

3. Access to authorized retailers

This report summarizes the findings on customer service. The rest of this introductory chapter provides a context for the report. Section A provides a brief overview of the FSP. Section B discusses current issues regarding customer service. The objectives and research questions the report

addresses are discussed in Section C, and the organization of the rest of the report is described in Section D.

A.   AN OVERVIEW OF THE FOOD STAMP PROGRAM

The objective of the FSP, as stated in its authorizing legislation, is to "permit low-income households to obtain a more nutritious diet through normal channels of trade by increasing food purchasing power for all eligible households who apply for participation" (see Food Stamp Act of 1977, as amended, Section 2). To accomplish this, the USDA administers a multibillion-dollar program that provides services throughout the United States.

Eligibility standards and benefit levels for the program are set by Congress. Broad policy guidance in implementing these standards is provided by FNS, through its headquarters in Alexandria, Virginia, and through regional offices in various parts of the country. FSP benefits are federally funded. Program costs and administration are shared by federal, state, and local governments. Direct administration of the program on a day-to-day basis is carried out by the states (or, in some areas, by counties, under state supervision).

1.   Eligibility Criteria

Households must meet eligibility requirements to receive food stamps. Households may have no more than $2,000 in countable resources, such as a bank account ($3,000 if the household contains at least one person age 60 or older). Certain resources (such as a home and lot) are not counted. Households have to meet at least one, and usually two, income tests unless all members are receiving Temporary Assistance for Needy Families (TANF), Supplemental Security Income (SSI), or, in some places, General Assistance (GA). The gross income test assesses whether the household's gross income exceeds 130 percent of the poverty level for its household size. The net

income test is based on gross income minus certain deductions for expenses and other factors. To be eligible, a household must have net income below the poverty level. Most households must meet both the gross and net income tests, but a household with an elderly person or a person who is receiving certain types of disability payments has to meet only the net income test. Households, except those noted, that have income over the limits for their household size are not eligible to receive food stamps.

The welfare reform act of 1996 and other recent legislation have ended eligibility for many immigrants and placed time limits on benefits for able-bodied, childless adults. For noncitizens, eligibility depends on a complicated set of factors, including age, date of entry into the country, veteran status, and refugee status. If citizenship is in doubt, proof is required. Alien status must be verified. With some exceptions, able-bodied adults between age 16 and 60 must register for work, accept suitable employment, and take part in an employment and training program to which they are referred by the food stamp office. Failure to comply with these requirements can result in disqualification from the program. In addition, able-bodied adults between age 18 and 50 who do not have any dependent children can get food stamps for only 3 months in a 36-month period if they do not work or participate in a workfare or employment and training program other than job search. However, this requirement can be waived in some locations.

2. Application and Recertification Procedures

Households that may be eligible for food stamps can apply at local offices, which are usually located at the county level (in rural areas) and at the subcounty level (in more-densely populated urban areas). Most applicants are required to appear in person at their local office. However, elderly or disabled people and anyone who has difficulty getting to the office may be interviewed by telephone or in their homes. During the application process, households are required to supply

detailed information about household composition, income, assets, and certain expenses to allow the eligibility staff to determine whether or not they are eligible. In many instances, they are also required to verify the accuracy of the information they have supplied. Because of the verification requirements, as well as office scheduling constraints and other factors, the application process frequently requires two or more trips to the food stamp office.

Households participating in the FSP must be periodically recertified for eligibility. Although local offices exercise some discretion about the length of the certification period, it generally tends to be six months to a year, except for households that have incomes judged to be particularly volatile and that, as a result, are certified more frequently. In general, the recertification process parallels the initial application process, although recertification can be more expeditious since the basic information about the case is available and the focus is on determining whether any key household circumstances have changed, rather than on obtaining extensive new information.

3. Benefits

Applicant households that meet the legislated income and asset standards are certified as eligible for the program. Once certified, households receive monthly benefits, with the amount based on their income (net of certain deductions) and household size. Benefit levels are determined through formulas derived from the "Thrifty Food Plan," a set of estimated expenditure levels needed to maintain adequate diets.

Households have traditionally received benefits in the form of food coupons. Depending on local procedures and household circumstances, these coupons are issued in one of several ways. They may be sent to clients through the mail, given to them through direct over-the-counter issuance at welfare offices, or provided through intermediaries (such as banks or check-cashing establishments) when participants show an Authorization-to-Participate (ATP) card.

Except in a few relatively uncommon circumstances, food coupons can be exchanged only for eligible food items at authorized food retailers, of which there are more than 180,000 throughout the country. The federal government has responsibility for accepting applications from retailers who wish to participate in the program and for formally authorizing retailer participation. The federal role also includes monitoring retailers in the program and sanctioning them if they are found to engage in activities that are not in compliance with program rules, such as giving customers cash or nonfood merchandise in exchange for food stamps.

The majority of food stamp households now receive their benefits through electronic benefit transfer (EBT) systems, debit-card type mechanisms that debit food stamp accounts electronically after food is purchased at participating retailers. All states are required by law to set up EBT systems by the year 2002. It is anticipated that this will have several effects, including making it harder for food stamp trafficking (selling food stamps for cash) to occur, streamlining retail check-out operations, and reducing the stigma felt by some participants when using food coupons. Fifty-one percent of households, receiving 52 percent of total benefits, were using EBT issuances as of October 1998. Approximately 9 percent of the participant sample in the NFSPS received food stamp benefits through EBT.

B. ISSUES REGARDING CUSTOMER SERVICE

In order to target its benefits to the most financially needy households, the FSP has in place a set of rules and procedures designed to allow only qualified people to participate. These present certain demands on eligible households, which for some may make participation inconvenient or costly and may cause others not to participate despite being eligible. Three important areas relating to the quality of FSP customer service, broadly defined, are the following: (1) the accessibility of

the program to eligible households, (2) the costs of participating, and (3) how well the FSP is serving

its clients. This study has focused on these issues, based on the perceptions of program participants.

The FSP is designed to provide assistance to all financially needy people. However, a

substantial number of those estimated to be eligible for food stamps do not receive them. Estimates

suggest that 31 percent of households and 29 percent of persons eligible for food stamps do not

participate in the program (Stavrianos 1997). Most households that are eligible for food stamps but

do not participate in the program tend to fall into one of two groups: those with earnings and those

containing elderly persons (McConnell and Nixon 1996).

If eligible nonparticipating households choose not to apply for food stamps because they do not

need them, these relatively low participation rates are not necessarily cause for concern. However,

if aspects of the program and how it is administered deter households that need assistance from

applying for benefits, policymakers may wish to address these barriers so that the program better

serves clients. Furthermore, even for households that are participating, it is important that the

program effectively and efficiently meets the needs of its clients and keeps the burdens associated

with participation to a minimum.

There are many reasons that households eligible for benefits do not participate in the FSP.

McConnell and Nixon (1996) reviewed literature on nonparticipation and divided reasons into three

groups: (1) informational problems, (2) a low overall benefit from participating, and (3) high costs

of participating (relative to benefits received).

Eligible households are naturally precluded from participating when they do not know the

program exists. Few households, however, are unaware of the existence of the program. More

commonly, households know the program exists but are not aware that they may be eligible or may

not know how or where to apply (Coe 1983a; and General Accounting Office 1988a). Some

households that were once denied food stamps or received them and were later determined ineligible may be unaware that, because their circumstances or the eligibility rules themselves have since changed, they are now eligible. Households with elderly people or households containing disabled people may be unaware that they face different eligibility rules. For example, they may incorrectly think that they face the same asset test as nonelderly households, or they may be unaware that they still qualify for benefits even though their gross income is above the poverty threshold, if they have high shelter or medical costs.

Reasons that eligible households may perceive benefits to be too low to make participation worthwhile include (1) perceived lack of need, (2) eligibility only for a low monthly benefit amount, (3) expectation that food stamps will be received only for a short time, and (4) delay in obtaining benefits. Some nonparticipating households have indicated in surveys that they do not participate because they do not need the benefits (Ohls et al. 1985; Hollenbeck and Ohls 1984; and Brown 1988). Households with income near the eligibility cutoff may be eligible only for benefits so small ($10) that participation is not worth the effort. Other households may expect to receive benefits for only a short period of time, making the expected total amount of benefits too low relative to the one-time costs of applying or becoming recertified.

Although there is no charge for applying for food stamps, applicants can incur both time and monetary costs, as well as psychological costs, during the application process. Similarly, households can incur monetary and nonmonetary costs when recertifying or using food stamps. Some nonparticipants have reported that the costs of applying for and using food stamps deter their participation; participants also report that the monetary and nonmonetary costs of participating in the FSP are substantial.

For instance, households frequently report that the application or recertification process requires them to make multiple trips to FSP offices, wait long hours at the offices, and supply extensive documentation that is often hard to obtain. In addition to time spent on these trips, households can incur out-of-pocket expenses for transportation, child or elder care, forgone earnings, and other monetary costs. Discourteous treatment by program staff has been cited as a deterrent to participation, as have limited operating hours at program offices. In addition, applicants have complained that the application process sometimes takes longer than necessary because they are not given adequate information during their initial contacts about requirements and application procedures. The existence of these problems, at least at some offices, has been documented both by research studies commissioned by FNS (Bartlett et al. 1992) and by independent government organizations (General Accounting Office 1988a).[1]

There are psychological costs associated with FSP participation as well. When applying, applicants must provide details about their financial and household situation; some households dislike the loss of privacy. Furthermore, households may feel humiliated or embarrassed to have to go to a welfare office or because they use food stamps. Food stamp coupons (and to a lesser extent,

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[1]The study of the application process in five local offices (urban and rural) in two states by Bartlett et al. (1992) found that some households incur significant costs in terms of time and money. Bartlett et al. found that, on average, the application process takes a total of nearly five hours and involves out-of-pocket expenses totaling $10.40. Most people spent much less than the average: the median out-of-pocket costs were only $3.60. Yet about five percent spent more than $45 on the process. Most of these expenses were for transportation and forgone earnings. Studies on food stamp issuance report similar findings. Benefits not mailed to recipients require trips to the FSP office or other distribution locations. Lost or stolen benefits cannot be replaced or are replaced only after time-consuming procedures are followed. Participant costs associated with issuance in the Maryland EBT Demonstration have been found by Beecroft et al. (1994) to range from $3.15 for EBT issuance to $13.11 for issuance of coupons over the counter at the food stamp office. Most of the costs comprised participants' time (valued at the federal minimum wage) rather than out-of-pocket costs.

EBT cards) may be especially stigmatizing because they are visible to store workers and other customers.

Another set of barriers to participation for some households involves the issuance process. In many parts of the country, households must report each month either to the food stamp office or to some other distribution point to receive their benefits. This process can create significant problems for households with limited access to transportation.

C. RESEARCH QUESTIONS RELATED TO CUSTOMER SERVICE

Much of the currently available evidence on factors affecting participation, including many of the studies cited here, has been collected in connection with studies that have had only limited geographic coverage. The NFSPS provides an important opportunity to explore these issues more fully with a large, nationally representative sample of households that includes both program participants and eligible nonparticipants. The survey allows examination of the factors that deter households from participating and the costs (both monetary and nonmonetary) that program participants experience as a result of their participation.

The key research questions that are addressed in this report include:

- What circumstances lead households to apply for food stamps?

- How many times do households typically have to go to the food stamp office and other places in connection with an application or recertification? How much time does this take?

- What are the monetary costs in terms of transportation, child or elder care, and other necessities associated with the application and recertification processes?

- To what extent do households feel stigmatized when applying for or using food stamps? To what degree does this deter them from participating? Is less stigma associated with EBT food stamp benefits than with coupons?

- Why are eligible households currently not participating? To what degree are eligible households unaware that they are eligible? Why don't households who are aware they are eligible participate?

- Are clients satisfied with program administration and client services? Which aspects of caseworker performance are they least satisfied with? What are the characteristics and circumstances of participants most dissatisfied with program services?

These issues are examined for current participants, eligible nonparticipants, or both, as appropriate. In addition, the analyses examine findings for important subgroups defined by the households' economic and social characteristics (such as whether the household has earnings [working poor], contains one or more elderly members, or is in an urban or rural area) and by food stamp benefit level. Most analyses are descriptive tabular analyses. However, multivariate regression analyses are also used for selected outcomes, such as the characteristics associated with household dissatisfaction with various aspects of the FSP and nonparticipation.

D. ORGANIZATION OF REST OF REPORT

The rest of this report is organized into three chapters. Chapter II describes the NFSPS and the characteristics of the participant and nonparticipant samples. Chapter III presents findings on program participation costs and customer satisfaction. Chapter IV presents findings on reasons households estimated to be eligible are not currently participating in the FSP.

II. DATA AND METHODS

This chapter provides an overview of the data collection methodology underlying the National Food Stamp Program Survey (NFSPS) and the characteristics of the participant and nonparticipant samples analyzed in this report. It describes analysis methods, including the weights that were constructed to make the participant and nonparticipant data nationally representative. Limitations of the data and analyses, as well as how they may affect the findings, are also discussed.

A. SAMPLING AND DATA COLLECTION METHODS

Addressing the research objectives highlighted in Chapter I, as well as those of the other reports based on the NFSPS, required obtaining nationally representative data from three different sets of households:

1. A sample of Food Stamp Program (FSP) participants, who could provide information about their experiences with the program, their access to stores, their food security, and their food use

2. A sample of FSP-eligible nonparticipants, who could provide information about their reasons for nonparticipation, as well as about their levels of food security and need for food stamp assistance

3. A sample of "near-eligible" nonparticipants with which to examine the characteristics of households who were just above the established eligibility limits

Efficiently obtaining data from all three of these groups required a multifaceted data collection design as described below. (See Appendix A for a detailed discussion of the methods used to select the sample, conduct the survey, and process the data.)

1. The Household Surveys

The household surveys, conducted between June 1996 and January 1997, were organized and directed from MPR's main survey facilities near Princeton, New Jersey, and were based on samples obtained from two frames: (1) a list frame consisting of administrative lists of FSP participants, and (2) a random-digit-dialing (RDD) frame.

a. Nonparticipant Household Surveys

For identification of eligible and near-eligible nonparticipants for the data collection, randomly drawn U.S. telephone numbers were called and given a short screening interview to determine (1) whether the phone number was for a household rather than a business, and (2) whether the household appeared to meet (eligible) or almost meet (near-eligible) criteria for food stamps. Households who passed this screen, were not FSP participants, and were willing to participate in the survey were then given a full nonparticipant household interview. The number of completions from the RDD frame was 450 eligible nonparticipants and 405 near-eligible nonparticipants.

In implementing this approach for the RDD sample, RDD respondents were first asked whether they were receiving food stamps and what their household size was. Then they were asked whether the household's monthly income was greater than or less than "X," where "X" was set at 150 percent of the poverty level for a household of that size. Households that passed this initial screen and were not receiving food stamps were then tracked into the full nonparticipant interview, which obtained detailed income, asset, and shelter information. Using these detailed data, gross and net income and deductions, as defined by the FSP, were calculated, as well as countable household assets. Households whose reported income and assets were under the applicable program limits were then

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placed in the "eligible nonparticipant" sample. Households that were not under these limits but that had assets less than $15,000 were placed in the "near-eligible nonparticipant" sample.[1]

b. Participant Household Surveys

MPR completed 2,454 interviews with FSP participants. Of these, 2,150 were sampled from the participant list frame (lists of FSP households provided by states or local food stamp offices). Essentially, this participant list sample frame can be regarded as a random sample of the overall food stamp participant population at a given point in time. An additional 304 interviews came from the RDD frame.[2]

In-Person Participant Household Survey from List Frame. A total of 1,109 in-person interviews were completed with FSP participants from the list frame. These interviews were conducted in person to obtain data on participant households' seven-day food use and shopping behaviors. The in-person participant survey was clustered in a limited number of locations, both to allow efficiencies in obtaining the samples (see below) and to limit interviewer travel costs. Thirty-five "primary sampling units" (PSUs), usually counties, were randomly selected from throughout the country, with probabilities of selection proportional to size. Next, machine-readable lists of FSP participants were obtained from state or local programs for each of these PSUs, and random samples of participants were drawn and then interviewed.

This data collection was conducted in respondents' homes through computer-assisted personal interviewing (CAPI) on laptop computers. In general, it consisted of two main parts. First, after

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[1]All households that got this far in the assignment process had reported gross incomes less than 150 percent of the poverty level, since otherwise they would have been screened out during the initial part of the RDD screener interview.

[2]Sample sizes were based on targets set during the design stage of the project, based on trade-offs between precision requirements and costs.

setting up an appointment by telephone, the data collector visited the respondent's home and conducted an interview of about one to one-and-one-half hours, which covered all the survey topics other than those related to the household's food use. At the end of the first appointment, the household was given instructions about how to maintain food use records for the coming week, and a repeat appointment was scheduled for seven days later. During this second interview a week later, which typically took between 90 and 150 minutes, information about the households' food use for the previous week was recorded through a paper and pencil data collection instrument. The number of in-person FSP participant interviews conducted was determined largely based on statistical precision requirements for the analysis of the food use data.

Telephone Participant Household Surveys from List Frame. An additional 1,041 participant interviews were completed by telephone with computer-assisted telephone interviewing (CATI), using an additional sample from the FSP participant list frame. It was efficient to conduct some of the participant interviews over the telephone rather than in person, since the questions about food use and detailed shopping behaviors were not administered to all participants. Therefore, a second sample of participants was drawn from the same set of 35 PSUs discussed in the previous section. While clustering was not necessary for the actual data collection with this second sample, there were still considerable costs in assembling the sample frames of participants, so at least some clustering was still efficient. As a result, it was decided that using exactly the same PSUs for the telephone participant survey as for the in-person survey would yield maximum efficiencies. The number of CATI interviews from the sample frame was chosen based on trade-offs between desired levels of statistical precision in the planned analysis and data collection costs.

Telephone Participant Household Surveys from the RDD Frame. While the main purpose of the RDD sample frame was to identify nonparticipants, a number of FSP participants were also

identified. To supplement the list frame sample, these households were administered a slightly modified version of the list frame participant interview. A total of 304 households were identified through the RDD calls as being FSP participants and agreed to be interviewed.

2. Response Rates

Table II.1 summarizes the response rates that were obtained in the various parts of the data collection. With the field list sample, 1,109 (1,070 + 39) laptop CAPI interviews were obtained out of 2,200 sample points released. However, 596 of the sample points proved to be ineligible for the survey by the time they were contacted, usually because they were no longer receiving food stamps. When these ineligibles are removed from the base, the response rate is 69 percent. A small number of the in-person cases completing the first part of the interview failed to complete the food-based second part a week later, leading to a response rate for the food use data of 67 percent.

In the telephone sample, 1,041 responses were obtained out of a total eligible sample of 1,535, a 68 percent response rate.

For the RDD sample, 14,514 numbers were released, of which 5,219 were determined ineligible for the screener, mostly because they were either nonworking or business numbers. Another 1,807 could not be determined. Of the remainder, 6,429 completed the screener, for a completion rate of 75 percent. At the next stage of this interviewing, 1,159 households completed full interviews out of a total of 1,456 (1,159 + 297) that had passed the screen, yielding a response rate of 80 percent for the full interview, conditional upon passing the screen. The combined overall response rate for this sample is 60 percent.

TABLE II.1

SURVEY RESPONSE RATES

Field List Sample

Total Released	2,200
Eligible Completes with Food Use	1,070
Eligible Completes with No Food Use	39
Eligible Noncompletes	495
Ineligibles	596
CAPI Response Rate	.69[a]
Food Use Response Rate (if CAPI portion completed)	.96[b]
Combined CAPI-Food Use Response Rate	.67[c]

Phone List Sample

Total Released	2,121
Eligible Completes	1,041
Eligible Noncompletes	494
Ineligibles	586
Response Rate	.68[d]

RDD Sample[e]

Total Released	14,514
Screener	
Eligible completes	6,429
Eligible noncompletes	1,059
Ineligible	5,219
Undetermined	1,807
Screener response rate	.75[f]

TABLE II.1 *(continued)*

Interview	
Eligible completes	1,159
Eligible noncompletes	297
Ineligible	4,973
Interview response rate	.80[g]
Overall Response Rate	**.60[h]**

[a]Computed as 1,109/(1,109 + 495).

[b]Computed as 1,070/1,109.

[c]Product of previous two rates.

[d]Computed as 1,041/(1,041 + 494).

[e]The RDD response rates are adjusted to account for (1) inability to determine whether some of the telephone numbers in the original sample were eligible for the screener; and (2) of those eligible for the screener, inability to determine whether households were eligible for the full survey. The derivation of these response rates, taking these factors into account, is displayed below:

[f]Screener response rate: $\quad \dfrac{12{,}707}{14{,}514} \cdot \dfrac{6{,}429}{7{,}488} = \dfrac{6{,}429}{6{,}429 + 1{,}059 + 1{,}807 \cdot ER} = .7517$

where screener eligibility rate adjustment *ER* equals:

$$\frac{6{,}429 + 1{,}059}{6{,}429 + 1{,}059 + 5{,}219} = .5894$$

[g]Interview response rate: $\quad \dfrac{1{,}159}{1{,}159 + 297} = .7960$

[h]Combined screener-interview response rate:

$$\frac{12{,}707}{14{,}514} \cdot \frac{6{,}429}{7{,}488} \cdot \frac{1{,}159}{1{,}456} = \frac{1{,}159}{1{,}159 + 297 + 1{,}509 \cdot ER \cdot ER2} = .5984$$

where interview eligibility rate *ER2* equals:

$$\frac{1{,}159 + 297}{1{,}159 + 297 + 4{,}973} = .2265$$

B. ANALYSIS METHODS

Most of the research questions for this study are descriptive. Such issues as customer satisfaction, access to stores, levels of food security, and levels of food use can all be addressed directly from the relevant data. Therefore, for the most part, the analysis is based on tabulations of the relevant data. In some instances, however, multivariate techniques were used to examine the role of various factors when others are held constant, as for example in Chapter III, where satisfaction with services provided by caseworkers is examined in a multivariate logit model. The sections below highlight a number of issues that have been addressed in implementing this overall approach.

1. Weighting

The survey was designed to achieve a nationally representative sample by obtaining essentially the same number of list frame interviews in each PSU, except for self-representing PSUs, where the target sample sizes were adjusted upward to reflect their relative sizes appropriately.[3] However, because of a variety of practical considerations, it was not always completely possible to fully achieve this goal of equal sample sizes, and as a result households in different PSUs effectively had somewhat different probabilities of selection. Weighting was used to adjust for this and make the sample representative of the national caseload. The weights used were based on the inverses of the probabilities of selection.

Weighting was also used when combining the three participant samples (list frame in-person, list frame phone, and RDD). Each of these samples was self-representing (except for the issues discussed in the previous paragraph), but because of their different sample sizes, combining the three directly by weighting observations from each equally was not statistically efficient in terms of

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[3]Self-representing PSUs are ones that by themselves contained at least one thirty-fifth of all food stamp cases nationwide and were therefore taken into the sample with certainty.

minimizing variances. As a result, weights were constructed that reflected the different variances implicit in the different sample sizes. (See Appendix B.)

Weighting was used for the nonparticipant sample for a different reason. There was concern that the sample would not be representative, because the RDD data collection methodology that was used meant that only households with telephones could be included in the sample. To correct for this at least partially, it was decided to post-stratify the nonparticipant sample, so that it would better reflect the population of low-income households who do not receive food stamps. This was done by assigning weights based on household characteristics, such that the weighted sample was similar to control data from the Census Bureau's Current Population Survey with regard to those characteristics. The methods used in doing this are presented in Appendix B.[4]

2. Calculation of Variances

Because of the clustering of the sample and the weighting factors used, the standard methods for computing the variances of sample estimates that are applicable to simple self-weighting samples and that are routinely generated by most statistical software programs samples do not apply to most of the tabulations presented in this report. In general, the variances of estimates from the current sample are higher than those that would be applicable to a simple self-weighting sample. This has been taken into account in the analysis.

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[4]Whereas FSP participant households without phones were included in the in-person list sample frame, such households were not included in either the CATI participant list frame or the RDD frame. Thus, the issue regarding coverage of households without phones is also relevant for the participant sample. However, the number of FSP participants identified from the RDD frame is small (304 cases, or 12 percent of the unweighted FSP sample). In addition, some of the phone list sample cases without phones were followed up in person by field staff using cellular phones to complete the interview. Therefore, it was decided that the statistical gain from adjusting the participant sample for telephone coverage did not warrant the costs.

Appendix C presents, for selected variables, variances that have been computed using the STATA analysis package, which uses Taylor's Series methods for taking into account the sample design. As shown in that appendix, the design effects for the participant sample tend to be on the order of "3," meaning that variances are about three times those that would be observed in a simple self-weighting sample of the same size. This in turn implies that confidence interval widths around descriptive statistics are increased by a factor of about 1.76. Design effects are in general considerably lower for the nonparticipant sample, since this sample was not clustered into a limited number of PSUs.

C. LIMITATIONS OF THE DATA AND ANALYSIS

The data assembled for the study represent a solid basis for examining the research questions highlighted earlier. As with all survey data, however, they have limitations that should be noted in interpreting the analysis. The most important of these are discussed below.

1. Lags Between Participant Sampling and Data Collection

The list frame participant sample was obtained in spring 1996; however, the data collection extended into early 1997. This means that by the end of the survey, the sample was about eight months old, and considerable numbers of participants had dropped off food stamps by the time they were contacted. Since many of the research questions involved active participants, these dropouts were not interviewed. As a result, the sample tends to have too many long-term food stamp participants and too few short-term participants.

2. Lack of Nonparticipants Without Telephones

As noted above, the sampling methodology effectively limited the nonparticipant sample to households with telephones. While the sample has been post-stratified in an attempt to correct for

this, the correction is probably not complete. To the extent that nonparticipants without phones are different from those with phones, the non-telephone households are not reflected in the analysis.

3. Accuracy of Nonparticipant Eligibility Determination

At the beginning of the interview, nonparticipant eligibility was determined with a short screening instrument that could not fully replicate all the complex eligibility criteria the FSP used in assessing applicant eligibility. Further, even for the full interviews, in which more-detailed data on income, household expenses, and living arrangements were obtained, the data were not sufficient to fully replicate the information obtained during an FSP application. As a result, the determinations of "FSP-eligible" and "FSP-near-eligible" used in the analysis must be taken as approximations; some households were undoubtedly misclassified.

D. DESCRIPTION OF THE SAMPLES OF PARTICIPANTS AND NONPARTICIPANTS

Interviews were completed with a total of 3,309 households for the NFSPS: 2,454 households participating in the FSP and 855 households not participating (450 estimated eligible nonparticipant households and 405 ineligible nonparticipant households). This section presents (weighted) descriptive statistics for the samples of participants and nonparticipants.

FSP participants, eligible nonparticipants, and near-eligible nonparticipants differ substantially on their economic and demographic characteristics (Table II.2). FSP participant households are more disadvantaged economically than eligible nonparticipant and near-eligible nonparticipant households. Average annual gross income of FSP participant households is approximately $8,468, which is about $1,500 less than eligible nonparticipants and nearly $6,500 less than near-eligible nonparticipants. FSP households were substantially more likely to be on AFDC than eligible nonparticipant households (30 percent versus 1 percent) or receive SSI (22 percent versus 7

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TABLE II.2

CHARACTERISTICS OF FOOD STAMP PARTICIPANT AND NONPARTICIPANT HOUSEHOLD SAMPLES
(Percentage of Households, Unless Stated Otherwise)

Characteristic	Participants	Nonparticipants	
		Eligible [a]	Near-Eligible [b]
Household Characteristics			
Average Household Size	3.0	2.7	3.1
Household Contains:			
Elderly[c]	26.5	44.2	31.5
Single person [d]	25.5	31.0	21.5
Children[e]	63.5	40.4	50.4
Single parent with children [f]	34.9	6.0	10.8
Multiple adults with children [g]	28.6	34.4	39.6
Household Receives:			
Earned income	32.5	52.7	67.0
No income	6.0	0.0	8.4
Aid to Families with Dependent Children (AFDC)	30.0	1.1	1.2
General Assistance (GA)	5.7	0.9	0.5
Supplemental Security Income (SSI)	22.3	6.8	3.9
Social Security Income	28.3	37.2	27.4
Average Annual Gross Income	$8,468	$9,953	$14,906
Average Monthly Food Stamp Benefit	$166	n.a.	n.a.
Residential Location			
Urban	52.2	45.3	38.5
Mixed	28.7	30.3	32.7
Rural	13.3	18.1	19.0
Missing	5.9	6.4	9.4
Demographic Characteristics of Respondent[h]			
Race/Ethnicity			
African American (not of Hispanic origin)	32.7	16.8	11.6
Asian/Pacific Islander	1.8	1.4	2.6
Hispanic	16.1	14.9	14.1
Native American	1.3	1.3	1.5
White (not of Hispanic origin)	46.9	64.7	69.7
Other	1.1	0.9	0.5
Missing	0.1	1.5	2.4
Age			
Less than 20 years	2.9	2.2	2.7
20 to 49 years	67.3	49.1	58.3
50 to 59 years	10.5	11.2	13.6
60 years or more	19.3	37.4	25.5
Female	84.8	76.6	72.5
Marital Status			
Never married	35.0	15.3	13.8
Currently married (formal or consensual union)	18.6	44.8	49.5
Separated or divorced	33.1	18.0	21.9
Widowed	12.7	21.1	13.8
Missing	0.6	0.8	1.0

TABLE II.2 *(continued)*

| Characteristic | Participants | Nonparticipants | |
		Eligible [a]	Near-Eligible [b]
Highest Grade Completed			
Less than high school	43.1	36.0	28.3
High school/GED	37.7	44.1	46.2
Associate/BA	8.9	11.4	12.7
Vocational certificate	4.1	3.1	3.8
Other	6.2	5.3	9.0
Missing	0.1	1.4	2.8
Sample Size	**2,454**	**450**	**405**

SOURCE: 1996 National Food Stamp Program Survey, weighted data.

[a] Households that meet the income and asset tests for eligibility for food stamps.

[b] Households that do not meet the income or asset tests for eligibility for food stamps and whose gross income does not exceed two times the poverty level for their household size, do not have non-vehicle or non-house assets greater than $15,000, and do not have vehicle assets that exceed $25,000.

[c] Households that contain at least one member age 60 years or older.

[d] Households that contain only one member.

[e] Households that contain at least one member age 18 or younger.

[f] Households that contain only one member older than age 18 and children (at least one member age 18 or younger).

[g] Households that contain two or more members older than age 18 and children (at least one member age 18 or younger).

[h] Respondent most responsible for the finances of the household.

n.a. = not applicable.

percent). About one-third of households participating in the FSP have earnings, compared with somewhat more than half of eligible nonparticipants and two-thirds of near-eligible nonparticipants.

Households were classified as urban if they lived in a zip code where 90 percent or more of the population lived in a Census-defined "urbanized area." Those with zip codes with 10 percent or fewer households lived in an urbanized area were classified as rural.[5] The remainder were classified as mixed. As shown in the table, 52 percent of the participant sample is classified as urban, 29 percent as mixed, and 13 percent as rural (6 percent could not be classified).

Among the three study groups, there are also important differences in household composition. FSP households are substantially more likely to contain children, and particularly to be single-parent households with children. Nearly two-thirds of FSP households have children, and half of those are headed by a single parent. Of eligible nonparticipating households, 40 percent contain children, and approximately 15 percent of those households with children are headed by a single parent. FSP participating households are less likely to contain elderly people: about one-quarter of FSP households contain at least one elderly member, compared with about 44 percent of eligible nonparticipating households.

With regard to demographic characteristics of the person responsible for the finances of the household, FSP participants are more likely to be African American, between 20 and 49 years of age, never married/separated/divorced, and less educated than eligible and near-eligible nonparticipants (Table II.2).

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[5]These conventions for defining urban and rural parallel those used in the FNS Authorised Retailer Characteristics Study (Mantovani, Daft, Macalusco, and Hoffman 1997), Technical Report IV, p. IV-6.

E. COMPARISONS OF THE FOOD STAMP SAMPLE WITH OTHER DATA ON FOOD STAMP RECIPIENTS

As noted above, there is at least one significant reason for believing that the sample of food stamp participants is not fully representative--the lags in the sampling and interviewing processes, which resulted in some of the sample having left food stamps before being contacted. Other reasons for differences could include (1) statistical sampling variance in either stage of the sampling process (PSUs and participants); and (2) nonresponse bias, which could be present if some categories of FSP participants are less likely than others to be located and to agree to an interview.

To assess the representativeness of the sample, tabulations were generated of two other national data sources that have characteristics of samples of food stamp participants. One of these sources, the Food Stamp Quality Control Sample (FSQC), is a data set compiled from FSP administrative records. The second source, the Survey of Income and Program Participation (SIPP), is an ongoing survey of American households conducted by the Bureau of the Census, with a special emphasis on examining households' participation in programs for low-income families.

Comparisons with these other nationally representative samples of FSP participants reveal that the current NFSPS contains more participating households with elderly people and fewer receiving welfare payments than do the other sources (Table II.3). Twenty-six percent of NFSPS participant households contain elderly people, compared with 16 percent of FSP participants in the FSQC and 18 percent of FSP participants in the SIPP. Thirty percent of NFSPS participants receive AFDC, compared with 38 percent of FSQC participant households. Nearly one-third of NFSPS households participating in the FSP reported having earnings, compared with 21 percent and 22 percent, respectively, for FSP participants in the FSQC and SIPP data sets. In general, FSP participants in the NFSPS reported higher income but lower food stamp benefits than participants in the FSQC and SIPP (Table II.4). The reason for this latter finding is not clear.

TABLE II.3

CHARACTERISTICS OF HOUSEHOLDS RECEIVING FOOD STAMPS

Selected Characteristics of Food Stamp Households	Percentage of Households			Average Number of Persons per Household		
	SIPP	FSQC	NFSPS	SIPP	FSQC	NFSPS
Demographic Characteristics						
Households That Contain:						
Elderly[a]	18.1	16.0	26.5	1.3	1.4	2.3
Single person[b]	29.3	35.9	25.5	1.0	1.0	1.0
Children[c,f]	65.5	59.7	60.8	3.6	3.4	4.0
Single parent with children[d,f]	48.2	41.6	31.9	3.2	3.1	3.3
Multiple adults with children[e,f]	16.2	14.9	28.8	4.7	4.5	4.7
Economic Characteristics						
Households That Receive:						
Aid to Families with Dependent Children (AFDC)	44.8	38.3	30.0	3.4	3.3	3.9
Supplemental Security Income (SSI)	22.1	22.6	22.3	1.9	1.9	2.3
General Assistance (GA)	5.1	7.2	5.7	2.1	1.4	3.0
Social Security	21.2	18.6	28.3	1.7	1.7	2.3
Earned income	22.0	21.4	32.5	3.6	3.3	3.9
Unearned income	83.5	86.8	82.0	2.7	2.6	2.9
No income	5.7	9.7	6.0	2.2	1.6	2.8

SOURCE: 1994 Survey of Income and Program Participation (SIPP): Eligible Reporter Units--households that reported receiving food stamps and that are simulated as eligible based on reported income, assets, and other information; Summer 1995 Food Stamp Quality Control Sample (FSQC); 1996 National Food Stamp Program Survey (NFSPS).

NOTE: All data are weighted.

[a] Households that contain at least one member age 60 years or older.

[b] Households that contain only one member.

[c] Households that contain at least one member under age 18.

[d] Households that contain only one member age 18 or older and children (at least one member under age 18).

[e] Households that contain two or more members age 18 or older and children (at least one member under age 18).

[f] NFSPS tabulations based on CAPI Food Stamp Program participant sample only (n = 1,109). The telephone data were excluded from these comparisons in order to ensure comparability with the food stamp quality control data. In the telephone interviews, in order to minimize interview time, detailed age data on each household member were not obtained, and it was not possible to fully replicate the definition of children used in the food stamp quality control data.

TABLE II.4

AVERAGE MONTHLY INCOME AND FOOD STAMP BENEFITS FOR FOOD STAMP HOUSEHOLDS,
BY SELECTED CHARACTERISTICS
(In Dollars)

Selected Characteristics of FSP Household	Income per Household			FSP Benefits per Household		
	SIPP	FSQC	NFSPS	SIPP	FSQC	NFSPS
All FSP Households	590	529	706	193	177	166
Demographic Characteristics						
Households That Contain:						
Elderly[a]	569	561	677	67	94	94
Single person[b]	433	359	471	67	66	66
Children[c,f]	650	618	764	254	240	219
Single parent with children [d,f]	571	547	638	246	233	231
Multiple adults with children [e,f]	904	877	901	287	275	206
Economic Characteristics						
Households That Receive:						
Aid to Families with Dependent Children (AFDC)	549	542	752	260	246	235
Supplemental Security Income (SSI)	642	630	730	104	97	105
General Assistance (GA)	541	360	629	143	127	189
Social Security	644	630	796	87	83	95
Earned income	880	867	1121	214	191	182
Unearned income	595	580	721	186	176	162
No income	0	0	0	230	172	176

SOURCE: 1994 Survey of Income and Program Participation (SIPP): Eligible Reporter Units--households that reported receiving food stamps and that are simulated as eligible based on reported income, assets, and other information; Summer 1995 Food Stamp Quality Control Sample (FSQC); 1996 National Food Stamp Program Survey (NFSPS).

NOTE: Amounts expressed in 1996 dollars. All data are weighted.

[a] Households that contain at least one member age 60 years or older.

[b] Households that contain only one member.

[c] Households that contain at least one member under age 18.

[d] Households that contain only one member age 18 or older and children (at least one member under age 18).

[e] Households that contain two or more members age 18 or older and children (at least one member under age 18).

[f] NFSPS tabulations based on CAPI Food Stamp Program participant sample only (n = 1,109). The telephone data were excluded from these comparisons in order to ensure comparability with the food stamp quality control data. In the telephone interviews, in order to minimize interview time, detailed age data on each household member were not obtained, and it was not possible to fully replicate the definition of children used in the food stamp quality control data.

That the NFSPS includes proportionately more FSP participant households containing elderly persons and fewer receiving welfare payments may affect findings on the overall costs of participating in the FSP, perceptions of stigma associated with program participation, and dissatisfaction with program services. An examination of this issue suggests that, if anything, the findings understate participation costs and dissatisfaction with program services. That is because, as discussed in later chapters, AFDC households have higher average values on these outcomes than all food stamp participants, whereas households containing elderly persons have lower values on average. The reverse is true for perceptions of stigma.

III. PARTICIPATION COSTS AND CLIENT SATISFACTION

This chapter examines the costs and "customer satisfaction" experienced by households when they apply for and participate in the Food Stamp Program (FSP). Among the dimensions of this are:

- Perceptions of the quality of the program services provided, as measured by degrees of satisfaction

- The time and effort associated with participation

- The monetary costs involved

- The level of stigma felt by participants

During the interviews conducted for the study, households who had applied for or were participating in the FSP were asked about their experiences with the program. In general, for households who had most recently applied for food stamps more than five years prior to the interview, the questions were limited to the recertification process, since experiences with the application process were believed to be too old to be relevant. Depending on the interview mode, households who had applied more recently than five years previous were asked either just about the application or about both their application and their most recent recertification.[1]

A. CLIENT SATISFACTION

Respondents were asked during the interviews how satisfied they were with various aspects of the FSP. This included the application, recertification, and issuance processes as well as satisfaction

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[1]To save interview time, households in the telephone interviews were in general asked about only one process--either application or recertification. Most households who were interviewed in person were asked about both.

with the FSP overall. The responses indicate considerable satisfaction among most clients with how the program is operated.

1. Satisfaction with the Application and Recertification Processes

When asked to rate their degree of satisfaction with the application process, using a four-point scale, 51 percent of participants rated themselves as "very satisfied" and another 35 percent rated themselves "somewhat satisfied" (Table III.1). The remaining 14 percent of the respondents were about equally divided between "somewhat dissatisfied" and "very dissatisfied." Similar responses were given with regard to the recertification process. However, the percentage of participants who were "very satisfied" was somewhat larger (59 percent), and the percentage ranking themselves in one of the dissatisfied categories was slightly lower (approximately 6 percent each).

2. Satisfaction with the Issuance Process

The average ratings for the issuance process are similar to, but slightly higher than, those for the recertification process. Sixty-five percent of participants rated themselves as "very satisfied," and another 23 percent rated themselves "somewhat satisfied" (Table III.1). However, the overall percentages regarding issuance hide substantial differences between participants receiving Electronic Benefit Transfer (EBT) food stamp benefits and those receiving coupons. Eighty-four percent of EBT recipients ranked themselves as "very satisfied," as compared to 64 percent at the non-EBT sites.[2] Within the non-EBT group, levels of satisfaction tended to be highest for the respondents receiving mail issuance of benefits. Under all types of issuance, most of those who were not "very satisfied" characterized themselves as "somewhat satisfied."

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[2]These results are consistent with those of earlier evaluations of EBT that have found that most program participants prefer electronic issuance. See, for example, Beecroft et al. 1994.

TABLE III.1

CURRENT PARTICIPANTS' OVERALL SATISFACTION WITH FOOD STAMP PROGRAM AND
SATISFACTION WITH APPLICATION, RECERTIFICATION, AND ISSUANCE PROCESSES
(Percentages)

	Degree of Satisfaction						
	Very Satisfied	Somewhat Satisfied	Somewhat Dissatisfied	Very Dissatisfied	Missing	Total	Sample Size
Application Process [a]	50.7	34.8	7.0	7.5	0.0	100.0	1,721
Recertification Process [b]	59.4	27.5	6.3	6.8	0.0	100.0	1,352
Issuance Process	65.2	22.6	5.1	5.4	1.7	100.0	2,442
EBT[c]	83.8	10.5	3.3	1.8	0.6	100.0	219
Non-EBT[d]	64.4	22.9	5.4	5.8	1.5	100.0	2,223
Mail coupon issuance	75.2	17.0	2.5	3.0	2.2	100.0	738
ATP/coupon issuance	62.4	24.4	8.1	4.4	0.7	100.0	465
Pick up coupons directly	58.0	24.4	7.3	9.1	1.3	100.0	835
Food Stamp Program	55.8	29.5	6.5	4.9	3.3	100.0	2,442
EBT[c]	61.3	26.5	3.0	7.4	1.9	100.0	219
Non-EBT[d]	54.7	29.5	5.6	7.1	3.1	100.0	2,223
Mail coupon issuance	58.6	26.5	5.9	7.1	1.8	100.0	738
ATP/coupon issuance	54.1	31.1	4.1	6.5	4.2	100.0	465
Pick up coupons directly	51.6	31.4	6.0	7.4	3.7	100.0	835

SOURCE: 1996 National Food Stamp Program Survey, weighted data.

[a] Questions about the degree of satisfaction with the application process were asked of RDD participants, CATI list frame participants, and CAPI list frame participants who applied for food stamps in the five years prior to the interview.

[b] Questions about the degree of satisfaction with the recertification process were asked of RDD participants, CATI list frame participants, and CAPI list frame participants who had been recertified for food stamps.

[c] Receive EBT food stamp benefits.

[d] Receive food stamp benefits in form of coupons, ATP/voucher used to get coupons, or check/cashout.

3. Overall Satisfaction with the FSP

Most current participants--56 percent--reported being "very satisfied" with the FSP overall (Table III.1). As with the issuance process, a greater percentage of EBT participants than non-EBT participants said they were "very satisfied." However, here the difference was much smaller: 61 percent of EBT participants versus 55 percent of non-EBT participants reported being "very satisfied" with the FSP overall.

4. Satisfaction with Services Received from Caseworkers

Another dimension of program satisfaction is how FSP participants regard the services provided by their eligibility workers or caseworkers, who are usually a participant's main point of contact with the program. Respondents were asked whether they agreed with a set of statements about caseworker services, with the statements being phrased in such a way that agreement was an expression of satisfaction. For instance, respondents were asked whether they agreed that their caseworker keeps them informed about what is happening with their case. A four-point scale was provided for the answers, ranging from "agree strongly" to "disagree strongly."

Patterns of satisfaction and dissatisfaction about caseworker services are in general quite similar to those observed in the previous tables. Most participants find the services received from the caseworker to be satisfactory. For all the dimensions of program service asked about, more than 70 percent of respondents said they "agree strongly" or "somewhat agree" with the statements that indicated satisfaction (Table III.2). Nearly 90 percent of participants agreed strongly or somewhat strongly that their caseworker is knowledgeable about benefits and procedures and treats clients respectfully. Approximately 80 percent of participants agree strongly or somewhat strongly with the statement that their caseworker helps to resolve client problems. About 75 percent of

TABLE III.2

CURRENT PARTICIPANTS' SATISFACTION WITH SERVICES PROVIDED BY THEIR FOOD STAMP CASEWORKER
(Percentages)

	Degree of Agreement					
Aspect of Caseworker Performance	Agree Strongly	Agree Somewhat	Disagree Somewhat	Disagree Strongly	Missing	Total
Services Are Suitable to Needs of Respondent	54.1	28.7	3.9	7.3	6.0	100.0
Respondent Agrees with Caseworker's Decisions	53.7	24.7	6.5	9.2	5.9	100.0
Caseworker Keeps the Respondent Informed	57.5	18.3	7.5	10.4	6.4	100.0
Caseworker Helps to Resolve Respondent's Problems	59.7	19.4	5.7	9.2	6.0	100.0
Caseworker Is Knowledgeable About FSP Benefits and Procedures	67.1	19.6	2.5	3.7	7.1	100.0
Caseworker Treats Clients Respectfully	71.5	15.1	2.5	5.6	5.3	100.0
Caseworker Is Available by Telephone	53.7	20.7	6.2	10.1	9.2	100.0
Caseworker Is Available for In-Person Meetings	50.4	23.5	5.2	6.1	14.7	100.0
Sample Size						**2,454**

SOURCE: 1996 National Food Stamp Program Survey, weighted data.

participants were strongly or somewhat satisfied with the availability of caseworkers for in-person meetings or telephone consultations or caseworkers' ability to keep the participant informed.

5. Characteristics of Participants Dissatisfied with the Food Stamp Program

Between 10 and 20 percent of participants express dissatisfaction with specific aspects of the FSP, with services received from caseworkers, and with the program overall. It is important to ascertain the characteristics and circumstances of participating households dissatisfied with the program. This section examines the household and personal characteristics of respondents who are dissatisfied.

Multivariate logit analysis was used to estimate the association between characteristics and the likelihood of being dissatisfied, separately for (1) the application process, (2) the recertification process, (3) the issuance process, (4) caseworker performance, and (5) the overall program.[3] The likelihood of being dissatisfied was hypothesized to depend on demographic and economic characteristics of the household and respondent, the household's experiences with the program, and respondents' perceptions of stigma. The logit model was used to estimate these relationships (see Appendix D for discussion of the estimation methodology and Appendix D Tables D.2 through D.6,

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[3]For all outcomes except caseworker performance, respondents are classified as "dissatisfied" if they were either "strongly dissatisfied" or "somewhat dissatisfied." Respondents were asked eight questions about caseworker performance. While there are alternative ways to classify whether a household is dissatisfied with caseworker performance, for the analysis, a household was defined as "dissatisfied" if *at least half* of its nonmissing responses to the statements about caseworker performance were either "disagree strongly" or "disagree somewhat." Eleven percent of participating households are "dissatisfied" with their caseworker's performance under this definition.

which present the marginal effect estimates and standard errors from the logit model).[4] Table III.3 summarizes the findings for the five outcome measures.

In general, across most aspects of the FSP examined, households dissatisfied with the FSP are more likely to reside in urban areas and have low monthly FSP benefits compared with households that are satisfied. For example, compared with rural participants, participants residing in urban areas were about five percentage points more likely to be dissatisfied with the FSP overall. The results for benefit levels suggest that levels of program dissatisfaction are highest for the households who least need the program's services, as evidenced by the low benefit levels to which they are entitled. Those dissatisfied are also more likely to feel there is stigma associated with program participation, and their participation costs, as measured by the time and out-of-pocket costs of applying for or recertifying benefits, are higher. Dissatisfaction with the application process increased with the number of trips to the FSP office and other places when applying (an increase of 2.2 percentage points per trip). Households with higher time and out-of-pocket application costs were more likely to view the application process unfavorably, although these differences were only marginally statistically significant. Similar relationships held between dissatisfaction with the recertification process and the number of trips made and time and out-of-pocket costs spent becoming recertified for food stamps. EBT households were less likely than coupon and cash recipient-households to have an unfavorable opinion about the issuance process (7 percentage points less). Having recently experienced issuance problems was also a predictor of dissatisfaction.

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[4]The logit regressions were run on unweighted data. To simplify the interpretation of the coefficients of the logit model, Appendix D tables show the "marginal effects" of the independent variables. These marginal effects show the change in the likelihood of dissatisfaction that would be predicted to occur in response to a given change in the value of some independent variable, holding all other measured factors constant. The marginal effects were calculated using weighted data.

TABLE III.3

SUMMARY OF PARTICIPANT CHARACTERISTICS ASSOCIATED WITH DISSATISFACTION WITH ASPECTS OF THE FOOD STAMP PROGRAM

Characteristics	Strongly or Somewhat Dissatisfied With:				
	Application Process	Recertification Process	Issuance Process	Caseworker Performance[a]	Food Stamp Program Overall
Household Characteristics					
Urban Residence (Omitted group: rural residence)	+**	+	+	+***	+**
Household Contains Elderly Member (Omitted group" household does not contain elderly member)	+	+	–	–	–***
Monthly Food Stamp Benefit Level (Omitted group: benefits equal $10 or less) [b]	–***	–***	–	–	–***
Black Non-Hispanic (Omitted group: white non-Hispanic)	+**	+***	+***	+	+**
Receive EBT (Omitted group: receive coupons or cash benefits)	n.a.	n.a.	–***	n.a.	–
Experiences with Food Stamp Program					
Level of Stigma Associated with FSP Participation (Omitted group: do not perceive stigma associated with FSP participation)[c]	+***	+***	+***	+	+
Number of Times Applied for FSP Benefits During Adult Life	+	n.a.	n.a.	n.a.	+***
Number of Trips to the FSP Office or Other Places When Applying	+***	n.a.	n.a.	n.a.	+
Total Hours Spent Applying	+	n.a.	n.a.	n.a.	+
Total Out-of-Pocket Costs Spent Applying	+	n.a.	n.a.	n.a.	+
Number of Trips to the FSP Office or Other Places to Become Recertified	n.a.	+	n.a.	n.a.	–
Total Hours Spent to Become Recertified	n.a.	+***	n.a.	n.a.	+
Total Out-of-Pocket Costs Spent to Become Recertified	n.a.	+	n.a.	n.a.	+
Have Had Issuance Problems During the Past Two Months (Omitted group: no issuance problems during past year)[d]	n.a.	n.a.	+***	n.a.	+***
Prefer Benefits Issued Twice Monthly (Omitted group: satisfied with monthly issuance of benefits)	n.a.	n.a.	+***	n.a.	+
Sample Size	**1,617**	**1,252**	**2,252**	**2,283**	**2,213**

TABLE III.3 *(continued)*

SOURCE: 1996 National Food Stamp Program Survey, weighted data.

NOTE: Results based on logit regressions run on unweighted data. The regressions included additional household and personal characteristics of FSP participants not shown in the table. See Appendix D for discussion of estimation methodology; Appendix Tables D.1 through D.5 present the coefficient estimates and standard errors, as well as means of variables used in regression. "t" statistics reflect correction for clustered design, based on Taylor's series routine in Stata.

The table reads as follows: The entry "+*** for urban residence under strongly or somewhat dissatisfied with the application process" means that households residing in urban areas were more likely than households residing in rural areas to respond that they were dissatisfied strongly or dissatisfied somewhat with the application process, holding all other measured factors constant, and this difference was statistically different from zero at the .01 level, two-tailed test.

[a] Respondents were read and asked to respond to eight statements that characterized caseworker performance by indicating whether they agreed or disagreed. The statements were phrased in a way such that they indicated "good" performance. A respondent was classified as "dissatisfied" with caseworker performance if half or more of his or her (nonmissing) responses to the eight questions were "disagree strongly" or "disagree somewhat."

[b] The monthly food stamp benefit level variables included in regression were: $11 to $99; $100 to $199; $200 to $299; and $300 or more.

[c] Respondents could report being stigmatized in as many as four ways, by giving a "yes" response to four questions about being stigmatized when participating in the FSP. The stigma variables included in the regression were: one, two; three; and four.

[d] Issuance problems included instances in which benefits were late, lost, or stolen during the past two months.

n.a. = variable not included in regression.

+ = characteristic is positively related to dissatisfaction.

– = characteristic is negatively related to dissatisfaction.

**Significantly different from zero at the .05 level, two-tailed test.
***Significantly different from zero at the .01 level, two-tailed test.

B. FOOD STAMP APPLICATION AND RECERTIFICATION COSTS

While the exact procedures for applying for food stamps vary among states, food stamp offices, and to some extent, clients, the basic application process involves four main steps: (1) requesting information and obtaining an application form, (2) completing and filing an application form, (3) completing an eligibility determination interview, and (4) providing verification of household circumstances. After these steps are completed, FSP caseworkers determine whether the applicant is eligible for food stamps, and if so, the benefit amount. The recertification process is similar to the application process but is not as involved, since the focus usually is on determining whether any changes have occurred since application. The rest of this section presents findings on the time and effort required to apply for and be recertified for food stamp benefits. It examines the time, monetary, and nonmonetary (stigma) costs to participants of application and recertification.

1. History of Participants' Application and Reasons for Applying

Understanding the history of participants' application and the motivations of households for applying for benefits provides a context within which to examine their subsequent experiences with the program. Current FSP participants have applied for food stamps two times on average over their adult lives (Table III.4). Nearly three-quarters of current participants applied for food stamps within the past five years. Participants' benefits are recertified, on average, every eight months. The median time between recertifications is six months.

Among participants who applied within five years prior to the interview, most elected to apply because of a greater need for food assistance brought about by income or job changes, illness or

TABLE III.4

HISTORY OF PARTICIPANTS' FOOD STAMP APPLICATION
(Percentages, Unless Stated Otherwise)

Number of Different Times Applied	
One	46.2
Two	25.1
Three or more	23.2
Don't know/refused to answer	5.5
Total	100.0
Mean	2.2
Median	2.0
Applied Within the Past Five Years	73.4
Time Between Recertification of Benefits (in months)[a]	
Mean	8.2
Median	6.0
Sample Size	**2,454**

SOURCE: 1996 National Food Stamp Program Survey, weighted data.

[a]Includes only those cases that provided a nonzero response (n = 1,213).

disability, or changes in household composition (Table III.5).[5] Virtually all participants (91 percent) mentioned having a greater need for the benefit as a reason for applying. For 76 percent of current participants, a reduction in income left them with insufficient resources to meet household needs; 43 percent of current participants said that they or someone else in the household lost a job.

Nearly half the recent applicants cited family size and composition changes as a reason for applying. Loss of a wage-earning spouse through separation or divorce, birth of children, or the addition of household members who do not contribute income are some examples of how family size and composition changes cause households to have insufficient resources. Approximately one-third of current participants reported that they applied because a household member became ill or disabled. For nearly one-third of current participants, friends, coworkers, or caseworkers played a role in their decision by suggesting they apply for food stamps.

Similar information was also tabulated for various subgroups of current participants, such as households containing an elderly person, households with earnings, or households in rural versus urban locations (results not shown). While there are a few, generally minor, differences, the overall patterns are quite similar to those discussed above for current participants overall. Some of the largest differences were observed for elderly households. For example, compared to all current participant households, elderly participant households were more likely than the whole sample to cite disability or illness as a reason for applying (52 percent versus 35 percent) and were less likely to apply because of job loss (27 percent versus 43 percent).

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[5]To save interviewing time, only CATI list frame participants who applied within the past five years of the interview were asked about the reasons they currently receive food stamps. Respondents providing more than one reason for applying were also asked to identify the most important reason.

TABLE III.5

REASONS FOR APPLYING FOR FOOD STAMPS[a]
(Percentages)

Reason	All Reasons	Most Important Reason
Have a Greater Need for Benefit	90.8	39.6
Change in Resources		
Income change	75.7	15.0
Household member lost job	43.3	10.1
Change in Size or Composition of Household	48.0	11.5
Household Member Became Ill or Disabled	35.5	10.3
Became Aware of Eligibility		
Friend or coworker suggested application	29.3	0.7
Caseworker suggested application	28.7	1.8
Change in Program	6.8	0.1
Other	18.3	8.8
Missing	1.2	2.1
Total	n.a.	100.0
Sample Size	**710**	**710**

SOURCE: 1996 National Food Stamp Program Survey, weighted data.

[a]Only CATI list frame participants who applied within five years preceding the interview were asked why their household applied for food stamps.

n.a. = not applicable. (Total does not equal 100 percent, because respondents could give more than one reason for applying for food stamps.)

2. Number of Trips Made and Time Spent Applying and Being Recertified for Benefits

Most participants--93 percent for those applying and 80 percent for those needing recertification--had to go to a food stamp office to apply or be recertified (Table III.6). It was not uncommon for participants to have to make multiple trips to the food stamp office. Approximately 29 percent of people applying had to make two trips, and about 13 percent reported making three or more. The comparable numbers for recertifications were 11 and 3 percent, respectively. Substantial numbers of participants also reported that they had to go to additional places to obtain necessary information for their most recent case actions. This was true of about 29 percent of applications and 16 percent of recertifications.

Overall, participants reported having to make between two and three trips to the food stamp office or other places and spend an average of approximately five hours on their most recent applications.[6] The average time spent applying, however, is substantially influenced by a few households with very high amounts of time spent applying--the median applicant spent about 2.8 hours. The total number of trips and the time required for recertifications were considerably lower, with a mean of 1.4 trips and 2.3 hours. The median household made one trip and spent 1.3 hours being recertified. That households make fewer trips and spend less time being recertified than applying for food stamps probably reflects at least two factors: (1) the food stamp office already has some of the necessary information on file by the time a case is recertified, and (2) the applicant better understands what information is needed and therefore is able to assemble it more efficiently.

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[6]The average time spent applying for food stamps estimated in the current study is very similar to that estimated in the 1992 study *The Food Stamp Application Process,* which estimated an average time of 4.8 hours (Bartlett et al. 1992).

TABLE III.6

FOOD STAMP PROGRAM APPLICATION AND RECERTIFICATION EXPERIENCES AMONG PARTICIPANTS

	Process	
	Application[a]	Recertification[b]
Method		
In person	92.7	80.1
Home visit	1.4	2.0
By telephone	1.4	2.4
By mail	2.1	12.4
Authorized representative	2.4	2.3
Missing	0.0	0.9
Whether Made Trips to Food Stamp Office or Other Places		
No trips to food stamp office or other places	5.2	16.0
Trips to food stamp office and other places	29.0	16.1
Trips to food stamp office but not other places	60.0	62.5
No trips to food stamp office but trips to other places	1.5	2.4
Missing	4.3	3.0
Number of Trips Made to the Food Stamp Office		
0	7.3	19.9
1	48.5	66.3
2	28.8	10.5
3 or more	13.5	2.8
Missing	2.0	0.5
Mean[c]	1.6	1.0
Median[c]	1.0	1.0
Amount of Time Dealing with Food Stamp Office Staff (in hours)		
Mean[c]	3.9	1.7
Median[c]	2.0	1.0
Number of Trips Made to Other Places		
0	66.0	78.6
1	15.6	9.4
2	6.5	4.6
3 or more	8.8	4.8
Missing	3.0	2.6
Mean[c]	0.7	0.4
Median[c]	0.0	0.0
Amount of Time Dealing with Others (in hours)		
Mean[c]	0.9	0.5
Median[c]	0.0	0.0
Total Number of Trips Made		
0	5.2	16.0
1	36.5	55.3
2	24.1	13.8
3 to 4	20.7	8.3
More than 4	9.1	3.7
Missing	4.3	3.0
Mean[c]	2.3	1.4
Median[c]	2.0	1.0

TABLE III.6 *(continued)*

	Process	
	Application[a]	Recertification[b]
Total Amount of Time Dealing with Food Stamp Office Staff and Others (in hours)		
Mean[c]	4.8	2.3
Median[c]	2.8	1.3
Sample Size	**1,725**	**1,352**

SOURCE: 1996 National Food Stamp Program Survey, weighted data.

[a] Questions about the application process were asked of RDD participants, CATI list frame participants, and CAPI list frame participants who applied for food stamps in the five years prior to the interview.

[b] Questions about the recertification process were asked of RDD participants, CATI list frame participants, and CAPI list frame participants who have been recertified for food stamps.

[c] Calculation of mean or median is based on all households in sample that apply (or recertify), including those with zero values.

Similar information was tabulated for nonparticipants who had been food stamp recipients, to see if their experiences had been markedly different in ways that might help explain their nonparticipation. Because of small sample sizes, the results are not displayed, but the overall patterns appear quite similar to those discussed above for current participants.

3. Out-of-Pocket Costs of Applying for and Being Recertified for Food Stamp Benefits

Approximately 80 percent of applicants and 65 percent of participants being recertified reported that they had incurred some out-of-pocket monetary costs in connection with their application or recertification (Table III.7). By far the most common type of out-of-pocket costs involved transportation: 80 percent of applicants and 65 percent of recertifiers incurred transportation costs. (A detailed breakdown of these costs is not available; however, respondents were asked to include "gas, bus fare, parking, tolls, or any money that you may have paid a driver.") The second most common cost--incurred by fewer than seven percent of respondents--was for child or elder care.

Total out-of-pocket costs averaged over all participants, including those with zero out-of-pocket costs, were $10.31 for application and $5.84 for recertification.[1] The average transportation costs incurred for all participants, including those with zero costs, was $8.45 for applications and $4.88 for recertifications. As with the earlier data on time spent, however, these averages hide distributions that are substantially influenced by households having very high costs. Thirty-seven percent of applications and 22 percent of recertifications involved costs greater that $8.00. The median transportation costs for applying for and being recertified for benefits are $5.00 and $3.00,

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[1]Bartlett et al. (1992) reach very similar conclusions, estimating an average cost of $10.40.

TABLE III.7

FOOD STAMP PROGRAM APPLICATION AND RECERTIFICATION COSTS AMONG PARTICIPANTS

	Process	
	Application[a]	Recertification[b]
Percentage of Households with Out-of-Pocket Costs	80.1	64.8
Transportation	79.1	64.1
Child or elder care	6.8	5.3
Other	5.4	2.6
Amount of Out-of-Pocket Costs (in Dollars)[c]		
Transportation		
Mean	8.45	4.88
Median	5.00	3.00
Child or elderly care		
Mean	1.58	0.79
Median	0.00	0.00
Other		
Mean	0.88	0.36
Median	0.00	0.00
Total		
Mean	10.31	5.84
Median	5.00	3.00
Total Out-of Pocket Costs		
$0	25.0	34.7
$1 - 3	15.8	18.2
$4 - 8	22.4	24.9
Greater than 8	36.7	22.2
Sample Size	**1,721**	**1,352**

SOURCE: 1996 National Food Stamp Program Survey, weighted data.

[a] Questions about the application process were asked of subsets of RDD and CATI list frame participants, and all CAPI list frame participants who had applied for food stamps in the five years prior to the interview.

[b] Questions about the recertification process were asked of subsets of RDD participants and CATI list frame participants, and all CAPI list frame participants who had been recertified for food stamps.

[c] Cost calculations include cases who reported a cost of zero dollars for any specific type of cost or on total cost.

respectively.[8] The average child or elder care costs were $1.58 for applications and $.79 for recertifications.[9]

In assessing these out-of-pocket costs, it is also important to note that, as described in Section 2 above, there are substantial time costs involved in the application and recertification processes. There is no clearly appropriate way to accurately impute the value of this time, and, as a result, this imputation has not been done here. However, if any reasonable monetary value were assigned to these time costs, estimated total cost would increase substantially.

4. Stigma

Another type of participation cost for some households is feeling embarrassment or stigma at having to use food stamps or at having other people aware of their participation in the program. The results of the survey suggest that this is clearly a problem for some FSP participants, with approximately 40 percent of participants indicating that they had experienced at least one form of stigma. However, the majority of participants do not report feelings of stigma associated with program participation.

Approximately 15 percent of current participants said that they had tried at some time to hide the fact that they were receiving food stamps, and 22 percent indicated that they had avoided telling other people about their receipt (Table III.8). Ten percent said they went out of their way to shop at a store where nobody knew them to avoid having someone they knew see them using food stamps. Ten percent said that they have been treated disrespectfully when they told people that they received food stamps.

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[8]The average (median) transportation costs incurred by only those participants who had transportation costs was $10.73 ($6.00) for applications and $7.34 ($5.00) for recertifications.

[9]The average (median) child or elder care costs incurred by only those participants who had nonzero costs was $23.06 ($15.00) for applications and $14.85 ($10.00) for recertifications.

TABLE III.8

PERCEPTIONS OF STIGMA AMONG FOOD STAMP PROGRAM PARTICIPANTS
(Percentages, Unless Stated Otherwise)

Have Done Things to Hide That They Get Food Stamps	15.1
Have Avoided Telling People About Receiving Food Stamps	22.4
Have Gone Out of Their Way to Shop at a Store Where No One Knows Them	10.3
Have Been Treated Disrespectfully When They Told People They Received Food Stamps	10.5
Have Been Treated Disrespectfully When Using Food Stamps in a Store	22.8
Treated disrespectfully by:[a,b]	
Store clerk	86.4
Other shoppers	33.3
Other	4.1
Have Thrown Away Food Stamps or Given Them to Someone Else Because Embarrassed to Use Them	0.2
Stigma Index[c]	
0	59.7
1	18.0
2	9.3
3	5.9
4	4.2
5	2.0
6	0.1
Missing	0.9
Total	100.0
Mean	0.82
Sample Size	**2,454**

SOURCE: 1996 National Food Stamp Program Survey, weighted data.

[a]Calculated only for those who have been treated disrespectfully when using food stamps in a store.

[b]Percentages sum to more than 100 percent because respondents could give more than one answer.

[c]Stigma index is the sum of the responses to each of the six stigma questions shown in the top portion of the table, where response equals 1 if respondent experienced stigma and equals 0 if not. Index ranges from 0 to 6, with higher values on the index indicating greater number of positive responses to perceiving stigma.

Approximately 23 percent of respondents reported having been treated disrespectfully in stores. Of those who reported this, most (86 percent) had been treated rudely by a store clerk; about a third had been treated disrespectfully by other shoppers. Few participants (less than one percent) went so far as to throw away their food stamps or give them to someone else because they were embarrassed to use them.

To obtain a summary measure of perceptions of stigma, a scale was developed by calculating the number of different ways, based on the data collected, that each respondent reported experiencing stigma effects.[10] The results, shown in the bottom panel of Table III.8, indicate that most respondents--60 percent--did not report any type of stigma or stigmatizing experience. Eighteen percent of participants reported just one type of stigmatizing experience, and 22 percent reported two or more types. These results suggest that stigma is not an issue for most participants but may be a significant problem for a minority of households receiving food stamps.

To examine possible differences in stigma between subgroups of the FSP population, Table III.9 shows the percentages of households reporting a positive level on the stigma scale, by population subgroup. The data suggest that the elderly are the most likely to experience stigma. Seventy-six percent of households with an elderly member indicated having experienced stigma. The AFDC group was the least likely to do so.

C. CONCLUSIONS

Results reported earlier in the chapter suggest that clients incur significant costs in complying with program requirements. The average application involves nearly five hours of client time, including at least two trips to the FSP office or other places; the comparable numbers for

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[10]The index is derived from the full set of questions--six questions in all, shown in the top of Table III.8. It ranges from a low of "0" (have not experienced stigma) to a high of "6" (have experienced all six aspects of stigma).

TABLE III.9

PERCENTAGE OF FOOD STAMP PROGRAM HOUSEHOLDS WITH SOME INDICATION
OF STIGMA BEING PRESENT, BY SELECTED CHARACTERISTICS
(Entries Are Percentages)

Selected Characteristics of FSP Household	Stigma Present	Stigma Not Present
All FSP Households	60.3	39.7
Demographic Characteristics		
Households That Contain:		
Elderly[a]	76.0	24.0
Single person[b]	71.3	28.7
Children[c,f]	54.0	46.0
Single parent with children [d,f]	52.8	47.2
Multiple adults with children [e,f]	55.4	44.6
Economic Characteristics		
Households That Receive:		
Aid to Families with Dependent Children (AFDC)	41.9	58.1
Supplemental Security Income (SSI)	66.2	33.7
Social Security	72.2	27.8
Earned income	55.1	45.0
Unearned income	60.5	39.5
No income	62.9	37.1

SOURCE: 1994 Survey of Income and Program Participation (SIPP): Eligible Reporter Units--households that reported receiving food stamps and that are simulated as eligible based on reported income, assets, and other information; Summer 1995 Food Stamp Quality Control Sample (FSQC); 1996 National Food Stamp Program Survey (NFSPS).

NOTE: Amounts expressed in 1996 dollars. All data are weighted.

[a]Households that contain at least one member age 60 years or older.

[b]Households that contain only one member.

[c]Households that contain at least one member under age 18.

[d]Households that contain only one member age 18 or older and children (at least one member under age 18).

[e]Households that contain two or more members age 18 or older and children (at least one member under age 18).

[f]NFSPS tabulations based on CAPI Food Stamp Program participant sample only (n = 1,109).

[g]See Table III.8 for the definition of stigma used in the tabulation.

recertifications are nearly 2.5 hours and at least one trip. On average, the direct monetary costs involved are about $10.31 for applications and $5.84 for recertifications, with most of this money being spent on transportation.

Stigma does not appear to be a significant problem for most FSP participants. However, there is a minority of respondents whose survey responses suggest that they experience considerable stigma from their participation in the program.

Overall, the data reviewed above suggest that the typical FSP client is quite satisfied with the program services that he or she receives. These results hold consistently whether the relevant questions ask about overall levels of satisfaction with the program, satisfaction with specific aspects of the program, or satisfaction with services received from caseworkers. However, the satisfaction is not unanimous. In response to each of these questions, 10 to 20 percent of participants express unhappiness about the program. Generally across most aspects of the FSP examined, households dissatisfied with the FSP are more likely to reside in urban areas and have low monthly FSP benefits compared with households that are satisfied. Those that are dissatisfied are also more likely to feel there is stigma associated with program participation, and their participation costs tend to be higher (as measured by the time and out-of-pocket costs of applying for or recertifying benefits).

IV. FOOD STAMP PROGRAM NONPARTICIPATION

This chapter examines Food Stamp Program (FSP) nonparticipation by eligible households. The analysis tabulates the stated reasons eligible households give for not participating as well as the characteristics of eligible nonparticipating households, comparing them with the characteristics of households currently participating. The analyses also consider the role that stigma and the form of benefit play in the household's decision not to participate.

An important caveat should be kept in mind throughout the chapter. As discussed in Chapter II, given the constraints of the telephone survey process, it was possible to replicate only approximately the FSP eligibility determination in conducting the survey. It is therefore likely that the tabulations include some households who would have been found to be ineligible in an actual FSP eligibility determination.

The eligibility profile of respondents in the random-digit-dialing (RDD) survey provides somewhat mixed evidence on the extent of this problem of there being some possibly incorrect eligibility determinations in the data. On the one hand, only 754 eligible households were identified out of 6,132 households who completed the screening interview and provided information in which to determine eligibility for food stamps. This implies an FSP eligibility rate of about 12 percent;[1] however, Trippe (1996) presents data implying an eligibility rate of approximately 15 percent.[2] This comparison suggests that the present survey may actually have had a tendency to miss eligible

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[1]For the RDD sample, 6,429 screening interviews were completed. However, 297 households did not supply enough information to determine whether they were eligible for food stamps or not. That leaves 6,132 completed screening interviews with information available to determine FSP eligibility. See Section II.A for backup for the 754 eligibles figure.

[2]Trippe estimates out of a population of about 95 million U.S. households that approximately 14 million households were eligible for the program in 1992.

households, rather than allow too many through the eligibility screen. However, to at least some extent, the difference between Trippe's 15 percent eligibility estimate and the current screening rate of 12 percent could reflect improved economic conditions between 1992 (when the data used by Trippe's study were collected) and 1996 (when the NFSPS was conducted). Also, the low apparent eligibility rate could be due, in part, to the current survey not screening households without telephones, which tend to have lower incomes.

It is also relevant to note that the NFSPS survey identified only 304 households receiving food stamps among the 754 apparently eligible households that were screened. By itself, this latter statistic (implying a 40 percent participation rate among eligibles) would suggest that too many apparently eligible nonparticipants were identified, since the overall household FSP participation rate *among those eligible* is believed to be about 69 percent. However, this finding of surprisingly low numbers of participants could result in part from the well-known tendency of households to underreport participation in programs such as the FSP and Aid to Families with Dependent Children (AFDC) when asked about it in surveys.[3]

Overall, then, these comparisons with national data and estimates are inconclusive as to whether the NFSPS screening process allowed too many ineligibles to be counted as eligible. The overall program-eligible rate implicit in the current estimates suggests that this is not the case, while the relatively low ratio of participants to eligible nonparticipants suggests that it may be. A reasonable judgment is that some of the households who passed the screen are not eligible but that a substantial majority of them are.

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[3]For instance, in the 1992 and 1993 Panels of the Survey of Income and Program Participation (SIPP), for both AFDC and food stamps, the monthly numbers of participants implied by the survey data are only approximately 82 percent of the administrative total (based on unpublished tabulations of SIPP data by MPR).

A. ELIGIBLE NONPARTICIPANTS' EXPERIENCES WITH THE FSP

Nearly 45 percent of eligible households not participating in the FSP have previously applied for or checked whether they were eligible for food stamps over their adult life (Table IV.1). One-quarter of current nonparticipant households (or more than half of those who ever applied) applied for or checked into their eligibility for food stamps without applying during the past five years. Among these recent applicants, nearly two-thirds received and used food stamps. However, most of those households receiving food stamps within the past five years did so for only a very short time: 43 percent received food stamps for less than six months; 80 percent received food stamps less than one year. These former participants received food stamps on average for nine months.

B. STATED REASONS FOR NONPARTICIPATION

This section examines the reasons for nonparticipation as reported directly by eligible but nonparticipating households. The strength of this approach is that nonparticipants--the only people who really know why they are not participating--are given the opportunity to report their reasons. A drawback with the approach is that respondents may not give the real reasons for nonparticipation. For example, they may be reluctant to give the real reason and give what they consider to be more socially accepted reason instead; they may simply forget the real reason and give other reasons instead; or their perceptions of the reasons may not be correct. (Section D examines the association between nonparticipation and the demographic and economic characteristics of eligible households within a multivariate context that controls for other factors. That analysis provides indirect evidence for the reasons for nonparticipation, since personal and household characteristics, though not the actual reasons for nonparticipation of eligible households, may be associated with the reasons. The

TABLE IV.1

ELIGIBLE NONPARTICIPANTS' EXPERIENCES WITH THE FOOD STAMP PROGRAM
(Percentages, Unless Stated Otherwise)

Have Applied for Food Stamps in the Past	43.5
Number of Different Times Applied	
None	56.2
One	23.2
Two	9.3
Three or more	9.7
Don't know/refused to answer	1.3
Total	100.0
Mean	2.2
Median	1.0
Have Applied Within the Past Five Years	24.5
Among Those Who Applied Within Past Five Years, Outcome[a]	
Did not complete application	8.1
Completed application	
Did not receive food stamps	27.0
Received but did not use food stamps	0.9
Received and used food stamps	62.1
Don't know/refused to answer	1.9
Length of Time Received Food Stamps Before Stopping[b]	
Less than 6 months	42.7
6 months to 12 months	36.6
1 to 2 years	8.0
More than 2 but less than 5 years	4.8
Missing	7.9
Total	100.0
Mean (months)	8.7
Median (months)	6.0
Sample Size	**450**

SOURCE: 1996 National Food Stamp Program Survey, weighted data.

[a]n = 111.

[b]Calculated for those who received and used food stamps within the past five years only (n = 63).

weakness of this method is that one has to try to infer the actual reasons from the associations, but the associations may be consistent with more than one reason.)

1.   Reasons Given by Eligible Nonparticipants for Not Applying

Nonparticipants were asked whether they were aware that they may be eligible to receive food stamp benefits. Those answering "yes" were then asked to give the reasons they haven't applied. In addition, nonparticipants who applied for and received food stamps within the past five years were asked why they stopped participating. The rest of this section examines responses to these lines of questioning.

Reasons related to perceptions about their eligibility were most often cited by eligible households for not applying for food stamps (Table IV.2). Seventy-two percent of current eligible nonparticipants were not aware that they were eligible for the FSP. Less than 15 percent of respondents cited a factor related to the costs of participation as the most important reason for not applying. For example, approximately seven percent mentioned a psychological or stigma-related reason as the most important grounds for not participating; about five percent of eligible households cited the money, time, or hassles involved in applying as the most important reason. Eight percent of respondents mentioned "not needing food stamps" as one of the reasons their household was not participating in the program; five percent of eligible households said this was the most important reason for not applying.

These findings are consistent with past research on stated reasons for nonparticipation. For example, studies by Coe (1983b) and the General Accounting Office (1988a) have found that more than half of FSP-eligible nonparticipants thought they were ineligible for the program. Of those

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TABLE IV.2

REASONS ELIGIBLE NONPARTICIPANTS CURRENTLY HAVE NOT
APPLIED FOR FOOD STAMPS
(Percentages)

Reasons	All Reasons[a]	Most Important Reason
Informational Problems		
Not Aware May Be Eligible	71.7	71.7
Do Not Know How or Where to Apply	1.4	1.1
Perceptions of Need		
Do Not Need Food Stamps	7.8	4.7
Costs of Participation		
Money, Time, and Hassle		
Too much paperwork	2.8	1.3
Transportation is a problem	1.5	1.1
Benefit too small for effort required	2.8	2.4
Psychological/Stigma		
Do not like to rely on government assistance/charity	4.4	4.0
Do not want to be seen shopping with food stamps	0.7	0.2
Do not want peers to know need help	0.7	0.0
Too proud to ask for assistance	0.4	0.2
People treat you badly	0.7	0.0
Questions too personal	0.5	0.2
Previous bad experience with FSP	2.4	2.0
Other Reasons		
Never Got Around to Applying	1.1	0.4
Don't Feel Like It	2.4	1.5
Other	2.7	2.2
Missing Data	1.8	3.1
Total	n.a.	100.0
Sample Size		**450**

TABLE IV.2 *(continued)*

SOURCE: 1996 National Food Stamp Program Survey, weighted data.

[a]Percentages sum to more than 100 percent because respondents could give more than one reason for not applying.

n.a. = not applicable.

believing they were eligible, the most common reasons given for not applying were high participation costs (administrative hassles, monetary costs, stigma) and lack of need for food stamps.

Reasons for Not Applying Given by Subgroups of Eligible Nonparticipants. The reasons given for not applying generally do not vary substantially across subgroups of eligible nonparticipants defined by the households' economic and demographic characteristics or FSP participation experience (see Table IV.3). However, there are some interesting exceptions. Eligible nonparticipating households that have applied for or received food stamps in the past were somewhat less likely than eligible nonparticipant households overall to be unaware they may be eligible (by about 63 percent versus 72 percent).[4] Eligible nonparticipants who had applied for or received food stamps in the past were twice as likely as eligible nonparticipants overall to not apply because of bad experiences with the FSP (5.5 percent versus 2.4 percent). Eligible nonparticipating households containing elderly members were more likely than other eligible nonparticipating households to say they had not applied because they did not need the benefit or because the benefit was too small to make the effort of applying worthwhile. Interestingly, households that had non-home assets were somewhat less likely on average to indicate that they were not aware that they might be eligible.

Characteristics of Households Giving Specific Reasons for Not Applying. The analysis also examined the distribution of characteristics of eligible nonparticipant households giving selected reasons for not applying and compared them with the characteristics of eligible nonparticipant households overall. This comparison identifies the types of households most likely to give particular reasons for not applying. Table IV.4 shows the distribution of characteristics of eligible

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[4]The difference between those who had applied and those who had not is statistically significant at the one percent level.

TABLE IV.3

REASONS FOR NOT APPLYING FOR FOOD STAMPS, BY SELECTED SUBGROUPS OF ELIGIBLE NONPARTICIPANTS
(Percentages) [a]

Reasons	Household Contains Elderly Member	Household Has Earnings	Rural Location	Household Has Non-Home Assets	Applied in the Past	All Eligible Nonparticipants
Informational Problems						
Not Aware May Be Eligible	74.9	74.5	79.2	68.7	63.5	71.7
Do Not Know How or Where to Apply	2.6	0.4	0.0	1.1	1.7	1.4
Perceptions of Need						
Do Not Need Food Stamps	9.2	7.5	7.4	6.3	4.5	7.8
Costs of Participation						
Money, Time, and Hassle						
Too much paperwork	1.5	3.7	2.4	2.8	4.1	2.8
Transportation is a problem	1.5	0.4	1.2	2.9	2.5	1.5
Benefit too small for effort required	4.0	2.1	2.4	4.5	4.5	2.8
Psychological/Stigma						
Do not like to rely on government assistance or charity	4.5	4.2	1.2	5.1	3.5	4.4
Do not want to be seen shopping with food stamps	0.5	0.4	0.0	1.1	0.6	0.7
Do not want peers to know need help	1.0	0.4	0.0	0.6	0.6	0.7
Too proud to ask for assistance	1.0	0.0	0.0	0.0	0.4	0.4
People treat you badly	0.5	0.4	0.0	0.0	1.0	0.7
Questions too personal	0.0	0.0	0.0	0.0	1.1	0.5
Previous bad experience with FSP	1.5	2.9	2.4	2.2	5.5	2.4
Other Reasons						
Never Got Around to Applying	1.0	1.3	0.0	1.7	2.0	1.1
Don't Feel Like It	1.9	1.7	3.6	2.2	3.5	2.4
Other	0.0	3.4	0.6	2.9	3.6	2.7
Missing Data	0.5	2.1	1.2	2.9	3.1	1.8
Sample Size	**199**	**237**	**125**	**82**	**197**	**450**

SOURCE: 1996 National Food Stamp Program Survey, weighted data.

[a]Percentages sum to more than 100 percent because respondents could give more than one reason for not applying.

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nonparticipant households that give the two most frequently cited reasons for nonparticipation: (1) lack of awareness that their household may be eligible for food stamps, and (2) belief that they do not need food stamps.[5]

The distribution of characteristics of eligible households that have not applied because they say they are not aware of their eligibility does not differ appreciably from that of eligible nonparticipant households overall (Table IV.4). This is because a substantial majority of eligible nonparticipant households (72 percent) give this reason for not participating.

Eligible nonparticipating households who say they are not participating because they believe they do not need the benefit are more likely to be elderly households and single-person households than eligible nonparticipating households overall. They are also more likely to have a respondent who is a non-Hispanic white and has completed education beyond high school. For example, 52 percent of nonparticipating households who say they do not need food stamps contain at least one elderly member, whereas 44 percent of all eligible nonparticipant households contain at least one elderly member. On the other hand, households not participating because they do not need the benefits are approximately one-third as likely to be African American, compared with their representation in the overall population of eligible nonparticipating households (6 percent versus 17 percent). These households are substantially less likely than eligible nonparticipants households overall to be receiving public assistance.

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[5]Findings are not presented for any of the other reasons eligible households give for not applying, because the sample sizes are too small (fewer than 25 households).

TABLE IV.4

CHARACTERISTICS OF ELIGIBLE HOUSEHOLDS THAT DID NOT APPLY FOR FOOD STAMPS, BY
SELECTED STATED REASONS FOR NOT APPLYING
(Entries Are Column Percentages)

Characteristic	Not Aware Eligible	Do Not Need Benefit	All Eligible Nonparticipant Households
Household Characteristic			
Household Contains:			
Elderly[a]	46.2	52.2	44.2
Single person[b]	28.6	40.5	31.0
Children[c]	39.8	42.2	40.4
Urban Residential Location	44.2	32.0	45.3
Household Has Earnings	54.8	50.5	52.7
Household Receives AFDC, SSI, or GA	7.6	0.0	8.6
Income as a Percentage of Poverty			
Less than 25 percent	5.6	2.9	5.3
25 percent to 49 percent	8.7	8.9	9.3
50 percent to 74 percent	17.7	28.1	20.7
75 percent to 99 percent	25.8	31.6	26.3
100 percent to 124 percent	22.6	11.1	21.2
125 percent or more	6.5	0.0	5.3
Missing	13.1	17.4	11.9
Demographic Characteristics of Respondent[e]			
Race/Ethnicity			
African American (not of Hispanic origin)	16.9	5.6	16.6
Hispanic	13.4	14.0	14.6
White (not of Hispanic origin)	64.2	77.6	63.7
Other[f]	3.7	2.8	3.5
Missing	1.8	0.0	1.5
Highest Grade Completed			
Less than high school	34.8	31.5	35.5
High school/GED	44.0	54.6	43.5
Beyond high school	19.7	13.9	19.6
Sample Size	**322**	**35**	**450**

SOURCE: 1996 National Food Stamp Program Survey, weighted tabulations.

[a]Households that contain at least one member age 60 years or older.

[b]Households that contain only one member.

[c]Households that contain at least one member age 18 or younger.

[d]Households that contain two or more members older than age 18 and children (at least one member age 18 or younger).

[e]Respondent most responsible for the finances of the household.

[f]Refers to Asian/Pacific Islander, Native American, and other.

2. The Reasons Former Participants Stopped Receiving Food Stamps

Fifteen percent of eligible nonparticipants applied for, received, and used food stamps within the past five years.[6] Many of these former participants reported that the most important reason they stopped receiving food stamps was that their household increased its economic resources (Table IV.5). Frequently, household resources increased because of employment-related changes experienced by existing household members or the addition of household members (such as a spouse) who had earnings or other income. Twenty-nine percent of former participants mentioned getting a better job with higher wages as the main reason they stopped getting food stamps. For an additional five percent of households, changes in household composition--got married or got back together with spouse--resulted in the household adding a member with assets, earnings or other income, which increased the economic resources of the household. Furthermore, the importance of economic factors as a reason for leaving the FSP may be even greater than implied by the above data, because of the pressure of economic considerations in the "other" category in the table. A large percentage--about 30 percent--of eligible nonparticipants who had participated in the recent past mentioned "other" reasons for no longer receiving food stamps. Further examination of these "other" responses revealed that more than half of them had to do with the household becoming ineligible--primarily because household income or assets increased.

The costs of FSP participation were the next most frequently cited reason for no longer receiving food stamps. Approximately 15 percent of respondents indicated that their reason for nonparticipation was related to the time or monetary costs or hassle involved in participation. Just

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[6]Twenty-five percent of eligible nonparticipants applied for food stamps within the past five years, and 62 percent of them received and used food stamps during that time (see Table IV.1). Thus, 15 percent (.25 x .62) of current eligible nonparticipants overall received and used food stamps in the recent past.

TABLE IV.5

REASONS CURRENT ELIGIBLE NONPARTICIPANTS WHO PARTICIPATED
IN THE FOOD STAMP PROGRAM DURING THE PAST FIVE YEARS
STOPPED PARTICIPATING
(Percentages)

Reason	All Reasons[a]	Most Important Reason
Resources		
Got a better job with higher wages	31.8	28.8
Worked more hours	3.2	1.6
Got a job	1.5	1.5
Got married	4.7	3.1
Got back together with spouse	1.6	1.6
Household income increased	4.7	4.8
Began receiving other kinds of governmental aid	1.5	1.5
Total	n.a.	42.9
Household Composition		
Household size decreased	3.1	3.1
Participation Costs--Money, Time, and Hassle		
Not treated well by FSP staff	6.3	4.7
Too hard to pick up food stamps	6.4	6.4
Too hard to get to food stamp office for recertification	6.4	3.2
Recertification too cumbersome	1.6	0.0
Benefit amount too small relative to effort needed to get benefits	3.2	1.6
Total	n.a.	15.9
Participation Costs--Psychological/Stigma		
Embarrassed to use food stamps	1.6	1.6
Other		
Moved	3.2	3.2
Other[b]	31.6	30.0
Don't Know/Refused	1.5	3.3
Total	n.a.	100.0
Sample Size	**63**	**63**

SOURCE: 1996 National Food Stamp Program Survey, weighted data.

[a] Percentages sum to more than 100 percent because respondents could give more than one reason for no longer receiving food stamps.

[b] The reasons under "other" fall into two categories: (1) being told by the FSP office that respondent's household was no longer eligible, or (2) failure of the household to take some action required by the FSP office to continue to receive benefits--provide verification documentation, pay back food stamp overissuance, keep appointments with caseworker, etc.

n.a. = not applicable.

two percent mentioned that they were embarrassed to use food stamps, a psychological cost of participation.

Within the reasons under "other," in addition to those reflecting change in economic circumstances, nearly half were related to the failure of the household to take some action requested by FSP office staff in order for the household to continue receiving benefits, such as providing verification documentation, paying back benefit overissuance, keeping recertification appointments with their caseworker, and so on. It is possible that in some of these cases, the household failed to take the necessary action because of the money, time, and other costs involved in doing so.

C. THE ROLE OF STIGMA AND THE FORM OF THE BENEFIT IN THE DECISION NOT TO PARTICIPATE

1. Stigma

Section B.1 showed that approximately seven percent of eligible nonparticipant households cited a psychological or stigma-related reason as the most important grounds for not applying for food stamps. These data suggest that, for most people, stigma may not be an important factor in making the decision to participate. However, only nonparticipants who said they were aware they may be eligible to receive food stamps were asked to give reasons for not participating. If stigma affects decision-makers' perceptions of whether the household is eligible for food stamps, then these data would tend to understate the importance of stigma on FSP nonparticipation, since those saying they are not aware did not have an opportunity to cite stigma as an important reason for not participating.

This section gauges the negative influence that stigma may have on program participation by examining responses to questions about whether nonparticipant households either have actually experienced stigma (for nonparticipants who have participated in the past) or think they would experience stigma if they participated (for nonparticipants who have never participated).

From their answers to direct questions about stigma, it appears that many eligible nonparticipants associate stigma with program participation. Forty-four percent of eligible nonparticipants answered "yes" to one or more questions about feeling stigma from receiving or using food stamps (Table IV.6).[7] Eligible nonparticipants are somewhat more likely to perceive stigma associated with FSP participation than current participants (44 percent versus 38 percent). Eligible nonparticipants are approximately twice as likely as current participants to say they have been or perceive they would be treated disrespectfully if found to be receiving food stamps (20 percent versus 11 percent). Similarly, twice as many eligible nonparticipants as current participants say they have shopped or would shop at a store where no one knows them (21 percent versus 10 percent). Twenty-eight percent of eligible nonparticipants say they have avoided or would avoid telling people that they receive food stamps, whereas 22 percent of current participants said they have actually avoided telling people they received food stamps.

The overall percentages for eligible nonparticipants regarding perceptions of stigma hide substantial differences between eligible nonparticipants who participated in the recent past and those who have never participated in the FSP. Current eligible nonparticipants who have never received food stamps are more likely to think they would feel stigmatized than former (and current) participants actually feel stigmatized (Table IV.6). For example, 33 percent of eligible

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[7]The analysis developed two scales to summarize households' perceptions of stigma, each based on calculating the number of different ways that the respondents reported experiencing or believed they would experience stigma. One of the indexes, applicable to all current participants and only those current nonparticipants who received food stamps in the past, is derived from the full set of questions--six questions in all. This scale ranges from a low of "0" (have not experienced or anticipate would not experience stigma) to a high of "6" (have experienced or anticipate would experience all six aspects of stigma). Since only four of the six stigma questions are applicable to nonparticipants who have never received food stamps in the past, the second index is derived from four questions only. This scale ranges from 0 to 4. (All comparisons reported in the text between participants and nonparticipants are based on the four-question scale.)

TABLE IV.6

PERCEPTIONS OF STIGMA AMONG NONPARTICIPANTS AND PARTICIPANTS
(Percentages, Unless Stated Otherwise)

| | | Nonparticipants | | | | | |
| | | Eligible | | | Near-Eligible | | |
	Participants	All	Ever Participated [a]	Never Participated [b]	All	Ever Participated[a]	Never Participated[b]
Hide Get/Got Food Stamps	15.1	n.a.	12.1	n.a.	n.a.	17.2	n.a.
Have Avoided or Would Avoid Telling People About Receiving Food Stamps	22.4	27.6	18.4	33.4	34.4	28.4	36.9
Have Shopped or Would Shop at a Store Where No One Knows Them	10.3	20.8	12.7	26.0	28.4	18.5	32.7
Have Been or Perceive Would Be Treated Disrespectfully If Found to Be Receiving Food Stamps	10.5	19.8	12.0	24.7	24.7	14.5	29.0
Have Been or Perceive Would Be Treated Disrespectfully When Using Food Stamps in a Store	22.8	23.0	18.7	25.8	24.0	17.9	26.6
By whom:[c,d]							
Store clerk	86.4	n.a.	77.5	n.a.	n.a.	81.0	n.a.
Other shoppers	33.3	n.a.	34.2	n.a.	n.a.	36.9	n.a.
Other	4.1	n.a.	0.0	n.a.	n.a.	0.0	n.a.
Have Thrown Away Food Stamps or Given Them to Someone Else	0.2	n.a.	0.0	n.a.	0.7	2.4	n.a.
Four-Item Stigma Index							
0	61.2	47.3	59.5	39.9	43.2	56.2	37.6
1	20.3	17.8	21.4	15.7	15.9	17.9	15.0
2	10.0	11.5	5.8	15.1	18.2	14.0	20.0
3	5.5	6.8	5.7	7.5	8.1	8.0	8.2
4	2.4	7.5	2.9	10.4	8.7	2.4	11.4
Missing	0.7	9.1	4.6	11.5	5.9	1.6	7.7
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Mean	0.67	1.0	0.65	1.24	1.2	0.81	1.36

TABLE IV.6 *(continued)*

| | | Nonparticipants | | | | | |
| | | Eligible | | | Near-Eligible | | |
	Participants	All	Ever Participated [a]	Never Participated [b]	All	Ever Participated[a]	Never Participated[b]
Six-Item Stigma Index							
0	59.7	n.a.	54.9	n.a.	n.a.	47.8	n.a.
1	18.0	n.a.	21.3	n.a.	n.a.	13.8	n.a.
2	9.3	n.a.	3.4	n.a.	n.a.	14.2	n.a.
3	5.9	n.a.	5.2	n.a.	n.a.	10.5	n.a.
4	4.2	n.a.	4.6	n.a.	n.a.	2.4	n.a.
5	2.0	n.a.	2.3	n.a.	n.a.	3.2	n.a.
6	0.1	n.a.	0.0	n.a.	n.a.	0.0	n.a.
Missing	0.9	n.a.	8.1	n.a.	n.a.	8.3	n.a.
Total	100.0	n.a.	100.0	n.a.	n.a.	100.0	n.a.
Mean	0.82	n.a.	0.80	n.a.	n.a.	1.08	n.a.
Sample Size	**2,454**	**450**	**174**	**275**	**405**	**123**	**282**

SOURCE: 1996 National Food Stamp Program Survey, weighted data.

[a] Household has received and used food stamps in the past.

[b] Household has never received and used food stamps in the past.

[c] Calculated only for those who have been treated disrespectfully when using food stamps in a store.

[d] Percentages sum to more than 100 percent because respondents could give more than one answer.

n.a. = not applicable.

nonparticipants who have never received food stamps say they would avoid telling people that they receive food stamps, whereas 18 percent of former recipients and 22 percent of current participants said they have actually avoided telling people they received food stamps. Similarly, 26 percent of eligible nonparticipants who have never received food stamps say they would shop at a store where no one knows them, whereas approximately 12 percent of former recipients and 11 percent of current participants said they have actually shopped at a store where no one knows them to avoid having people they know see them use food stamps. Approximately 50 percent of eligible nonparticipants who never received food stamps answered "yes" to one or more questions about feeling stigma from receiving or using food stamps (if they would participate), compared with approximately 40 percent of former and current recipients. In general, near-eligible nonparticipants are more likely to perceive stigma from participation than eligible nonparticipants.[8]

2. Form of Benefit

Evidence from the NFSPS suggests that some current nonparticipants would be more inclined to apply for food stamps if the benefit was in a form other than coupons. Nearly two-thirds of eligible nonparticipating households responded that they would apply if they could receive food stamp benefits as EBT or cash benefits (Table IV.7). Households were most receptive to EBT

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[8]Considerable data are missing in the stigma scales in Table IV.6, particularly for nonparticipants who had never received food stamps. Examination of the raw data shows that the missing items are quite broadly distributed across the different components of the scales, so this is not due to difficulty answering a single question or to there being one group of respondents who refused them all. Rather, it appears that the missing data probably result from at least two factors. First, the questions about stigma-related issues may be sensitive for some respondents. Second, respondents who had not been program participants were being asked to indicate how they would feel *if they received food stamps*, and many may have had difficulty answering this.

TABLE IV.7

INFLUENCE OF FORM OF BENEFIT ON PARTICIPATION
OF ELIGIBLE NONPARTICIPANTS
(Percentages)

Would Apply if Received Food Stamp Benefits as Cash Instead of Coupons	
Yes	43.7
No	44.8
Don't know/refused	11.5
Would Apply if Received Food Stamp Benefits as EBT Benefits Instead of Coupons	
Yes	56.9
No	35.6
Don't know/refused	7.5
Would Apply if Received Food Stamp Benefits as Cash or EBT	63.7
Sample Size	**450**

SOURCE: 1996 National Food Stamp Program Survey, weighted data.

benefits. Fifty-seven percent reported that they would apply if they received food stamp benefits as EBT instead of coupons. Forty-four percent of eligible households would apply if they received benefits as cash instead of coupons. The difference between those who responded positively to cash benefits and those responding positively to EBT is statistically significant. However, it is important in interpreting these results to remember that the data in Table IV.7 are responses to hypothetical questions, and some respondents may have had difficulty accurately reporting how they would react to EBT. The current survey provides no direct evidence as to the likely effect of EBT on participation. A recent evaluation of the effects of EBT in Maryland found "no serious evidence that the Maryland EBT system has affected participation in any way" (Beecroft et al. 1994, p. 44).

D. MULTIVARIATE ANALYSIS OF NONPARTICIPATION OF PROGRAM ELIGIBLES

Multivariate analysis was used to estimate the association between household characteristics and the probability of nonparticipation in the FSP by eligible households. The decision not to participate was hypothesized to depend on demographic and economic characteristics of the household and on respondent and on the respondent's perceptions of stigma and was estimated using the logit model (see Appendix E for discussion of the estimation methodology).

To simplify the interpretation of the coefficients of the logit model, the rest of this section presents the "marginal effects" of the independent variables. These marginal effects show the change in the probability of nonparticipation that would be predicted to occur in response to a given change in the value of some independent variable, holding all other factors constant. These estimates can be interpreted as the effects the variables have on the decision not to participate.[9] For example,

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[9]Appendix E presents the coefficient estimates and standard errors from the logit model of whether a household participates in the FSP. The logit regressions were run on unweighted data. The estimates of predicted probabilities under alternative assumptions about household and respondent characteristics shown in Table IV.8 are based on weighted data.

rates of nonparticipation are predicted for households with and without elderly members, holding all other characteristics fixed, and indicate whether the presence of elderly members in the household has a statistically significant effect on the probability of not participating in the FSP.

1. Household Demographic and Economic Characteristics

The number of household members in and of itself does not significantly influence the household participation decision independent of all other characteristics (Table IV.8). Eligible households containing at least one elderly member are less likely to participate, and the difference is statistically significant. However, not having children in the household increases the likelihood of nonparticipation in the FSP by 16 percentage points. There was essentially no difference in participation rates between eligible households living in rural versus urban areas, controlling for other factors.

The presence of earned income increases the likelihood that the household will not participate in the FSP. Holding other characteristics constant, the predicted rate of nonparticipation is 12 percentage points higher in households with earnings than in households without earnings. Because household income relative to poverty is controlled for, this finding implies that a household with earned income is less likely to participate than a household with the same income-to-poverty ratio but with no earned income. Thus, the effect of earnings on participation cannot be explained by the household's overall financial situation.

Furthermore, as shown in Table IV.3, households with earnings appear to be, if anything, more aware than eligible nonparticipants in general about their potential eligibility, and they do not indicate appreciably higher levels of perceived stigma associated with program participation. It is possible that they may face higher FSP participation costs because it is difficult to take the time off

TABLE IV.8

EFFECTS ON THE PROBABILITY OF NONPARTICIPATION IN THE FOOD STAMP PROGRAM
BY PROGRAM ELIGIBLES

Base Assumption	Alternative Assumption	Differences in Predicted Probability of Nonparticipation (Percentage)
Household Characteristics		
Family Size: 1	Family size: 2	1.84
Family Size: 1	Family size: 3	.65
Family Size: 1	Family size: 4	2.89
Family Size: 1	Family size: 5 or more	4.80
Household Does Not Contain Elderly Member	Household contains elderly member	5.21***
Household Does Not Contain Children	Household contains children	-15.84*
Rural	Urban	-.17
Rural	MIXURBRUR	-3.23
Rural	Residential location: missing data	-.63
Household Does Not Have Earnings	Household has earnings	11.62***
Household Does Not Receive SSI, GA, or AFDC	Household receives SSI, GA, or AFDC	-17.69***
Income/Poverty Level: less than 26 percent	Income/poverty level: 26 to 50 percent	4.73
Income/Poverty Level: less than 26 percent	Income/poverty level: 51 to 75 percent	5.37
Income/Poverty Level: less than 26 percent	Income/poverty level: 76 to 100 percent	6.13
Income/Poverty Level: less than 26 percent	Income/poverty level: 101 to 125 percent	11.57***
Income/Poverty Level: less than 26 percent	Income/poverty level: 126 percent or more	-.56
Income/Poverty Level: less than 26 percent	Income/poverty level: missing data	22.76***
Household Does Not Have Nonhome Assets	Household has nonhome assets	30.48***
Respondent Characteristics		
White, Non-Hispanic	Black, non-Hispanic	-.86
White, Non-Hispanic	Hispanic	3.76
White, Non-Hispanic	Asian/Pacific Islander	-5.15
White, Non-Hispanic	Native American	12.83
White, Non-Hispanic	Other	3.11

TABLE IV.8 *(continued)*

Base Assumption	Alternative Assumption	Differences in Predicted Probability of Nonparticipation (Percentage)
White, Non-Hispanic	Race/ethnicity: missing data	4.72
Male	Female	-1.91
Less than High School Grad/GED	High school grad/GED	4.73
Less than High School Grad/GED	Associates/BA	1.78
Less than High School Grad/GED	Vocational/cert	-1.01
Less than High School Grad/GED	Other education	.54
Less than High School Grad/GED	Education: missing data	-.53
Married	Divorced/separated	-12.63***
Married	Widowed	-7.56
Married	Never married	-13.75***
Married	Marital status: missing data	-1.42
Stigma Index: 0	Stigma Index: 1	2.23
Stigma Index: 0	Stigma Index: 2	5.51**
Stigma Index: 0	Stigma Index: 3	10.03***
Stigma Index: 0	Stigma Index: 4	20.05***
Stigma Index: 0	Stigma Index: missing data	32.01
Sample Size	**2,820**	

SOURCE: 1996 National Food Stamp Program Survey, weighted data.

NOTE: Logit analysis was used to estimate the model. Predicted rates of nonparticipation are calculated by (1) computing for each household the predicted probability of not participating in the FSP under the base assumption and the alternative assumption, (2) averaging these predicted probabilities across households, and (3) taking the difference between the average under the base and alternative assumptions. These marginal effects are based on coefficient estimates from the unweighted logit equation of the model of whether the household does not participate in the FSP. The coefficient estimates are shown in Appendix E, Table E.2. Significance tests reflect variances due to sample design, as estimated using Taylor's Series approximations.

 **Significantly different from zero at the .05 level, two-tailed test.
***Significantly different from zero at the .01 level, two-tailed test.

work to go to the FSP office and they may have to forgo some pay for the time spent away from work.

Eligible households that receive government transfers targeted for low-income households are much more likely to participate. Receiving AFDC, SSI, or General Assistance income decreases the likelihood that eligible households will not participate in the FSP by 18 percentage points. There may be two reasons for this association. First, other programs targeted to low-income households may provide recipients with information about the FSP and how to apply; moreover, it is sometimes possible to apply for these programs jointly. Second, households that most need assistance and are willing to incur the costs of program participation may be more likely to participate in the FSP and in these other programs.

Ownership of assets other than a single-family home makes nonparticipation more likely among eligible households. Ownership of nonhome assets increases the likelihood of not participating by 30 percentage points. Eligible households with assets may not know that they are eligible or may believe that they are ineligible. In particular, they may not be aware that it is possible to have assets and still be eligible.

The likelihood of nonparticipation generally increases as the income-to-poverty ratio increases.

2. Respondent Demographic Characteristics

The analysis found little association between demographic characteristics of the respondent and FSP participation, controlling for other factors. It may be that these factors are not directly related to reasons for nonparticipation but operate through other characteristics associated with these factors and participation, such as economic resources and stigma, and these other characteristics are controlled for in the analysis. As shown in Table IV.8, the reference person's race and ethnicity, completed education, and gender were not significantly related to participation. However, the

analysis did reveal some differences in FSP participation related to marital status. Divorce or separation reduces the likelihood of nonparticipation by 13 percentage points compared with married reference persons. Similarly, households in which the reference person was never married are 14 percentage points less likely not to be participating than married households.

3. Respondent Perceptions of Stigma

Respondent perceptions of stigma are strongly and positively associated with FSP nonparticipation. Eligible households who answered "yes" to three of the four questions about feeling stigma from receiving or using food stamps are 10 percentage points more likely not to be participating than those who do not perceive there to be stigma associated with FSP participation. Households who answered "yes" to all four questions are 20 percentage points more likely not to participate in the FSP.

E. CONCLUSIONS

Misperceptions about FSP eligibility appear to deter many eligible households from participating in the FSP. Nearly three-quarters of nonparticipating households estimated to be eligible said they were not aware that they were eligible for the FSP. While this was less true of nonparticipants who had applied or participated in the past, nonetheless most of the households with prior exposure to the FSP also reported being unaware of their eligibility. This might reflect that households that once applied for or received food stamps and were determined ineligible are unaware that, because their circumstances or the eligibility rules themselves have since changed, they are now eligible. Those believing they were eligible gave reasons most frequently related to the costs of participation or not needing food stamps as the most important grounds for not applying for food stamps.

Many eligible nonparticipants perceive there to be stigma associated with program participation. Nearly half of eligible nonparticipants answered affirmatively to one or more of the four survey questions about feeling stigma from receiving or using food stamps. While nonparticipants were more likely to perceive stigma than current participants, the difference was generally small (44 percent versus 38 percent). However, the multivariate analysis of the characteristics associated with participation in the FSP found that perceptions of stigma had a statistically significant, independent effect on participation among FSP-eligible households. Eligible households associating higher levels of stigma with receiving and using food stamps were less likely to participate. For example, households who answered affirmatively to all four questions about stigma associated with program participation were 20 percentage points more likely not to participate in the FSP than those not perceiving any stigma.

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APPENDIX A

DATA COLLECTION METHODS

The survey of Food Stamp Program (FSP) participants and nonparticipants was conducted from June 1996 to January 1997. This appendix describes the methods used to select the sample, conduct the National Food Stamp Program Survey, and process the data. It also includes response rates and reasons for ineligibility.

A. METHODS FOR SELECTING AND LOCATING RESPONDENTS

MPR used a dual frame approach to select the samples of FSP households and households containing eligibles who do not receive food stamps.

1. List Frame

List frame samples in this survey were selected from administrative lists of FSP participants. Before identifying the sample, an MPR sampling statistician randomly selected 35 primary sampling units (PSUs) systematically with probability proportional to size. The PSU was usually a county, but sometimes it was a state (in cases where county-level information was unavailable) or a city (the five boroughs of New York). Before selection, the PSUs were first sorted by region, then by state within a region, and finally by size (number of food stamp recipients) within state.[1] Because the three largest PSUs were the same size as or larger than the sampling interval, they were selected with certainty and removed from the systematic sampling process.[2] New York City had a size equivalent to two sampling intervals, so it counted as two PSUs. Thirty-one PSUs were then selected out of the remaining 2,862. Two of these were at the state level and so required subsampling. For the three certainty selections, it was decided to subsample areas within counties. Three areas were sampled

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[1]These numbers were from spring 1995.

[2]Frame size before removing certainty selections was 10,858,961, and the sampling interval for selecting 35 PSUs was 310,256. The frame size after removing the certainty selections was 9,462,582.

from Cook County, three areas from Los Angeles County, and two boroughs and three areas within each borough for New York City.

In spring 1996, FNS provided the names of contacts in the seven regional offices to assist with obtaining list samples for the survey. These regional contacts in turn provided the names of contacts in the state offices for the 34 areas selected for the survey. (In California, the state contact provided referrals to county offices.) These offices provided data files containing lists of all active food stamp cases as of the beginning of April 1996.[3]

As these data files were received from the field, the sampling statistician read them in from their various formats and standardized them into SAS data files. For most of the PSUs, 180 cases were selected systematically. For Cook County, 60 cases were selected systematically from each of the three subsampled areas. In Los Angeles County, 81 cases were selected from each of the three subsampled areas. In each of New York City's six selected areas (three from each of the two selected boroughs), 60 cases were selected. The selected cases were then sorted into a random order. The first two-thirds were then assigned to the field sample, and the last third was assigned to the telephone sample.

a. Field List Frame Sample

For the field sample, the targeted number of completes from each of the non-certainty sites was 29. For the selected areas in the three certainty selections, the targeted number of completes was 30 for Cook County (combined), 42 for Los Angeles County (combined), and 60 for New York City (combined). The total number of targeted completes for the field sample was 1,031. Cases were

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[3]A trial run was conducted with most of the selected sites a couple of months prior to April, when they supplied their most current data file at the time. By using information from this trial stage, it was possible to subsample the two selected states and make the three certainty selections.

released as needed in a random order by site from among the 4,242 cases selected for the field component. A total of 2,200 cases were ultimately released.

b. Telephone List Frame Sample

For the telephone sample, the targeted number of completes from each of the non-certainty sites was 14. For the selected areas in the three certainty selections, the targeted number of completes was 15 for Cook County (combined), 21 for Los Angeles County (combined), and 30 for New York City (combined). The total number of targeted completes for the telephone list sample was 500. Cases were released as needed in a random order by site from among the 2,121 cases selected for the telephone component. Ultimately, all 2,121 cases were released.

2. Random-Digit-Dialing Sample

For the random-digit-dialing (RDD) sample, software from Genesys, Inc. was used to obtain a stratified sample of 20,003 telephone numbers in working telephone banks in the United States. A telephone bank is defined as the first 8 digits of a 10-digit telephone number (area code plus exchange plus next two digits). The possible combinations of its last two digits create 100 telephone numbers for a bank to contain, and it is considered a working bank if at least one is a published residential telephone number. Each telephone number was defined as being in one of five strata based on the area code plus exchange (first 6 digits of the 10-digit telephone number). There was no oversampling by stratum. The five strata were defined by the estimated percentage of households with income less than $15,000:

- *Low Income.* Exchanges where estimated percentage $\geq$ 35 percent

- *Mid-Low Income.* Remaining exchanges where estimated percentage $\geq$ 25 percent

- *Middle Income.* Remaining exchanges where estimated percentage $\geq$ 15 percent

- *Mid-High Income.* Remaining exchanges where estimated percentage ≥ 10 percent

- *High Income.* Remaining exchanges (where estimated percentage < 10 percent)

After removing known nonworking and nonresidential telephone numbers, cases were released in a random order as needed to obtain the targeted number of completes: 495 participants and 990 eligible and near-eligible nonparticipants. A total of 14,514 telephone numbers was released.

3. Obtaining Contact Information

Contact information for the study sample was obtained with the original sample from state or county FSP offices. This information, current as of March 1996, included sample member name, address, telephone number (if available), date of birth, and, in some cases, a caseworker identifier. The information received varied widely by site in terms of completeness and accuracy.

a. Contacting Local FSP Offices

Local FSP offices were first contacted, with permission of the state offices, in May 1996. This contact served to inform the local offices about the survey so they could encourage participation and confirm the validity of the survey, should any of the recipients contact them.

MPR survey staff contacted the local offices in July to obtain updated contact information for recipients who could not be located. In addition, offices were asked to confirm if each sampled person was still receiving food stamps. Project staff provided the birth date of the recipient, and the client ID#, case ID#, or caseworker ID#, if this information had been provided, to assist the local offices in identifying the cases. All offices contacted were responsive to these requests. Some offices consulted with the caseworkers, while others used their computer files or hard copy files to obtain the information.

Local offices were recontacted in August and September of 1996 to obtain information on additional recipients who could not be located. In September, selected field interviewers went to the local offices and worked with the local contacts to update contact information. Overall, these efforts yielded some addresses and telephone numbers, but the most helpful information provided was whether the recipients were still receiving food stamps and hence eligible for the survey.

b. MPR Locating Department

Telephone numbers were available for approximately 54.5 percent of the list frame telephone sample. However, many of these numbers were either nonworking or incorrect. As a first strategy, telephone interviewers called local directory assistance to obtain telephone numbers for cases with nonworking or incorrect numbers. When these efforts failed, FSP offices were contacted as discussed in the previous section. If the FSP offices could not update the information, MPR's Locating Department searched for sample members.

MPR's Locating Department made extensive use of a service bureau that searches using a crisscross or reverse directory, surnames, and the existing telephone number. The on-line system was accessed from a terminal in the Locating Department. MPR's Locating Department also utilized directory assistance, involving locations neighboring the sample member's city or town. In total, 642 cases were referred to the Locating Department. Reliable contact information was obtained for 16 percent (105) of these cases.

B. SELECTION AND TRAINING OF DATA COLLECTION STAFF

1. Hiring and Training of Field Staff

Field interviewers were hired in each of 35 PSUs. It was decided that some PSUs would require two interviewers, while one experienced interviewer would be sufficient for the remaining 18 PSUs.

Approximately one month after the start of the field period, six additional interviewers were hired because of attrition among original interviewers and a reevaluation of field needs. Field interviewers were recruited from three sources: an MPR database, local community contacts, and state job services. Preference was given to people with Computer-Assisted Personal Interviewing (CAPI) experience or experience in food management or nutrition. Twenty-eight of the 53 interviewers had experience conducting CAPI interviews. Three additional interviewers had some experience in field interviewing or field locating. Seventeen interviewers had no direct survey experience. Four PSUs were targeted as requiring bilingual interviewers. In addition, three of the interviewers were trained nutritionists. Three field supervisors were hired to manage the field effort. All field supervisors had experience conducting food use surveys. Two of the supervisors had experience working for MPR.

The main field interviewer training was held May 4-10, 1996. A two-day trainers' training was conducted for field supervisors, trainers, and assistant trainers at the MPR offices immediately before the general training session. This training included a question-by-question review of the survey instrument, and testing and practice on the CAPI questionnaire.

One week before the general training session, interviewers were sent an advance study manual that contained an introduction to the survey and a review of basic interviewing techniques. Interviewers were required to complete an assignment related to food use data collection before leaving their homes. They were also instructed to schedule a practice interview to be completed at the conclusion of training.

The six-day intensive training was held off site, at a conference and training center in Princeton, New Jersey. Two training formats were used: (1) large-group lecture format, and (2) small-group practice sessions. During the training, interviewers moved from large-format to small-group sessions as dictated by the agenda. Interviewers were divided into five small groups based on interviewing

and computer experience. Each small group was led by one senior trainer and one assistant trainer. One-on-one CAPI enrichment sessions were also provided each evening. The first two-and-a-half days of training included a general introduction and background to the study, instruction and practice with the hard-copy screener and hands-on practice with the CAPI interview. In addition, an MPR training tape about the role of the interviewer was shown during an evening session, with discussion afterward. Training on the hard-copy food use instrument was conducted for three days by MPR staff, including MPR's nutritionist; Margaret Andrews, the Contracting Officer's technical representative; and Pat McKinney, an FNS nutritionist. In large-group sessions, trainers presented an overview to the food use module as well as specific rules for completing the food use instrument. In small-group sessions, interviewers were paired for one-on-one practice and question-by-question review. Key definitions of food categories and instruction in reporting food use quantities were reviewed in the smaller sessions. Trainers administered CAPI proficiency exercises and food use recording exercises to evaluate interviewer performance before the conclusion of training. It was possible to identify a small number of interviewers who required one-on-one supplementary training during evening sessions. Interviewers spent the final half day of training integrating data collection components, reviewing administrative issues, and meeting with field supervisors.

2. Hiring and Training of Telephone Interviewers

By early June 1996, 74 telephone interviewers were hired and trained to administer screening and survey instruments. The group contained experienced and inexperienced interviewers. Inexperienced interviewers received eight hours of general interviewer training prior to participating in project-specific training. Both experienced and inexperienced interviewers participated in project-specific training, which included overviews of the program and study, sample member screening, item-by-item review of the questionnaire, role plays, questions and answers, and Computer-Assisted

Telephone Interviewing (CATI) practice. Project-specific training lasted for close to eight hours.

About seven percent of the interviewing staff was bilingual.

C. METHODS FOR COLLECTING THE DATA

1. Field Data Collection

Data collection for the in-person component included a telephone or in-person screener and a

two-interview series. Part I of the main interview was administered by CAPI and collected

information about the household, program access, food security, diet knowledge and attitudes, and

food shopping patterns. Part II involved both CAPI and hard-copy administrations and included

either a four- or a seven-day recording of foods used from the home food supply. Part II was

conducted either four or seven days following Part I.

a. Survey Materials

In addition to Dell 486 Latitude laptop computers with English and Spanish versions of the

CAPI instrument, materials for the survey included:

- *Advance Letter.* Mailed to the respondent three to five days before telephone contact was made

- *Record of Contacts Form.* For documenting attempts made to locate and interview sample persons

- *Eligibility Screener.* Brief hard-copy interview to determine respondent eligibility

- *Reminder Postcard.* To remind respondents of their appointment for the second part of the interview

- *Food Use Instrument.* Hard-copy instrument administered during Part II of the interview to obtain detailed information about household food use

- *Food Use Checklist.* To help respondents keep track of food use during the survey period

All hard-copy materials were available in both English and Spanish.

b. Components of the Interview

Advance Letter. All persons selected to participate in the National Food Stamp Program Survey were notified of their selection by a letter in advance of any other form of contact. The advance letter explained the study, encouraged participation, and informed the sample member that the interviewer would be contacting him or her. Letters were mailed to respondents three to five days before the screening contact was made.

Screener. Next, the interviewers screened the respondents by telephone. They called their assigned sample members to introduce themselves, administer a brief eligibility screener, answer any questions the respondent might have, and schedule the two parts of the interview with the food manager for the household. (If telephone contact was not possible, this screening was done in person.)

Part I of Main Interview. Part I of the main interview was conducted by CAPI. At the conclusion of the interview, respondents were instructed to keep track of foods used and shopping trips made during the seven-day period before Part II of the interview. The interviewer provided materials to aid the respondent in keeping detailed records of all the food purchased and used by the household. These materials included a plastic bag for saving food receipts and a large envelope for the collection of food labels. Two days after completion of the Part I interview, interviewers mailed the respondent a reminder postcard that included the date of the appointment for the Part II interview.

Part II of Main Interview. The first section of the Part II interview was conducted by CAPI. This section collected information about shopping trips and identified household members and guests who used food from the household food supply. The second section of the interview used hard-copy administration. It identified what foods were used, with a level of detail sufficient to determine actual nutritional availability, such as calories, fat, and vitamins. This section also captured the cost of each of the foods. Upon the completion of the Part II interview, respondents were given a $20 incentive for their time and cooperation. (Respondents were told of this $20 payment when they were first contacted, as an inducement to participate and maintain the food use records.)

c. Field Management

Field interviewers reported progress to their field supervisor weekly by telephone at prearranged times. They reported hours worked, expenses, and field progress. During the reporting session, the supervisor reviewed each case being worked by the interviewer and suggested modifications to searching and interviewing techniques where appropriate. Supervisors also handled administrative needs (such as supply orders) and answered non-urgent questions. In turn, the supervisors reported summaries of field progress and expenses to an MPR survey specialist weekly. Interviewers were encouraged to contact the MPR help line immediately for urgent matters.

d. The MPR Help Line

Interviewers and field supervisors had 24-hour access to the survey director and to technical support staff by means of a toll-free number that reverted to a paging system during non-business hours.

e. Bonuses

To encourage interview productivity at the end of the project, MPR offered field interviewers a bonus of $10 for every interview completed after November 21, 1996. This kept enthusiasm high when sample was sparse. It also kept interviewers motivated to finish their final assignment rather than move to new projects.

2. Telephone Data Collection

For the telephone sample, CATI techniques were used to facilitate the screening and interviewing. Sample points were electronically assigned to individual interviewers, and the CATI system stored the results of interview attempts. An automated system reassigned unsuccessful attempts and scheduled callbacks. Interviewers who conducted the screening interviews also conducted the telephone interviews of both participants and nonparticipants. A senior staff member at the survey operations center supervised the interviewers, and assistant supervisors assessed interviewer performance by monitoring randomly selected segments of the interviewing.

a. Bonuses

A bonus system was instituted in the survey operations center on September 13, 1996, as an incentive to maintain interviewer interest and commitment when it became increasingly difficult to

obtain completed interviews. One dollar was offered for each completed RDD or list frame interview and one dollar and fifty cents for each refusal that was converted to a complete interview.

b. In-Person Locating of Telephone List Frame Sample Members

In mid-November, field locators with cellular telephones were deployed in 24 areas to locate telephone list frame sample members who could not be contacted by telephone. Locators received written training materials and participated in telephone training on implementing locating strategies and operating the telephone equipment.

Field locators searched for sample members by starting with the last known address and then contacting neighbors and community sources. After locating a sample member, if a telephone was available in the household, the locator was responsible for facilitating a phone call to MPR's survey operations center. Staff were available throughout the day and evening hours to conduct the interview. If the sample member could not participate in the interview at that time, a telephone number was obtained and communicated to the operations center. Appointments were made when possible. If a telephone was not available in the household, the locator saw that the interview was conducted by cell phone and remained with the sample member until it was completed. Within a six-week period, the locators were able to facilitate 122 interviews from the 625 sample members that were previously unlocatable by telephone. They also determined that an additional 44 sample members were ineligible for the study.

3. Problems Faced During the Survey Period

The data collection began at a time when the government was contemplating major changes in the welfare program. This news created nervousness among respondents. Uncertain about their

eligibility for food stamps and other entitlement programs, they were reluctant to participate in the study and had to be reassured that their responses would not affect their future eligibility.

Immigrant ethnic communities would have been severely affected by the policies considered. In contrast with previous successful interviewing in the Vietnamese community in California for the cashout evaluations, a Vietnamese interpreter and community worker was unsuccessful in facilitating interviews in that community. A Russian interpreter had a similar experience with the immigrant Russian community in New York City.

These factors may have lowered the survey response rates below what they would otherwise have been. There is no evidence as to whether this resulted in significant biases in any of the variables.

D. QUALITY ASSURANCE AND DATA PROCESSING

1. Transmittal and Tracking of Field Data

On a weekly basis, field interviewers submitted completed work to MPR by Federal Express. Weekly field shipments included the transmittal forms used to report cases submitted, hard-copy food use instruments, supporting food use materials, and data diskettes.

The packages were received by the MPR data clerk, who checked the contents against the transmittal form to verify that all materials had been included. An ACCESS database was developed to track the field cases. Interim status codes were entered on a weekly basis following receipt of supervisor reports. The database also included fields for entering dates when the MPR office received completed cases.

The database identified cases reported as complete but not received within 10 days after the supervisor's report. Using weekly reports, the data clerk made reminder calls to field interviewers who had outstanding cases.

After logging in completed cases, the data clerk delivered MPR diskettes to MPR's systems analyst for downloading into a SAS data file. Food use instruments and contact records were delivered to a coding center set up to implement coding using the Food Intake Analysis System (FIAS) developed by the University of Texas (see Appendix C).

Verification and Callbacks. FIAS coding center staff conducted verification of completed cases. Coders were required to telephone at least 10 percent of the respondents interviewed by each interviewer. Using a verification form designed by MPR, coders asked about the date and length of their interview, the mode of the interview (telephone or in person), and the names and locations of the stores the respondent used. Coders also asked about foods and recorded the answers on the food instrument.[4] Food use instruments that were not completed according to specifications were reviewed. As a result of the verification process, two interviewers were terminated and their cases assigned to other field staff. For each of these interviewers, the MPR survey director personally contacted each of the households who had previously been submitted by the interviewers as completions to test their validity. In most instances, the interview could be validated and was retained. In a small number of instances, the interviews were assigned to a different interviewer or a supervisor to be redone.

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[4]Because of the time that had elapsed, it was not usually possible to obtain information directly about specific food use during the period that had been covered by the original interview. However, it was frequently possible to obtain useful information about the *types* of foods the respondent households usually used as they related to what had been recorded. For instance, if the amount of a food bought was unclear, the callback might have asked what size package of the food the household usually bought for the relevant food. If a written description was unclear for some type of food (such as an unusual form of rice), the callback might have asked for additional details. As a third example, if it wasn't clear whether chicken breasts were "with the bone" or "without the bone," it was possible to ask how the household usually bought its chicken breasts.

2. Food Coding

Analysis of home food use required coding all the foods from hard-copy food instruments, as well as data entry of all foods purchased and the prices paid by respondents. To facilitate these goals, a coding room was set up at MPR. Coders were hired, trained, and then provided with their own coding stations and reference materials in the coding room. A supervisor directed the flow of activity in the coding room and consulted with the MPR nutritionist or the co-principal investigators for the project to resolve problems arising from unavailable codes, missing data on the hard copy, or any other causes.

Hard-copy food instruments delivered to the coding room were logged into an ACCESS database by the coding supervisor and then filed according to interviewer. All coders were required to code instruments by all interviewers, and instruments were coded in chronological order so that those instruments received first were usually coded first. Coding entailed reading the nine-digit survey code on the food instrument, assigning a corresponding six-digit FIAS code, and then entering this six-digit code and the amount of the food that was *used* into the FIAS file.[1]

a. Staffing and Training of Food Coders

Following the recommendations of the FIAS staff at the University of Texas, coders were required to have completed high school (though some college education was preferred), to be the food manager at home, and to be familiar with simple mathematical computations. In addition, MPR required coders to have some basic computer experience.

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[1]The six-digit coding system was developed by MPR and its subcontractor, ROW Sciences, Inc., to convert the food assumptions used in previous USDA food use studies to codes that were compatible with the FIAS coding system.

Including practice experience, coders were required to participate in 2.5 days of training at MPR. After being given an overview of the project, coders were shown how to start a new file in FIAS, how to move around while in FIAS, and how to close a file. Coders were then shown how to extract the nine-digit survey code from the food instrument and how to relate this code to its corresponding six-digit FIAS code. They were also taught how to input the six-digit FIAS code for each food into a FIAS file along with the amount of that food used during the seven-day period. For each food line, coders were also required to compute, if applicable, the total amount of food bought and the amount of money paid. The mathematical operations that facilitated these steps were reviewed, and coders were provided with a training manual, written by the project director and the MPR nutritionist, which contained all the topics covered during training. (At a later time during the project, coders were taught how to "clean" and data-enter the completed price-related data on the food instruments.)

Ongoing Procedures. The coders were responsible mainly for coding the hard-copy food instruments as outlined above. They also called the respondent when more-detailed information was required for a reported food. For example, if the amount of food used or purchased was missing or unclear or if the form of the food was not indicated (dehydrated, ready-to-eat, condensed, etc.), the coder called the respondent for clarification. Many food instruments generated questions about package size and price paid for a food item. Since some respondents were not able to remember these details, a list was constructed of all the foods that required information on package size or price paid. Two of the coders then went shopping at regular intervals to obtain this information.

Once most of the hard-copy food instruments had been coded and entered into FIAS, the coders were trained to data-enter the information on the food purchased and the price paid into a Lotus spreadsheet. (More information on the procedures used and a price imputation is presented in Appendix F.)

b. Problems Encountered in Coding

Five main problems delayed the food-coding process: (1) missing information about the food or the price paid for the food, (2) new foods that had no assigned nine-digit survey code or six-digit FIAS code, (3) nonfunctional six-digit FIAS codes, (4) foods that were miscoded in the instrument, and (5) ethnic foods (Russian, Vietnamese, Mexican, among others) that were unfamiliar to the coders.

Several approaches were used to resolve these problems. Information about the unit weight of a food, package size, or unit price was obtained from advertisements from food stores across the country and from food lists solicited from large supermarket chains. In addition, published reference material from the USDA, cookbooks, and food preparation books was used. Uncertainty about the type or amount of food recorded in the instrument was clarified by telephoning the respondent. In other instances, the coders kept a list of unknown package sizes or cost, and at regular intervals one or two of the coders themselves visited a large supermarket to ascertain this information. When none of the above measures supplied the resolution, the problem was referred to the MPR nutritionist, who in turn consulted with a nutritionist at MPR's subcontractor, ROW Sciences, Inc.

c. Data Cleaning

When all food items of a case were completely entered into FIAS and there were no outstanding problems, the case was "cleaned"--that is, all the foods were analyzed for specific nutrients and outlier foods, and cases were examined.

d. Data Entry and Edit Checks

After cleaning, price-related data on each case were also data entered into a Lotus file. The information required for data entry was the six-digit code, the amount of food *purchased*, and the total price paid for the food.

For each case, the FIAS analysis file and the Lotus file were used to generate a FIAS edit file and a Lotus edit file. For a given case, the FIAS edit resulted in a list of those foods that exceeded a preset standard for the normal consumption of specific nutrients in those foods, and the Lotus edit resulted in a list of foods that seemed to exceed the usual unit price, had different FIAS and Lotus codes, or showed a higher amount used than bought. The MPR nutritionist reviewed the FIAS edits and made appropriate adjustments, while the coders reviewed and corrected the Lotus edits, under the supervision of the coding supervisor.

While the coders were encouraged to use reference materials to resolve questions about package size or price, the MPR nutritionist resolved all questions about portion sizes, usual weekly amounts of consumption, and classification of unusual foods or foods not included in the food instrument. She also developed new codes for foods as appropriate and periodically reviewed completed files for quality control purposes.

E. COMPLETION AND OTHER FINAL STATUSES

Eligibility for Surveys. Among the 14,514 cases that were released for the RDD sample, 7,488 were determined to be working residential telephone numbers, making those numbers eligible to complete the income-screening questions (see Table A.1).[6] Among the remaining cases, 5,219 were

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[6]This is derived as follows: 14,514 cases released minus 7,026 ineligible or undetermined cases (5,219 + 1,807) yields 7,488 working numbers.

TABLE A.1

ELIGIBILITY RATES AND REASONS FOR INELIGIBILITY

Eligibility Status	Reason	RDD Sample[a]	Phone List Sample	Field List Sample
Total Released		14,514	2,121	2,200
Undetermined	Did not determine if working residential telephone number	1,807		
Ineligible for Survey	Nonworking telephone number or non-residence	5,219		
	Income too high	4,973		
	Not receiving food stamps		546	508
	Deceased		7	7
	Institutionalized			25
	Moved		33	56
Eligible for Survey	Working residential telephone number meeting income criteria	1,456		
	Receiving food stamps in sampled area		1,535	1,604

SOURCE: Administrative files for the 1996 National Food Stamp Program Survey, Mathematica Policy Research, Inc.

[a]For the RDD sample, eligibility refers to the interview itself, not eligibility for the screener. Of course, if a household is ineligible for the screener, it is also ineligible for the interview. Similarly, if it was not determined that the telephone number was a working residential number, then eligibility for the interview was not determined either.

determined to be either nonworking telephone numbers or non-residences. It was not possible to make this determination for the remaining 1,807 cases. Among the 7,488 eligible to complete the income screener, 6,429 completed the screener. Among these cases, 4,973 were determined to be ineligible for the interview because the household income was too high, leaving 1,456 cases eligible for the interview.

For the telephone list sample, among the 2,121 released cases, 546 were determined not to be receiving food stamps at that time, 7 were deceased, and 33 had moved out of state. This left 1,535 eligible cases for the telephone list sample. For the in-person sample, among the 2,200 cases released, 508 were no longer receiving food stamps, 7 were deceased, 25 were institutionalized, and 56 had moved out of the sampled area. This left 1,604 eligible cases for the in-person sample.

Completion Status. Among the 1,456 known eligible cases in the RDD sample, 1,159 completed the interview (see Table A.2). Most of the remaining cases were refusals and broken appointments (n=144) or cases that could not be contacted by the end of the field period (n=134).

Among the 1,535 known eligible cases in the phone list sample, 1,041 completed the interview. One hundred five cases were nonrespondents due to refusal or broken appointment; 39 were cases of a language, cognitive, or physical barrier; 17 were cases where the person was hospitalized or too ill to complete the interview; and in 333 cases the person could not be contacted or located.

The field sample had two parts to the interview. Among the 1,604 cases determined to be eligible for the interview, 1,109 completed at least Part I. There were 196 refusals or broken appointments, 41 with an illness or hospitalization, 123 cases that could not be contacted or located, 93 other cases that could not be resolved by the end of the field period, and 42 "other." Among the 1,109 cases that completed Part I, all but 39 completed Part II.

TABLE A.2

COMPLETION TOTALS AND REASONS FOR NONRESPONSE
(Among Known Eligibles)

Response Status	Reason	RDD Sample	Phone List Sample	Field List Sample Part I	Field List Sample Part II[a]
Completed Interview		1,159	1,041	1,109	1,070
Did Not Complete Interview	Refusal/broken appointment	144	105	196	39
	Language/cognitive/ physical barrier	10	39		
	Too ill or hospitalized		17	41	
	Unable to locate or contact		333	123	
	Exhausted attempts	134		93	
	Other	9		42	
Total Known Eligibles		**1,456**	**1,535**	**1,604**	**1,109**

SOURCE: Administrative files for the 1996 National Food Stamp Program Survey, Mathematica Policy Research, Inc.

[a] Among those who completed Part I.

APPENDIX B

WEIGHTING

This appendix describes the steps taken to calculate analysis weights for the 1996 National Food Stamp Program Survey (NFSPS). It discusses each of the following four groups separately, and then reviews ways results were combined across the various groups. The four groups are (1) the in-person list frame sample, (2) the telephone list frame sample, (3) the telephone random-digit-dialing (RDD) sample of Food Stamp Program (FSP) participants, and (4) the telephone RDD sample of FSP-eligible and near-eligible nonparticipants.

A. IN-PERSON LIST FRAME SAMPLE

To estimate the in-person list frame sample weights, the first step was to calculate the probabilities of selection for each sample member. The inverses of these probabilities were then used to calculate an initial set of weights. Next, these initial weights were adjusted to reflect survey nonresponse. Section 1 below describes how the selection probabilities were calculated. Section 2 then describes the nonresponse adjustments.

1. Sampling Weight

The first step in calculating weights for the in-person list frame sample was to determine the probability of selection. Both the in-person and the telephone list frame samples originated from the same sample frames. For the in-person list frame cases, probabilities of selection were computed as the product of five terms:

(1) *overall prob selection = prob [PSU] * prob [sub-PSU\PSU] * prob [local area\PSU and subPSU]*

   * prob [case selected for either the in-person or field samples\earlier stages]

   * prob [case selected for the in-person sample\previous step]

a. First Stage

The first step in the process was to select with probability proportional to size (PPS) the 35 primary sampling units (PSUs), which were counties (or sometimes states, if county-level size measures not available) in the contiguous United States.[1] Four PSUs were set aside as certainty selections because their measures of size were larger than the sampling interval: New York City (which counted for two selections), Cook County, and Los Angeles County. Once these four PSUs were removed, 31 other counties were selected PPS. So the first term in the equation for the probability of selection (for the noncertainty selections) was:

$$P(PSU_i) \ ' \ \frac{31 \ @ MOS_i}{\displaystyle\sum_{j'1}^{2862} MOS_j}$$

where MOS_i was the measure of size of *PSU i*. Note that 2,862 non-certainty PSUs were eligible for selection, with a combined measure of size of 9,462,582. For the certainty selections, the first term in the equation was simply 1. The three certainty PSUs had a combined measure of size of 1,396,379.

b. Second and Third Stages

For the three certainty selections and for two PSUs that were at the state level, there were one or two more stages of selection prior to the selection of FSP participants. Each of these will be discussed in turn:

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[1]The measures of size used were figures reported to FNS in spring 1995.

Maine. One county within Maine was selected PPS, based on November 1995 counts provided by the state. The second term of the equation for the probability of selection was then:

$$P(county_k \backslash PSU_{Maine}) = \frac{1 @ CMOS_k}{\sum_{j=1}^{16} CMOS_j}$$

where $CMOS_k$ was the measure of size for county k in Maine.

Cook County. Three offices were selected PPS, based on counts provided by Cook County in January 1996. The second term of the equation for the probability of selection was then:

$$P(office_k \backslash PSU_{Cook}) = \frac{3 @ OMOS_k}{\sum_{j=1}^{25} OMOS_j}$$

where $OMOS_k$ was the measure of size for office k in Cook County.

Los Angeles County. Three districts were selected PPS, based on December 1995 counts provided by Los Angeles County. The second term of the equation for the probability of selection was then:

$$P(district_k \backslash PSU_{LA}) = \frac{3 @ DMOS_k}{\sum_{j=1}^{29} DMOS_j}$$

where $DMOS_k$ was the measure of size for district k in Los Angeles County.

Oregon. One district within Oregon was selected PPS, based on October 1995 counts provided by the state. The second term of the equation for the probability of selection was then:

$$P(district_l \backslash PSU_{Oregon}) ' \frac{1 @DMOS_l}{\sum_{j'1}^{15} DMOS_j}$$

where $DMOS_l$ was the measure of size for district l in Oregon. Because each district contained multiple counties, one county was selected PPS within the selected district. The third term of the equation was then:

$$P(county_k \backslash district_l) ' \frac{1 @CMOS_k}{\sum_{j'1}^{5} CMOS_j}$$

where $CMOS_k$ was the measure of size for county k in selected district l in Oregon.

New York City. Two boroughs were selected PPS, based on December 31, 1995, counts provided by the state. The second term of the equation for the probability of selection was then:

$$P(borough_l \backslash PSU_{NYC}) ' \frac{2 @BMOS_l}{\sum_{j'1}^{5} BMOS_j}$$

where $BMOS_l$ was the measure of size for borough l in New York City. Then three zip codes were selected PPS within each selected borough. The third term of the equation was then:

$$P(zipcode_k \backslash borough_l) ' \frac{3 @ZMOS_k}{\sum_{j'1}^{J} ZMOS_j}$$

where $ZMOS_k$ was the measure of size for zip code k in selected borough l in New York City.

All Other PSUs. For the other 29 PSUs, the second and third terms of the equation for the probability of selection were equal to 1. For Maine, Cook County, and Los Angeles County, the third term of the equation was equal to 1.

c. Fourth and Fifth Stages

The last terms in the equation for the probability of selection pertain to the selection of cases within the last stage selected (county, office, district, zip code). Cases were selected with equal probability at the last stages. The fourth term of the equation was:

$$P(case_m \backslash laststage_k) \quad ' \quad \frac{n_k}{N_k}$$

where n_k was the number of cases selected from, and N_k was the frame size for, last-stage unit k. From these selected cases, two-thirds were randomly selected for the in-person sample. From these two-thirds, a certain number of cases were actually released. For estimates being made from only the in-person list sample, this sample is treated as if it were independent from the telephone list sample, in which case the fifth and last term of the equation would be:

$$P(case_m \backslash selected\ for\ in\&person\ sample\ [independent]) = \frac{2}{3} \cdot \frac{f_k}{n_k \cdot 2/3} = \frac{f_k}{n_k}$$

where f_k was the number of cases released for the in-person (or "field") list sample from last-stage unit k. However, as discussed below, estimates were made combining the two list samples, in which case this sample must not be treated as independent from the telephone list sample. The fifth and last term of the equation would then be quantified as:

$$P(case_m \text{\textbackslash} selected\ from\ N_k\ ) \quad \text{'} \quad \frac{f_k}{n_k} \quad \% \quad \left(1 \quad \& \quad \frac{f_k}{n_k} \right) \quad \frac{t_k}{n_k \quad \& \quad f_k} \quad \text{'} \quad \frac{f_k \quad \% \quad t_k}{n_k}$$

when the two list samples were being used to produce an estimate, and where t_k was the number of cases released for the telephone list sample from last-stage unit k. The second term in this formula accounts for the fact that the case could have been selected into either the in-person sample or the telephone sample (but not both).

d. Summary

The probability of selection for each selected case was the product of these five terms. The sampling weight was the reciprocal of the probability of selection. All released cases (including nonrespondents and those later found to be ineligible) have a sampling weight greater than zero.

2. Weighting Adjustments

The sampling weight was then adjusted to account for nonresponse. To do this, all released cases were classified as one of the following: eligible respondent, eligible nonrespondent, ineligible, or eligibility status undetermined. Here, "eligible" means part of the target population, rather than eligible for the survey, so that movers were classified as undetermined for weighting purposes.

To carry out this nonresponse adjustment, weighting classes were formed that met both of the following criteria: (1) information used to form these classes must be available for all released cases (that is, it must be information provided on the sample file), and (2) the cases within each class should be relatively homogeneous with respect to characteristics expected to be related to study (dependent) variables and the propensity to respond. In addition, each class should have at least 20 respondents and the adjustment factor (described below) for each class should be less than or equal

to 2. Classes were collapsed with similar classes when they failed to meet these criteria. Classes

defined by the site (generally, the PSU) usually met these criteria.

The first step adjusted for the determination of eligibility. Only movers fell into the

undetermined eligibility category. The first adjustment factor was:

$$s_c \; = \; \frac{\sum_{i0\,c} swt_i}{\sum_{i0\,c_{det}} swt_i}$$

where SWT_i was the sampling weight for case I, c was the weighting class indicator for the in-person

list sample (site), and c_{det} was the subgroup within class c for which eligibility status was determined.

Those with undetermined eligibility have s_c set equal to 0. Then the eligibility-adjusted weight was

calculated as:

$$EWT_i \; = \; SWT_i @ s_c$$

The next step adjusted for interview nonresponse among those known to be eligible. This

adjustment factor was calculated as:

$$r_c \; = \; \frac{\sum_{i0c_{elig}} EWT_i}{\sum_{i0c_{resp}} EWT_i}$$

where c_{elig} was the subgroup within class c determined to be eligible, and c_{resp} was the subgroup

within class c for which the interview was completed. Those with undetermined eligibility and those

known to be ineligible have r_c set equal to 1, and those who were eligible but did not respond have r_c set equal to 0. Then the nonresponse-adjusted weight was calculated as:

$$WT_i \ ' \ EWT_i \ @ \ r_c$$

Finally, outlier weights were examined (both too small and too large) and a determination was made whether to truncate and smooth the weights. In this sample, no truncation was indicated.

B. TELEPHONE LIST FRAME SAMPLE

1. Sampling Weight

The first four terms of the equation for the probability of selection were the same as for the in-person list frame sample. From the n_k cases selected from last-stage unit k, one-third were randomly selected for the telephone sample. From this one-third, a certain number of cases were actually released. For estimates being made from only the telephone list sample, this sample was treated as if it were independent from the in-person list sample, in which case the fifth and last term of the equation would be:

$$P(case_m \backslash selected \ for \ telephone \ sample \ [independent]) \ ' \ \frac{1}{3} \ @ \ \frac{t_k}{n_k \ @ \ 1/3} \ ' \ \frac{t_k}{n_k}$$

However, as discussed below, estimates were made combining the two list samples, in which case it was not appropriate to treat this sample as independent from the in-person list sample. The fifth and last term of the equation would then be quantified as:

$$P(case_m \backslash selected \ from \ N_k \ ) \ ' \ \frac{t_k}{n_k} \ \% \left(1 \ \& \ \frac{t_k}{n_k} \right) \frac{f_k}{n_k \ \& \ t_k} \ ' \ \frac{t_k \ \% \ f_k}{n_k}$$

when the two list samples were being used to produce an estimate. The second term in this formula accounts for the fact that the case could have been selected into either the telephone sample or the in-person sample (but not both). The probability of selection for each selected case was the product of these five terms. The sampling weight was the reciprocal of the probability of selection. Again, all released cases (including nonrespondents and those later found to be ineligible) have a sampling weight greater than zero.

2. Weighting Adjustments

The weighting adjustments for the telephone list frame sample were carried as outlined above for the in-person list frame sample, again using site as the weighting class. No weight truncation was indicated.

C. TELEPHONE RDD SAMPLE OF PARTICIPANTS, ELIGIBLE NONPARTICIPANTS, AND NEAR-ELIGIBLE NONPARTICIPANTS

1. Sampling Weight

The RDD sample was selected in multiple steps, and the procedures employed in each of these steps determine the probabilities of selection. In the first step, a stratified random sample of telephone numbers was selected. The second and third steps consisted of using the Genesys ID procedure to identify presumptively nonworking telephone numbers and then releasing other numbers for calling by interviewers. In the fourth step, numbers were screened to identify whether they reached households and, if so, whether the household was eligible for the survey (that is, contained food stamp participants or eligible or near-eligible nonparticipants). While sampling these subgroups differentially was considered, this was not done. Thus in the RDD sample, probabilities of selection may vary somewhat by stratum, but not by characteristics among survey-eligible households.

The sample weight was the inverse of a case's overall probability of selection, which in turn was the product of the probabilities of selection for those steps where sampling took place:

$$W_s RDD_{jh} \quad ' \quad \frac{1}{P(RDD)_{jh}} \quad ' \quad \frac{1}{P(init)_h P(rel)_j (numphone_{ih})}$$

$$P(init)_h \quad ' \quad \frac{n(ph.num)_h}{N(ph.num)_h}$$

$$P(rel)_j \quad ' \quad \frac{n(rel)_j}{\sum_{h'1}^{H} n(ph.num.)_{jh}}$$

where:

$P(RDD)_{jh}$ was the cumulative probability of selection for a case sampled in stratum h;

$P(init)_h$ was the initial probability of selection for a telephone number sampled in stratum h;

$P(rel)_j$ was the probability of releasing a telephone number for calling in group j; there were two groups: (1) "bads" were those listed as business numbers or those that, when dialed with an automatic dialer, returned a signal indicating a disconnected or nonworking number; and (2) "goods," which included all other sampled numbers.[2]

$numphone_{ih}$ was the number of unique telephone numbers that can be called to reach the ith household in stratum h; $numphone$ was assumed to be 1, since the data on number of telephones were not collected;

$n(ph. num.)_h$ was the number of phone numbers initially selected in stratum h;

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[2]Numbers were identified as "bad" using Genesys Sampling Systems' proprietary ID software.

N(ph. num.)$_h$ was the population of phone numbers in stratum *h*;[3]

n(rel)$_j$ was the total number of telephone numbers released for calling in group *j*; strata were pooled for released of sample; 150 "bads" were released, chiefly to see if any bias was introduced by the method used to identify them.

n(ph. num.)$_{jh}$ was the number of phone numbers selected in stratum *h* and assigned to group *j*.

2.   Weighting Adjustments

Nonresponse adjustments employed procedures similar to those specified above for the list frame samples. For the RDD sample, the cells were defined by sampling strata, and no collapsing of cells was necessary. However, the RDD survey had different types of eligibility criteria from those of the two list samples.

The first step adjusted for the determination of telephone eligibility; that is, whether it had been determined if the selected telephone number was a working number associated with a residence. The first adjustment factor was:

$$s_c \ = \ \frac{\sum_{i0c} SWT_i}{\sum_{i0c_{det}} SWT_i}$$

where SWT_i was the sampling weight for case *I*, *c* was the weighting class indicator for the RDD sample (stratum), and c_{det} was the subgroup within class *c* for which telephone eligibility status was

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[3] *N(ph. num.)*$_h$ was the number of phone numbers available for sampling in stratum *h*; the list-assisted method used to select the RDD sample restricts selection to consecutive banks of 100 (a bank would include XXXYYYZZ00 through XXXYYYZZ99) 10-digit telephone numbers in which at least one number was published in a telephone company residential directory.

determined. Those with undetermined telephone eligibility had s_c set equal to 0. Then the telephone eligibility-adjusted weight was calculated as:

$$EWT_i \ ' \ SWT_i \ @ \ s_c$$

The next step adjusted for the determination of income eligibility among known residences, that is, whether the income questions were answered. This adjustment factor was:

$$i_c \ ' \ \frac{\sum\limits_{i0c_{res}} EWT_i}{\sum\limits_{i0c_{inc}} EWT_i}$$

where c_{res} was the subgroup within class c determined to be residences and c_{inc} was the subgroup within class c for which income was determined. Those with undetermined telephone eligibility and those known to be telephone-ineligible had i_c set equal to 1. Those with undetermined income eligibility had i_c set equal to 0. Then the income eligibility-adjusted weight was calculated as:

$$IWT_i \ ' \ EWT_i \ @ \ i_c$$

The next step adjusted for interview nonresponse among those known to be income-eligible. This adjustment factor was calculated as:

$$r_c \ ' \ \frac{\sum\limits_{i0c_{elig}} IWT_i}{\sum\limits_{i0c_{resp}} IWT_i}$$

where c_{elig} was the subgroup within class c determined to be income-eligible, and c_{resp} was the subgroup within class c for which the interview was completed. Those with undetermined telephone eligibility, those known to be telephone-ineligible, those with undetermined income, and those with ineligible income had r_c set equal to 1; those who were income-eligible but did not respond had r_c set equal to 0. Then the nonresponse-adjusted weight was calculated as:

$$WT_i \; ' \; IWT_i \; @ \, r_c$$

Four RDD weights were determined to be outliers. The range of the weights after the above adjustments was 17,692.46 to 21,064.07, except for four outlier weights having values equal to approximately 400,000. These four weights were trimmed to the value 21,064.07, and their excess values were not redistributed to the rest of the sample.

3. Post-Stratification Adjustments

Because the nonparticipants were the only group targeted in the survey whose non-telephone-accessible members were not covered by any of the samples, a ratio adjustment for this group was done, so that they better reflected the targeted population.[4] An iterative raking procedure was used to adjust their weighted proportions so that certain distributions matched those found on the March

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[4]Whereas FSP participant households without phones were included in the in-person list sample frame, such households were not included in either the CATI participant list frame or the RDD frame. Thus, the issue regarding coverage of households without phones is also relevant for the participant sample. However, the number of FSP participants identified from the RDD frame is small (304 cases, or 12 percent of the unweighted FSP sample). In addition, some of the phone list sample cases without phones were followed up in person by field staff using cellular phones to complete the interview. Therefore, it was decided that the statistical gain from adjusting the participant sample for telephone coverage did not warrant the costs.

1996 and March 1997 Current Population Survey (CPS) estimates for households with gross income under 150 percent of the poverty guideline and not receiving food stamps.

The weights of the nonparticipants were first adjusted so that the proportion in various poverty level ranges matched the 1997 CPS. The next adjustment was for household size, followed by an adjustment for race of the householder (using the 1996 CPS). The weights were adjusted once more by poverty level. The last step was to do an overall post-stratification adjustment so that weights for this group summed to the same total they had prior to the raking procedure.

4.   Combining List Frame and RDD Participants

When the combined list frame sample (including both in-person and telephone together) was pooled with the RDD participant sample, a weighting system was used that was designed to maximize the statistical efficiency--that is, minimize the variances--of the resulting estimates. This was done by making the relative weights for the two samples proportional to the effective sample sizes for the two samples. This gives more weight to the sample with the larger effective sample size while still giving some weight to the information contained in the sample with the smaller effective sample size. In implementing this approach, the focus was on *effective* sample sizes, rather than actual sample sizes, to take into account the impacts on the relevant variances of the design effects associated with the two samples. Following is a more formal treatment.

As an initial step, the weights were normalized by scaling both the combined list frame weights and the RDD weights so that the weighted sums were the same. (The number each is scaled to does not matter for the tabulations included in the report; in fact, both sets of weights were scaled to an estimate of the approximate size of the food stamp household population, 10,060,000.) This involved multiplying the list frame weights by 1.40 and the RDD weights by 1.81.

Now to derive the relative weights, it was assumed that it was desired to estimate the combined estimate $\hat{y}_T$ as follows:

$$\hat{y}_T = f_1 \, \hat{y}_{LF} + f_2 \, \hat{y}_{RDD}$$

where $\hat{y}_{LF}$ and $\hat{y}_{RDD}$ are the estimates for the statistic y from the LF and RDD samples.

The weights f_1 and f_2 are defined as follows:

$$f_1 = \frac{n_{LF}^{eff}}{n_{LF}^{eff} + n_{RDD}^{eff}} = \frac{n_{LF} / deff(\hat{y}_{LF})}{n_{LF} / deff(\hat{y}_{LF}) + n_{RDD} / deff(\hat{y}_{RDD})}$$

$$f_2 = 1 - f_1$$

where $deff(\hat{y}_{LF})$ and $deff(\hat{y}_{RDD})$ are the design effects of the estimates $\hat{y}_{LF}$ and $\hat{y}_{RDD}$, and n_{LF} and n_{RDD} are the actual sample sizes for the LF and RDD samples.

In implementing these algorithms, it was assumed, based on tabulations of selected illustrative variables, that the list frame design effect was 3.78 and the RDD design effect was 1.13 (see Appendix C). The effective sample sizes were then calculated as (2150/3.78 = 569) and (304/1.13 = 269), respectively. The final weights were then calculated as .68 and .32.

APPENDIX C

VARIANCES

This appendix describes the estimation of variances for representative variable estimates reported in the text. The presentation begins by discussing the overall approach. Then selected variance estimates are presented.

A. APPROACH

The "Design Effect" Concept. A common way of characterizing the changes (usually increases) in variances in estimated variables due to survey design features is to focus on the "design effect (deff)." The deff is defined as the proportional change in variance caused by the survey design as compared to the variance that could be achieved by a simple random sample of the same size. In most contexts, design effects are greater than 1, meaning that variances are increased as a result of the survey design features.

Approach Being Followed. A very large number of variable estimates are being made in the current study, and, while procedures exist for making individual estimates of the true variances, their application to all the estimates included in the study would be unwieldy. Hence, the overall approach is to estimate the true variances for a number of representative variables and to compute average design effects based on these variables. These design effects can then be used by readers of the report to approximate variances associated with other variables.

The STATA computer program was used to estimate the true variances of selected variables. This package is based on a Taylor Series approximation of the true variances. It directly computes the estimated variances and design effects using standard formulas that relate the size of the design effect to the relative sizes of two variables: (1) the component of the variances of those variables due to variation within individual clusters in the survey design, and (2) the component of the variances due to differences between clusters in the relevant underlying population characteristics.

C.3

B. FINDINGS

The following tables present illustrative design effects for selected variables from the analysis. Tables C.1 to C.5 report typical design effects for the in-person sample of participants, the combined in-person and telephone survey of participants, the RDD sample of participants, the sample of eligible nonparticipants, and the sample of "near-eligible" nonparticipants. It is reasonable to believe that these design effects are typical of those which would be found more generally.

Implications for the Width of Confidence Intervals. In general, 95 percent confidence intervals extend ± 1.96 times the true standard error of an estimate, which is equal to the square root of the variance of the estimate. Design effects are defined as a multiplier on the *variance*, while confidence intervals are based on the *standard error*, which is the *square root of the variance*. Therefore, observed design effects in the range of 2 and 4 imply that the size of confidence intervals are increased by a factor of between 1.7 and 2, relative to what they would be with a simple random sample. For instance, if, for a given sample size, a confidence interval around an estimated percentage--say 55 percent--was plus-or-minus 4 percentage points in a simple random sample, the confidence interval would have a width of 6.9 percentage points with a design effect of 3.

Illustrative Confidence Intervals. Given information about the size of the design effects, it is relatively straightforward to compute estimated confidence intervals for estimates of *proportions*, such as the proportion of food stamp households whose heads of households are female, or the proportion receiving AFDC. Table C.6 presents representative confidence intervals for different sample sizes and different assumed design effects.

TABLE C.1

ILLUSTRATIVE DESIGN EFFECTS FOR THE COMBINED IN-PERSON AND TELEPHONE SURVEY
SAMPLE OF PARTICIPANTS

Variable	Sample Size	Mean[a]	Estimated Design Effect	"Corrected" Standard Error of Estimated Mean
Household Size	2,150	3.0	4.2	.079
Annual Earnings	2,074	$3,043	2.3	186
Whether Household Has an Elderly Member	2,150	.274	3.0	.017
Whether Single-Person Household	2,150	.257	2.2	.014
Whether Household Has AFDC Income	2,123	.311	4.1	.020
Whether Household Has General Assistance Income	2,134	.061	6.8	.014
Average Design Effect			3.8	

SOURCE: 1996 National Food Stamp Program Survey, weighted data.

[a]Mean may differ slightly from those reported in text due to slight differences in samples.

TABLE C.2

ILLUSTRATIVE DESIGN EFFECTS FOR THE IN-PERSON INTERVIEW
SAMPLE OF PARTICIPANTS

Variable	Sample Size	Mean[a]	Estimated Design Effect	"Corrected" Standard Error of Estimated Mean
Household Size	1,109	3.0	2.0	.074
Annual Earnings	1,071	$2,858	1.5	204
Whether Household Has an Elderly Member	1,109	.266	1.8	.018
Whether Single-Person Household	1,109	.255	1.6	.018
Whether Household Has AFDC Income	1,089	.351	3.2	.026
Whether Household Has General Assistance Income	1,099	.061	7.9	.020
Average Design Effect			3.0	

SOURCE: 1996 National Food Stamp Program Survey, weighted data.

[a]Mean may differ slightly from those reported in text due to slight differences in samples.

TABLE C.3

ILLUSTRATIVE DESIGN EFFECTS FOR THE RDD SURVEY
SAMPLE OF PARTICIPANTS

Variable	Sample Size	Mean[a]	Estimated Design Effect	"Corrected" Standard Error of Estimated Mean
Household Size	304	3.1	1.0	.107
Annual Earnings	296	$3,811	1.0	369
Whether Household Has an Elderly Member	304	.245	1.0	.025
Whether Single-Person Household	304	.220	1.0	.023
Whether Household Has AFDC Income	301	.278	1.0	.026
Whether Household Has General Assistance Income	299	.047	1.0	.012
Average Design Effect			1.0	

SOURCE: 1996 National Food Stamp Program Survey, weighted data.

[a]Mean may differ slightly from those reported in text due to slight differences in samples.

TABLE C.4

ILLUSTRATIVE DESIGN EFFECTS FOR THE RDD SURVEY
SAMPLE OF ELIGIBLE NONPARTICIPANTS

Variable	Sample Size	Mean[a]	Estimated Design Effect	"Corrected" Standard Error of Estimated Mean
Household Size	450	2.1	.9	.066
Annual Earnings	450	$4,180	1.1	279
Whether Household Has an Elderly Member	450	.514	1.4	.027
Whether Single-Person Household	450	.493	1.4	.027
Whether Household Has AFDC Income	449	.012	1.3	.006
Whether Household Has General Assistance Income	449	.008	1.0	.004
Average Design Effect			1.2	

SOURCE: 1996 National Food Stamp Program Survey, weighted data.

[a]Mean may differ slightly from those reported in text due to slight differences in samples.

TABLE C.5

ILLUSTRATIVE DESIGN EFFECTS FOR THE RDD SURVEY
SAMPLE OF "NEAR ELIGIBLE" NONPARTICIPANTS

Variable	Sample Size	Mean[a]	Estimated Design Effect	"Corrected" Standard Error of Estimated Mean
Household Size	405	2.5	1.0	.090
Annual Earnings	347	$8,118	1.0	$509
Whether Household Has an Elderly Member	405	.407	1.3	.029
Whether Single-Person Household	405	.379	1.4	.030
Whether Household Has AFDC Income	405	.008	[b]	.004
Whether Household Has General Assistance Income	405	.004	[b]	.003
Average Design Effect			1.2	

SOURCE: 1996 National Food Stamp Program Survey, weighted data.

[a]Mean may differ slightly from those reported in text due to slight differences in samples.

[b]Design effects could not be estimated satisfactorily because of the very low probability being computed.

TABLE C.6

WIDTH OF 95 PERCENT CONFIDENCE INTERVALS
WHEN ESTIMATING A PROPORTION

Variable	Proportion Being Estimated		
	.1	.2	.5
If Design Effect =1 and:			
N=200	±.04	±.06	±.07
N=400	±.03	±.04	±.05
N=600	±.02	±.03	±.04
N=800	±.02	±.03	±.03
N=1,200	±.02	±.02	±.03
If Design Effect =2 and:			
N=200	±.06	±.08	±.10
N=400	±.04	±.06	±.07
N=600	±.03	±.05	±.06
N=800	±.03	±.04	±.05
N=1,200	±.02	±.03	±.04
If Design Effect =3 and:			
N=200	±.07	±.10	±.12
N=400	±.05	±.07	±.08
N=600	±.04	±.06	±.07
N=800	±.04	±.05	±.06
N=1,200	±.03	±.04	±.05
If Design Effect =4 and:			
N=200	±.08	±.11	±.14
N=400	±.06	±.08	±.10
N=600	±.05	±.06	±.08
N=800	±.04	±.06	±.07
N=1,200	±.03	±.05	±.06

APPENDIX D

DISSATISFACTION WITH THE FOOD STAMP PROGRAM:
ESTIMATION METHODOLOGY AND
COEFFICIENT ESTIMATES

The purpose of this appendix is (1) to describe the estimation methodology used in the multivariate analysis of household dissatisfaction with aspects of the Food Stamp Program (FSP) and (2) to present the logit coefficient estimates.

A. THE EQUATION

The survey examined household satisfaction with five aspects of the FSP: (1) the application process, (2) the recertification process, (3) the issuance process, (4) caseworker performance, and (5) the FSP overall. To estimate the effect of household and personal characteristics and participation experiences on household dissatisfaction with the FSP, for each outcome an equation is specified that relates the probability of being dissatisfied to the demographic and economic characteristics of households and their participation experiences. For three of the outcomes-- issuance, caseworker performance, and FSP overall--the sample used in the estimation consists of all households currently participating in the FSP. For the application and recertification process outcomes, subsamples of all participants are used: those households that have applied within the past five years and those that have been recertified, respectively.

For any of the five outcomes, the basic equation can be written as:

(1) $D \ ' \ X\$ \ \% \ e$

where D is a measure of dissatisfaction (equal to one if the household is either strongly or somewhat dissatisfied and equal to zero otherwise), X is a vector of observed household and personal characteristics hypothesized to affect the respondent's dissatisfaction; $\$$ is a vector of parameters representing the "net effect" of the characteristics on dissatisfaction; and e is a random error term representing all unobserved factors that affect dissatisfaction.

B. THE LOGIT MODEL

The standard approach to estimate equations of this form is to use a nonlinear model, such as a logit or probit model (Maddala 1983). Here, the logit model is used.[1]

The underlying framework for the logit model is a latent variable model in which dissatisfaction, a discrete outcome, is viewed as the realization of an underlying latent continuous variable.[2] In this case, the underlying latent variable can be thought of as the household's propensity to be dissatisfied with aspects of the FSP. The model can be written as:

$$
\begin{aligned}
& D('X\$\%e \\
(2) \quad & D = 1 \; if \; D* > 0 \; (\textit{the household is dissatisfied}) \\
& D = 0 \; if \; D* \leq 0 \; (\textit{the household is satisfied})
\end{aligned}
$$

Equation (2) implies that the propensity to be dissatisfied with the FSP is a function of observable *(X)* and unobservable *(e)* factors. If the latent variable, *D**, could be observed, then it would be appropriate to estimate equation (2) using standard regression methods. However, only the discrete outcome of the underlying process (that is, dissatisfied or not dissatisfied) is observed, which creates problems for using Ordinary Least Squares (OLS).

Under the assumption that the cumulative distribution of the error term, *e,* is logistically distributed, the logit model is obtained. The probability of being dissatisfied can then be written as:

$$
(5) \quad Prob(D'1)'Prob(D(>0)'Prob(e<\&X\$)' \;\; \frac{exp(X\$)}{1 \% exp(X\$)}
$$

---

[1]The equation was also estimated using "probit" model. The results were essentially the same. This is because the logistic distribution and normal distribution are very similar to each other.

[2]In general, respondents could respond on a four-point scale: disagree strongly, disagree somewhat, agree somewhat, and agree strongly. The "disagree strongly" and "disagree somewhat" responses were collapsed into a single category, "dissatisfied."

The vector *β*, representing the marginal effects of household and respondent characteristics on dissatisfaction, can then be estimated using maximum-likelihood estimation techniques.

C. THE EXPLANATORY VARIABLES

The explanatory variables *(X)* that are included in the dissatisfaction equations encompass the broad range of demographic and economic characteristics of households and the household reference person available in the survey. They also include a set of variables measuring stigma and costs of applying and becoming recertified. A complete list of these variables, and their definitions, is provided in Table D.1. They include household income-to-poverty ratio and economic resources; receipt of government transfers; household size, composition, and location; and characteristics of the reference person (education, gender, race, and marital status). Included are the application and recertification experiences of households (for example, number of trips to FSP office and other places; time spent applying; out-of-pocket costs of applying). Also included is an index measuring respondents' perceptions of stigma associated with program participation. Multivariate analysis enables us to examine the effect of each of these characteristics independent of all other measured characteristics included in the model.

Most of the characteristics included as explanatory variables in the equations enter these equations as categorical variables. This includes those characteristics that are categorical in nature (such as education or race) and several of those that are continuous in nature (such as income-to-poverty ratio, household size, or level of food stamp benefits). Variables measuring the costs of applying for and recertifying benefits are entered in continuous form. The primary advantage of specifying the equation in terms of categorical variables is that it enables us to detect nonlinear and irregular effects of continuous variables.

VARIABLE NAMES AND DEFINITIONS FOR DISSATISFACTION EQUATIONS

Variable Name	Definition
Dependent Variables	
DISAPP	1 if household strongly or somewhat dissatisfied with food stamp application process, 0 otherwise
DISRES	1 if household strongly or somewhat dissatisfied with food stamp recertification process, 0 otherwise
DISISSU	1 if household strongly or somewhat dissatisfied with food stamp issuance process, 0 otherwise
DISCWK	1 if half or more of household's responses to the eight statements about caseworker performance are strongly or somewhat disagree, 0 otherwise
DISFSS	1 if household strongly or somewhat dissatisfied with FSP overall, 0 otherwise
Explanatory Variables	
Income as % of Poverty	
POVGRP1	1 if total household income is less than 25% of poverty, 0 otherwise
POVGRP2	1 if total household income is between 25% and 50% of the poverty level, 0 otherwise
POVGRP3	1 if total household income is between 51% and 75% of the poverty level, 0 otherwise
POVGRP4	1 if total household income is between 76% and 100% of the poverty line, 0 otherwise
POVGRP5	1 if total household income is between 101% and 125% of the poverty line, 0 otherwise
POVGRP6	1 if total household income including earnings is 126% or more of the poverty line, 0 otherwise
POVFLG	1 if missing data on household income, 0 otherwise
HAVEEARN	1 if anyone in the household works for pay, 0 otherwise
Household Size	
HOUSE1	1 if household contains 1 person, 0 otherwise
HOUSE2	1 if household contains 2 people, 0 otherwise
HOUSE3	1 if household contains 3 people, 0 otherwise
HOUSE4	1 if household contains 4 people, 0 otherwise
HOUSE5	1 if household contains 5 or more people, 0 otherwise
ELDERLY	1 if household contains one or more elderly persons, 0 otherwise
CHILD18	1 if any member of the household is 18 years old or younger, 0 otherwise
Residential Location	
URBANLOC	1 if household is in an urban area (90% of households in respondents' zip code are in urban areas), 0 otherwise
MIXURBRUR	1 if household is in a mixed urban/rural area, 0 otherwise
RURALLOC	1 if household is in a rural area (90% of households in respondents' zip code are not in urban areas), 0 otherwise
MDURBLOC	1 if missing data on residential location, 0 otherwise
Food Stamp Benefit Level	
BN10LESS	1 if household receives $10 or less in food stamps per month, 0 otherwise
BN1199	1 if household receives between $11 and $99 in food stamps per month, 0 otherwise
BN100199	1 if household receives between $100 and $199 in food stamps per month, 0 otherwise
BN200299	1 if household receives between $200 and $299 in food stamps per month, 0 otherwise
BN300UP	1 if household receives $300 or more in food stamps per month, 0 otherwise

Variable Name	Definition
APPNUM	Number of times applied or checked eligibility during adult life
Last Applied for Food Stamps	
APIN1	1 if household last applied for food stamps less than one year ago, 0 otherwise
AP1TO2	1 if household last applied for food stamps between 1 and 2 years ago, 0 otherwise
APIN3+	1 if household last applied for food stamps 3 or more years ago, 0 otherwise
APPTOT	Total out-of-pocket costs spent applying for food stamps during last application (in dollars)
TTRPSAP	Total number of trips to FSP office and other places when applying for food stamps
APPHOURS	Total number of hours spent applying for food stamps
RETOT	Total out-of-pocket costs spent recertifying food stamps during last application (in dollars)
TTRPSRE	Total number of trips to FSP office and other places when recertifying for food stamps
REHOURS	Total number of hours spent recertifying food stamps
ELECBEN	1 if household receives EBT food stamp benefits, 0 otherwise
ISSUPROB	1 if household's benefits were late, lost, or stolen during the past two months, 0 otherwise
PREF2PAY	1 if household would prefer receiving monthly benefits twice per month, 0 otherwise

Reference Person Characteristics

Variable Name	Definition
Completed Education	
EDUC1	1 if household reference person has completed less than high school education, 0 otherwise
EDUC2	1 if household reference person has completed high school or GED, 0 otherwise
EDUC3	1 if household reference person has received BA or associate's degree, 0 otherwise
EDUC4	1 if household reference person has completed vocational program, 0 otherwise
EDUC5	1 if household reference person has advanced degree, 0 otherwise
Gender	
FEMALE	1 if household reference person is female, 0 otherwise
Race and Ethnicity	
WNOTHISP	1 if the household reference person's race is white and ethnicity is non-Hispanic, 0 otherwise
AFNOTHIS	1 if household reference person's race is black and ethnicity is non-Hispanic, 0 otherwise
HISP	1 if household reference person's ethnicity is Hispanic, 0 otherwise
ASIAN	1 if household reference person's ethnicity is Asian or Pacific Islander, 0 otherwise
NATAMER	1 if household reference person's ethnicity is Native American, 0 otherwise
OTHER	1 if household reference person's ethnicity is other, 0 otherwise
Marital Status	
Married	1 if household reference person is married to either a present or absent spouse, 0 otherwise
Divorced or Separated	1 if household reference person is divorced or separated, 0 otherwise
Widowed	1 if household reference person is widowed, 0 otherwise
Never Married	1 if household reference person has never married, 0 otherwise
Index of Perceptions of Stigma	
STIGMA0	1 if household reference person answered "no" to all four questions about stigma associated with FSP participation, 0 otherwise

Variable Name	Definition
STIGMA1	1 if household reference person answered "yes" to one of the four questions about stigma associated with FSP participation, 0 otherwise
STIGMA2	1 if household reference person answered "yes" to two of the four questions about stigma associated with FSP participation, 0 otherwise
STIGMA3	1 if household reference person answered "yes" to three of the four questions about stigma associated with FSP participation, 0 otherwise
STIGMA4	1 if household reference person answered "yes" to all four of the questions about stigma associated with FSP participation, 0 otherwise

D. ESTIMATING THE PARTICIPATION EQUATION AND PRESENTING RESULTS

A separate logit model is estimated for each outcome. The logit regressions were run on unweighted data. However, the estimates of the marginal effects on predicted probabilities under alternative assumptions about household and respondent characteristics are based on weighted data.

In this report, two different formats are used to present the logit estimation results. The main body of the text (see Section B.6, Chapter III) contains a "qualitative" summary of the marginal effects, across all outcomes, for selected characteristics. Tables D.2 through D.6 present the "marginal effects" of the independent variables. These marginal effects show the change in the probability that the respondent is dissatisfied with a particular aspect of the FSP that would be predicted to occur in response to a given "one-unit" change in the value of some independent variable, holding all other factors constant. These tables also indicate the statistical significance of the estimates and provide variable means.

TABLE D.2

CHARACTERISTICS ASSOCIATED WITH THE PROBABILITY THE CLIENT IS STRONGLY
OR SOMEWHAT DISSATISFIED WITH THE APPLICATION PROCESS

| | Logit Regression Results | | | |
Variable	Marginal Effect (Percentage Points)	t-statistic	Significance Level	Variable Mean
INTERCEPT	-36.42		***	
RURALLOC (Omitted category)				
URBANLOC	6.61	2.50	***	52.52
MIXURBRUR	2.24	.81		28.68
MDURBLOC	6.49	1.66		5.68
HOUSE1 (Omitted category)				
HOUSE2	-.63	.16		20.42
HOUSE3	-3.75	.81		20.73
HOUSE4	-5.61	1.11		18.89
HOUSE5	-4.11	.68		18.12
ELDERLY	.03	.01		23.68
CHILD18	.06	.02		66.29
HAVEEARN	.73	.35		37.50
POVGRP1 (Omitted category)				
POVGRP2	5.39	1.75		19.38
POVGRP3	9.45	2.72		22.51
POVGRP4	5.29	1.55	***	21.35
POVGRP5	3.85	.89		8.58
POVGRP6	2.62	.65		9.07
POVFLG	-.36	.07		4.14
BENLE10 (Omitted category)				
BEN1199	-14.87	2.17	***	25.21
BEN100199	-16.97	2.98	***	32.55

Variable	Logit Regression Results			
	Marginal Effect (Percentage Points)	t-statistic	Significance Level	Variable Mean
BEN200299	-20.76	3.64	***	23.45
BEN300UP	-20.54	3.40	**	12.95
APPNUM	2.82	2.48	**	1.79
MDAPPNUM	11.13	2.03	**	4.48
APPIN1	1.28	.55		44.09
APP1TO2	-2.53	1.02		22.03
APP3ORMORE (Omitted category)				
MDAPPTIME	-8.03	2.67	***	5.00
APPTOT	.11	2.03	**	10.31
TTRPSAP	2.18	4.50	***	2.16
MDTRIP	3.45	.813		4.21
APPHOURS	.21	1.48		4.78
FEMALE	4.68	1.81		84.66
WHNOTHIS (Omitted category)				
AFNOTHIS	5.79	2.36	**	30.85
HISP	-4.22	1.71		16.70
ASIAN	-11.63	1.50		2.08
NATAMER	4.74	.70		1.39
OTHER	-2.79	.32		1.45
EDUC1 (Omitted category)				
EDUC2	.11	.06		38.94
EDUC3	1.11	.31		9.55
EDUC4	-4.78	1.10		4.52
EDUC5	.09	.02		6.68

Variable	Logit Regression Results			
	Marginal Effect (Percentage Points)	t-statistic	Significance Level	Variable Mean
MARITAL1	-1.07	.30		35.33
MARITAL2 (Omitted category)				
MARITAL3	-1.56	.540		32.60
MARITAL4	-1.16	.290		10.98
UNDER20	-.27	.07		3.72
AGE2049 (Omitted category)				
AGE5059	-2.08	.74		9.72
AGE60UP	1.84	.41		16.27
STIGMA0 (Omitted category)				
STIGMA1	6.63	2.79	***	21.64
STIGMA2	7.49	2.53	**	11.05
STIGMA3	5.10	1.43		6.47
STIGMA4	26.65	3.83	***	2.59

Summary Statistics	
-2 log likelihood	1275.862
Chi-square with 47 degrees of freedom	148.005 (p = 0.0001)
Association of Predicted Probabilities and Observed Responses	73.0%

SOURCE: 1996 National Food Stamp Program Survey.

NOTES: Logit regression was run on unweighted data. Marginal effects based on weighted data. Marginal effect represents the effect on the probability of being dissatisfied with the application process of a one-unit change in an explanatory variable, holding all the other variables constant. Sample size is 1,617. "t" statistics reflect correction for clustered design, based on Taylor Series routine in Stata.

Omitted category denotes omitted value of the variable in the estimated equation.

**Significantly different from zero at the .05 level, two-tailed test.
***Significantly different from zero at the .01 level, two-tailed test.

TABLE D.3

CHARACTERISTICS ASSOCIATED WITH THE PROBABILITY THE CLIENT IS STRONGLY
OR SOMEWHAT DISSATISFIED WITH THE RECERTIFICATION PROCESS

	Logit Regression Results			
Variable	Marginal Effect (Percentage Points)	t-statistic	Significance Level	Variable Mean
INTERCEPT	-23.97	4.25	***	1.00
RURALLOC (Omitted category)				
URBANLOC	2.47	.82		53.57
MIXURBRUR	.58	.22		26.99
MDURBLOC	-.73	.24		5.18
HOUSE1 (Omitted category)				
HOUSE2	-1.02	.30		18.84
HOUSE3	4.46	.94		18.69
HOUSE4	.27	.05		19.38
HOUSE5	.51	.09		18.21
ELDERLY	3.80	1.08		26.36
CHILD18	-2.77	.62		64.23
HAVEEARN	-1.54	.54		29.49
POVGRP1 (Omitted category)				
POVGRP2	3.41	1.05		19.39
POVGRP3	-1.77	.58		21.93
POVGRP4	5.62	2.05	**	22.89
POVGRP5	2.92	.64		8.19
POVGRP6	-1.11	.25		7.07
POVFLG	.77	.13		3.50
BENLE10 (Omitted category)				

D.13

| Variable | Logit Regression Results | | | |
	Marginal Effect (Percentage Points)	t-statistic	Significance Level	Variable Mean
BEN1199	-14.24	2.50	**	30.11
BEN100199	-21.69	3.62	***	29.24
BEN200299	-22.55	3.69	***	20.30
BEN300UP	-24.37	3.46	***	14.19
RETOT	.16	1.48		5.84
TTRPSRE	.90	1.40		1.33
MDTRIP	12.16	2.05	**	3.04
REHOURS	.97	2.96	***	2.29
F18	-.41	1.38		7.25
FEMALE	3.02	1.45		85.96
MDF18	-11.88	3.45	***	7.96
WHNOTHIS (Omitted category)				
AFNOTHIS	9.59	4.32	***	33.21
HISP	.39	.16		16.77
ASIAN	2.21	.22		1.84
NATAMER	12.33	1.82		1.30
OTHER	14.72	1.47		1.16
EDUC1 (Omitted category)				
EDUC2	1.70	.97		38.17
EDUC3	1.56	.44		8.98
EDUC4	-2.43	.46		3.59
EDUC5	-4.57	1.11		6.55

Variable	Logit Regression Results			
	Marginal Effect (Percentage Points)	t-statistic	Significance Level	Variable Mean
MARITAL1	.96	.37		34.26
MARITAL2 (Omitted category)				
MARITAL3	6.70	1.94		35.27
MARITAL4	6.45	1.38		12.61
UNDER20	2.32	.35		2.21
AGE2049 (Omitted category)				
AGE5059	-.22	.07		12.14
AGE60UP	-3.91	.82		19.16
STIGMA0 (Omitted category)				
STIGMA1	7.13	3.78	***	19.40
STIGMA2	7.25	2.06	**	10.57
STIGMA3	14.08	3.16	**	6.18
STIGMA4	5.47	.64		2.10
Summary Statistics				
-2 log likelihood	830.857			
Chi-square with 44 degrees of freedom	145.983 (p = 0.0001)			
Association of Predicted Probabilities and Observed Responses	76.4%			

SOURCE: 1996 National Food Stamp Program Survey.

NOTES: Logit regression was run on unweighted data. Marginal effects based on weighted data. Marginal effect represents the effect on the probability of being dissatisfied with the recertification process of a one-unit change in an explanatory variable, holding all the other variables constant. Sample size is 1,252. "t" statistics reflect correction for clustered design, based on Taylor's Series routine in Stata.

Omitted category denotes omitted value of the variable in the estimated equation.

**Significantly different from zero at the .05 level, two-tailed test.
***Significantly different from zero at the .01 level, two-tailed test.

TABLE D.4

CHARACTERISTICS ASSOCIATED WITH THE PROBABILITY THE CLIENT IS STRONGLY OR
SOMEWHAT DISSATISFIED WITH THE FOOD STAMP PROGRAM ISSUANCE PROCESS

	Logit Regression Results			
Variable	Marginal Effect (Percentage Points)	t-statistic	Significance Level	Variable Mean
INTERCEPT	-35.55		***	1.00
RURALLOC (Omitted category)				
URBANLOC	3.54	1.46		52.53
MIXURBRUR	3.38	1.41		28.62
MDURBLOC	2.53	1.02		5.66
HOUSE1 (Omitted category)				
HOUSE2	3.78	1.59		19.11
HOUSE3	.91	.35		19.99
HOUSE4	3.65	1.20		18.39
HOUSE5	1.04	.33		18.12
ELDERLY	-5.34	1.57		26.08
CHILD18	2.25	.89		63.68
HAVEEARN	-1.85	1.03		32.61
POVGRP1 (Omitted category)				
POVGRP2	3.22	1.68		19.30
POVGRP3	2.24	1.19		22.64
POVGRP4	2.79	1.28		21.90
POVGRP5	5.11	1.83		8.14
POVGRP6	3.67	1.40		7.85
POVFLG	4.89	1.39		4.11

Variable	Logit Regression Results			
	Marginal Effect (Percentage Points)	t-statistic	Significance Level	Variable Mean
BENLE10 (Omitted category)				
BEN1199	-3.54	1.05		28.36
BEN100199	-2.13	.59		30.57
BEN200299	-5.98	1.77		21.71
BEN300UP	-4.67	1.27		13.36
ELECBEN	-6.95	3.83	***	9.38
ISSUPROB	5.36	2.98	***	21.89
PREF2PAY	5.48	4.16	***	24.82
FEMALE	.20	.11		84.65
WHNOTHIS (Omitted category)				
AFNOTHIS	6.82	3.91	***	32.88
HISP	1.30	.83		15.97
ASIAN	-5.56	.97		1.85
NATAMER	8.03	2.14	**	1.36
OTHER	5.47	.88		1.12
EDUC1 (Omitted category)				
EDUC2	2.12	1.43		38.01
EDUC3	3.56	1.30		8.91
EDUC4	.23	.07		4.13
EDUC5	4.50	1.75		6.18
MARITAL1	.17	.09		35.42
MARITAL2 (Omitted category)				
MARITAL3	3.95	1.8		33.31
MARITAL4	1.87	.79		12.71

| Variable | Logit Regression Results | | | |
	Marginal Effect (Percentage Points)	t-statistic	Significance Level	Variable Mean
UNDER20	-1.84	.43		2.93
AGE2049 (Omitted category)				
AGE5059	-1.68	.67		10.49
AGE60UP	9.82	2.07	**	19.09
STIGMA0 (Omitted category)				
STIGMA1	1.97	.95		20.34
STIGMA2	6.05	2.45	**	10.07
STIGMA3	9.33	2.68	***	5.38
STIGMA4	12.97	2.35	**	2.38
Summary Statistics				
-2 log likelihood	1514.193			
Chi-square with 41 degrees of freedom	122.219 (p = 0.0001)			
Association of Predicted Probabilities and Observed Responses	69.2%			

SOURCE: 1996 National Food Stamp Program Survey.

NOTES: Logit regression was run on unweighted data. Marginal effects based on weighted data. Marginal effect represents the effect on the probability of being dissatisfied with the issuance process of a one-unit change in an explanatory variable, holding all the other variables constant. Sample size is 2,252. "t" statistics reflect correction for clustered design, based on Taylor's Series routine in Stata.

Omitted category denotes omitted value of the variable in the estimated equation.

**Significantly different from zero at the .05 level, two-tailed test.
***Significantly different from zero at the .01 level, two-tailed test.

TABLE D.5

CHARACTERISTICS ASSOCIATED WITH THE PROBABILITY THE CLIENT IS STRONGLY
OR SOMEWHAT DISSATISFIED WITH THE FOOD STAMP PROGRAM OVERALL

	Logit Regression Results			
Variable	Marginal Effect (Percentage Points)	t-statistic	Significance Level	Variable Mean
INTERCEPT	-39.90		***	1.00
RURALLOC (Omitted category)				
URBANLOC	5.34	2.25	**	52.53
MIXURBRUR	1.55	.659		28.62
MDURBLOC	7.29	2.21	*	5.66
HOUSE1 (Omitted category)				
HOUSE2	3.67	1.30		19.11
HOUSE3	1.32	.58		19.99
HOUSE4	.49	.27		18.39
HOUSE5	1.75	.77		18.12
ELDERLY	-3.43	.97		26.08
CHILD18	-.26	.26		63.68
HAVEEARN	-1.61	1.43		32.61
POVGRP1 (Omitted category)				
POVGRP2	5.99	2.12	**	19.30
POVGRP3	5.47	2.30	**	22.64
POVGRP4	6.00	2.00	**	21.90
POVGRP5	8.25	2.38	*	8.14
POVGRP6	4.26	1.04		7.85
POVFLG	4.32	.85		4.11
BENLE10 (Omitted category)				
BEN1199	-13.29	3.30	***	28.36

D.19

| Variable | Logit Regression Results | | | |
	Marginal Effect (Percentage Points)	t-statistic	Significance Level	Variable Mean
BEN100199	-22.95	7.43	***	30.57
BEN200299	-25.29	5.66	***	21.71
BEN300UP	-27.76	6.05	***	13.36
APPNUM	3.53	4.51	***	1.66
MDAPPNUM	7.42	2.56	***	5.13
APPIN1	1.55	.50		31.93
APP1TO2	-2.29	2.74	***	15.81
APP3ORMORE (Omitted category)				
MDAPPTIME	-2.69	1.44		4.70
APPTOT	.09	1.79		7.63
TTRPSAP	1.07	.73		1.60
MDTRIP	8.59	3.17	***	28.81
APPHOURS	.07	.54		3.51
MDAPPHRS	-4.52	.28		.24
RETOT	.14	1.42		3.54
TTRPSRE	-.10	.05		80.72
MDTRPRE	6.43	2.24	**	41.22
REHOURS	.20	.66		1.39
MDREHRS	27.22	1.61		.27
ELECBEN	-3.40	1.44		9.38
ISSUPROB	8.57	5.17	***	21.89
PREF2PAY	1.29	.87		24.82
FEMALE	2.41	1.23		84.65

Variable	Logit Regression Results			
	Marginal Effect (Percentage Points)	t-statistic	Significance Level	Variable Mean
WHNOTHIS (Omitted category)				
AFNOTHIS	4.72	2.44	**	32.88
HISP	-2.81	1.24		15.97
ASIAN	-1.82	.33		1.85
NATAMER	5.52	1.54		1.36
OTHER	-7.58	1.09		1.12
EDUC1 (Omitted category)				
EDUC2	.97	.53		38.01
EDUC3	-2.01	.86		8.91
EDUC4	-2.73	.67		4.13
EDUC5	5.66	1.76		6.18
MARITAL1	-.85	.22		35.42
MARITAL2 (Omitted category)				
MARITAL3	2.34	1.13		33.31
MARITAL4	.45	.27		12.71
UNDER20	-4.45	.93		2.93
AGE2049 (Omitted category)				
AGE5059	2.54	1.08		10.49
AGE60UP	5.87	1.37		19.09
STIGMA0 (Omitted category)				
STIGMA1	2.65	1.49		20.34
STIGMA2	3.76	1.55		10.06
STIGMA3	5.36	1.40		5.38
STIGMA4	8.82	1.57		2.38

TABLE D.5 *(continued)*

| Variable | Logit Regression Results | | | |
	Marginal Effect (Percentage Points)	t-statistic	Significance Level	Variable Mean
Summary Statistics				
-2 log likelihood	1599.666			
Chi-square with 56 degrees of freedom	230.525 (p = 0.0001)			
Association of Predicted Probabilities and Observed Responses	74.8%			

SOURCE: 1996 National Food Stamp Program Survey.

NOTES: Logit regression was run on unweighted data. Marginal effects based on weighted data. Marginal effect represents the effect on the probability of being dissatisfied with the FSP overall in response to a one-unit change in an explanatory variable, holding all the other variables constant. Sample size is 2,213. "t" statistics reflect correction for clustered design, based on Taylor's Series routine in Stata.

Omitted category denotes omitted value of the variable in the estimated equation.

 **Significantly different from zero at the .05 level, two-tailed test.
***Significantly different from zero at the .01 level, two-tailed test.

TABLE D.6

CHARACTERISTICS ASSOCIATED WITH THE PROBABILITY THE CLIENT IS STRONGLY
OR SOMEWHAT DISSATISFIED WITH THE PERFORMANCE OF THE CASEWORKER

| Variable | Logit Regression Results | | | |
	Marginal Effect (Percentage Points)	t-statistic	Significance Level	Variable Mean
INTERCEPT	-31.98		***	1.00
RURALLOC (Omitted category)				
URBANLOC	7.30	2.60	***	52.19
MIXURBRUR	3.00	1.34		28.67
MDURBLOC	9.05	3.55	***	5.86
HOUSE1 (Omitted category)				
HOUSE2	3.50	1.55		19.17
HOUSE3	1.02	.34		19.85
HOUSE4	.41	.14		18.34
HOUSE5	-1.33	.41		18.17
ELDERLY	-5.61	2.13	**	26.48
CHILD18	.51	.17		63.48
HAVEEARN	1.91	1.13		32.47
POVGRP1 (Omitted category)				
POVGRP2	1.19	.49		19.23
POVGRP3	-2.01	.92		22.60
POVGRP4	2.76	1.20		22.13
POVGRP5	.72	.22		8.07
POVGRP6	-2.50	.86		7.77
POVFLG	-2.87	.67		4.20

Variable	Logit Regression Results			
	Marginal Effect (Percentage Points)	t-statistic	Significance Level	Variable Mean
BENLE10 (Omitted category)				
BEN1199	1.64	.47		28.60
BEN100199	-4.11	1.28		30.53
BEN200299	-4.19	1.32		21.56
BEN300UP	-5.24	1.47		13.36
ELECBEN	6.62	3.72	***	9.38
ISSUPROB	15.83	9.29	***	21.83
FEMALE	1.13	.55		84.79
WHNOTHIS (Omitted category)				
AFNOTHIS	2.95	1.63		32.70
HISP	-2.35	1.23		16.08
ASIAN	.65	.11		1.84
NATAMER	-.99	.21		1.35
OTHER	5.18	.74		1.11
EDUC1 (Omitted category)				
EDUC2	-.46	.26		37.67
EDUC3	-.41	.17		8.94
EDUC4	.82	.21		4.09
EDUC5	-1.73	.58		6.23
MARITAL1	.66	.30		35.17
MARITAL2 (Omitted category)				
MARITAL3	1.26	.57		33.27
MARITAL4	5.65	1.67		12.81

TABLE D.6 *(continued)*

Variable	Marginal Effect (Percentage Points)	t-statistic	Significance Level	Variable Mean
	Logit Regression Results			
UNDER20	8.02	1.77		2.90
AGE2049 (Omitted category)				
AGE5059	-1.02	.43		10.50
AGE60UP	-1.45	.35		19.34
STIGMA0 (Omitted category)				
STIGMA1	1.81	1.10		20.27
STIGMA2	2.65	1.06		9.98
STIGMA3	-1.40	.42		5.47
STIGMA4	3.67	.78		2.36

Summary Statistics				
-2 log likelihood	1641.029			
Chi-square with 39 degrees of freedom	90.570 (p = 0.0001)			
Association of Predicted Probabilities and Observed Responses	66.2%			

SOURCE: 1996 National Food Stamp Program Survey.

NOTES: Logit regression was run on unweighted data. Marginal effects are based on weighted data. The marginal effect shows the effect on the probability of dissatisfaction with caseworker performance given a one-unit change in an explanatory variable, holding all other variables constant. Sample size is 2,283. Respondents were classified as dissatisfied with caseworker performance if half or more of their responses to the eight statements about good caseworker performance were either "disagree strongly" or "disagree somewhat."   "t" statistics reflect correction for clustered design, based on Taylor's Series routine in Stata.

Omitted category denotes omitted value of the variable in the estimated equation.

  **Significantly different from zero at the .05 level, two-tailed test.
***Significantly different from zero at the .01 level, two-tailed test.

APPENDIX E

**FSP NONPARTICIPATION EQUATION:
ESTIMATION METHODOLOGY AND
COEFFICIENT ESTIMATES**

The purpose of this appendix is to (1) describe the estimation methodology used in the multivariate analysis of nonparticipation in the Food Stamp Program (FSP), and (2) present the logit coefficient estimates.

A. THE NONPARTICIPATION EQUATION

To estimate the effect of household characteristics on nonparticipation in the FSP, an equation is specified that relates the probability of not participating in the FSP to the demographic and economic characteristics of households. This approach follows the existing literature on the determinants of participation (or alternatively, nonparticipation) (see Martini 1992; and Allin and Beebout 1989) by specifying a one-equation model, in which the dependent variable is the FSP participation status of the household, the explanatory variables are household demographic and economic characteristics, and the sample used in the estimation consists of households estimated to be eligible for the FSP.

The basic participation model can be written as:

(1) $P ' X\$\%e$

where P is participation status (equal to one if the household does not receive food stamps and equal to zero otherwise), X is a vector of observed household and personal characteristics hypothesized to affect participation; $\$$ is a vector of parameters representing the "net effect" of the characteristics on participation; and e is a random error term representing all unobserved factors that affect participation.

B. THE LOGIT MODEL

An important complication arises in the estimation of equation (1). Because the dependent

variable *(P)* is a discrete variable that assumes only two values, the application of standard regression

techniques (ordinary least squares, or OLS) is problematic (Pindyck and Rubinfeld 1991). First, if

equation (1) is estimated by OLS, the predicted participation rate can be less than zero or greater than

100 percent; second, the estimated variance (or standard error) of each estimated coefficient will be

biased. The standard approach to address these problems is to use a nonlinear model, such as a logit

or probit model (Maddala 1983). Both constrain the predicted probability to be positive and less than

one. Here, the logit model is employed.[1]

The underlying framework for the logit model is a latent variable model in which participation

status, a discrete outcome, is viewed as the realization of an underlying latent continuous variable.

In this case, the underlying latent variable can be thought of as the household's propensity not to

participate in the FSP. The model can be written as:

$$P(' X\$\%e$$
(2) $P = 1 \; if \; P*>0$ (*the household does not participate*)
$P = 0 \; if \; P* \leq 0$ (*the household participates*)

Equation (2) implies that the propensity not to participate in the FSP is a function of observable *(X)*

and unobservable *(e)* factors. If the latent variable, *P**, could be observed, then equation (2) could

be estimated using standard regression methods. However, only the discrete outcome of the

underlying process (that is, participation or nonparticipation) is observed, which creates problems

for using OLS.

---

[1]The equation was also estimated using the "probit" model. The results were essentially the same. This is because the logistic distribution and normal distribution are very similar to each other.

E.4

Under the assumption that the cumulative distribution of the error term, *e,* is logistically distributed, the logit model is obtained. The probability of nonparticipation can then be written as:

$$(5) \quad Prob(P'1)'Prob(P(>0)'Prob(e<\&X\$)' \frac{exp(X\$)}{1 \% exp(X\$)}$$

The vector *$,* representing the marginal effects of household characteristics on nonparticipation, can then be estimated using maximum-likelihood estimation techniques.

C. THE EXPLANATORY VARIABLES

The explanatory variables *(X)* that are included in the FSP nonparticipation equation encompass the broad range of demographic and economic characteristics of households and the household reference person available in the survey. A complete list and definitions of these variables are provided in Table E.1. They include household income-to-poverty ratio and economic resources; receipt of government transfers; household size, composition, and location; and characteristics of the reference person (education, gender, race, and marital status). Also included is an index measuring respondents' perceptions of stigma associated with program participation. Multivariate analysis makes it possible to examine the effect of each of these characteristics independent of all other characteristics in the model. In other words, it is possible to identify the independent effect of perceptions of stigma on nonparticipation, after taking into account the effects of household income; receipt of transfers; household size, composition, and location; and the reference person's characteristics.

FSP NONPARTICIPATION EQUATION VARIABLE NAMES AND DEFINITIONS

Variable Name	Definition

Dependent Variable

| NONPART | 1 if household does not receive food stamps, 0 otherwise |

Explanatory Variables

Income as % of Poverty
POVGRP1	1 if total household income is less than 25% of poverty, 0 otherwise
POVGRP2	1 if total household income is between 25% and 50% of the poverty level, 0 otherwise
POVGRP3	1 if total household income is between 51% and 75% of the poverty level, 0 otherwise
POVGRP4	1 if total household income is between 76% and 100% of the poverty line, 0 otherwise
POVGRP5	1 if total household income is between 101 and 125 percent of the poverty line, 0 otherwise
POVGRP6	1 if total household income including earnings is 126% or more of the poverty line, 0 otherwise
POVFLG	1 if missing data on household income, 0 otherwise

| ASSETBIN | 1 if any member of the household has nonhome assets, 0 otherwise |

| AFGASSI | 1 if anyone in the household receives any AFDC, SSI, or GA income, 0 otherwise |

| HAVEEARN | 1 if anyone in the household works for pay, 0 otherwise |

Household Size
HOUSE1	1 if household contains 1 person, 0 otherwise
HOUSE2	1 if household contains 2 people, 0 otherwise
HOUSE3	1 if household contains 3 people, 0 otherwise
HOUSE4	1 if household contains 4 people, 0 otherwise
HOUSE5	1 if household contains 5 or more people, 0 otherwise

| ELDERLY | 1 if household contains one or more elderly persons, 0 otherwise |

CHILD18	1 if any member of the household is 18 years old or younger, 0 otherwise
URBANLOC	1 if household is in an urban area (90% of households in respondents' zip code are in urban areas), 0 otherwise
MIXURBRUR	1 if household is in a mixed urban/rural area, 0 otherwise
RURALLOC	1 if household is in a rural area (90% of households in respondents' zip code are not in urban areas), 0 otherwise
URBANLOC	1 if household is in an urban area, 0 otherwise
MDURBLOC	1 if missing data on residential location, 0 otherwise

Reference Person Characteristics

Completed Education
EDUC1	1 if household reference person has completed less than high school education, 0 otherwise
EDUC2	1 if household reference person has completed high school or GED, 0 otherwise
EDUC3	1 if household reference person has received BA or associate's degree, 0 otherwise
EDUC4	1 if household reference person has completed vocational program, 0 otherwise
EDUC5	1 if household reference person has advanced degree, 0 otherwise
MDEDUC	1 if missing data on household reference person's education

Gender
| FEMALE | 1 if household reference person is female, 0 otherwise |

Variable Name	Definition
Race and Ethnicity	
WNOTHISP	1 if the household reference person's race is white and ethnicity is non-Hispanic, 0 otherwise
AFNOTHIS	1 if household reference person's race is black and ethnicity is non-Hispanic, 0 otherwise
HISP	1 if household reference person's ethnicity is Hispanic, 0 otherwise
ASIAN	1 if household reference person's ethnicity is Asian or Pacific Islander, 0 otherwise
NATAMER	1 if household reference person's ethnicity is Native American, 0 otherwise
OTHER	1 if household reference person's ethnicity is other, 0 otherwise
MDRACE	1 if household reference person's ethnicity was not determined, 0 otherwise
Marital Status	
Married	1 if household reference person is married to either a present or absent spouse, 0 otherwise
Divorced or Separated	1 if household reference person is divorced or separated, 0 otherwise
Widowed	1 if household reference person is widowed, 0 otherwise
Never Married	1 if household reference person has never married, 0 otherwise
MARFLG	1 if missing data on marital status, 0 otherwise
Index of Perceptions of Stigma	
STIGMA0	1 if household reference person answered "no" to all four questions about stigma associated with FSP participation, 0 otherwise
STIGMA1	1 if household reference person answered "yes" to one of the four questions about stigma associated with FSP participation, 0 otherwise
STIGMA2	1 if household reference person answered "yes" to two of the four questions about stigma associated with FSP participation, 0 otherwise
STIGMA3	1 if household reference person answered "yes" to three of the four questions about stigma associated with FSP participation, 0 otherwise
STIGMA4	1 if household reference person answered "yes" to all four of the questions about stigma associated with FSP participation, 0 otherwise
MDSTIGMA	1 if missing data on stigma index, 0 otherwise

All the characteristics included as explanatory variables in the FSP nonparticipation equation enter this equation as categorical variables--both those characteristics that are categorical in nature (such as race or marital status) and those that are continuous in nature (such as income or household size). The primary advantage of specifying the equation in terms of categorical variables is that it makes it possible to detect nonlinear and irregular effects of continuous variables.

D. ESTIMATING THE PARTICIPATION EQUATION

The approach taken is to estimate a logit model of FSP nonparticipation [equation (1)] for all FSP-eligible households. The logit regressions were run on unweighted data. (The estimates of predicted probabilities under alternative assumptions about household and respondent characteristics shown in Table IV.8 in the main text are based on weighted data.)

E. PRESENTATION OF RESULTS

In this report, two different formats are used to present the logit estimation results. In the main body of the report, a more intuitive, illustrative presentation of the logit estimation results is provided. There the "marginal effects" of the independent variables are presented. These marginal effects show the change in the probability of nonparticipation that would be predicted to occur in response to a given change in the value of some independent variable, holding all other factors constant. The predicted probability of nonparticipation was calculated under alternative assumptions about the value of a given independent variable, holding all others constant at their mean values. The difference between the predicted probability of nonparticipation under the alternative assumptions about the value of the independent variables can be interpreted as the effect each variable has on the decision not to participate. For example, predicted rates of nonparticipation are presented for households with and without elderly members, holding all other characteristics fixed,

and indicate whether the presence of elderly members in the household has a statistically significant effect on the probability of not participating in the FSP. The estimated logit coefficients and standard errors are presented in Table E.2. This table also indicates the statistical significance of the coefficient estimates and variable means. The coefficient estimates are reported in the appendix because logit coefficients do not provide a readily interpretable way to illustrate the effects of the explanatory variables on nonparticipation.

FSP NONPARTICIPATION EQUATION
LOGIT ESTIMATES AND VARIABLE MEANS

Variable	Logit Estimation Results			
	Logit Coefficient	Standard Error	Significance Level	Variable Mean
INTERCEPT	-1.961	0.404	***	1.000
RURALLOC (Omitted category)				
URBANLOC	-0.016	0.203		0.703
MIXURBRUR	-0.322	0.210		
MDURBLOC	-0.061	0.299		0.060
HOUSE1 (Omitted category)				
HOUSE2	0.185	0.219		0.209
HOUSE3	0.067	0.307		0.179
HOUSE4	0.287	0.338		0.167
HOUSE5	0.468	0.355		0.179
ELDERLY	0.502	0.194		0.319
CHILD18	-1.543	0.270	***	0.563
HAVEEARN	1.114	0.199	***	0.389
POVGRP1 (Omitted category)				
POVGRP2	0.506	0.335		0.162
POVGRP3	0.570	0.305		0.220
POVGRP4	0.644	0.303		0.234
POVGRP5	1.139	0.324		0.192
POVGRP6	-0.064	0.400		
POVFLG	2.040	0.350	***	0.066
ASSETBIN	2.417	0.172	***	0.214
AFGASSI	-1.842	0.204	***	0.383

Variable	Logit Estimation Results			
	Logit Coefficient	Standard Error	Significance Level	Variable Mean
FEMALE	-0.186	0.173		0.823
WHNOTHIS (Omitted category)				
AFNOTHIS	-0.086	0.183		0.275
HISP	0.363	0.213		0.155
ASIAN	-0.548	0.590		0.017
NATAMER	1.157	0.524		0.013
OTHER	0.302	0.688		0.010
MDRACE	0.451	0.630		0.010
EDUC1 (Omitted category)				
EDUC2	0.460	0.161		0.393
EDUC3	0.178	0.250		0.096
EDUC4	-0.105	0.393		0.037
EDUC5	0.054	0.327		0.059
MDEDUC	-0.054	0.655		0.009
MARITAL1	-1.271	0.210	***	0.289
MARITAL2 (Omitted category)				
MARITAL3	-1.156	0.201	***	0.284
MARITAL4	-0.655	0.251	***	0.153
MARFLG	-0.117	0.808		0.007
STIGMA0 (Omitted category)				
STIGMA1	0.220	0.180		0.195
STIGMA2	0.525	0.233		0.104
STIGMA3	0.918	0.286	***	0.059

TABLE E.2 *(continued)*

Variable	Logit Estimation Results			
	Logit Coefficient	Standard Error	Significance Level	Variable Mean
STIGMA4	1.720	0.339	***	0.039
MD STIGMA	2.631	0.378	***	0.033
Summary Statistics				
-2 log likelihood	1502.982			
Chi-square (37 degrees of freedom)	972.772 (p = 0.0001)			
Association of Predicted Probabilities and Observed Responses	89.8%			

SOURCE: 1996 National Food Stamp Program Survey.

NOTES: Regression run on unweighted data. Sample size is 2,820.
Omitted category denotes omitted value of the variable in the estimated equation.
See Table E.1 for definitions of variables. Standard errors are calculated using a Taylor's Series expansion as implemented in Stata.

 **Coefficient significantly different from zero at the .05 level, two-tailed test.
***Coefficient significantly different from zero at the .01 level, two-tailed test.

APPENDIX F

**CONVERSION OF FOOD USE DATA INTO
NUTRIENT AVAILABILITY ESTIMATES**

During the in-person survey, data were collected on the foods used by the household over a seven-day period. (See Section II.E and Appendix A.) This appendix describes how those data were converted into estimates of the nutrient contents of those foods, through use of a modified version of the Food Intake Analysis System (FIAS), developed by the University of Texas at Houston.

The discussion begins with a summary of the steps involved in the nutrient coding/conversion process. Subsequent sections then provide details of how each step was performed.

A. SUMMARY

The following steps were followed in the nutrient conversion work:

- Development of FIAS recipe files and recipe codes. It was necessary to create a coding structure that linked each food code used in the current survey data collection instrument to a "recipe" that was expressed in constituent food codes and quantities and that could be used to access the nutrient data base used in FIAS.

- Setting up a coding center and hiring staff.

- Manual entry of food recipe codes and the weights of the foods used into the FIAS system.

- Manual entry of the survey data on amounts bought and prices paid into a separate LOTUS spreadsheet format, to determine unit prices, which were subsequently merged back into the food quantity data.

- Calculation of nutrient values.

- Quality control checks of the FIAS entry process, together with extensive edits of the FIAS data at the individual food level, using "high" value checks.

- Aggregation of the individual food-level data to the household level by summing over food lines.

- Additional household-level edits, based on "high" and "low" value checks.

- Imputation of prices for foods that had not been bought or whose purchase price was unknown.

F.3

These steps are described below.

1. Preliminary Development of Recipe Files

To support the entry of food data into FIAS, a preliminary set of FIAS recipe codes was developed. For every food item covered by the survey, a recipe was entered into FIAS, using the FIAS recipe feature. In general, these recipes were taken from similar ones that were used in coding the 1987-88 Nationwide Food Consumption Survey (NFCS). In some instances, recipes consisted of a single ingredient. For instance, orange juice was orange juice. In such situations, the use of the FIAS recipe codes simply translated the coding structure of the survey into a coding structure for which FIAS could supply nutrient information. In other instances, recipes had more than one ingredient and also embodied cooking assumptions, as discussed below.

The recipes served several purposes:

- As noted above, the recipes allowed conversion of the coding structure of the instrument to that of FIAS. A "link file" from the Washington State Food Stamp Cashout Demonstration Evaluation was used to convert the codes used on the survey for that study to 11-digit USDA codes that were then linked to FIAS codes. (The Washington State survey had used the same codes as in the current study.)

- The use of recipes provided a convenient way of incorporating the assumptions from the 1987-1988 NFCS coding into the current coding procedures.

- The recipes provided a context for dealing with "mixtures," where assumptions had to be made as to what is included in foods with multiple ingredients. For instance, a "Big Mac" sandwich, which might have been brought into respondents' homes as a take-out food item, consists of bread, ground beef, vegetables, and other ingredients. To account for this, recipe files were read into FIAS to link individual food codes from the survey (in this case, the code for a Big Mac) into their individual constituent ingredient codes.

- The FIAS recipes also made it possible for assumptions to be incorporated about cooking methods used for the foods reported. In the current food use survey, as in previous food use surveys, it was not known how the foods brought into the home were ultimately cooked, and thus what their ultimate nutrient availability was (since cooking can affect nutrient availability). For example, the nutrient availability of raw carrots differs from that of cooked carrots, so "retention codes" were used that account for nutrient loss (or gain) from cooking. Previous USDA surveys had dealt with this matter by creating recipes even for some single-ingredient foods. For instance, a recipe for a food that can be eaten raw or cooked might consist of a certain proportion (for example, 30 percent) of the food being eaten raw and the remainder (for example, 70 percent) being cooked, with, for the latter, an appropriate retention code indicating how the cooking changed nutrient availability. This convention was followed in the current survey coding.

- Recipes allowed for situations where a single survey code may track into several possible, slightly different food codes. For instance, if a respondent reported using frankfurters but didn't know what kind, an assumption had to be made about whether they were made from beef or pork. This was done using a recipe that assumed part pork and part beef, based on how common the two kinds of frankfurters are estimated to be.

In developing FIAS recipes for use in the coding work, it was necessary to take into account that some foods encountered in the survey were not in the previous USDA files that formed the basis of most of the recipe-coding work.[1] An example is that "no-fat cream cheese" had not been developed when the previous files were created. Ethnic foods for recent immigrant groups were also frequently not represented in the earlier files. Therefore, project nutritionists created new FIAS recipes, using a variety of information sources, including information from food labels, information from food manufacturers, a later version of FIAS (FIAS-3, which became available midway through the survey), and recipe books.[2] Approximately 150 new FIAS recipes were created.

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[1]The USDA recipe files that were used were ones that had been used in the 1987-88 NFCS coding. Each food was identified by an 11-digit USDA code.

[2]Two types of recipes were created, depending on the nature of a new food. If a new food could be characterized in terms of a combination of foods already in the FIAS database, then a "regular" FIAS recipe was created. If a food was so different that it couldn't be characterized in terms of existing foods, then FIAS's "user data set" feature was used, making it possible to enter nutritional information directly into the database.

The FIAS recipe database that was created can be interpreted as showing the food ingredients and their retention factors (expressed in terms of the seven-digit USDA food codes and the USDA "primary data set" codes) assumed to have been associated with a unit amount--such as 100 grams-- of each of the foods reported in the survey. Staff of MPR's subcontractor, ROW, Inc., under the supervision of one of the principal investigators, used the recipe creation feature of FIAS to enter the recipes into FIAS as FIAS recipe files and assigned them six-digit codes. Both principal investigators undertook extensive spot-checking to ensure the accuracy of this entry.

Besides recipe files, the coding required a set of "refuse" factors, reflecting the fact that not all of certain foods are available for eating. For instance, a whole cauliflower gets trimmed before cooking, and thus some of the original weight is thrown away as refuse. Similarly, a significant amount of a whole fish is discarded in preparation. The 1987-88 NFCS recipe files, in addition to listing ingredients and their codes, noted these refuse factors where appropriate, and these codes were carried over into the files for the current survey.

Once FIAS recipe files were assembled for this project, they were tested with completed data collection instruments that had been used in the San Diego Food Stamp Cashout Evaluation. (These data collection instruments had been coded by National Analysts, Inc., the same firm that coded the most recent several Nationwide Food Consumption Surveys.) A sample of the San Diego cases was coded using the FIAS-based procedure, and the nutrient values computed with FIAS were compared line by line to the values of the nutrients on the San Diego database. These tests proved satisfactory in that most of the food lines yielded the same nutrients in both coding structures, and the

discrepancies were, in general, explicable in terms of either coding errors or likely changes in the underlying nutrient databases.

2. Setting Up the Coding Center and Hiring Staff

To facilitate the work, MPR set up a separate coding room. Coders were hired and trained and then provided with their own coding stations and reference materials in the coding room. A supervisor was also selected from MPR's ongoing coding staff to direct the flow of activity in the coding room.

Following the recommendations of the FIAS staff at the University of Texas, coders were required to have completed high school with, preferably, some college education; to be the food manager at home; and to be familiar with simple mathematical computations. In addition, MPR required coders to have some basic computer experience.

Including practice experience, coders were required to participate in 2.5 days of training at MPR. After being given an overview of the project, coders were shown how to start a new file in FIAS, how to move around while in FIAS, and how to close a file. Coders were then shown how to extract the nine-character survey code from the food instrument and how to relate this code to its corresponding six-digit FIAS recipe code. They were also taught how to input the six-digit FIAS code for each food into a FIAS file, along with the amount of that food that was used during the seven-day period. The mathematical operations that facilitated these steps were reviewed. Coders were provided with a training manual, written by the project director and the MPR nutritionist, containing all the topics covered during training. (At a later time during the project, coders were taught how to "clean" and data-enter the completed price-related data on the food instruments.)

3. Manual Entry of Foods into FIAS

Once the FIAS recipe files were set up, coding work could be started. This section describes how the food coding was done.

As data collection instruments were received in Princeton, they were logged into an ACCESS database and then taken to the coding room at MPR's Princeton facility. Upon arrival in the coding room, cases were given a quick line-by-line review to determine whether all the necessary information was available. Not infrequently, additional information was needed about a quantity or a type of food. When possible, the problem was resolved through a call-back to the respondent, either by telephone directly from Princeton or by the original interviewer.

a. Entering Food Data

After the necessary data were available, the coder determined the survey code of the food being used, for each coded line on the food use instrument. Then, using either a hard-copy look-up table or an automated look-up program, the coder accessed a database to determine the six-digit FIAS recipe code (see the previous section) that had been assigned to that food and also noted whether or not there was a refuse factor associated with it. The appropriate FIAS recipe code was then entered into FIAS.

If the quantity of a food was expressed in weight, the coder then entered the weight directly into FIAS, after subtracting the "refuse factor" amount, if appropriate. If the quantity was expressed in some other way, such as "units" or a volume measure, then the coder attempted to identify a factor for converting that quantity to a weight, often using food label information that had been obtained from the respondents during the interviews. In other situations, the weight equivalent codes built

into FIAS were used to determine the weights of various measures, such as a medium apple.[3] Other sources, such as supermarket flyers, recipe books, the household weight file used in the 1987-88 NFCS, and visits to stores, were also sometimes used. (The visits to the stores were done to weigh unit quantities of various produce and to examine food labels.) After weights were determined, refuse factors were subtracted where appropriate, and the weights were then entered into FIAS.

Any problems (such as lack of a recipe for a food or uncertainty about how to translate an amount into a weight) were referred to the project nutritionist.[4] If the project nutritionist was not able to resolve a problem, the nutritionist who acted as the co-principal investigator for the project made final resolution.

In addition to entering food items into FIAS, coders also entered from the hard copy the approximate number of meals eaten during the observation period. This information was entered into an unused field in one of the preliminary FIAS data entry screens for each case. This number-of-meals variable was not used in the final analysis, since a more accurate meal count was available in the CAPI portion of the interview. But the appropriate meal count was useful in conducting edit checks, before the food data and the CAPI data had been merged.

The project nutritionist and the project director reviewed the first two or three cases coded by each coder. After that, the project nutritionist reviewed random cases for quality control. In

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[3]No information on portion sizes or weight equivalents was directly available for the recipes read into FIAS. However, the coders could access unit weight information in FIAS by independently entering the name of the food and viewing the relevant screen. Having observed that information, the coder had to exit from the FIAS portion screen and enter the relevant weight directly into the original screen where the food code had been entered.

[4]The project nutritionist had a Master's Degree in nutritional science and extensive experience in food preparation.

addition, the extensive edit-checking the project nutritionist (see below) conducted provided additional quality control. Any problems were brought to the attention of the coder for resolution.

The coders were responsible mainly for coding the hard-copy food instruments as outlined above. They also called the respondent when more-detailed information was required for a reported food. If the amount of food used or purchased was missing or unclear, or if the form of the food was not indicated (for example, dehydrated/ready-to-eat/condensed), the respondent was called for clarification. Many food instruments generated questions about package size and price paid for a food item. Since some respondents were not able to remember these details, a list was constructed of all the foods that required information on package size or price paid. Two of the coders then went shopping locally to obtain this information.

Once most of the hard-copy food instruments had been coded and entered into FIAS, the coders were trained to data-enter the information on the food purchased and the price paid into a LOTUS spreadsheet. (See Section 4.)

4.   Entry of Data on Amounts Bought and Prices

The data collection instrument also obtained information on the amounts of foods bought (as opposed to the amounts used, as discussed above) and on the prices paid for the foods. Because there was no obvious way of incorporating these data into the FIAS software, they were data-entered separately and then merged with the FIAS information through use of SAS.

The data on amounts bought and on prices paid were keyed into a LOTUS spreadsheet. Each case had a separate spreadsheet, and each line in the spreadsheet corresponded to a food line in FIAS. The data were entered twice, by different coders, on two different spreadsheets, and then

reconciled against each other to detect and correct data entry errors. Missing price data were left

blank in the file and were then imputed at a later step (see below).

5. Assigning Nutrient Values to Foods

The standard FIAS software and its corresponding nutrient database were used to assign nutrient

values to the foods consumed. This procedure drew on the fact that the FIAS recipes were expressed

in terms of the foods in the database. In a small number of cases, the project nutritionist had to use

the "user dataset" of FIAS to add foods to the database to reflect new foods encountered in the

survey. Nutrient values were assigned on the basis of food labels, manufacturer information, a later

version of FIAS, and recipe information.[1]

6. Edit Checks

After each case was entered and nutrient values were assigned to the foods, edit checks were run

line by line on each food to identify foods that exceeded threshold quantities of key nutrients. In

particular, the nutrients and their cutoff limits for the edits for the first round of checks were:

Nutrient	Edit Threshold
Food Energy	7700 kc* (household size)
Calcium	3200 mg* (household size)
Vitamin A (re)	2700 μg* (household size)
Vitamin C	160 mg* (household size)
Riboflavin	4.8 mg* (household size)

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[1]FIAS 3 became available partway through the survey. Although it was not practical at that point to convert the coding operation to the new version, the new version was often useful in providing information to help the coding, particularly with regard to new foods.

These cutoffs are considerably higher than the standard edit thresholds built into the FIAS system. They were set higher because the current study focused on food used for the entire household during the week, rather than 24-hour intake for an individual. Thus, quantities tended to the much larger than with individual intakes. For instance, a food line on the present survey might typically include 5 or 10 pounds of potatoes, rather than an individual serving of potatoes, as would be the case as with an intake record. The threshold cutoffs were chosen so as to be low enough to identify potentially erroneous entries but high enough to discriminate between likely problems and likely correct entries.

Typically, on the first round of edits, about four to six foods for each case were highlighted by the edit runs. Each of these flagged food items was manually checked by the project nutritionist, who consulted the hard-copy data collection instrument if an item appeared questionable based on the printout information. Changes were made as appropriate.

On a subsequent round of edits, essentially the same computer checks were performed, but the cutoff thresholds were set approximately three times higher. Typically, this caused about half the cases to be flagged, usually with just one to three items highlighted. On this round, the project director for the study reviewed the output and manually identified food entries that appeared problematic. These were then reviewed against the hard copy by coding personnel, who made any changes needed to correct clear errors. The results of this coder review were then examined by the project director, who made final edit determinations.

An additional type of automated checking was a comparison, for all foods, of the amounts reported used during the week and the amounts reported bought. All items where the amount consumed exceeded the amount bought were flagged for manual review against the hard copy. In most situations, the food item was found to be coded correctly, since it was sometimes the case that

the amount used was based on more than one shopping trip, but only the latest one was reported. However, this set of edits was also found to be useful in identifying miscoded cases.

All the checks described so far were based on the *individual food items.* In addition, the foods for a household were aggregated, and editing was performed at the *household* level. In particular, for food energy, vitamin A, vitamin B_6, vitamin B_{12}, calcium, and vitamin C, the households with the highest levels of each nutrient per meal were reviewed manually, food line by food line, and any apparently problematic entries were examined against the hard copy.

Editing on the food prices computed from the data was done for each food code. Whenever one of the reported prices for a food code was more than twice or less than half the median price, the relevant data were printed out and reviewed manually. In addition, the 50 lowest prices and the 50 highest prices in the data set were printed out and reviewed manually to identify any apparent errors.

7.   Price Imputations

In some instances, respondents were unable to remember the prices they had paid for the foods they had used. In other instances, there was no actual price, because the food was home produced, received as a gift, or otherwise obtained without a direct payment. For estimation of the value of all food used by households, prices had to be imputed in these instances. For each food code where a price imputation was needed, the following algorithm was used:

1. If there were at least five valid reported prices for a food code (that is, at least five respondents had reported price information for that item), then the median of the reported prices was automatically imputed.

2. If there were between one and four valid prices in a food code, the project director reviewed the range of prices and considered the food at issue to determine whether or not the median represented a reasonable estimate of the price. If it was judged to be reasonable, the median was imputed; if not, Step 3 below was used.

3. If there were no reported prices for the food code or if it was determined that the median was not appropriate, then a price was imputed, usually either from the price of a similar food or from store prices. This was done using the rules summarized in Exhibit F.1.

EXHIBIT F.1

IMPUTATION PROCEDURES WHEN INSUFFICIENT DATA WERE AVAILABLE
FOR IMPUTING BASED ON OTHER PRICES OF THE SAME FOOD

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1. If the project nutritionist determined that there was in the data set a very similar food that did have a valid price, then the median price of that similar food was imputed. For instance, the price of low-sodium canned corn might be imputed from the price of regular canned corn.

2. If the project nutritionist determined that two foods were essentially the same except that their "form" led to different refuse factors, the median price of the food for which a price was available was used to impute the other, adjusting for the refuse factor. For instance, suppose that for a certain type of fish a price was available for the fillet, but not for the whole fish, including head and bones. And assume that, on the basis of the refuse factor, the fillet weight was known to be approximately 60 percent of the whole weight. Then the per-pound price of the whole fish was imputed as the median per-pound price of the fillets times .60.

3. If none of the above methods applied, the price was estimated by examining the prices in a supermarket in a low-income area in central New Jersey. (This was necessary in only about half of one percent of the foods.)

4. For a very small number of foods, mostly game, where no reasonable direct market price could be found, the price was imputed based on the price of similar foods. For instance, the price of venison was imputed based on the price of beef. To be sure, a price for venison could conceivably have ben found in a specialty shop. But all instances of venison in the data were of venison obtained through hunting, and it was judged that the price of beef provided a better representation of the value of the meat to the households. The number of foods for which this type of imputation was done was less than 40 out of a total of more than 40,000 food lines in the data set.