Economic Research Service

Electronic Publications from the Food Assistance & Nutrition Research Program

E-FAN-01-008

October 2002

The Emergency Food Assistance System—Findings From the Provider Survey

Volume III: Survey Methodology

By James Ohls, Fazana Saleem-Ismail, Rhoda Cohen, and Brenda Cox of Mathematica Policy Research, Inc.

ERS contact: Laura Tiehen

Abstract

Findings of the first comprehensive government study of the Emergency Food Assistance System (EFAS) suggest that public and private food assistance may work in tandem to provide more comprehensive food assistance than either could provide by itself. Five major types of organizations (emergency kitchens, food pantries, food banks, food rescue organizations, and emergency food organizations) operate in the EFAS. About 5,300 emergency kitchens provide more than 173 million meals a year, and 32,700 food pantries distribute about 2.9 billion pounds of food a year, which translates into roughly 2,200 million meals. Despite substantial amounts of food distributed by the system, the EFAS remains much smaller in scale than the Federal programs. This study, which was sponsored by USDA's Economic Research Service, provides detailed information about the system's operations and about each of the five types of organizations. This report provides details about the survey methodology. For more information on the findings of the study, see *The Emergency Food Assistance System—Findings From the Provider Survey: Executive Summary* and *The Emergency Food Assistance System—Findings From the Provider Survey: Final Report.*

Contents

Summary

Some observers have been puzzled by the seeming redundancy in the presence of both the Emergency Food Assistance System (EFAS), which functions largely in the U.S. private sector, and major Federal nutrition assistance programs. Findings of the first comprehensive government study of the EFAS suggest that public and private food assistance may work in tandem to provide more comprehensive food assistance than either could provide by itself. Five major types of organizations (emergency kitchens, food pantries, food banks, food rescue organizations, and emergency food organizations) operate in the EFAS. The study, which was sponsored by USDA's Economic Research Service, provides detailed information about the system's operations and about each of the five types of organizations. This report provides details about the survey methodology.

The EFAS helps ensure adequate nutrition for low-income Americans who may not have the resources to purchase sufficient food in stores and who may not be able to acquire sufficient food through government programs. Throughout the country, thousands of emergency kitchens and food pantries provide food assistance to people throughout the year. Regional and national organizations, such as food banks and the food banks' national-level representatives, help the provider agencies obtain food and other resources necessary to accomplish their mission. The EFAS provides meals and food supplies that, for many recipients, complement existing, government food assistance programs.

The study was conducted when the effects of the 1996 national welfare reform were becoming visible throughout the country. It affords an opportunity to examine how the EFAS is operating within the larger context of changes in America's low-income assistance policies and how the EFAS fits within the context of important government nutrition assistance programs. It updates past studies of the EFAS and extends them to provide a broader, more nationally representative view of the system. Additional information will be obtained in a survey of EFAS clients, planned for summer 2001.

Key findings:

- About 5,300 emergency kitchens and 32,700 food pantries participate in the EFAS system. The kitchens provide more than 173 million meals. The pantries distribute an estimated 2.9 billion pounds of food per year, which translates into roughly 6.0 million meals per day, or 2,200 million meals per year.

- Despite the substantial amounts of food distributed by the system, the EFAS remains much smaller in scale than the Federal programs that provide food assistance to the poor.

- The EFAS is mostly locally based and characterized by a wide variety of program structures and innovative practices that meet differing local needs and that use differing local resources and local opportunities.

- Many direct service providers in the EFAS—65 percent of emergency kitchens and 67 percent of food pantries—are faith-based organizations.

- The EFAS extensively uses volunteers.

During the 12 months before our survey, about 25 percent of kitchens and 33 percent of pantries turned away people who requested services, mostly because the individuals in questions were disruptive, had substance abuse problems, or failed meet residency requirements or income guidelines. Most kitchens and pantries did not turn away people because of lack of food.

- About one-fourth of both emergency kitchens and food pantries perceived that there are unmet needs for their services. More than half of food banks and food resource organizations reported facing unmet needs.

- In contrast to geographic distribution of the low-income population, emergency kitchens are disproportionately available in metropolitan (versus nonmetropolitan) settings. For example, only 15 percent of kitchens are located in nonmetropolitan areas, whereas 21 percent of America's poor population lives in these areas. Furthermore, kitchens in nonmetropolitan areas tend to serve fewer people compared with their metropolitan counterparts.

- The EFAS may not provide consistent coverage across different parts of the day or different days of the week.

- About 89 percent of kitchens and 87 percent of pantries believed they could deal with a 5-percent increase in the need for their services, and about one-third thought that they could deal effectively with as much as a 20-percent increase in need.

APPENDIX A
EFAS SURVEY METHODOLOGY

This appendix describes the survey work conducted for the study. We first describe the instrument development work. Next, the development of sample frame lists of pantries and kitchens is discussed. We then describe the actual survey operations and efforts taken to ensure high cooperation rates. Next, we summarize the response rates achieved.

QUESTIONNAIRE DESIGN

The questionnaire for the provider component of the EFAS study was designed to collect information about the characteristics, operating structure, service areas, and resource base of the EFAS, to estimate the type and amount of food currently flowing into the system, and to identify the barriers to, and opportunities for, increasing food resources and administrative support among system providers.

Instrument Development Process

During the development process we reviewed previous questionnaires seeking similar information from similar populations, including the Second Harvest National Food Bank Network Agency Survey, The Elderly Nutrition Program Evaluation Meal Site Survey; the Adult Day Care Study Survey of Centers.[1] Some questions were adapted from these surveys; other close-ended questions were developed to address other content needs for this survey. The questionnaire was reviewed by consultants from America's Second Harvest, IQ Solutions, Urban Institute, and Columbia University. The Office of Analysis and Evaluation and the Food Distribution Division of the Food and Nutrition Service of the U.S. Department of Agriculture (USDA) also commented on the questionnaire prior to the pretest.

Pretest

The pretest, conducted in February 1999, included nine respondents purposively selected to include large and small providers serving urban, suburban, and rural areas. The providers included unaffiliated organizations and organizations affiliated with America's Second Harvest, Foodchain (a national organization of food rescue organizations which subsequently merged with Second Harvest), Catholic Charities; the Salvation Army; and From the Wholesaler to the Hungry. All respondents received an advance letter and worksheet to help them prepare for the interview. As a result of the pretest, the preinterview worksheet was simplified, the questionnaire was shortened, and a postinterview worksheet was designed for food pantries and emergency kitchens. We added some questions, modified others, and developed a screening module to address problems identified during the pretest.

[1]VanAmburg Group, Inc. *Second Harvest National Food Bank Network Agency Survey.* Erie, PA, 1997; Mathematica Policy Research, Inc. *Elderly Nutrition Program Evaluation Meal Site Survey.* Princeton, NJ, 1994; Mathematica Policy Research, Inc. *Adult Day Care Study Survey of Centers.* Princeton, NJ, 1991.

Key Features of the Instrument

The questionnaire was designed to incorporate three key features, Computer Assisted Telephone Interviewing (CATI) methodology, a screening module, and a modular structure for each of the content areas.

CATI Methodology. The questionnaire was programmed into the CATI system to permit telephone interviews with all types of providers. The system customized question wording for each provider type, performed range checks, and allowed for complex skip patterns to accommodate various provider arrangements, including co-location of two or more provider types. Following programming, the CATI version was systematically tested using scenarios designed to check the complex skip patterns.

Screening Module. The screening module was primarily designed to determine whether the respondent's organization was of the expected provider type and at the expected address. This module had other important functions, such as identifying co-located programs and determining how to deal with them and collecting information to permit additional sampling of newly identified provider types or additional sites. The screening module set the pattern of questions for the content modules that followed.

Modular Structure of Content Areas. The questionnaire is divided into seven modules to maintain the respondent's focus on a specific content area. We describe each section below:

1. ***Operating characteristics.*** This section asks about length of time the program has provided EFAS services, why they began operating at that location, the program's affiliation or sponsorship, and the types of nonfood services provided.

2. ***Acquisition of food.*** The questions in this section ask about the quantity and type of food resources obtained from different sources.

3. ***Food distribution.*** This section collects information from providers about the type and quantity of food commodities distributed to agencies and recipients, the distribution of TEFAP and other government commodities, the number of client agencies and recipients served, the number of meals served, and the size of "food baskets" distributed to recipients. This section also asks about the frequency of distributions, whether and how providers limit food distributions to agencies or recipients, eligibility requirements, and whether and how often the providers turn away agencies or recipients for lack of food.

4. ***Service areas.*** In this section, the interviewer records the names of the counties served by the provider.

5. ***Resource base.*** This section asks about the operating budget for the food program, funding sources, and paid and unpaid staff. There are also questions on transportation resources and facilities, including storage capacity.

6. ***Capacity to manage current and future changes in food demand.*** Questions in this section ask the respondent to compare the number of agencies or recipients currently served with the number served 3 years ago. Respondents are also asked to assess unmet food-related needs and to project the capacity of the program to respond to increased demand over the next year, as well as what actions the program would take to fulfill that demand.

7. ***Capacity to manage current and future changes in food resources.*** This section parallels the previous section but asks the respondent about changes in food donations, sources of food, and limitations on the distribution of certain foods, comparing the current situation with that of 3 years ago. There are also questions about whether and how often providers pass up available food or run out of food.

DEVELOPING THE FRAME OF EMERGENCY FOOD PROVIDERS

There were four phases in developing the frame of emergency food providers, (1) assembling initial lists of providers; (2) identifying additional providers through contacts with local informants; (3) assessing needs for additional information; and, (4) organizing and sorting information from multiple sources.

Initial lists of food pantries and emergency kitchens

In order to construct a sample frame of food pantries and emergency kitchens, we started with partial lists of pantries and kitchens obtained from food banks in America's Second Harvest network. In addition, we received similar lists from independent food banks, food rescue programs, and The Emergency Food Assistance Program (TEFAP) state directors. As we received these lists, the information was separated into the various geographic areas in the United States that were chosen as primary sampling units (PSUs) for this study.

Calls to local informants

The next step was to supplement the information from these lists with extensive contacts with local sources in each of the areas selected as PSUs. This second level of contacts included organizations likely to be knowledgeable about emergency food providers at local or county levels.

A folder containing the partial list(s) of pantries and kitchens was set up for each PSU. Each folder also included a printout that was created to list the counties, towns, area codes, and zip codes within the PSU for reference. The name of the county seat was highlighted to signify an important starting point for calls. As a further promising source of contacts with local informants within the PSU, we also identified the 10 most populous cities in each county.

Executive interviewers were trained in the overall study background, the objective of the food pantry and emergency kitchen list-building phase, and the procedures they would use to contact local informants. This training included familiarizing interviewers with the information in the folders that would assist them in obtaining names and locations of other emergency kitchens and food pantries.

In addition to the PSU folders, interviewers were given three forms that they used to organize and collect information from local informants: (1) an informant master list, which suggested generic points of contact that might have useful information about emergency food providers in their communities (for instance, a county welfare agency); (2) an informant contact record, used to record the name and contact information for calls made to informants in the process of list building; and (3) an EFAS provider list, used to collect the names and contact information for pantries and kitchens identified through contacts with local informants.

Interviewers worked on only one geographic area at a time and were allotted approximately 15 contacts in each PSU to build lists of emergency food providers. They began work in a PSU by calling directory assistance for phone numbers of suggested informants in counties listed within the PSU. These telephone numbers were then recorded on the informant master list form. Next, the interviewers called the suggested informants, explained that they were putting together a list of emergency food providers for a USDA research project, and asked for help in compiling a list of pantries and kitchens in the area. If any pantries and/or kitchens were identified by the informant, they were recorded by the interviewer on the EFAS provider list form. In many cases, informants would follow through with locally developed lists of food providers in their area via fax, mail, or email; once these lists were received, the interviewer organized them into the corresponding PSU folder. If an informant was able to refer the interviewer to another source of information, that information was recorded for further calls.

Review of calls to local informants

Telephone center supervisors reviewed each PSU folder when interviewers believed they had located all of the providers in the area or had made their maximum number of calls. The supervisor determined whether a variety of informant types had been contacted and whether information was gathered from a representative distribution of areas within the PSU. If additional information was needed, the folder was returned to the interviewer with directions on what area(s) and/or type of informant(s) should be contacted next to complete the calls for that area. Folders deemed complete by the supervisory staff were sent to the project management staff, where a second level of review for completeness was undertaken. Once again, if it was determined that further calls should take place within a PSU, the folder went back to the interviewer with directions.

Sample frame deduplicating, labeling, and numbering

Once the calls to local informants within the PSUs were complete, the lists were ready to be combined and deduplicated to develop one comprehensive list of pantries and kitchens for each PSU. To begin the process of deduplicating, the largest list or the list with the most logical order in the PSU was identified and labeled as List #1. List #1 was then checked for duplications, and any organizations found to be repeated on that list were crossed out. Then each agency on the list was examined and a decision made as to whether it was a kitchen, pantry, or unknown. Kitchens on the list were labeled with a "K," pantries with a "P," unknown agencies with a "U," and any facilities thought ineligible for the survey were crossed out. If the eligibility of an agency was in doubt, we assumed the agency was eligible and included it. Then the next list for the PSU to be deduplicated was selected and the agencies on it compared with those on the first

list. This process was repeated for each list, comparing it with every earlier list, and continued until all the lists for a PSU had been processed.

Once all facilities in a PSU were classified, sequential numbers were assigned to the kitchens (for example, K1, K2, K3, …), pantries (for example, P1, P2, P3, …), and unknown agencies (for example, U1, U2, U3, …) across all lists within a PSU. Thus, one comprehensive list of food provider types included in the study was created for each PSU. After numbering of agencies within a PSU was complete, a count of kitchens, pantries, and unknowns was recorded. This count was compared to an estimate of expected pantries and kitchens for the PSU by the Survey Director as part of her quality review. The organized lists were then submitted to the statisticians for sampling.

DATA COLLECTION

Data collection was spread over two survey operations centers to optimize the use of interviewers. These state-of-the-art centers, in Princeton, New Jersey and Columbia, Maryland, together provide 200 computer-assisted telephone interviewing stations and are networked, providing the centers with the capability to jointly interview for the project. The data collection effort began in March 2000, preceded by the first of several interviewer training sessions. The last interview was completed on October 10, 2000.

Interviewer Training

Multiple interviewer training sessions were held to accommodate the 41 interviewers in both survey operations centers. Each training session provided an overview of the project and its goals, a question-by-question explanation of the instrument, and guided practice in its administration. All interviewers, monitors, and supervisors received training materials, which included a written introduction to the project, a review of interviewing techniques, an overview of the sample construction, a discussion of contacts with sample members, an explanation of each question, and samples of advance letters and pre- and post-interview worksheets. Beyond the initial training in all of these areas, interviewers were instructed to continue using the training materials as an ongoing reference throughout the interview period. Guided practice provided the opportunity for the interviewers to become familiar with the questions and allowed them time to clarify any questions of their own before they were began interviewing.

Supervision and monitoring

The survey operations centers are arranged with supervisors positioned in the center of the interviewing stations for immediate access to the interviewers. In addition, trained interviewer monitors in both sites use a central monitoring system through which they are able to listen to both the interviewer and the respondent and to see the screen as it is used by the interviewer. Monitors check for any errors interviewers may make in asking the questions as worded and in the use of probes or definitions; they also check that responses have been correctly entered into CATI. Monitoring feedback sessions follow the interview so that interviewers can be made aware of any problems and receive further training, if warranted.

Efforts to Increase Respondent Cooperation.

We used standard methods for increasing respondent cooperation, as well as developing specific methods to accommodate the characteristics of emergency food providers. These characteristics were related, for example, to the large number of faith-based organizations and their nontraditional working hours and heavy dependence upon volunteer staff and to the lack of standardized record keeping among smaller providers.

Advance Letter and Worksheet. We sent an advance letter to all food providers to explain the study and encourage participation. Letters to food banks included a preinterview worksheet to assist respondents in preparing for the telephone interview. The worksheet included items on food supplies, food distribution, funding, staffing, and facilities. (Food banks received this more detailed mailing because they were more likely than other providers to keep standardized records and less likely than other provider types to be "put off" by the worksheets.)

Locating Efforts. The data collection also involved a substantial "locating" component. Many of the locators were also involved in the list-building phase of the project and were very familiar with all the resources available for locating providers. Cases were sent to "locating" when our original information did not include a phone number or when the number provided was determined to be incorrect. Locators were asked to find a new phone number for the emergency food provider, and, if possible, a new address. At the same time, locators attempted to determine whether the provider met basic eligibility requirements.

A variety of methods were used to locate the providers. The most valuable resource was the collection of county-level lists developed during the list-building phase of sample construction. Locators were sometimes able to identify a new telephone number for the provider from these lists. Alternatively, locators called other providers, including the source who originally gave us the information about the unlocated provider. Locating staff also called sources who were helpful in the original list-building to ask for assistance in locating providers.

Additionally, locators used directory assistance and internet phone directories. Search engines were used to locate some organizations, and websites were also used to locate faith-based organizations. *Churchangel.com*, which lists the address and phone number of churches by denomination and by city and state, was a useful source.

When locators obtained a new phone number, the number was called for verification. Locators verified or corrected the address information and asked if a food service provider existed at the sampled location. Some of the locating work required Spanish speakers, and attempts to verify numbers for faith-based programs sometimes required calls on Sunday morning.

In total, approximately 65 food banks, 600 kitchens, 650 pantries, and 21 food rescue programs and emergency food organizations required some locating effort, with some of them requiring multiple efforts.

During the locating process, approximately 564 cases were determined to be ineligible. Of this number, 156, or 28 percent, were no longer operating. Another 161, or 29 percent, claimed to

provide no food service at the sampled location. Fifty-two providers, or 9 percent, were not of the sampled type. (A pantry may have been misidentified as a kitchen, for example.) Sixty-six cases, or 12 percent, were determined to be duplicates of another listed provider. Additionally, there were 67 cases, or 12 percent, that did not qualify under our definition for EFAS providers. These included providers who served only children or seniors and shelters that served only residents. An additional 13 cases, or 2 percent of the ineligibles, were located outside the sampled county. Finally, 49 providers, or 9 percent, had moved from or did not operate at the sampled location. Some additional cases were identified as ineligible during the screening portion of the telephone interview.

Calling schedule. Interviewers called providers from 9 a.m. to 8 p.m. Monday through Friday, 10 a.m. to 5 p.m. Saturday, and 12 p.m. to 8 p.m. Sunday. At least once a month the Sunday calling hours were expanded to 8 a.m. to 12 p.m. Early morning weekday calls before 9 a.m. or late evening calls after 8 p.m. were made at the request of individual providers.

Unlimited attempts to contact respondents. In our effort to achieve the highest response rates possible, we did not place an upper limit on the number of calls to providers. Almost six percent of the completed interviews required more than 25 calls (tables A.1 and A.2). Many of the smaller providers did not have answering machines, and interviewers were unable to leave messages with a toll-free number for respondents. Reaching such providers often required extensive tries.

Spanish translation of survey instrument. We trained bilingual interviewers and prepared a Spanish translation guide for the CATI instrument to accommodate providers who preferred to conduct the interview in Spanish. There were a small number of providers who exercised this option.

Post-Interview Worksheet. The CATI instrument was designed to identify key questions covering food supplies, food distribution, operating budget, funding, and staffing that respondents were sometimes unable to answer during the interview. At the close of the interview, those respondents were asked if they would be able to provide information on these questions in a post-interview worksheet. Post-interview worksheets were sent only to respondents who were willing and able to provide the information. Approximately 450 completed worksheets were returned by respondents.

RESPONSE RATES

Most of the EFAS agencies contacted were interested in the survey and viewed it as a chance to share information about their important activities. In addition, as noted above, MPR devoted extensive resources to the survey to ensure a high response rate and a representative sample.

These factors resulted in extremely favorable response rates. Overall response rates for the emergency kitchen and pantry surveys were 94 and 95 percent, respectively (table A.3). The response rates attained in the other three surveys ranged from 94 to 98 percent. Details of how these rates were computed are documented in the next section of this appendix.

Table A.4 provides detailed information about the components of the response rates for the two largest surveys—those for emergency kitchens and food pantries. As summarized in the table, both surveys had a high rate of sample members who proved to be ineligible for the survey. In part, this resulted from the stringency of our criteria for eligibility. Sample points were defined in terms of *both* a location *and* a type of provider (see Appendix E). Therefore, if a sampled organization was found either not to be at the expected location or not delivering the type of EFAS services expected, it was declared ineligible. (Of course, it had an independent probability of being selected under the correct location and type.) Also, the nature of the sample frame-generation process virtually guaranteed a substantial level of ineligible sample points, since the local informants were often able to supply only fragmentary information. In general, we chose to include cases that were uncertain, knowing they would be screened out when they were contacted.

Details of response rate calculations

The following notes document how the response rates were calculated. The methods used correspond to those recommended by the Council of American Survey Research Organizations in *Report of the CASRO Completion Rates Task Force, NY: Audits and Surveys, Inc.* 1982.

Response outcomes

Status	*Kitchens*	*Pantries*
Eligibility Unknown (EU)	141	87
Ineligible (I)	1,302	729
Duplicate Provider	176	79
Eligible and Complete (EC)	1,518	1,617
Eligible and Incomplete (EI)	20	20

Percentages of the following outcomes of the initial survey and the questionnaire were calculated as follows for kitchens and pantries:

Deduplication Rate (the percentage of the frame that consisted of unique providers)

Kitchens: $$DR = \frac{\text{Unique Providers}}{\text{Duplicate Providers} + \text{Unique Providers}} = \frac{2{,}981}{177 + 2{,}981} = 0.94$$

Pantries: $$DR = \frac{\text{Unique Providers}}{\text{Duplicate Provider} + \text{Unique Providers}} = \frac{2{,}453}{79 + 2{,}453} = 0.97$$

Where : DR = the percent of providers on the initial list found to be unique during the deduplication process

Eligibility Rate (the rate at which facilities were found eligible for the survey)

Kitchens: $$ER = \frac{EC + EI}{I + EC + EI} = \frac{1{,}517 + 20}{1{,}302 + 1{,}517 + 20} = 0.54$$

Pantries: $$ER = \frac{EC + EI}{I + EC + EI} = \frac{1{,}617 + 20}{729 + 1{,}617 + 20} = 0.69$$

Where:

ER = the percent of sample members found eligible for the survey.
EC = the number eligible providers that completed the survey)
EI = the number of eligible providers that did not complete the survey
I = the number of sample members found ineligible for the survey

Eligibility determined rate (the rate at which eligibility of providers was determined)

Kitchens: $$RR_E = \frac{I + EC + EI}{EU + I + EC + EI} = \frac{1{,}302 + 1{,}517 + 20}{141 + 1{,}302 + 1{,}517 + 20} = 0.95$$

Pantries: $$RR_E = \frac{I + EC + EI}{EU + I + EC + EI} = \frac{729 + 1{,}617 + 20}{87 + 729 + 1{,}617 + 20} = 0.96$$

Where:

RR_E = the percent of providers for which an eligibility determination could be made

Questionnaire Completion Rate (the rate at which contacted facilities completed the questionnaire)

Kitchens: $$RR_Q = \frac{EC}{EC + EI} = \frac{1{,}517}{1{,}517 + 20} = 0.99$$

Pantries: $$RR_Q = \frac{EC}{EC + EI} = \frac{1{,}617}{1{,}617 + 20} = 0.99$$

Where:

RR_Q = the percent of eligible providers that completed the survey.

Overall Eligibility Rate

(Duplication Rate) x (Eligibility Rate) = Overall Eligibility Rate

Kitchens: $0.94 \times 0.54 = 0.51$

Pantries: $0.97 \times 0.69 = 0.67$

Final Response Rates

(Eligibility Determined Rate) x (Questionnaire Completion Rate) = Final Response Rate

Kitchens: $0.95 \times 0.99 = 0.94$

Pantries: $0.96 \times 0.99 = 0.95$

Table A.1
Telephone calls to achieve completed interviews, by provider type

	1 to 4 Calls		5 to 9 Calls		10 to 14 Calls		15 to 25 Calls		More than 25 Calls	
Provider Type	Number	Percent[a]	Number	Percent[a]	Number	Percent[a]	Number	Percent[a]	Number	Percent[a]
Food Banks	231	57.9	11	27.8	34	8.5	16	4.0	7	1.8
Emergency Food Organizations	67	57.3	33	28.2	13	11.1	2	1.7	2	1.7
Food Rescue Programs	37	41.6	28	31.5	11	12.4	9	10.1	4	4.5
Food Pantries	765	46.7	389	23.7	227	13.8	152	9.3	106	6.5
Emergency Kitchens	659	42.6	430	27.8	199	12.9	152	9.8	105	6.8
All Provider Types	1,759	46.4	991	26.2	484	12.8	331	8.7	224	5.9

[a]Percentages are percentages of all cases in the row. For instance, 13.8 percent of food pantry completions required 10 to 14 calls.

Table A.2
Maximum, median, and mean number of calls to achieve completed interviews by provider type

Provider Type	Maximum Number of Calls	Median Number of Calls	Mean Number of Calls
Food Banks	39	4	5.8
Emergency Food Organizations	31	4	5.3
Food Rescue Programs	42	3	7.8
Food Pantries	74	15	8.4
Emergency Kitchens	84	5	9.0

Table A.3
Survey response rates

Survey	Initial Sample	Completions	Response Rate (Percent)
Emergency kitchens	3157	1517	94[a]
Pantries	2532	1617	95[a]
Food Banks	474	395	98
Food rescue organizations	136	88	97
Emergency food organizations	398	117	94[a]

[a]As described in the text, the response rate is computed adjusting for a large number of sample points that proved to be ineligible for the survey and a smaller number that were duplicates of other sample members. The incompletes are allocated to eligible and ineligible status in proportion to the number of sample members for whom eligibility was determined.

Table A.4
Detailed survey outcomes for emergency kitchens nd food pantries

	Kitchens	Pantries
Completes; eligible	1,517	1,617
Incomplete; eligible	20	20
Duplicates	177	79
Incomplete; eligibility unknown	141	87
Refusal	28	21
Couldn't find locating information	44	32
Couldn't contact	68	32
Other	1	2
Ineligible	1,302	7
		29
Locating group	278	212
No longer operating	65	81
No food service at sampled location	87	64
EFAS operator at location but not sampled type	27	18
Did not meet EFAS provider definition	56	19
Had moved from sample location	22	25
Other	8	5
Telephone center	1,024	517
No EFAS provider at location	437	396
EFAS provider at location but not of sampled type	304	49
Other	283	72
Total	**3,157**	**2,532**

SOURCE: Survey records.

APPENDIX B
ESTIMATED DESIGN EFFECTS

As discussed in chapter 1, a clustered sample was used in the sampling work for the survey. The limited number of providers in some Primary Sampling Units, along with other factors, resulted in somewhat unequal sampling probabilities in drawing the samples. As a result, the standard rules for calculating variances for simple random samples cannot appropriately be used to directly estimate variances in the current context.

A standard approach to computing variances in this situation is to compute "design effects," which are essentially multipliers that can be used to adjust the "naive" variances obtained by treating the data as a simple random sample. We have computed these design effects for a set of representative variables by estimating the "true" variances for each variable using a Taylor Series approximation method and then dividing the resulting variances by estimated "naive" variances. This has been done for both the kitchen and pantry samples. The approach was also implemented for the samples taken as a whole and for subsets of the samples defined by metropolitan status and size of provider.

This appendix provides a set of tables with estimates of the design effects. As an illustration of how the tables can be interpreted, see table B.1, which presents overall design effects for the kitchen sample. For example, the entry under "Estimated Design Effect" for the estimator of the percent of kitchens that are operated by faith-based organizations (top row) is 2.63. This implies that the variance associated with the percentage estimate of that variable is 2.63 times greater than that which would be associated with an estimate derived from a simple random sample. Since standard errors and confidence intervals are based on the *square root* of variances, this implies that the width of a confidence interval around the percentage estimate is about 1.62 times what it would be with a simple random sample (1.62 is the square root of 2.63).

For the most part, the design effects in table B.1 are in the range of 1.7 to 3.4, implying multipliers on confidence intervals in the range of 1.30 to 1.84. Design effects tend to be somewhat greater for the nonmetropolitan subsample and somewhat lower for the metropolitan subsample (tables B.2 and B.3). They also tend to be relatively low for the subsamples defined by size of kitchens (tables B.4 through B.6).

Because there are many more pantries than kitchens, it was possible to select the pantries with fewer disparities in sampling probabilities. As a result, the design effects for the pantry sample (tables B.7 through B.12) are much smaller.

Table B.1
Design effects for kitchens - overall

Variable	Percent / Mean	Denominator Sample Size	Estimated Standard Error of Mean	Estimated Design Effect	Coefficient of Variation
Percent that are faith-based	65	1518	1.98	2.63	0.03
Percent that are in metro areas	85	1447	1.73	3.42	0.02
Percent open on weekends	52	1485	2.34	3.26	0.05
Number of people getting lunch on typical day when lunch is served	104	1050	5.23	1.72	0.05
Percent with policies on who can get served	15	1484	1.34	2.06	0.09
Percent turning people away in past 12 months	26	1480	1.71	2.26	0.07
Percent with paid employees	58	1239	2.13	2.26	0.04
Total number of FTE workers	4	1498	0.18	1.68	0.05
Percent with an increase in meals in past 3 years	53	1417	1.83	1.89	0.03
Percent that could handle an increase in need	91	1489	0.85	1.32	0.01

Table B.2
Design effects for kitchens - nonmetro only

Variable	Percent / Mean	Denominator Sample Size	Estimated Standard Error of Mean	Estimated Design Effect	Coefficient of Variation
Percent that are faith-based	53	79	6.57	3.74	0.12
Percent that are in metro areas	0	79	0	.	.
Percent open on weekends	55	78	6.57	3.68	0.12
Number of people getting lunch on typical day when lunch is served	55	53	8.64	3.55	0.16
Percent with policies on who can get served	15	77	5.26	4.6	0.35
Percent turning people away in past 12 months	21	77	6.11	4.65	0.28
Percent with paid employees	57	63	7.01	3.42	0.12
Total number of FTE workers	3	78	0.36	2.66	0.12
Percent with an increase in meals in past 3 years	57	68	5.57	2.33	0.10
Percent that could handle an increase in need	95	77	2.14	2.13	0.02

Table B.3
Design effects for kitchens - metro only

Variable	Percent / Mean	Denominator Sample Size	Estimated Standard Error of Mean	Estimated Design Effect	Coefficient of Variation
Percent that are faith-based	68	1368	1.94	2.16	0.03
Percent that are in metro areas	100	1368	0	.	0.00
Percent open on weekends	51	1336	2.61	3.28	0.05
Number of people getting lunch on typical day when lunch is served	113	956	5.72	1.47	0.05
Percent with policies on who can get served	16	1336	1.38	1.75	0.09
Percent turning people away in past 12 months	26	1332	1.71	1.82	0.07
Percent with paid employees	58	1114	2.23	2	0.04
Total number of FTE workers	4	1349	0.21	1.68	0.06
Percent with an increase in meals in past 3 years	52	1279	1.96	1.79	0.04
Percent that could handle an increase in need	91	1342	0.87	1.09	0.01

Table B.4
Design effects for kitchens - small kitchens only

Variable	Percent / Mean	Denominator Sample Size	Estimated Standard Error of Mean	Estimated Design Effect	Coefficient of Variation
Percent that are faith-based	59	472	3.34	2.61	0.06
Percent that are in metro areas	74	448	3.56	3.54	0.05
Percent open on weekends	54	463	3.31	2.46	0.06
Number of people getting lunch on typical day when lunch is served	31	315	1.34	2.61	0.04
Percent with policies on who can get served	19	461	2.75	2.72	0.15
Percent turning people away in past 12 months	22	458	2.58	2.17	0.12
Percent with paid employees	55	378	3.46	2.16	0.06
Total number of FTE workers	3	465	0.18	1.74	0.07
Percent with an increase in meals in past 3 years	49	426	2.83	1.63	0.06
Percent that could handle an increase in need	91	463	1.57	1.62	0.02

Table B.5
Design effects for kitchens - medium-sized kitchens only

Variable	Percent / Mean	Denominator Sample Size	Estimated Standard Error of Mean	Estimated Design Effect	Coefficient of Variation
Percent that are faith-based	71	495	2.49	1.44	0.04
Percent that are in metro areas	90	472	2.43	3.13	0.03
Percent open on weekends	44	487	2.92	1.61	0.07
Number of people getting lunch on typical day when lunch is served	76	334	1.32	1.08	0.02
Percent with policies on who can get served	14	487	1.54	0.94	0.11
Percent turning people away in past 12 months	27	488	2.35	1.29	0.09
Percent with paid employees	54	402	3.18	1.54	0.06
Total number of FTE workers	3	490	0.27	1.49	0.09
Percent with an increase in meals in past 3 years	49	466	3.13	1.74	0.06
Percent that could handle an increase in need	90	487	1.8	1.74	0.02

Table B.6
Design effects for kitchens - large kitchens only

Variable	Percent / Mean	Denominator Sample Size	Estimated Standard Error of Mean	Estimated Design Effect	Coefficient of Variation
Percent that are faith-based	67	540	2.96	1.85	0.04
Percent that are in metro areas	93	516	2.11	3.11	0.02
Percent open on weekends	57	524	3.94	2.87	0.07
Number of people getting lunch on typical day when lunch is served	214	399	12.19	1.64	0.06
Percent with policies on who can get served	13	525	1.55	0.99	0.12
Percent turning people away in past 12 months	30	523	3.18	2.17	0.11
Percent with paid employees	68	450	3.04	1.59	0.05
Total number of FTE workers	5	534	0.42	1.62	0.08
Percent with an increase in meals in past 3 years	61	519	2.9	1.58	0.05
Percent that could handle an increase in need	92	530	1.32	1.1	0.01

Table B.7
Design effects for pantries - overall

Variable	Percent / Mean	Denominator Sample Size	Estimated Standard Error of Mean	Estimated Design Effect	Coefficient of Variation
Percent that are faith-based	67	1617	1.17	1.00	0.02
Percent that are in metro areas	69	1547	2.11	3.22	0.03
Number of days open per month	12	1555	0.26	1.37	0.02
Monthly Pounds Distributed	5782	1329	438.95	1.09	0.08
Percent with policies on who can get served	43	1614	1.40	1.28	0.03
Percent turning people away in past 12 months	34	1597	1.21	1.05	0.04
Percent with paid employees	32	1238	1.45	1.18	0.05
Total number of FTE workers	1.6	1559	0.11	1.04	0.07
Percent with an increase in households served in past 3 years	57	1469	1.40	1.18	0.02
Percent that could handle an increase in need	89	1586	0.82	1.10	0.01

Table B.8
Design effects for pantries - nonmetro only

Variable	Percent / Mean	Denominator Sample Size	Estimated Standard Error of Mean	Estimated Design Effect	Coefficient of Variation
Percent that are faith-based	63	469	2.26	1.05	0.04
Percent that are in metro areas	0	469	0.00	.	.
Number of days open per month	11	442	0.41	1.01	0.04
Monthly Pounds Distributed	3328	383	360.17	1.30	0.11
Percent with policies on who can get served	45	468	3.10	1.85	0.07
Percent turning people away in past 12 months	33	461	2.39	1.21	0.07
Percent with paid employees	28	347	2.57	1.14	0.09
Total number of FTE workers	1.2	449	0.17	1.24	0.14
Percent with an increase in households served in past 3 years	51	421	2.86	1.40	0.06
Percent that could handle an increase in need	88	457	1.50	0.98	0.02

Table B.9
Design effects for pantries - metro only

Variable	Percent / Mean	Denominator Sample Size	Estimated Standard Error of Mean	Estimated Design Effect	Coefficient of Variation
Percent that are faith-based	69	1078	1.43	1.01	0.02
Percent that are in metro areas	100	1078	0.00	.	0.00
Number of days open per month	12	1049	0.34	1.50	0.03
Monthly Pounds Distributed	6954	887	638.85	1.08	0.09
Percent with policies on who can get served	42	1076	1.60	1.11	0.04
Percent turning people away in past 12 months	35	1069	1.41	0.93	0.04
Percent with paid employees	34	834	1.76	1.14	0.05
Total number of FTE workers	1.8	1042	0.14	0.99	0.08
Percent with an increase in households served in past 3 years	59	982	1.56	0.98	0.03
Percent that could handle an increase in need	89	1062	1.03	1.14	0.01

Table B.10
Design effects for pantries - small pantries only

Variable	Percent / Mean	Denominator Sample Size	Estimated Standard Error of Mean	Estimated Design Effect	Coefficient of Variation
Percent that are faith-based	70	597	1.99	1.17	0.03
Percent that are in metro areas	60	577	3.12	2.41	0.05
Number of days open per month	11	559	0.41	1.24	0.04
Monthly Pounds Distributed	419	471	22.06	1.10	0.05
Percent with policies on who can get served	32	596	2.08	1.21	0.06
Percent turning people away in past 12 months	29	588	1.94	1.10	0.07
Percent with paid employees	23	462	2.04	1.10	0.09
Total number of FTE workers	0.9	565	0.13	1.00	0.15
Percent with an increase in households served in past 3 years	41	546	2.16	1.09	0.05
Percent that could handle an increase in need	87	589	1.49	1.16	0.02

Table B.11
Design effects for pantries - medium-sized pantries only

Variable	Percent / Mean	Denominator Sample Size	Estimated Standard Error of Mean	Estimated Design Effect	Coefficient of Variation
Percent that are faith-based	68	576	2.05	1.10	0.03
Percent that are in metro areas	72	539	2.49	1.63	0.03
Number of days open per month	12	567	0.38	1.11	0.03
Monthly Pounds Distributed	2425	497	82.88	1.16	0.03
Percent with policies on who can get served	47	575	2.27	1.18	0.05
Percent turning people away in past 12 months	34	570	1.99	0.99	0.06
Percent with paid employees	32	442	2.43	1.16	0.08
Total number of FTE workers	1.3	563	0.13	1.10	0.10
Percent with an increase in households served in past 3 years	63	525	2.39	1.26	0.04
Percent that could handle an increase in need	92	563	1.19	1.02	0.01

Table B.12
Design effects for pantries - large pantries only

Variable	Percent / Mean	Denominator Sample Size	Estimated Standard Error of Mean	Estimated Design Effect	Coefficient of Variation
Percent that are faith-based	61	410	2.53	1.07	0.04
Percent that are in metro areas	79	398	2.55	1.51	0.03
Number of days open per month	13	403	0.54	1.54	0.04
Monthly Pounds Distributed	17809	361	1499.77	1.17	0.08
Percent with policies on who can get served	52	410	2.50	1.00	0.05
Percent turning people away in past 12 months	40	406	2.48	1.02	0.06
Percent with paid employees	47	312	3.02	1.12	0.06
Total number of FTE workers	3.3	406	0.33	1.09	0.10
Percent with an increase in households served in past 3 years	75	373	2.35	1.06	0.03
Percent that could handle an increase in need	89	404	1.66	1.14	0.02

APPENDIX C
DERIVATION OF SIZE ESTIMATES FOR SELECTED FEDERAL FOOD ASSISTANCE PROGRAMS

For table 8.1 in Chapter 8, we derived estimates of the sizes of selected EFAS and federal nutrition government programs in terms of "meal equivalents." This appendix provides additional details about parts of these calculations. In particular, explanations of two steps in the calculations were relegated to this appendix: the derivation of (1) the estimated weight of the ingredients for a meal for a low income household and (2) of the weight of an average WIC food package. Each is discussed below.

A. WEIGHT OF INGREDIENTS (PER PERSON) FOR A MEAL IN A LOW INCOME HOUSEHOLD

The 1987-88 Nationwide Food Consumption Survey collected detailed data on the foods used by a sample of approximately 4,300 U.S. households in preparing meals eaten at home. For each household, the data collection covered a 7-day period. Data were also obtained on meal-eating patterns of household members. Detailed statistics from the survey on the weights of various types of foods used over the 7-day period are available in a report from USDA (1994; see bibliography). In addition, factors are provided in the report for adjusting for differences across households in numbers of meals eaten from household food supplies.

In assessing these data it is important to note, as is discussed in the USDA report, that the response rate for the survey was only 38 percent, and this is widely viewed in the nutrition research community as a significant limitation of the data. Nevertheless, this report appears to be the best data source available for calculating weights per meal, and some independent support for the estimates we present below is provided by the fact that Second Harvest calculated a figure quite similar to ours using totally independent data (Second Harvest, 1998, p. 27).

Table 4 of the USDA report presents the weights of foods used, disaggregated into 20 food types and cross-tabulated by household income. We used data for the lowest income group (household income below $12,500), and we used the weight data from all of the food groups except for "beverages." The beverages data was omitted because significant amounts of this category were in coffee, tea, and soft drinks, unlikely to be distributed in quantity at most pantries. (Fruit and vegetable juices are in a separate food category and *are* included in our calculations.)

We added together the household data described above to get household pounds per week. We then divided by a factor of 1.97, which is the estimated number of persons per household in this income category, after adjusting for meals eaten outside the home (page 7 of the USDA report). Finally, the resulting estimate of pounds per person per week was divided by 21 meals per week to get estimated pounds per meal.

B. Weight of a WIC package

As specified in the WIC regulations (*U.S. Code of Federal Regulations*, Title 7), seven prototypical packages of WIC benefits are available, depending on the circumstances of the recipient. For each of the seven packages, we estimated the weight of the ingredients based on the specifications in the regulations. (Most are either directly specified in pounds or are liquids that were converted to pounds using nutrition software that links weight to quantity measures.)

Next, we estimated separate average weights for women, infants, and children, as follows: For infants there are two packages, one for the first 3 months of an infant's life and one for months 4-12. We took the weighted average of these two packages, with weights of one-quarter and three-quarters, respectively. For children, there is a single basic package; no averaging was necessary. For, women, we took the simple average of three packages—the basic package for pregnant and breast feeding women; the package for non-breastfeeding postpartum women; and the enhanced package for breastfeeding women. (The package for children and women with special needs was not included in the averaging.)

Finally, the overall weight (in pounds) of an average WIC package was estimated by taking the average of the weights (in pounds) for the three target groups, as computed above. In calculating this overall average, the three groups were weighted in proportion to their presence in the overall WIC caseload. The participation data for constructing weights for this averaging calculation were taken from the relevant USDA website: "www.fns.usda.gov/pd/ WIC%20monthly.htm".

APPENDIX D
CONSTRUCTION OF ANALYSIS FILE

This appendix describes the analysis file created for the Emergency Food Assistance System (EFAS) study conducted by Mathematica Policy Research (MPR) for the U.S. Department of Agriculture Economic Research Service (ERS). The file and its derivations are described in sufficient detail to provide readers with additional background for the major report from the study. The discussion below assumes a basic knowledge of the data collection operations conducted for the study, as detailed in Appendix A.

We begin the file documentation by providing an overview of the file creation process. Subsequent sections discuss issues related to editing and constructed variables.

FILE DEVELOPMENT

Fig. 1 summarizes the file creation activities undertaken for EFAS. Each component of the figure is numbered for convenient reference. One analysis file is produced at the end of file processing.

Preliminary review and application of supplementary data

The file development process begins with obtaining the final survey CATI input data set EFAS_CERT.DAT (box 1), containing the raw data from the telephone interviewing process. In Step 2, the file is converted to a SAS dataset, and frequencies and, means are produced to permit checking of the CATI interview skip logic and respondents' answers to questions. Missing values in the SAS dataset are set to reflect skip logic and respondent refusal to answer questions and lack of knowledge. The file resulting from this process is TEFAS.SD2 (box 3).

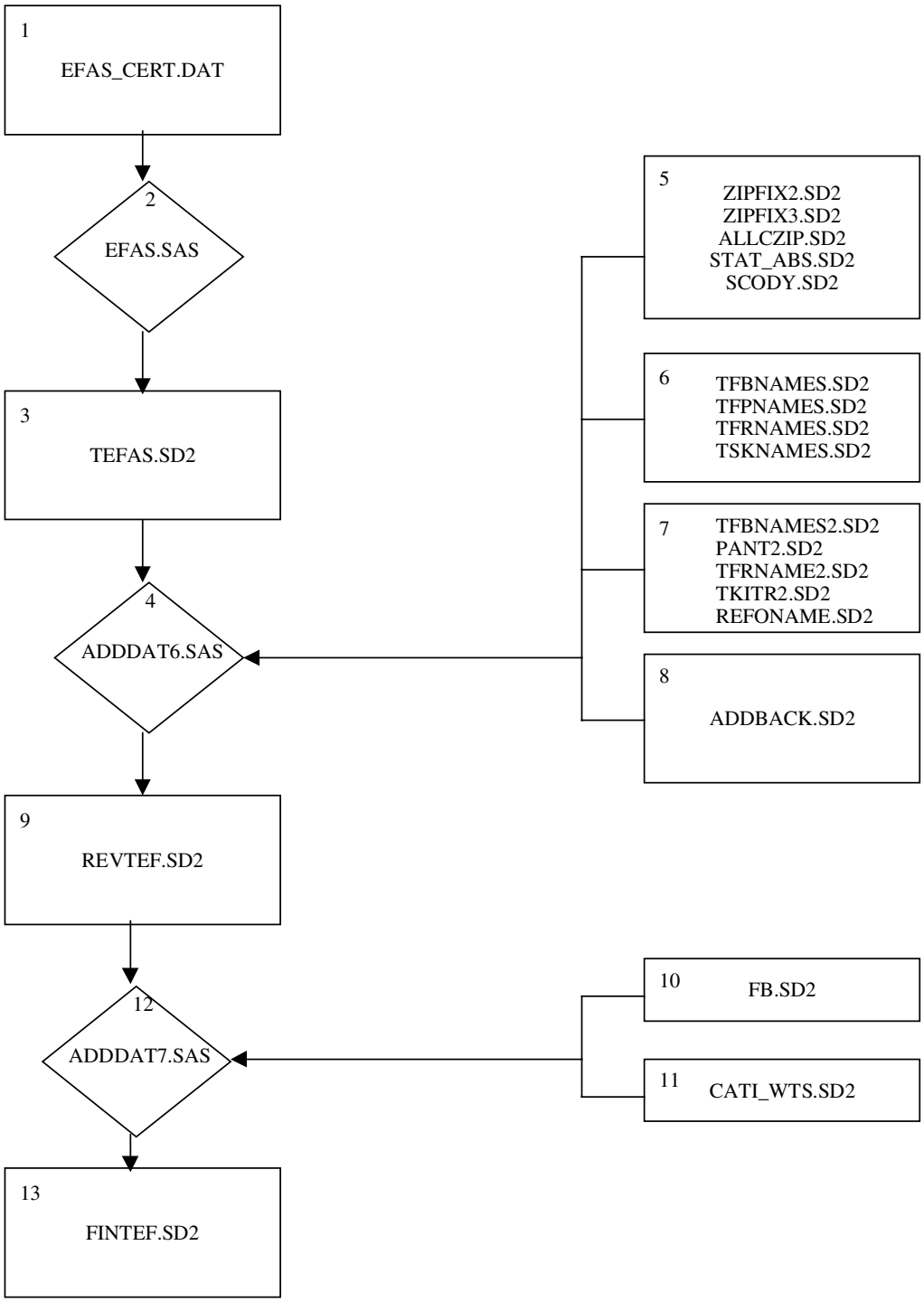
Answers to questions in the survey are generally applied to a predetermined range of answers. When the client responded with a refusal or "don't know," the interviewer entered an appropriate, special missing value of R or D. During this stage of the editing and in later construction of analytical variables, SAS missing values were assigned as appropriate. The values used are:

.B Logical skip
.D Don't know
.E Missing
.R Refused
.Z Special missing value assigned during construction of certain variables.

The dataset was enhanced in Step 4 with: (1) geographic site location and Census data merged based on zipcode data (box 5); (2) data from agency worksheets (boxes 6 and 7); and (3) data from hand coding of several open-ended questions (box 8).

ZIP coding. Initial review of the preliminary analytical file revealed that there were some zip codes with missing data or erroneous entries and that some state codes displayed typing errors. During this stage, the missing zip codes were researched and filled in or corrected; then state abbreviations and city names were merged onto the preliminary analytical file from PRO-ZIPCODE software.

FIGURE 1
EMERGENCY FOOD ASSISTANCE SURVEY
ANALYTICAL FILE CONSTRUCTION



Worksheets. During the CATI interview, agency staff were occasionally unable to provide immediate answers to questions about the amount of food supplies, the number of agencies or households served, or agency budget and staffing. In these instances a worksheet was provided to agency staff for them to complete. The resulting data were processed and supplemental files created for application to the main analytical file. Boxes 6 and 7 list the files produced for this purpose.

The application of these supplemental worksheet data sometimes required backcoding of selected lead-in questions. For example, if a respondent indicated "no use" of a certain type of food during the interview and provided a food weight for the item on the supplemental worksheet, then the lead-in question was changed to indicate use of the food item.

Open-ended questions. Some of the interview questions are open-ended. In these instances, the interviewer recorded all comments by the respondent that did not fit into the available answer categories and the data were collected in an "other specify file." The data in this file can be used to expand the information provided by agency staff members. After a review of the information provided by the agency staff, several open-ended questions describing agency restriction of services were selected for manual backcoding into supplemental constructed data fields (box 8).

In Step 12, selected variables from two additional files are applied to the preliminary analytical file. Food bank participation in Second Harvest was researched, and an additional file was prepared (box 10) with appropriate indicators for merging onto REVTEF.SD2. Weights were prepared (box 11) based on the entire sample of complete and noncomplete cases and merged onto the preliminary analysis file by case identifier.

Application of edits

Edits were applied to selected data with either outliers or obvious errors after we had determined that the edit was warranted. For example, during Step 2, cases with missing or faulty zip codes were identified and corrected. Also, state codes from PRO-ZIPCODE software were applied based on the corrected case zip code so that the sites could be accurately assigned to regions. Data from the agency worksheets were examined for outliers or typing errors, and in some instances agency staff were contacted and the correct information was obtained and applied to the preliminary analytical file. Selected data fields in the preliminary analytical file were examined for outliers or answers that were not logical. In 13 cases, one or more responses were set to "missing" (.E). These changes involved the following survey questions: C7_1, E8_2_A, C3_AN3, C22_1 and C4.

The response to question C13_1, "Percent of total food distributed in last 12 months," was examined and set to missing in 191 cases. For these cases, the agency response was less than 50 percent in 45 cases and "don't know" in about 146 cases.

Deletion of selected records

During development of the analytical file, 55 cases were dropped. These included:

1 case that described an agency located in Puerto Rico
6 cases that were eligible but for which the interview was incomplete
15 cases that were ineligible
33 duplicate interviews

Constructed variables

Table D.1 provides a selected list of constructed variables, with a brief definition for each variable; the value range, if the variable is categorical; and extracts of the SAS code used to construct the variable. The list includes those variables that are constructed in response to special situations or from data outside of the CATI survey.

Table D.1
Constructed variables

VARIABLE NAME	DEFINITION	VALUE RANGE; NOTES; OR LIMITED DESCRIPTIVE CODE
	LOCATION VARIABLES CREATED FROM PRO-ZIPCODE	
NEWZIP	ORIGINAL ZIP CODE FROM SURVEY DATA OR CORRECTED ZIP CODE FROM PRO-ZIPCODE[1]	
ZB3_ST	TWO DIGIT STATE ABBREVIATION MERGED BY ZIPCODE FROM PRO-ZIPCODE	
SB3_CITY	STATE NAME MERGED BY ZIPCODE FROM PRO-ZIPCODE	
REGION	CENSUS REGION CREATED FROM ZB3_ST	REGION = 1 (WEST) WHEN STATE CODE = AK, HI, WA, OR, CA, MT, ID, NV, WY, UT, AZ, CO, NM REGION = 2 (MIDWEST) WHEN STATE CODE = ND, SD, NE, KS, MN, IA, MO, WI, IL, MI, IN, OH REGION = 3 (SOUTH) WHEN STATE CODE = OK, TX, AR, LA, KY, TN, MS, AL, WV, MD, DC, DE, VA, NC, SC, GA, FL REGION = 4 (NORTHEAST) WHEN STATE CODE = ME, VT, NH, MA, CT, RI, NY, NJ, PA
	CONSTRUCTED VARIABLES CREATED FROM CENSUS DATA FILE C90STF3B	
URBAN	PERCENT OF POP IN URBAN AREA (CENSUS)	URBAN = ROUND(((INURBAN + OUTURBAN)/PERSONS)100,.01)
RURAL	PERCENT OF POP IN RURAL AREA (CENSUS)	RURAL = ROUND(((FARM + NONFARM)/PERSONS)100,.01)
RACWHITE	PERCENT OF POP THAT IS WHITE (CENSUS)	RACWHITE = ROUND((WHITE/PERSONS)100,.01)

[1] PRO-ZIPCODE is a product of Professional Computer Consulting , Inc.

Table D.1
Constructed variables

VARIABLE NAME	DEFINITION	VALUE RANGE; NOTES; OR LIMITED DESCRIPTIVE CODE
RACBLACK	PERCENT OF POP THAT IS BLACK (CENSUS)	RACBLACK = ROUND((BLACK/PERSONS)100,.01)
RACOTHER	PERCENT OF POP THAT IS ANOTHER RACE (CENSUS)	RACOTHER = ROUND(((INDIAN + ASIAN + OTHER) / PERSONS)100,.01)
SUMPOV	TOTAL NUMBER OF PEOPLE FOR WHOM POVERTY STATUS IS DETERMINED	SUMPOV = (UNDER50 + BET5074 + BET7499 + B100124 + B125149 + B150174 + B175184 + B185199 + OVER2)
POVMISS	PERCENT OF POPULATION THAT IS MISSING POVERTY STATUS (CENSUS)	POVMISS= ROUND (((PERSONS-SUMPOV)/PERSONS)100,.01)
BELOW	PERCENT OF POPULATION THAT IS BELOW POVERTY LEVEL (CENSUS)	BELOW = ROUND (((UNDER50 + BET5074 + BET7499) / PERSONS)100,.01)
ATORABOV	PERCENT OF POPULATION AT OR SLIGHTLY ABOVE POVERTY LEVEL (CENSUS)	ATORABOV = ROUND (((B100124 + B125149 + B150174) / PERSONS)100,.01)
ABOVE	PERCENT OF POPULATION ABOVE POVERTY LEVEL (CENSUS)	ABOVE = ROUND (((B175184 + B185199 + OVER2)/PERSONS)100,.01)
POV	PERCENT OF POPULATION BELOW POVERTY LEVEL	1 - LESS THAN 20 PERCENT IN POVERTY 2 - BETWEEN 20 AND 30 PERCENT IN POVERTY 3 - GREATER THAN 30 PERCENT IN POVERTY IF BELOW < 20 THEN POV = 1 IF BELOW >= 20 AND BELOW < = 30 THEN POV = 2 IF BELOW > 30 THEN POV = 3 IF BELOW = .E THEN POV = .E
PERWHT	PERCENT OF POPULATION THAT IS WHITE	1 - GREATER THAN 80 PERCENT 2 - BETWEEN 70 AND 80 PERCENT 3 - LESS THAN 70 PERCENT

Table D.1
Constructed variables

VARIABLE NAME	DEFINITION	VALUE RANGE; NOTES; OR LIMITED DESCRIPTIVE CODE
		IF RACWHITE > 80 THEN PERWHT = 1 IF RACWHITE >= 70 AND RACWHITE <= 80 THEN PERWHT = 2 IF RACWHITE < 70 THEN PERWHT = 3 IF RACWHITE =.E THEN PERWHT = .E
PERBLCK	PERCENT OF POPULATION THAT IS BLACK	1 - LESS THAN 10 PERCENT 2 - BETWEEN 10 AND 30 PERCENT 3 - GREATER THAN 30 PERCENT IF RACBLACK <10 THEN PERBLCK = 1 IF RACBLACK >= 10 AND RACBLACK <= 30 THEN PERBLCK = 2 IF RACBLACK > 30 THEN PERBLCK = 3 IF RACBLACK =.E THEN PERBLCK = .E
POPCHNG	CHANGE IN STATE POPULATION	1 - DECREASE OR INCREASE OF LESS THAN 1% 2 - 1 TO 3 PERCENT INCREASE 3 - GREATER THAN 3 PERECENT INCREASE IF POP9896 < 1 THEN POPCHNG = 1 IF POP9896 >= 1 AND POP9896 <= 3 THEN POPCHNG = 2 IF POP9896 > 3 THEN POPCHNG = 3
STMPCHNG	PERCENT DECREASE IN FOOD STAMP PARTICIPATION IN EACH STATE	1 - DECREASE GREATER THAN 25 PERCENT 2 - DECREASE GREATER BETWEEN 20 TO 25 PERCENT 3 - DECREASE LESS THAN 20 PERCENT IF STAMPCHG < -25 THEN STMPCHNG = 1 IF STAMPCHG >= -25 AND STAMPCHG <= -20 THEN STMPCHNG = 2 IF STAMPCHG > -20 THEN STMPCHNG = 3

Table D.1
Constructed variables

VARIABLE NAME	DEFINITION	VALUE RANGE; NOTES; OR LIMITED DESCRIPTIVE CODE
PERMETRO	PERCENT OF STATE POPULATION THAT IS METROPOLITAN	1 - LESS THAN 75 2 - LESS THAN 85 BUT GREATER THAN OR EQUAL TO 75 3 - LESS THAN 95 BUT GREATER THAN OR EQUAL TO 85 4 - GREATER THAN 95 IF POPMETRO >0 AND POPMETRO <75 THEN PERMETRO = 1 IF POPMETRO >= 75 AND POPMETRO <85 THEN PERMETRO = 2 IF POPMETRO >= 85 AND POPMETRO <95 THEN PERMETRO = 3 IF POPMETRO >= 95 THEN PERMETRO = 4
INCCHNG	PERCENT INCREASE IN PERSONAL INCOME	1 - GREATER THAN 10 2 - GREATER THAN 9 BUT LESS THAN OR EQUAL TO 10 3 - GREATER THAN 8 BUT LESS THAN OR EQUAL TO 9 4 - LESS THAN OR EQUAL TO 8 IF INC9895 > 10 THEN INCCHNG = 1 IF INC9895 > 9 AND INC9895 <= 10 THEN INCCHNG = 2 IF INC9895 > 8 AND INC9895 <= 9 THEN INCCHNG = 3 IF INC9895 <= 8 THEN INCCHNG = 4
METRO	METROPOLITAN AREA INDICATOR	THIS VARIABLE IS MERGED ONTO EACH AGENCY RECORD BY ZIP CODE FROM THE PRO-ZIPCODE DATABASE IF MSA = 0 THEN METRO = 0 ELSE IF MSA > 0 THEN METRO = 1 ELSE IF MSA = . THEN METRO = .E
	VARIABLES USED TO MEASURE RECEIPT OF FOOD AND AMOUNT OF FOOD	

Table D.1
Constructed variables

VARIABLE NAME	DEFINITION	VALUE RANGE; NOTES; OR LIMITED DESCRIPTIVE CODE
ADJFREQ	HOW OFTEN HOUSEOLDS CAN OBTAIN FOOD PER MONTH	IF C16_2PER < 0 THEN ADJFREQ[2] = 4.3 IF C16_2PER = 1 THEN ADJFREQ = 4.3 IF C16_2PER = 2 THEN ADJFREQ = 1 IF C16_2PER = 3 THEN ADJFREQ= .5 IF C16_2PER = 4 THEN ADJFREQ = .333 WHEN THE AGENCY RESPONSE WAS 97 INDICATING AN OPEN ENDED RESPONSE THE FOLLOW VALUES WERE APPLIED: ONCE A YEAR = 0.0833 ONCE EVERY EIGHT MONTHS = 0.125 TWICE A YEAR = 0.166 THREE TIMES A YEAR = 0.25 FOUR TIMES A YEAR = 0.5 SEVEN AND A HALF TIMES A YEAR = 0.625 EIGHT TIMES A YEAR = 0.666 8.6 TIMES A YEAR (ONCE EVERY SIX WEEKS) = 0.7166 TWELVE TIMES A YEAR = 1 FIFTEEN TIMES A YEAR = 1.25 SIXTEEN TIMES A YEAR = 1.333 TWENTY SIX TIMES A YEAR = 2.166 52 TIMES A YEAR = 4.3 MISSING = .E
NUMBAGS	# OF PLASTIC BAGS WITH FOOD WHEN PLASTIC IS USED	IF C17 < 0 AND C17_1 = 1 THEN DO NUMBAGS = C17_3BAG NUMBOXES = 0
	# OF PAPER BAGS WITH FOOD WHEN PAPER IS USED	IF C17 < 0 AND C17_1 = 2 THEN DO NUMBAGS = C17_3BAG NUMBOXES = 0

[2] Variables starting with a letter and then a number usually refer to specific survey questions.

Table D.1
Constructed variables

VARIABLE NAME	DEFINITION	VALUE RANGE; NOTES; OR LIMITED DESCRIPTIVE CODE
NUMBOXES	# OF BOXES WITH FOOD WHEN BOXES ARE USED	IF C17 < 0 AND C17_1 = 3 THEN DO NUMBAGS = 0 NUMBOXES = C17_3BOX
	NUMBAGS AND NUMBOXES CARRY VALUES WHEN BOTH METHODS ARE USED	IF C17 < 0 AND C17_1 >= 4 THEN DO NUMBAGS = C17_3BAG NUMBOXES = C17_3BOX IF NUMBAGS > 0 AND C17_2BAG > 0 THEN WTNUMBAG = NUMBAGSC * 17_2BAG IF NUMBOXES > 0 AND C17_2BOX > 0 THEN WTNUMBOX = NUMBOXES * C17_2BOX
WGT	EQUALS EITHER THE WEIGHT OF THE NUMBER OF BAGS OR BOXES OR THE COMBINED WEIGHT WHEN BOTH BAGS AND BOXES ARE USED	WGT = C17 IF C17_1 > 0 THEN WGT = WTNUMBAG OR WTNUMBOX ELSE IF C17 < 0 AND C17_1 = 1 THEN WGT = WTNUMBAG ELSE IF C17 < 0 AND C17_1 = 2 THEN WGT = WTNUMBAG ELSE IF C17 < 0 AND C17_1 = 3 THEN WGT = WTNUMBOX ELSE IF C17 < 0 AND C17_1 = 4 THEN WGT = WTNUMBOX + WTNUMBAG ELSE IF C17 < 0 AND C17_1 = 5 THEN WGT = SUM(WTNUMBAG, WTNUMBOX) ELSE IF C17 < 0 AND C17_1 = 97 THEN WGT = SUM(WTNUMBAG, WTNUMBOX) WHEN WEIGHTS WERE MISSING A VALUE OF 30 WAS IMPUTED
ADJWHTHH	THIS IS WEIGHT A HOUSEHOLD TAKES IN A MONTH	ADJWHTHH IS CALCULATED USING ADJFREQ AND WGT IF WGT < 0 THEN ADJWGTHH = .B IF WGT > 0 THEN ADJWGTHH = ADJFREQ * WGT
ADJWTMO2	SECOND VERSION OF ADJWHTHH CONTROLLING	IF ADJWGTHH < 0 THEN ADJWTMO2 = .B

Table D.1
Constructed variables

VARIABLE NAME	DEFINITION	VALUE RANGE; NOTES; OR LIMITED DESCRIPTIVE CODE
	FOR OUTLIERS	ELSE IF ADJWGTHH > 215.0 THEN ADJWTMO2 = 215.0 ELSE ADJWTMO2 = ADJWGTHH
TOTPANWT	TOTAL WEIGHT A PANTRY DISTRIBUTES IN A MONTH	IF ADJWTMO2 > 0 AND C17_4 > 0 THEN TOTPANWT = ADJWTMO2C17_4
	VARIABLES CONTRIBUTING TO THE CALCULATION OF PANTRY, KITCHEN, AND FOOD BANK SIZE	
NUMENT	NUMBER OF FOOD BANK ENTITIES SERVED	CALCULATED FROM C3_AN1-C3_AN5
PERSVIS	NUMBER OF DAYS PER MONTH DISTRIBUTE FOOD	CALCULATED FROM C9_1MDAY or C9_1WDAY * 4.3
NUMPERS	NUMBER OF HOUSEHOLDS SERVED PER MONTH	USES C17_4 AND THE CONSTRUCTED VARIABLE ADJFREQ
NUMMEAL	AVERAGE NUMBER OF PERSONS SERVED ON A TYPICAL DAY	USES C25_A,C25_B,C25_C,C37_6_A,C37_6_B,C37_6_C
PDSUP	FOOD BANK BINARY INDICATOR - PAID SUPERVISOR HRS	IF E8_1_A=1 & E8_2_A>=0 THEN PDSUP=1
PDNUT	FOOD BANK BINARY INDICATOR - PAID NUTRITION HOURS	IF E8_1_B=1 & E8_2_B>=0 THEN PDNUT=1
PDCLR	FOOD BANK BINARY INDICATOR - PAID CLERICAL HOURS	IF E8_1_C=1 & E8_2_C>=0 THEN PDCLR=1
PDSKL	FOOD BANK BINARY INDICATOR - PAID SKILL KITCHEN HOURS	IF E8_1_D=1 & E8_2_D>=0 THEN PDSKL=1
	FOOD BANK BINARY INDICATOR - PAID NON-SKILL KITCHEN HOURS	IF E8_1_E=1 & E8_2_E>=0 THEN PDNSKL=1

Table D.1
Constructed variables

VARIABLE NAME	DEFINITION	VALUE RANGE; NOTES; OR LIMITED DESCRIPTIVE CODE
PDOTH	FOOD BANK BINARY INDICATOR - PAID OTHER HELP HOURS	IF E8_1_F=1 & E8_2_F>=0 THEN PDOTH=1
VLSUP	FOOD BANK BINARY INDICATOR - VOLUNTEER SUPERVISOR HOURS	IF E10_1_A=1 & E10_2_A>=0 THEN VLSUP=1
VLNUT	FOOD BANK BINARY INDICATOR - VOLUNTEER NUTRITION HOURS	IF E10_1_B=1 & E10_2_B>=0 THEN VLNUT=1
VLCLR	FOOD BANK BINARY INDICATOR - VOLUNTEER CLERICAL HOURS	IF E10_1_C=1 & E10_2_C>=0 THEN VLCLR=1
VLSKL	FOOD BANK BINARY INDICATOR - VOLUNTEER SKILL KITCHEN HOURS	IF E10_1_D=1 & E10_2_D>=0 THEN VLSKL=1
VLNSKL	FOOD BANK BINARY INDICATOR - VOLUNTEER NON-SKILL KITCHEN HOURS	IF E10_1_E=1 & E10_2_E>=0 THEN VLNSKL=1
VLOTH	FOOD BANK BINARY INDICATOR - VOLUNTEER OTHER HELP HOURS	IF E10_1_F=1 & E10_2_F>=0 THEN VLOTH=1
NPDSUP	FOOD BANK BINARY INDICATOR - UNPAID SUPERVISOR HOURS	IF E10_4_A=1 & E10_5_A>=0 THEN NPDSUP=1
NPDNUT	FOOD BANK BINARY INDICATOR - UNPAID NUTRITION HOURS	IF E10_4_B=1 & E10_5_B>=0 THEN NPDNUT=1
NPDCLR	FOOD BANK BINARY INDICATOR - UNPAID CLERICAL HOURS	IF E10_4_C=1 & E10_5_C>=0 THEN NPDCLR=1
NPDSKL	FOOD BANK BINARY INDICATOR - UNPAID SKILL KIT HOURS	IF E10_4_D=1 & E10_5_D>=0 THEN NPDSKL=1

Table D.1
Constructed variables

VARIABLE NAME	DEFINITION	VALUE RANGE; NOTES; OR LIMITED DESCRIPTIVE CODE
NPDNSKL	FOOD BANK BINARY INDICATOR - UNPAID NON-SKILL KITCHEN HOURS	IF E10_4_E=1 & E10_5_E>=0 THEN NPDNSKL=1
NPDOTH	FOOD BANK BINARY INDICATOR - UNPAID OTHER HELP HOURS	IF E10_4_F=1 & E10_5_F>=0 THEN NPDOTH=1
HASSPR	FOOD BANK HAS PAID, VOLUNTEER, OR UNPAID SUPERVISORS	IF E8_1_A=1 OR E10_1_A=1 OR E10_4_A=1 THEN HASSPR=1
HASNUT	FOOD BANK HAS PAID, VOLUNTEER OR UNPAID NUTRITIONIST	IF E8_1_B=1 OR E10_1_B=1 OR E10_4_B=1 THEN HASNUT=1
HASCLR	FOOD BANK HAS PAID, VOLUNTEER OR UNPAID CLERICAL WORKER	IF E8_1_C=1 OR E10_1_C=1 OR E10_4_C=1 THEN HASCLR=1
HASSKL	FOOD BANK HAS PAID, VOLUNTEER OR UNPAID SKILLED KITCHEN WORKER	IF E8_1_D=1 OR E10_1_D=1 OR E10_4_D=1 THEN HASSKL=1
HASNSKL	FOOD BANK HAS PAID, VOLUNTEER OR UNPAID NON-SKILLED WORKER	IF E8_1_E=1 OR E10_1_E=1 OR E10_4_E=1 THEN HASNSKL=1
HASOTH	FOOD BANK HAS PAID, VOLUNTEER OR UNPAID OTHER HELP	IF E8_1_F=1 OR E10_1_F=1 OR E10_4_F=1 THEN HASOTH=1
PDHRS	TOTAL HRS WORKED BY PAID STAFF (WEEKLY)	PDHRS=SUM(E8_2_A,E8_2_B,E8_2_C,E8_2_D,E8_2_E,E8_2_F)
VLHRS	TOTAL HRS WORKED BY VOLUNTEERS (WEEKLY)	VLHRS=SUM(E10_2_A,E10_2_B,E10_2_C,E10_2_D,E10_2_E, E10_2_F)
NPDHRS	TOTAL HRS WORKED BY UNPAID STAFF (WEEKLY)	NPDHRS=SUM(E10_5_A,E10_5_B,E10_5_C, E10_5_D, E10_5_E, E10_5_F)

Table D.1
Constructed variables

VARIABLE NAME	DEFINITION	VALUE RANGE; NOTES; OR LIMITED DESCRIPTIVE CODE
ALLEMP	NUMBER FOOD BANK S HAVING PAID, VOLUNTEER OR UNPAID STAFF	IF E7=1 OR E9=1 OR E10_3=1 THEN ALLEMP=1
SPRHRS	ESTIMATED TOT HRS SUPERVISORY STAFF WORK (WEEKLY)	IF PDSUP=1 OR VLSUP=1 OR NPDSUP=1 THEN SPRHRS=SUM(E8_2_A,E10_2_A,E10_5_A)
NUTHRS	ESTIMATED TOT HOURS NUTRITIONISTS WORK (WEEKLY)	IF PDNUT=1 OR VLNUT=1 OR NPDNUT=1 THEN NUTHRS=SUM(E8_2_B,E10_2_B,E10_5_B)
CLRHRS	ESTIMATED TOT HOURS CLERICAL STAFF WORK (WEEKLY)	IF PDCLR=1 OR VLCLR=1 OR NPDCLR=1 THEN CLRHRS=SUM(E8_2_C,E10_2_C,E10_5_C)
SKLHRS	ESTIMATED TOT HOURS SKILLED KITCHEN STAFF WORK (WEEKLY)	IF PDSKL=1 OR VLSKL=1 OR NPDSKL=1 THEN SKLHRS=SUM(E8_2_D,E10_2_D,E10_5_D)
NSKLHRS	ESTIMATED TOT HOURS NON-SKILLED STAFF WORK (WEEKLY)	IF PDNSKL=1 OR VLNSKL=1 OR NPDNSKL=1 THEN NSKLHRS=SUM(E8_2_E,E10_2_E,E10_5_E)
OTHHRS	ESTIMATED TOT HOURS OTHER HELP WORK (WEEKLY)	IF PDOTH=1 OR VLOTH=1 OR NPDOTH=1 THEN OTHHRS=SUM(E8_2_F,E10_2_F,E10_5_F)
ALLHRS	ESTIMATED TOT HOURS ALL TYPES STAFF WORK (WEEKLY)	ALLHRS=SUM(SPRHRS,NUTHRS,CLRHRS,SKLHRS,NSKLHRS,OTHHRS)
EQVSTAFF	CALCULATION OF EQUIVALENT NUMBER OF STAFF BASED ON ALL HOURS DIVIDED B6 40	IF ALLHRS > 0 THEN EQVSTAFF = ALLHRS/40
HAVESTAF	BINARY INDICATING AGENCY HAS STAFF	IF ALLHRS < .Z THEN HAVESTAF = ALLHRS

Table D.1
Constructed variables

VARIABLE NAME	DEFINITION	VALUE RANGE; NOTES; OR LIMITED DESCRIPTIVE CODE
LBSRECD	TOTAL POUNDS OF FOOD RECEIVED	USES B3_2AA-B3_2AN IF B6 > 0 THEN LBSRECD = B6 ELSE IF B6 IN (.D,.R,.E) AND MISFDWT = 1 THEN LBSRECD = .E ELSE IF B6 < 0 AND MISFDWT = 0 THEN DO I = 1 TO DIM(FOODWT) IF FOODWT{I} > .Z THEN LBSRECD = LBSRECD + FOODWT{I}
TONSRECD	CONVERT TOTAL LBS FOOD RECEIVED TO TONS	IF LBSRECD >= 0 THEN TONSRECD = ROUND ((LBSRECD/2000),.01) ELSE IF LBSRECD < 0 THEN TONSRECD = LBSRECD IF LBSRECD >= 0 AND LBSRECD <= 5 THEN TONSRECD = .E
FBSIZE	FOOD BANK SIZE	IF TONSRECD >= 0 AND TONSRECD < 600 THEN FBSIZE = 1 ELSE IF TONSRECD >= 600 AND TONSRECD < 4000 THEN FBSIZE = 2 ELSE IF TONSRECD >= 4000 THEN FBSIZE = 3 ELSE IF TONSRECD <= .Z THEN DO IF EQVSTAFF >= 0 AND EQVSTAFF < 6 THEN FBSIZE = 1 ELSE IF EQVSTAFF >= 6 AND EQVSTAFF < 25 THEN FBSIZE = 2 ELSE IF EQVSTAFF >= 25 THEN FBSIZE = 3

Table D.1
Constructed variables

VARIABLE NAME	DEFINITION	VALUE RANGE; NOTES; OR LIMITED DESCRIPTIVE CODE
KITSIZE	KITCHEN SIZE	IF NUMMEAL >= 0 AND NUMMEAL < 60 THEN KITSIZE = 1 ELSE IF NUMMEAL >= 60 AND NUMMEAL < 120 THEN KITSIZE = 2 ELSE IF NUMMEAL >= 120 THEN KITSIZE = 3 ELSE IF NUMMEAL <= .Z THEN DO IF EQVSTAFF >= 0 AND EQVSTAFF < 1 THEN KITSIZE = 1 ELSE IF EQVSTAFF >= 1 AND EQVSTAFF < 4 THEN KITSIZE = 2 ELSE IF EQVSTAFF >= 4 THEN KITSIZE = 3
PANTSIZE	PANTRY SIZE	IF NUMPERS >= 0 AND NUMPERS < 30 THEN PANTSIZE = 1 ELSE IF NUMPERS >= 30 AND NUMPERS < 150 THEN PANTSIZE = 2 ELSE IF NUMPERS >= 150 THEN PANTSIZE = 3 ELSE IF NUMPERS <= .Z AND EQVSTAFF >= 0 THEN DO IF EQVSTAFF >= 0 AND EQVSTAFF < .4 THEN PANTSIZE = 1 ELSE IF EQVSTAFF >= .4 AND EQVSTAFF < 1.5 THEN PANTSIZE = 2 ELSE IF EQVSTAFF >= 1.5 THEN PANTSIZE = 3 END ELSE IF NUMPERS <= .Z AND EQVSTAFF < 0 AND E1 > .Z THEN DO IF E1 >= 0 AND E1 < 1500 THEN PANTSIZE = 1 ELSE IF E1 >= 1500 AND E1 < 15000 THEN PANTSIZE = 2 ELSE IF E1 >= 15000 THEN PANTSIZE = 3
	COLOCATED AGENCIES REQUIRED RESCALING OF THE FOOD TAKEN OR THE FOOD USED.	

Table D.1
Constructed variables

VARIABLE NAME	DEFINITION	VALUE RANGE; NOTES; OR LIMITED DESCRIPTIVE CODE
SCALEFACT	THE DEVELOPMENT OF SCALE FACTOR IS A COMPLEX PROCESS (NOT DESCRIBED HERE) WHICH VARIES WITH THE TYPE OF AGENCIES CO-LOCATED	
SCALFCT2	RESIZED VERSION OF SCALEFACT	IF (SAMP_TYP=1 AND CO_LOC=2 AND ONE=1) OR (SAMP_TYP=2 AND CO_LOC=5 AND ONE=1) OR (SAMP_TYP=2 AND CO_LOC=1 AND ONE=1) OR (SAMP_TYP=2 AND CO_LOC=3 AND ONE=1) OR (SAMP_TYP=3 AND CO_LOC=5 AND ONE=1) OR (SAMP_TYP=3 AND CO_LOC=1 AND ONE=1) OR (SAMP_TYP=3 AND CO_LOC=2 AND ONE=1) AND SCALFACT =. THEN SCALFCT2 = 1 IF SCALFACT = 0 THEN SCALFCT2 = 0 IF SCALFACT > 0 THEN SCALFCT2 = SCALFACT/100
	CALCULATION OF BUDGETS	
PCTBUD1- PCTBUD10	PERCENT OF OPERATING BUDGET CONTRIBUTED BY SOURCE	USES E6_2_A-6_2_J and E6_2PCTA - E6_2PCTJ
OPERBUD	CALCULATED OPERATING BUDGET FOR KITCHENS	IF E1 >= 0 THEN OPERBUD = E1 IF E1 < 0 AND E1_9 = 1 THEN IF E1_10 = .D THEN OPERBUD = .D ELSE IF E1_10 = .R THEN OPERBUD = .R ELSE IF E1_10 = 1 THEN OPERBUD = 12500 ELSE IF E1_10 = 2 THEN OPERBUD = 18000 ELSE IF E1_10 = 3 THEN OPERBUD = 23000 ELSE IF E1_10 = 4 THEN OPERBUD = 38000 ELSE IF E1_10 = 5 THEN OPERBUD = 63000 ELSE IF E1_10 = 6 THEN OPERBUD = 88000

Table D.1
Constructed variables

VARIABLE NAME	DEFINITION	VALUE RANGE; NOTES; OR LIMITED DESCRIPTIVE CODE
		ELSE IF E1_10 = 7 THEN OPERBUD = 125500 ELSE IF E1_10 = 8 THEN OPERBUD = 175500 ELSE IF E1_10 = 9 THEN OPERBUD = 225500 ELSE IF E1_10 = 10 THEN OPERBUD = 325500 ELSE IF E1_10 = 11 THEN OPERBUD = 475500 ELSE IF E1_10 = 12 THEN OPERBUD = 650500 ELSE IF E1_10 = 13 THEN OPERBUD = 875000 IF E1 < 0 AND E1_9 = 2 THEN IF E1_11 = .D THEN OPERBUD = .D ELSE IF E1_11 = .R THEN OPERBUD = .R ELSE IF E1_11 = 1 THEN OPERBUD = 8750 ELSE IF E1_11 = 2 THEN OPERBUD = 6200 ELSE IF E1_11 = 3 THEN OPERBUD = 3700 ELSE IF E1_11 = 4 THEN OPERBUD = 1250
FOODBUD	CALCULATED FOOD BUDGET - CORRECTING FOR NO FOOD PURCHASES – FOR KITCHENS	IF E3_1 < 0 THEN IF E3_4 = .D THEN FOODBUD = .D ELSE IF E3_4 = .R THEN FOODBUD = .R ELSE IF E3_4 = 1 THEN FOODBUD = 2500 ELSE IF E3_4 = 2 THEN FOODBUD = 6300 ELSE IF E3_4 = 3 THEN FOODBUD = 8800 ELSE IF E3_4 = 4 THEN FOODBUD = 13000 ELSE IF E3_4 = 5 THEN FOODBUD = 18000 ELSE IF E3_4 = 6 THEN FOODBUD = 23000 ELSE IF E3_4 = 7 THEN FOODBUD = 38000 ELSE IF E3_4 = 8 THEN FOODBUD = 75500 ELSE IF E3_4 = 9 THEN FOODBUD = 150000
FLAG	CREATE FLAG FOR BUDGETS TAKEN AT THE INTERVAL	IF OPERBUD > 0 AND E1 < 0 THEN FLAG = 1 IF FOODBUD > 0 AND E3_1 < 0 THEN FLAG = 1

Table D.1
Constructed variables

VARIABLE NAME	DEFINITION	VALUE RANGE; NOTES; OR LIMITED DESCRIPTIVE CODE
NOPERBUD	NEW OPERATING BUDGET FOR KITHCENS	IF E2_2 = 1 THEN IF FLAG = 0 AND OPERBUD >= FOODBUD THEN NOPERBUD = OPERBUD IF FLAG = 0 AND FOODBUD > OPERBUD THEN NOPERBUD = FOODBUD IF FLAG = 1 AND FOODBUD > OPERBUD THEN NOPERBUD = MAX(OPERBUD, FOODBUD) ELSE NOPERBUD = OPERBUD IF E2_2 NE 1 THEN NOPERBUD = OPERBUD
TOTBUD	CREATE TOTAL BUDGET BASED ON NOPERBUD FOODBUD AND E2_2. THIS IS THE TOTAL BUDGET FOR BOTH OPERATING AND FOOD FOR KITCHENS	IF NOPERBUD = .D THEN TOTBUD = .D IF NOPERBUD = .R THEN TOTBUD = .R IF FOODBUD = .D THEN TOTBUD = NOPERBUD IF FOODBUD = .R THEN TOTBUD = NOPERBUD IF NOPERBUD = 0 THEN E2_2 = 0 IF E2_2 = .D THEN TOTBUD = .D ELSE IF E2_2 = 0 AND FOODBUD >= 0 AND NOPERBUD >= 0 THEN TOTBUD = SUM(NOPERBUD, FOODBUD) ELSE TOTBUD = NOPERBUD
	BINARIES INDICATING KITCHEN SERVES BREAKFAST, LUNCH, SUPPER, OR SNACK	
BRKFAST	KITCHEN SERVES BREAKFAST	IF C24_2A_1 = 1 OR C24_2B_1 = 1 OR C24_2C_1 = 1 OR C24_2D_1 = 1 OR C24_2E_1 = 1 OR C24_2F_1 = 1 OR C24_2G_1 = 1 THEN BRKFAST = 1

Table D.1
Constructed variables

VARIABLE NAME	DEFINITION	VALUE RANGE; NOTES; OR LIMITED DESCRIPTIVE CODE
LUNCH	KITCHEN SERVES LUNCH	IF C24_2A_2 = 2 OR C24_2B_2 = 2 OR C24_2C_2 = 2 OR C24_2D_2 = 2 OR C24_2E_2 = 2 OR C24_2F_2 = 2 OR C24_2G_2 = 2 THEN LUNCH = 1
SUPPER	KITCHEN SERVES SUPPER	IF C24_2A_3 = 3 OR C24_2B_3 = 3 OR C24_2C_3 = 3 OR C24_2D_3 = 3 OR C24_2E_3 = 3 OR C24_2F_3 = 3 OR C24_2G_3 = 3 THEN SUPPER = 1
SNACK	KITCHEN SERVES SNACK	IF C24_2A_4 = 4 OR C24_2B_4 = 4 OR C24_2C_4 = 4 OR C24_2D_4 = 4 OR C24_2E_4 = 4 OR C24_2F_4 = 4 OR C24_2G_4 = 4 THEN SNACK = 1
FBNP	BINARY INDICATING FOOD BANK OR OTHER SIMILAR NONPROFIT ORGANIZATIONS	IF B1_2N_B = 1 OR B1_2N_C = 1 THEN FBNP = 1
NEWPER NEWNUM	BECAUSE OF THE HIGH PERCENTAGE OF OTHER SPECIFY RESPONSES TO Q. C16_2, "HOW OFTEN CAN HOUSEHOLDS OBTAIN FOOD", TWO NEW VARIABLES WERE CREATED FOR PANTRIES: NEWPER AND NEWNUM	NEWPER = C16_2PER NEWNUM = C16_2NUM EXCEPT WHEN OTHER SPECIFY ANSWERS ARE APPLIED

Table D.1
Constructed variables

VARIABLE NAME	DEFINITION	VALUE RANGE; NOTES; OR LIMITED DESCRIPTIVE CODE
	NEWNUM - #OF TIMES A HH CAN OBTAIN FOOD NUMPER - THE FREQUENCY OF NEWNUM.	NEWPER VALUES ARE: 1 - PER WEEK 2 - PER MONTH 3 - EVERY TWO MONTHS 4 – EVERY THREE MONTHS 5 - EVERY 4 MONTHS 6 – EVERY SIX MONTHS 7 - EVERY EIGHT MONTHS 8 - PER YEAR
DAYS_YR	CHANGE NEWNUM AND NEWPER TO DAYS PER YEAR HOUSEHOLD CAN OBTAIN FOOD	IF NEWPER = 1 AND NEWNUM >0 THEN DAYS_YR = NEWNUM * 52 ELSE IF NEWPER = 2 AND NEWNUM >0 THEN DAYS_YR = NEWNUM * 12 ELSE IF NEWPER = 3 AND NEWNUM >0 THEN DAYS_YR = NEWNUM * 6 ELSE IF NEWPER = 4 AND NEWNUM >0 THEN DAYS_YR = NEWNUM * 4 ELSE IF NEWPER = 5 AND NEWNUM > 0 THEN DAYS_YR = NEWNUM * 3 ELSE IF NEWPER = 6 AND NEWNUM > 0 THEN DAYS_YR = NEWNUM * 2 ELSE IF NEWPER = 7 AND NEWNUM > 0 THEN DAYS_YR = NEWNUM * 1.5 ELSE IF NEWPER = 8 AND NEWNUM > 0 THEN DAYS_YR = NEWNUM * * USED 500 TO INDICATE OTHER ELSE IF NEWPER = 97 AND NEWNUM > 0 THEN DAYS_YR = 500
C18_2OTH	COMBINE TWO OTHER RESPONSE ANSWERS	IF C18_2_97= 97 OR C18_2_66=1 THEN C18_2OTH=1
C18_4OTH	COMBINE TWO OTHER RESPONSE ANSWERS	IF C18_4_97= 97 OR C18_4_76=1 THEN C18_4OTH=1

Table D.1
Constructed variables

VARIABLE NAME	DEFINITION	VALUE RANGE; NOTES; OR LIMITED DESCRIPTIVE CODE
LACK	COMBINE LACK FOOD AND LACK RESOURCES RESPONSES	IF C18_4_1 = 1 OR C18_4_71 = 1 THEN LACK = 1
NEWCHNG	CALCULATE THE SIZE OF INCREASE OR DECREASE IN NUMBER SERVED. THE KITCHEN MIDPOINT IS F13 AND THE PANTRY MIDPOINT IS F8	THIS IS SPECIFIC CODE FOR FOODBANK, EMERGENCY FOOD OPERATION AND RESCUE SHELTERS BUT THE APPLIED VALUES ARE THE SAME FOR PANTRY AND KITCHEN IF F2 = 1 THEN DO IF F3 = 1 THEN NEWCHNG = 5 IF F3 = 2 THEN NEWCHNG = 17.5 IF F3 = 3 THEN NEWCHNG = 38 IF F3 = 4 THEN NEWCHNG = 63 IF F3 = 5 THEN NEWCHNG = 88 IF F3 = 6 THEN NEWCHNG = 150 IF F3 = 7 THEN NEWCHNG = 220 IF F3 = .D THEN NEWCHNG = .D IF F3 = .R THEN NEWCHNG = .R END
SIZEINC	SIZE OF INCREASE KITCHENS CAN HANDLE	IF F17 = 0 THEN SIZEINC = 0 ELSE IF F17 = 1 AND F19 = 0 THEN SIZEINC = 1 ELSE IF F19 = 1 AND F20 = 0 THEN SIZEINC = 2 ELSE IF F20 = 1 AND F21 = 0 THEN SIZEINC = 3 ELSE IF F21 = 1 THEN SIZEINC = 4 IF F17 = 1 AND F19 = .D THEN SIZEINC = .D ELSE IF F19 = 1 AND F20 = .D THEN SIZEINC = .D ELSE IF F20 = 1 AND F21 = .D THEN SIZEINC = .D ELSE IF F21 = .D THEN SIZEINC = .D

APPENDIX E
SAMPLING AND WEIGHTING

The emergency food assistance system (EFAS) study required complex sample design and weighting procedures. Censuses were made of some types of organizations—food banks, food rescue organizations, and emergency food organizations—while kitchens and pantries were sampled. This appendix describes the sampling and weighting procedures for the study, with special emphasis on the target population, sampling frame, sample design, and weighting plan for each component.

TARGET POPULATIONS

The target population for a survey is the set of entities for which inferences are to be made using study results. For the Emergency Food Assistance System Study, the target population is composed of food banks, food rescue programs, emergency food organizations, pantries, and kitchen facilities providing emergency food assistance and located within the contiguous United States.

The level of the organization used in defining the target population was the facility. By facility, we mean the individual locations or establishments at or from which EFAS services are provided. An EFAS agency may operate multiple food banks, pantries, or kitchens. The population units included in this study are the individual facilities rather than the parent organization. In addition, some EFAS organizations provide more than one type of EFAS service at the same location. A food bank might provide pantry services, for instance. Each EFAS activity at such multipurpose locations is treated as a separate facility.

Some EFAS services are provided in transient locations rather than, or in addition to, the fixed location where the organization owns or rents building space. Only permanent locations are included as separate entities in this study. Mobile services and other services provided at transient locations are considered a part of the fixed location or facility from which they operate. For instance, an emergency food kitchen might offer meals onsite at a fixed facility and also distribute box meals via mobile vans throughout the city. In this case, the fixed location was considered one kitchen facility. If selected for this study, that facility was asked to include both onsite and mobile services

Specific definitions for food banks, food rescue programs, emergency food organizations, food pantries, and emergency kitchens are provided next.

The food bank population

Food banks are umbrella organizations or clearinghouses that solicit marketable and surplus food and grocery products and distribute these products to local nonprofit charities or client agencies, which in turn distribute the food directly to needy individuals and families. Note that under our definition food banks supply food to other organizations, not directly to those in need.

Organizations functioning as independent food banks may also be loosely associated or allied with other food banks. For instance, America's Second Harvest, the largest food bank network in the United States, has both "direct affiliate" food banks and Subsidiary Distribution Organizations (SDOs) linked to these food banks. These SDOs obtain significant amounts of food from their affiliated America's Second Harvest food bank, which they then distribute to EFAS facilities. These SDOs typically operate autonomously and often have their own board of directors. To

illustrate, a direct-affiliate food bank may formally represent America's Second Harvest for an entire state, and it may have direct operational responsibility for part of the state. In addition, two SDOs may function as primary distribution agencies for the remainder of the state. Under our target population definition, SDOs are considered separate food bank facilities. In terms of the target population of food banks, this state would be viewed as being served by three food banks.

The food rescue program population

Food rescue programs are organizations that obtain perishable foods from farmers or from food retail establishments, such as restaurants, and then distribute these products to local nonprofit charities or client agencies, which in turn distribute the food directly to needy individuals and families. Food rescue organizations differ from food banks in their emphasis on perishable food.

Emergency food organizations

Emergency Food Organizations are defined as organizations that are not principally EFAS agencies but that sometimes distribute commodities they receive from the Emergency Food Assistance Program (TEFAP), through the state directors of TEFAP. For the purpose of this study, the definition of emergency food organizations is limited to organizations that distribute these commodities to other agencies, such as pantries or kitchens (rather than distributing them directly to needy people or households).

The food pantry population

Food pantries are facilities that distribute groceries and other basic supplies directly to needy individuals, without charge, for offsite use. It is not uncommon for food pantries to be referred to as "food banks." For this study, the function, rather than the name, defines the nature of the EFAS facility.

Some EFAS facilities are targeted to specific clienteles. With the exceptions noted in the remainder of this section, we include such facilities in the relevant target population when they clearly provide EFAS services.

The emergency kitchen population

Emergency kitchens are defined as facilities that prepare or assemble meals for distribution either onsite or offsite to needy recipients who do not reside on the premises. The meals are provided at little or no cost. Facilities distributing food funded under Title IIIC of the Older Americans Act, the Child and Adult Care Food Program, or the National School Lunch and School Breakfast programs are excluded from the target population.[1]
For a food provider to be considered an EFAS facility, meals must be the primary service that it offers. Many EFAS facilities require modest participation in other activities at the time the individual receives food. For example, there may be mandatory service referral activities or a

[1]Each of these programs has been studied extensively by itself and is excluded from the present study as a way of clearly delineating the objectives and scope of the work.

religious service. For purposes of the study, such secondary activities are compatible with being labeled an EFAS provider. However, when food distribution is incidental to other activities, as in senior day care centers, the facility was not classified as an EFAS provider.

Some shelters provide meals to people not spending the night there. Such shelters were considered to be operating an emergency kitchen and were included in the study.

SAMPLING FRAMES

For this study, area and list frames were used. Construction of list frames began with the creation of lists of the nation's food banks and established food rescue programs. For kitchens and pantries, such lists were unavailable. Instead, an area frame was created of primary sampling units (PSUs), with PSUs defined as a county or a group of adjacent counties. List frames of pantries and kitchens were created for sampled PSUs only.

The food bank frame

Construction of the frame for food banks began with the list of food banks affiliated with Second Harvest, as are most food banks in the United States. To a substantial degree, Second Harvest also supplied information on food banks not formally associated with their organization but known to them via informal channels. To identify the remaining food banks, we consulted the *International Food Bank Directory*, USDA's National Hunger Clearinghouse, USDA's *Citizen's Guide to Food Recovery*, and national organizations involved with hunger, such as Foodchain, the Salvation Army, United Way, the American Red Cross, Catholic Charities of America, and others.

The food rescue frame

The frame for food rescue programs was constructed from lists of agencies associated with the largest organization of food rescue programs, Foodchain, and the Society of St. Andrew. Most large food rescue organizations are associated with these two organizations, so we believe their affiliates should account for a large majority of all food rescue activity currently taking place in the United States. Local, nonaffiliated food rescue agencies are a source of undercoverage for the frame.

Emergency food organization frames

Lists of emergency food organizations were obtained from state TEFAP directors.

The kitchen and pantry frames

Building a list frame for all EFA kitchens and pantries would have been cost prohibitive. Instead, our frame-building for kitchens and pantries involved dividing the land area of the contiguous United States into nonoverlapping geographic areas, selecting a sample of 360 areas, and then developing list frames of kitchens and pantries for the sampled areas only. The geographic areas that comprise the area frame are referred to as primary sampling units (PSUs). All locations within the contiguous United States were included in one, and no more than one, PSU.

To build the area frame, we began with county-equivalent records from the Area Resource File (ARF) maintained by the Department of Health and Human Services for the 48 Contiguous States and the District of Columbia.[2] The phrase "county-equivalent" is used because of the way ARF treats independent cities (Department of Health and Human Services, 1998). Generally, the ARF combines independent cities with their original counties. For instance, the city of Manassas, Virginia is combined with Prince William County. Some relatively large independent cities, however, are treated as county equivalents; Alexandria, Virginia is one such county equivalent.

PSU formation involved dividing the contiguous United States into land areas in which each land area would meet a prespecified minimum size constraint of 4,250 persons living in poverty.[3] Counties with smaller poverty populations were collapsed with adjacent counties to yield PSUs that met the minimum size constraint. Collapsing occurred within cells defined by Census region and metropolitan area, whenever possible.[4] Collapsing was done within region and further within the same MSA/PMSA, if possible. An automated procedure was created for this purpose, but some manual adjustment was needed afterward. The procedure was designed to create PSUs that were contiguous, similar with respect to their poverty counts, and had the minimal number of counties collapsed to form the PSU.

Each ARF record for a county contains variables listing the IDs of its adjacent counties. These variables were used to create the collapsing algorithm. We began the process by extracting those county records that met the minimum size measure of 4,250 persons in poverty.[5] These records were placed in an interim PSU file, where they were available for further collapsing if necessary. Then we sorted the remaining small counties by region, MSA/PMSA Code, and poverty count. For each county data record, we merged on the poverty count for each of the counties listed as adjacent to that county and added their region and MSA/PMSA characteristics. These adjacent counties were then reordered from smallest to largest in terms of poverty count. Beginning with the first small county record, we added the county's poverty count to that of its adjacent counties until a collapsed set of counties was obtained that met the minimum size constraint.

The completed area frame contained 1,895 PSUs. Region and metropolitan status variables were defined for each PSU; for collapsed counties these variables were defined based on majority population rules.

Multiple sources were used to obtain lists of kitchens and pantries located in each sampled PSU. Lists of Second Harvest facilities were extracted from the databases maintained by its affiliated

---

[2]U.S. Department of Health and Human Services. Bureau of Health Professions. Office of Data Analysis and Management. Area Resource File (ARF) as of February 1998. Washington, DC, February 1998.

[3]The ideal measure would have been based on the number of EFAS pantries and kitchens, but this information is unknown.

[4]Metropolitan status was defined as: rural area; metropolitan area of less than 100,000 population; metropolitan area of 100,000 to 249,999 population; metropolitan area of 250,000 to 999,999 population; and metropolitan area of 1,000,000 or more population.

[5]The number-in-poverty variable for the county was a constructed variable defined as the population size in 1996 (the date of the relevant data item in the ARF file) multiplied by the fraction of the population in poverty in 1989 (an ARF variable derived from the relevant data item in the ARF file).

food banks. As a part of our census of food banks and established food rescue programs, we requested lists of the food pantries and kitchens served by the remaining food banks and food rescue programs. State directors of the Emergency Food Assistance Program (TEFAP) were contacted to obtain lists of the EFAS facilities to which they distributed TEFAP commodities. Additional lists of EFAS facilities were derived by telephone contacts with approximately 15 social service agencies and other local informants in each sampled PSU. (See Appendix A for a description of this extensive local calling activity.)

The results of this process were multiple, overlapping, hardcopy lists for each sampled PSU that contained kitchens and pantries, as well as ineligible social support organizations like senior centers and after-school programs. Our next step was to review each list, labeling each entry as a kitchen, a pantry, or an out-of-scope organization. Duplicate listings for the same location were common. Our approach was to first deduplicate each individual list, marking out duplicate entries for the same facility. Kitchen and pantry services provided from the same location were treated as two different facilities. Listings that could not be classified were labeled as "unknowns" and treated as kitchens in sampling. The multiple lists for each PSU were then ordered and a unique linkage approach used in the manual deduplication across lists. Listings were considered ineligible when the same facility was found on previous lists, based on the ordering of the lists. After each list was internally deduplicated, the listings were compared with the listings on the previous lists and only new entries were retained. Once completed, the listings corresponding to kitchens, pantries, and unknowns were numbered sequentially within PSUs.

SAMPLE DESIGNS AND WEIGHTS

The Emergency Food Assistance System Survey consisted of multiple samples, one for each type of EFAS facility. Sampling for pantries and kitchens involved the selection of an area sample of 360 PSUs, list construction for the sampled PSUs, and then selection of pantry and kitchen listings. Only 402 food banks, 91 food rescue organizations, and 124 emergency food organizations were identified. Rather than sample them for interviewing, we attempted interviews with all food banks, food rescue organizations, and emergency food organizations. Little or no cost savings would have been attached to a sample, as opposed to a census. The remainder of this section discusses kitchen and pantry selection.

Area sample

For food pantries and kitchens, we began with the area frame already described and selected a probability sample of 360 PSUs, with probability proportional to size (PPS). The size measure was the number of persons living in poverty. The total number of EFAS kitchens and pantries in the universe was an unknown quantity. The sampling uncertainty associated with the absence of information on EFAS facilities led to the decision to select a large number of PSUs (360), each of which is fairly large (4,250 or more persons in poverty).

To select the PPS sample of 360 PSUs, we used Chromy's probability-minimum-replacement sequential sampling procedure.[6] To make n_1 PSU selections from a frame of N_1 PSUs in the frame,

[6]James R. Chromy. "Sequential Sample Selection Methods", Presented at the Annual Meeting of the American Statistical Association, Washington, DC, 1979.

Chromy's procedure partitions the PSUs into 360 zones of equal size, in terms of the size measure. (Individual PSUs may straddle zone boundaries.) Exactly one sample PSU is then selected from each zone. This zoned sequential selection makes possible a deep implicit stratification of the PSUs by a controlled ordering of the PSUs. Moreover, the zones can be defined so that all pairs of PSUs have a chance of appearing together in the sample,[7] a requirement for unbiased estimation of sampling variances. The probability-minimum-replacement feature refers to the treatment of PSUs for which the expected number of selections exceeds 1 (for example, self-representing PSUs). The actual number of times a PSU is selected for any specific sample differs from the expected number by less than 1, and the average number of selections over all possible implementations of Chromy's procedure equals the expected number given in the above computation.

Chromy's sequential sample selection procedure was used to select n_1=360 PSUs with probability proportional to the number in poverty. No explicit strata were used in sampling. Prior to sample selection, the PSUs were sorted in a serpentine manner by Census region, metropolitan status, percent minority, and total population (including poor and nonpoor). Percent minority was defined as the total black and Hispanic populations divided by the total population and then converted to these percentage-based categories: 0-9, 10-24, 25-49, and 50-100. Let $S(i)$ be the size measure associated with the ith PSU. Then the expected relative frequency $n_1(i)$ with which the ith PSU was selected is given by

$$(1) \qquad E[n_1(i)] = \frac{360\, S(i)}{S(+)}$$

where $S(+)$ is the sum of the size measures over all PSUs in the area frame and 360 is the total number of PSUs selected. Note that very large PSUs could be sampled multiple times (that is, $n_1(i)>1$ for some PSUs). The sample of 360 PSU selections resulted in a total of 294 unique PSUs. The sample size at the second stage was adjusted to reflect the number of times each unique PSU was selected. Thus, very large PSUs (such as Los Angeles) were selected multiple times and had multiple second-stage samples selected from them.

With this approach, the expected frequency of selection of the ith PSU is

$$(2) \qquad E[n_1(i)] = \frac{360\ S(i)}{S(+)}$$

where $n_1(i)$ is the number of times the ith PSU is selected, $S(i)$ is the total poor in the ith PSU, and $S(+)$ is the total poor across all PSUs. The associated sampling weight for each first-stage selection was calculated as the inverse of the probability of selection or

$$(3) \qquad PSUWT(i) = \frac{S(+)}{360\, S(i)} \ .$$

---

[7]This is done by introducing a random element in how the zones themselves are defined.

Selection of providers

The next stage of sampling was the selection of kitchens and pantries from the list frames developed for each sampled PSU. Separate samples of kitchens and pantries were randomly selected from each PSU with equal probability within PSUs.

We began the sampling process by selecting the initial samples of 2,384 kitchens and 2,410 pantries from the list frame. Stratified simple random sampling was used to select separate samples of kitchens and pantries where the PSUs formed the strata. A permanent random number was generated for each facility in the frame. Let j denote the type of facility (kitchen versus pantry). To select the sample of type j facilities from PSU i, we ordered the type j facilities within each PSU by the permanent random number and selected the first $n_2(ij)$ frame units for the second-stage sample.

With PPS selection of the PSUs, our intention had been to select a fixed sample size from each PSU. Had our size measure been well correlated with the number of EFAS facilities in each PSU, this approach would have led to a self-weighting sample (that is, one with equal sampling weights for kitchens and pantries across PSUs). However, our size measure, the number of people in poverty, proved to be related to, but imperfectly correlated with, the number of kitchens and pantries in each PSU. To correct for the unequal weighting this imperfect correlation could have produced, we adjusted the PSU sample sizes of kitchens and pantries to reflect the discrepancy between the expected number of kitchens and pantries and the actual number found of each type.[8] However, to ensure that some sample was selected from each PSU, minimum sample sizes of four pantries and eight kitchens were set for each PSU.[9] PSUs containing fewer than four pantries or fewer than eight kitchens had all facilities of that type included in the sample with certainty. We also set maximum sample sizes of 12 pantries and 20 kitchens for each PSU. Imposing minimum and maximum PSU sample sizes led to unequal weighting across PSUs but was deemed necessary to control for the potential deleterious effect that clustering can have on the variance of survey estimates.

The sampling frame for each PSU, a set of hardcopy lists, had been manually deduplicated. To ensure that undetected duplication did not compromise study results, we searched each PSU's frame after sampling for potential duplicates of each sampled facility. The unique linkage rule was again applied, with sampled records labeled as ineligible when they did not correspond to the first frame listing for the facility. A total of 79 sampled pantries and 176 sampled kitchens were declared ineligible because they were duplicates of a previous frame listing for the PSU.

The unit we sampled was the facility, which was defined as the cross between type of EFAS service provided (kitchen versus pantry) and location. Locations providing both types of EFAS services were treated as two different facilities. When the pantry facility was sampled for such locations, the pantry portion of the questionnaire was administered, when the kitchen facility was sampled, the kitchen portion was administered.

[8]This adjusted sample size reflected the number of times the PSU was selected for the sample.

[9]PSUs that were selected multiple times had the minimums (and maximums) adjusted by the number of times the PSU was selected for the sample.

To be eligible for the survey, the sampled facility had to be in current operation at the specified location and providing the specified EFAS service. Misclassified facilities, such as a sampled pantry that turned out to be a kitchen or vice versa, were labeled as ineligible for that portion of the survey, as were sampled pantries and kitchens that had changed locations. New frame records by service type entities were created for such misclassified locations, and these frame records were given an opportunity of selection *if not already listed for that type of EFAS service*. Due to the multiple sources used to generate lists for each PSU, we expected that most such misclassified entities would be found on the frame correctly classified. For clarity, we refer to the sample selected from the original frame as the *primary sample* and to the sample selected from frame records added during data collection as the *secondary sample*.

To correct for potential coverage problems in our frame, we asked each sampled facility to report other locations where their parent organization provided EFAS services. We also asked each sampled facility to list nearby EFAS facilities. Location information was collected for each facility mentioned by a primary selection. The information provided was used to determine whether the mentioned facilities were already listed in the original frame (most were). Previously unlisted facilities were added to the frame and given an opportunity of selection as a part of the secondary sample.

The multiple ways in which secondary facilities were identified made it impossible to determine the probability with which they had been identified. This led to a decision to treat the discovered facilities as just another frame unit and not attempt to account for the probability of their discovery. Separate samples were selected of primary and secondary facilities with equal selection probabilities within PSUs.

The sampling approach for secondary facilities differed somewhat for pantries and kitchens. Our original plan called for using stratified Bernoulli sampling to select secondary facilities, with PSUs as the strata and the same probability of selection as that used for the PSU's primary facilities of that type. This approach results in a variable sample size but allows for sample selection on a flow basis as secondaries are identified. This stratified Bernoulli sampling approach was used for secondary pantries. A random number was generated for each secondary pantry discovered during data collection. If the random number was less than the probability of selection for that PSU's primary pantries, the secondary pantry was included in the sample. A total of 508 secondary pantries were identified, with 122 of these selected for the sample.

A different approach was used for sampling secondary kitchens, where primary and secondary frame units were combined and an expanded sample selected. The change of approach was in part due to an unexpectedly large ineligibility rate for the initial sample of primary kitchens (about 50 percent). Even with the addition of a Bernoulli sample of secondaries, it was clear that the kitchen sample-size target could not be met without sampling additional primary kitchens. Once the necessary sample size had been determined, the primary and secondary frame units were combined and the new sample allocated to PSU i following the allocation procedures outlined above. To select the sample of kitchens (j=1,2) from PSU i, we ordered the primary and secondary kitchens by the permanent random number and designated the first $n_2(ij)$ kitchens for the sample, using the revised PSU sample sizes. Because each PSU's sample allocation was either substantially greater than or equal to its initial allocation, this approach included all members of the initial sample in the

expanded sample. The expanded frame contained 4,871 primary kitchens and 544 secondary kitchens, from which 2,764 primary kitchens and 393 secondary kitchens were selected.

For kitchens, the within-PSU sample can be regarded as a simple random sample of primary and secondary kitchens. Let $N(i1)$ be the total number of primary kitchens identified for PSU *i,* and let $N(i2)$ be the total number of secondary kitchens discovered during interviewing for PSU *i*. Let $n_2(i+)$ be the number of primary and secondary kitchens sampled from PSU *i*. Then the conditional weight CONDWT(*ijk*) for sampled kitchen *k* of facility type *j* from PSU *i* is

$$(4) \qquad CONDWT(ijk) = \frac{N(i3) + N(i4)}{n_2(i3) + n_2(i4)(/\, h(i)}$$

where j=1 for primary kitchens and j=2 for secondary kitchens and $h(i)$ is the number of times the PSU is selected. Note that the $CONDWT(ijk)$ is identical within PSUs for primary and secondary kitchens.

For pantries, the primary and secondary sample designs differed, although the selection rates within PSUs were identical for primary pantries (j=3) and secondary pantries (j=4). Primary pantries had a simple random sample of size $n_2(i3)$, selected without replacement from PSU *i*. In contrast, each secondary pantry was given the same probability of selection as primary pantries, but an independent decision was made for each secondary pantry resulting in a variable-sized secondary sample. Let $N(i3)$ be the total number of primary pantries identified for PSU *i* and $N(i4)$ be the total number of secondary pantries discovered during interviewing for PSU *i*. Let $n_2(i3)$ be the total number of primary pantries sampled from PSU *i* and $n_2(i4)$ be the total number of secondary pantries sampled from PSU *i*. Then the conditional weight $CONDWT(ijk)$ for sampled pantry *k* of facility type *j* from PSU *i* is

$$(5) \qquad CONDWT(ijk) = \frac{N(i3)}{n_2(i3)(/\, h(i)}$$

where $h(i)$ is the number of times the *i*th PSU was selected.

The overall sampling weight $SAMPWT(ijk)$ for the *k*th facility of type *j* from PSU *i* is the product of the PSU sampling weight and the conditional facility sampling weight or

$$(6) \qquad SAMPWT(ijk) = PSUWT(i)\, CONDWT(ijk)\,.$$

ADDITIONAL WEIGHTING ISSUES

Following are a number of additional procedures used in constructing the final analysis weights.

Poststratification Adjustment

The sampling weights can differ from the frame counts in minor ways, particularly for the pantry sample, where the sample size was variable for the secondary pantry portion. To ensure accurate estimation of population totals, a poststratification adjustment was made to the sampling weights.

Poststratification adjustment was chosen to counter the weight variability associated with variable sample sizes for the secondary pantries and to provide more accurate estimates of population totals. Both pantries and kitchen weight totals were forced to the estimated total number of pantries and kitchens within poststrata.[10]

We began by defining poststrata for the pantry and kitchen samples as PSUs or groups of PSUs that contain 20 or more responding eligible entities. The same process was used in defining the poststrata, but the poststrata differed for the two types of facilities. To define the poststrata, we first ordered the PSUs by selection order.[11] To define the poststrata for each type of facility, we grouped PSUs sequentially until we had 20 or more responding eligible pantries and kitchens. That was the first poststratum. We continued the process to define the remaining poststrata, relaxing the rule of 20 responding eligible pantries and 20 eligible responding kitchens when enforcement would require combining PSUs from different Census regions or different metropolitan statuses.

The poststratification adjustment $ADJ_{post}(p)$ for sampled facilities in poststratum p was defined as follows:

$$(7) \quad ADJ_{post}(p) = \frac{\sum_{ijk \in p} PSUWT(ijk) * h(i) * [N(i1) + N(i2)]}{\sum_{ijk \in p} SAMPWT(ijk)}$$

The numerator of this adjustment is an estimate of the total number of facilities in the contiguous United States, hereafter referred to as the "Frame Estimate."

The adjustment $ADJ_{post}(p)$ was then applied to the sampling weight $SAMPWT(ijk)$ for the ijkth case from the pth poststratum as follows:

$$(8) \quad POSTWT(pijk) = ADJ_{post}(p) \; SAMPWT(ijk)$$

Note that all sampled cases had a poststratified weight defined for them.

Definition of weighting classes

Nonresponse adjustments were made within weighting classes. The first step in defining the weighting classes was to classify each sampled facility in terms of response and eligibility. To do this, we defined a response and eligibility indicator ELIGRESP as follows:

[10]The kitchen sample had fixed sample sizes and hence the sum of the weights automatically yielded this estimated total.

[11]For sample selection, the frame was sorted by Census region, metropolitan status, percent minority, and total population (including nonpoor and poor). Metropolitan status was defined as the four-digit MSA/PMSA code plus a defined value for rural areas. Percent minority was defined as the total black population plus the total Hispanic population divided by the total PSU population. Before sorting by percent minority, we reclassified it as 0-9, 10-24, 25-49, and 50+. A serpentine sorting procedure was used prior to selecting the sample using Chromy's procedure.

ELIGRESP =	0	eligibility status unknown
	1	identified as ineligible
	2	identified as eligible and questionnaire completed
	3	identified as eligible but questionnaire not completed
	4	identified as a duplicate of a previous frame listing.

Note that codes of 1, 2, 3, and 4 imply that eligibility status is known and hence the case is a respondent for the purposes of eligibility-status determination. Codes 1, 2, and 4 are considered to be questionnaire respondents. Codes 1 and 4 are a special form of questionnaire □respondent□ because *by definition* no questionnaire is needed from any ineligible and hence complete information has been obtained. Code 4 cases were identified via an examination of the frame, and hence interview data were not required.

The frame for this study was a compilation of hardcopy lists for each PSU that had been deduplicated manually. After the sample was selected, the deduplication process was repeated for the sampled cases to ensure that no sampled listings were duplicated in the sample frame. When duplicate entries were detected, the sampled listing was considered eligible for interview *only* when it was the first such listing associated with the facility.[12] Sampled listings were labeled as ineligible when they were associated with the second or higher listing of a particular facility. Weighting classes *c* were defined based on the poststratum *p*, with frame duplicates removed to a separate weighting class. The weighting class variable was used for all nonresponse adjustments.

Screening nonresponse adjustment

The first nonresponse adjustment accounted for nonresponse to screening. The underlying assumption behind the adjustment was that the percentage of eligibles within each weighting class among cases with unknown eligibility was the same as among cases with known eligibility within that class.

The screening nonresponse adjustment $ADJ_{sc}(c)$ for screening respondents in weighting class c was defined as follows:

$$(9) \qquad ADJ_{sc}(c) = \frac{\sum_{ijk \in c} POSTWT(ijk)}{\sum_{ijk \in c} \delta_{sc}(ijk)\ POSTWT(ijk)}$$

where $\delta_{sc}(ijk)$ is equal to 1 for cases where eligibility was determined and 0 otherwise.
The adjustment $ADJ_{sc}(c)$ was then applied to the poststratified weights to obtain the screening nonresponse adjusted weight $SCADJWT(cijk)$ for the ijkth case from the cth weighting class or:

$$(10) \quad SCADJWT(cijk) = \delta_{sc}(ijk)\ \ ADJ_{sc}(c)\ \ POSTWT(ijk)$$

Note that screening nonrespondents have $\delta_{sc}(ijk)$ equal to 0 and hence a screening nonresponse adjusted weight of 0.

[12]This approach eliminated multiple selection opportunities associated with duplicate listings.

Questionnaire nonresponse adjustment

The next step in weighting was to adjust for the loss of completed questionnaires from beneficiaries known to be eligible. To create new weighting classes c' for this adjustment, ineligible cases were removed from the previous weighting classes and placed in a separate weighting class. (Screening nonrespondents were also placed in a separate class and given an adjustment factor of zero.) Then a questionnaire nonresponse adjustment factor $ADJ_{ques}(c')$ was calculated for weighting class c' as:

$$(11) \qquad ADJ_{ques}(c') = \frac{\sum_{i \in c'} \delta_{sc}(ijk) \;\; SCADJWT(cijk)}{\sum_{i \in c'} \delta_{ques}(ijk) \;\; SCADJWT(cijk)}$$

where $\delta_{ques}(ijk)$ is equal to 1 for questionnaire respondents and 0 otherwise.
Ineligible respondents by definition provided all required data so $\delta_{ques}(ijk) = \delta_{sc}(ijk) = 1$ for ineligible cases. Hence, the questionnaire nonresponse adjustment factor for the class composed of ineligibles has $ADJ_{ques}(c') = 1$.
The questionnaire nonresponse adjusted weight $QADJWT(cc'ijk)$ for the *ijk*th facility in the *c* and c'th weighting classes is calculated as the product of its screening nonresponse adjusted weight and its questionnaire nonresponse adjustment factor or:

$$(12) \quad QADJWT(c'cijk) = \delta_{ques}(ijk) \;\; ADJ_{ques}(c') \;\; SCADJWT(cijk)$$

Note that eligible nonrespondents and screening nonrespondents have $\delta_{ques}(ijk) = 0$ and hence a questionnaire nonresponse adjusted weight of 0.

Weight truncation and smoothing

The final step in weighting was to examine the distribution of the questionnaire nonresponse adjusted weights to determine whether weight truncation was needed. In developing weights, some attention must be given to the increase in variance caused by unequal weights. Frequently, very large (or very small) weights are truncated and then the weights adjusted so that they sum to the total of the untruncated weights. This process is referred to as *weight truncation* or *smoothing*.

The sample of kitchens and pantries was designed so that equal weights would have resulted if the size measure had been well correlated to the number of facilities. Although steps were taken to reduce the unequal weighting resulting from our less than perfectly correlated size measure, we could not remove all such unequal weighting across PSUs. As a consequence, a few records had their weights truncated. For pantries, we truncated weights for one PSU that had a very large questionnaire-nonresponse adjusted weight of 114 (the next largest weight was 52). A maximum weight of 60 was set for pantry weights. For kitchens, we encountered a few weights that were very small (less than one). This event occurred when the PSU was so large that it was selected multiple times (*PSUWT* < 1) but had so few listed kitchens that we were forced to sample all its kitchens with certainty (CONDWT=1). A minimum weight of 1 was set for kitchen weights.

Having determined the minimum weight allowed and the maximum weight allowed, we proceeded to calculate the truncated weight. Let MINWT be the minimum weight and MAXWT be the maximum weight allowed. The truncated weight *TRUNCWT*(*ijk*) for facility *k* from frame type *j* and PSU *i* was defined as follows:

$$
\begin{array}{lll}
 & TRUNCWT(cc'ijk) = \text{MINWT} & \text{if } QADJWT(cc'ijk) < \text{MINWT} \\
(13) & TRUNCWT(cc'ijk) = QADJWT(cc'ijk) & \text{if MINWT} \le QADJWT(cc'ijk) \le \text{MAXWT} \\
 & TRUNCWT(cc'ijk) = \text{MAXWT} & \text{if } QADJWT(cc'ijk) > \text{MAXWT}.
\end{array}
$$

These truncated weights no longer added to the population total.

The next step was to calculate a smoothing adjustment factor to correct the weight total by adjusting the weights of the untruncated cases only. The smoothing adjustment factor $ADJ_{sm}(cc')$ for class c' was calculated using the same weighting classes as were used for the questionnaire nonresponse adjustment:

$$
(14)\quad ADJ_{sm}(c') = \frac{\sum_{ijk \in c'} QADJWT(c'cijk) - \sum_{ijk \in c'} \delta_{trunc}(ijk) TRUNCWT(c'cijk)}{\sum_{ijk \in c'} TRUNCWT(c'cijk) - \sum_{ijk \in c'} \delta_{trunc}(ijk) TRUNCWT(c'cijk)} \quad if \quad \delta_{trunc}(ijk) = 0
$$

$$
1 \quad \text{if } \delta_{trunc}(ijk) = 1
$$

where $\delta_{trunc}(ijk)$ is 1 if the *ijk*th facility had its weight truncated and 0 otherwise. This adjustment factor was applied to all untruncated weights [$\delta_{trunc}(ijk) = 0$] to recover the weight lost (or gained) due to truncation. The final analysis weight is the product of the smoothing adjustment and the truncated weight or

$$
(15)\quad ANALWT(c'cijk) = \delta_{ques}(ijk)\ ADJ_{sm}(c'cijk)\ TRUNCWT(c'cijk).
$$