Understanding the Determinants of Food Stamp Program Participation: Literature Survey

Contract # GS-10F-0086K

January 25, 2008

Prepared for
Rosemarie Downer
U.S. Department of Agriculture
Food and Nutrition Service
3101 Park Center Drive
Alexandria, VA 22302

Abt Associates Inc.
55 Wheeler Street
Cambridge, MA 02138

Prepared by
Nancy R. Burstein
William L. Hamilton
Sarah Y. Siegel
Satyendra Patrabansh

Contents

Chapter One: Introduction

In 2005 Abt Associates Inc. completed a study for the Food and Nutrition Service (FNS) that developed a research agenda for studying the outcomes and possibly the impacts of the Food Stamp Program (FSP) with respect to participants' food expenditures, household food supplies, individual dietary intake, and food security (Burstein et al. 2005). Determining whether impacts could be measured reliably was an intermediate stage in the agenda. The scientifically accepted way of ascertaining program impacts, namely comparisons of outcomes between randomly assigned participant and control groups, had been ruled out because the FSP is an entitlement program.

In developing the research agenda, it could not be known whether a nonexperimental approach could yield impact estimates whose validity would be accepted by the research community at large. Consequently, one branch of the agenda was dedicated to identifying appropriate comparison groups for FSP participants—or determining that this could not be done. The first three sequential steps of this branch were:

- Study 1: Develop the best model of FSP participation that could be achieved using extant survey data, based on a review of previous models. Testing the newly-developed model would tell us how far we had still to go in understanding participation.
- Study 2: Conduct interviews with low-income households to learn about their decision processes with regard to FSP participation.
- Study 3: Build a new model of FSP participation using specially collected data from a new survey with items reflecting the findings from Study 2.

The current project, corresponding to Study 1 in that agenda, is being sponsored by FNS "to summarize existing research on the determinants of Food Stamp Program participation and assess the capacity of econometric models to correctly classify eligible households as participants or non-participants using available data". The study has three components:

1. Existing literature review: A review of available research on the determinants of FSP participation among different types of households.
2. Participation model development: An analysis of existing survey data to identify factors that contribute to a household's decision to participate or not participate in the FSP.
3. Model assessment and recommendations: An assessment of the "best" participation model, synthesizing findings from the literature review and model assessment, and recommendations on potentially promising types of data currently omitted from survey sources.

FNS noted in the Request for Proposals:

> This study is critical for the FNS Research Agenda because it will help address the issue of selection bias. One of the barriers to improving measures of program results is selection bias—unobserved differences between participants and eligible non-participants that may introduce bias into measured outcomes. To assess the extent and feasibility of controlling that bias, we need a better understanding of the characteristics and circumstances that influence a household's decision to participate in the FSP. This knowledge and

understanding will enable us to control selection bias in studies and will consequently provide us with more accurate information on program outcomes.

This draft report is the survey of the literature that will inform our extant data model development.

In the two years that have elapsed since the completion of the research agenda, and especially since beginning work on this project, our views of the potential value of Study 1 have evolved. This study was initially conceived as a benchmark or springboard for further research on participation, under the supposition that it would produce an econometric model that was qualitatively similar to those that have been previously published. We have characterized the factors included in those models as "the usual suspects," namely those socioeconomic characteristics that are invariably measured in or appended to national surveys. They include individual- and household-level measures such as the presence and amount of earnings, participation in other means-tested programs, household composition, demographics of the household head, and area-level measures of the local economy. We now see the role of Study 1 as expanding to subsume the objectives of Study 2 in part. Whereas the overall research agenda focused on interviews with FSP participants as a source of factors other than household income, composition, and demographics in their participation decision, it has become clear that there are other ways of identifying possibly relevant factors.

Two realizations have changed our view of the scope of this study and its potential function in the research agenda. The first is our understanding that the data we will be analyzing, the Survey of Income and Program Participation (SIPP), contains many potentially relevant measures beyond "the usual suspects", such as household reliance on friends and family in times of hardship. The second is finding that there exists an ethnographic[1] literature which addresses the research question of Study 2. While ethnographers have not explicitly asked low-income households "Why do you participate in the Food Stamp Program?" they have asked questions like "How do you meet your needs for food?" The responses show how the FSP fits into a wide array of coping mechanisms.

The content of the ethnographic studies suggests to us that the decision-making paradigm underlying previous econometric participation models may be inadequate. Rather than weighing in isolation the costs and benefits of participating in the FSP based solely on their needs and resources, low-income households may choose from a broad array of subsistence strategies in which the attractiveness of any one of them depends on the ever-changing set of available alternatives. In the next phase of this project, refining the study plan, we will consider how to implement these insights in our extant data analyses.

Although this report is based on a review of a body of research literature, it does not serve what is traditionally the objective of a literature review, which is to summarize and critique an empirical set of research, in this case on the relative importance of various determinants of FSP participation. To meet the broader goals of this project, we have used our review of the literature to identify the wider psychological concepts that, in addition to basic economic factors for a household, may frame the household's FSP participation decision. This literature review also provides suggestions about how the various concepts might be applied in developing and estimating a participation model. For concepts derived from quantitative studies, this includes methodological considerations, creative use

[1] We use the term "ethnographic" broadly to refer to research based on unstructured or semi-structured interviews, focus groups, and participant observation. Most of the relevant literature aims at describing and understanding the experiences of low-income individuals or households.

of general-purpose survey data, and incorporation of information from external sources on the economic and policy environment. For concepts derived from qualitative studies, this includes hypotheses based on anecdotal evidence or a priori considerations. Our goal in this report, in support of the planned data analysis, is to identify and organize these concepts. The next step will be to synthesize them into a model of FSP participation that is substantially richer than earlier models, and subject the new model to quantitative testing.

In the chapters that follow, we first summarize lessons learned from the literature on the standard econometric models of FSP participation. We then examine a variety of descriptive studies on stated reasons for nonparticipation, strategies for obtaining food, predictors and correlates of food insecurity, and general subsistence strategies. We conclude with a discussion of the implications of our survey for this extant data project and for the research agenda as a whole.

Chapter Two: Lessons About FSP Participation from Standard Econometric Models

Our review of the literature begins with econometric models of FSP participation that use large, usually national, datasets and regression modeling to study the factors that influence FSP participation. The participation model to be developed and analyzed as part of this project will follow this general approach, and these studies show what has been accomplished to date in that framework.

Econometric models of FSP participation have nearly a 30-year history. The earliest studies examined determinants of program entry and exit between two points in time (Coe 1979, Burstein and Visher 1989), and number of consecutive months of receipt or non-receipt (Kirlin and Merrill 1985, Carr, Doyle and Lubitz 1984, Lubitz and Carr 1985, Burstein and Visher 1989).

In this review we focus on 12 recent studies selected to show the range of ideas and approaches used. We have chosen to include papers from the last decade only, as these incorporate the most up-to-date statistical methods and conceptual insights. While studies that used the Survey of Income and Program Participation (SIPP) are of particular interest, others were included to highlight areas in which the SIPP has limitations. Exhibit 2.1 summarizes the 12 studies included in this chapter.

- **Data sets**. Six of these studies used the SIPP, three used other large surveys (the Current Population Survey (CPS), the Health and Retirement Survey (HRS), and the Fragile Families Study (FF)), one used State administrative data, and two used specially collected survey data.[2]
- **Samples studied**. Populations studied were all individuals or households that were apparently eligible for food stamps. Several authors limited their research to particular subpopulations, such as individuals aged 50 years or older (Haider et al. 2003, using the HRS), unmarried mothers of newborns (Hernandez and Ziol-Guest, 2006, using FF), or AFDC and TANF leavers (Cancian et al. 2001, using Wisconsin administrative data).
- **Sample sizes**. The sample sizes used vary from about 400 to over 100,000.
- **Measures of participation**. Most of this research studies participation rates directly. Other measures of FSP dependency that were studied were awareness of eligibility (Bartlett et al. 2004), FSP entries (Gleason et al. 1998, Bartlett et al. 2004), and FSP exits (Gleason et al. 1998, Hisanick and Walker 2000). Several authors simultaneously studied FSP participation and participation in related programs: WIC (Hernandez and Ziol-Guest 2006), food pantries (Bhattarai et al. 2005, Daponte 2000), and Medicaid (Cancian et al. 2001).
- **Analysis approach**. The most common approach was estimation of logit or probit models of whether or not an individual or household is currently receiving food stamps. Linear probability models (Hanratty 2006, Farrell et al. 2003, Hernandez and Ziol-Guest 2006) and bivariate probit (Bhattarai et al. 2005), and multinomial logit (Daponte 2000) were also used by some authors.

[2] All of the included studies are based on household- or individual-level data. Other studies of FSP participation use aggregate State-level data on participation rates. We have excluded those as less relevant to the task of developing a selection model for individual households.

Exhibit 2.1: Recent Econometric Studies of Food Stamp Program Participation

Study	Data Source	Sample size	Dependent variables(s)	Population Studied	Focal Participation Factors	Methodological Approach	Controls			
							Demographic Characteristics	Socioeconomic Characteristics	Household Composition	Local Economic Conditions
Bartlett, Burstein, and Hamilton (2004)	Researcher-conducted telephone interviews	976 households	Awareness of eligibility, completion of application	Food stamp eligible households	Local office policies and procedures	Logistic models	✓	✓	✓	✓
Bhattarai, Duffy, and Raymond (2005)	Current Population Survey (CPS), March and April 1999	3,010 households	Participation in FSP and food pantries	Households with income less than 125% of poverty	Receipt of other government benefits, length of food stamp application	Bivariate probit	✓	✓	✓	
Cancian et al. (2001)	State (WI) administrative data	15,707 individuals	Participation in FSP and Medicaid	Single mothers in WI who left AFDC/TANF in late 1995 and late 1997	Recent employment and welfare receipt, # of quarters eligible for FSP	Probit of participation at any time in year after leaving AFDC/TANF	✓	✓	✓	✓
Daponte (2000)	Survey of low-income households in Allegheny County, PA	398 households	Participation in FSP, use of food pantries, use of both, use of neither	Households in Allegheny Co. below 185% of poverty over-representing food pantry users	Percent of household expenditures on shelter, distance to food pantry, household has bank account	Multinomial logit	✓	✓	✓	
Farrell et al. (2003)	SIPP, 1996 panel	1,994-3,387 households	FSP participation	Income-eligible and fully eligible households	Permanent income, persistent poverty	Linear probability model, instrumenting for current income with past and future income	✓	✓	✓	
Gleason et al. (1998)	SIPP, 1990 and 1991 panels	3,316 spells	FSP exits and re-entries	FSP participants	Welfare receipt, number of months spell has been in progress, trigger events	Maximum likelihood estimation	✓	✓	✓	✓

Exhibit 2.1: Recent Econometric Studies of Food Stamp Program Participation

Study	Data Source	Sample size	Dependent variables(s)	Population Studied	Focal Participation Factors	Methodological Approach	Controls			
							Demographic Characteristics	Socioeconomic Characteristics	Household Composition	Local Economic Conditions
Gundersen and Oliveira (2001)	SIPP, 1991 and 1992 panels	3,439 households	FSP participation, food insufficiency	FSP-eligible households	Food insufficiency; expected FSP benefits; stigma	Probit models	✓	✓	✓	
Haider et al. (2003)	Health and Retirement Study (HRS), 1998 and 2000 waves	19,590 individuals	FSP participation	Individuals over 50 yrs old	Benefit level, income, assets, wealth, barriers to participation	Logistic models	✓	✓		
Hanratty (2006)	SIPP, 1996 and 2001 panels	12,600 families	FSP participation	Gross-income-eligible families with a household head 18-60yrs old who is a legal U.S. resident, with children	State-level FSP policies, State-level AFDC/TANF policies, mobility	Fixed effects linear probability models	✓	✓	✓	✓
Hernandez and Ziol-Guest (2006)	The Fragile Families and Child Well-Being Study	4,898 births	FSP and WIC participation	Non-marital births in U.S. cities with populations > 200,000 in 1999	Family structure, income volatility, public assistance receipt, child and maternal health, material hardship	Household level linear probability models	✓	✓		✓
Hisnanick and Walker (2000)	SIPP, 1996 panel	9,302 individuals	FSP exits	FSP participants	Welfare reform, past FSP experience, labor force participation	Logistic models	✓	✓		
McKernan and Ratcliffe (2003)	SIPP, 1990 and 1996 panels	134,780 individuals	FSP participation	Working-age adults (18-59) in low-income households	Employment status and work hours of adults in household, income volatility, State- level FSP policies	Fixed effects logistic models	✓	✓	✓	✓

In the sections that follow, we describe five aspects of these studies that have implications for our own modeling activities: the implicit or explicit logic model assumed by these authors; advantages and drawbacks of the alternative approaches; special considerations in using the SIPP for studying FSP participation; combining survey and administrative data; and researchers' development of some creative concepts within the logic model.

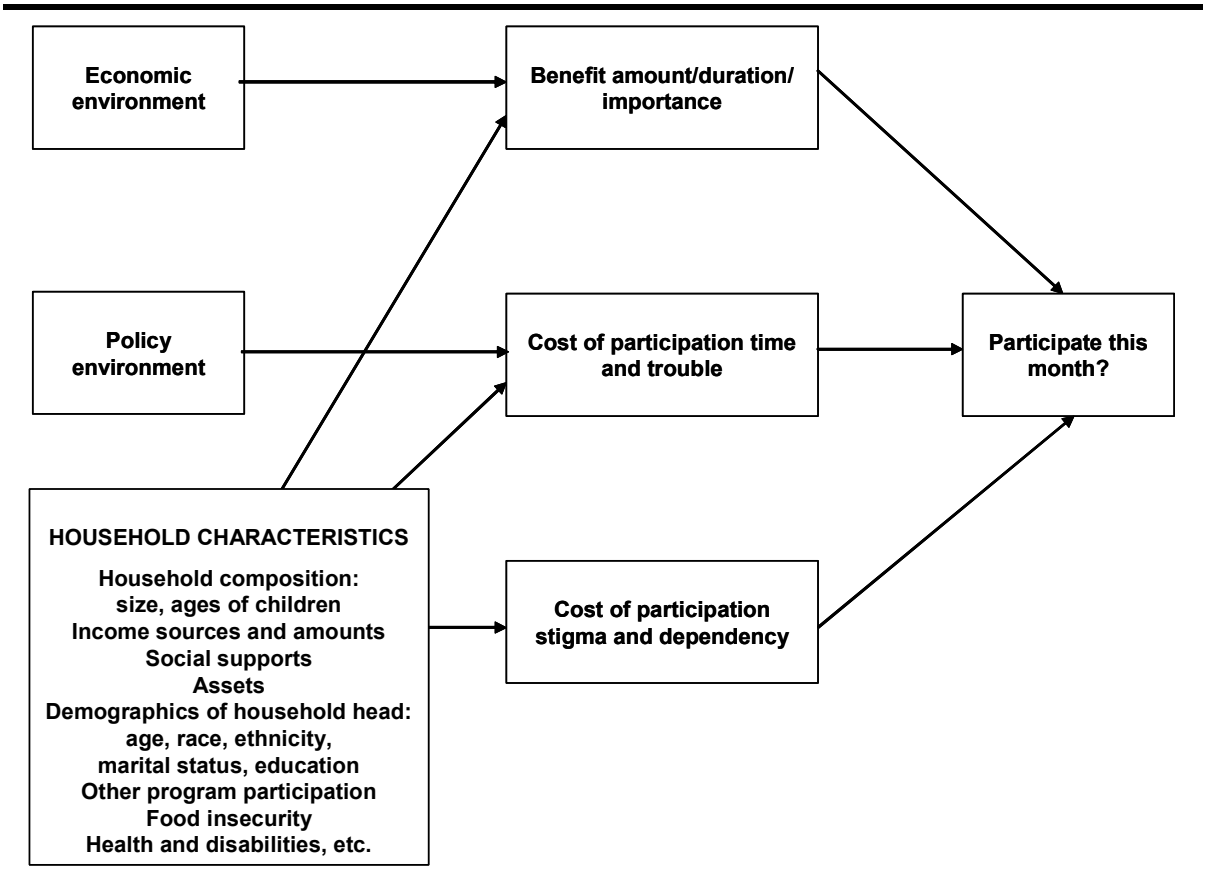
Underlying Logic Model

Although only some of the authors (McKernan and Ratcliffe 2003, Haider et al. 2003, Hanratty 2006, Bhattarai et al. 2005, Gundersen and Oliveira 2001) explicitly present logic models of participation, similar implicit models of rational behavior can be said to underlie all of this research. The logic model assumes that each month, households that are eligible for food stamps assess the benefits of continued participation or program entry relative to the costs, and base their decision on that comparison (Exhibit 2.2). Their considerations in making this cost/benefit assessment include the following:

- Size and perceived value of the monthly benefit amount, with participation more likely in households with greater needs, especially for food. Some dimensions of need are explicitly part of FSP benefit determination (shelter costs) while others are not (e.g. car repairs)

Exhibit 2.2

Logic Model of Food Stamp Program Participation



- Stability of the household's economic circumstances, where the expected duration of benefit is higher for households whose economic circumstances are unlikely to improve (affected by the local economy)
- Costs of participating in time and trouble, varying across groups and locales
  - Entry costs of the application process, which mean that ongoing participants are more likely to continue than nonparticipants are to apply
  - Difficulties and/ or inconvenience of the application process, which may be greater for individuals who do not speak English, who are elderly, who are mentally or physically disabled, or who have jobs
  - Participation costs that vary with local office policies and procedures
  - Incremental participation costs, which are lower for households that are also participating in related programs (AFDC/TANF, SSI, GA)
- Costs of participating in terms of stigma and sense of dependence, which vary with individuals' attitudes and community norms

Some factors are included in these models simply as control variables, without clear hypotheses. For example, Gleason et al. uses indicators for the FNS regions to "capture additional differences in factors affecting FSP spell duration across regions that are not captured by the other state-level variables". Similarly, McKernan and Ratcliffe remark that "household preferences are captured to some extent with household composition, demographic characteristic, region, and metropolitan area variables." Exhibit 2.3 lists the factors that were included in these models, categorized by the area of the logic model they relate to.

The direct determinants of participation (the three boxes in the middle column of Exhibit 2.2) are rarely represented explicitly in the econometric models we reviewed. *Benefit amount* appears in a single study, Haider et al. The amount is usually omitted because it is virtually determined by other variables in the model (household income and size). Need for food in particular is sometimes measured by food insecurity (e.g. Bhattarai et al., Gundersen and Oliveira) or by the presence of children. Direct measures of *costs of participation (time and trouble*) are likewise rarely included. Bartlett et al. included a measure on required trips and meetings for applicants, and Bhattarai et al. included number of pages in the FSP application form. Likewise, a measure of *stigma and dependency* appears in only one study, as the *imputed response* to the question "Do you/would you use food stamps at a store where you are not likely to be known?" (Gundersen and Olveira 2001).[3]

Instead, the models generally include the distal determinants of these factors. Measures of the *economic environment* appear as proxies for the expected duration of FSP benefits in six of the studies, in the form of unemployment rates, average wages, and state GDP. Assorted measures of the State *policy environment* appear in six studies: the zero-income AFDC benefit for a family of four, the AFDC-UP and GA caseloads, EBT implementation, certification length, simplified reporting,

[3] Lacking data on actual perceived stigma, the authors used the data collected by Bartlett et al. (2004) to relate this item to household characteristics and the political climate, and then used the relationship to predict responses for their own analysis sample.

Exhibit 2.3

Variables Included in Reviewed Studies

Section of Logic Model	Variable
Benefit amount/ duration/ importance	Benefit amount Food insecurity
Costs of participation: time and trouble	Length of FSP application Required trips and meetings for application
Costs of participation: dependency and stigma	Perceived stigma (imputed)
Economic Environment	County unemployment rate State unemployment rate State average wage rates (for service workers, for manufacturing, minimum wage) State GDP Region/county Urban/rural Food pantry availability
Policy Environment	State FSP policies: length of FSP application form, recertification periods, EBT use, simplified/ semiannual reporting, vehicle exemptions Other State policies: AFDC/TANF benefit, AFDC-UP and GA caseloads Local FSP policies and procedures (wide variety) State political environment, as proxy for community norms
Personal/ Household Characteristics	Demographics of household head: race/ethnicity, age, education, marital status, immigrant status, citizenship Demographics of other household members Household composition: structure, numbers Employment and earnings: employment status, earnings amount, hours, volatility, # of jobs, work registrant, ABAWD Health: physical, mental, disabilities, for adults and children Assets: financial assets, home ownership, vehicles Income: current, annual average, volatility Participation in means-tested programs: AFDC/TANF, prior food stamp receipt, others Financial contributions from friends and family Food security, material hardship, shelter costs relative to income Dynamics of circumstances: number of quarters eligible for FSP, family structure volatility, moved in last 4 months

automobile exemptions, and the FSP participation access rate. One study (Bartlett et al.) also included around 50 measures of *local policies and procedures* including FSP office hours of operation, targeted personal outreach, supervisor attitudes, and third party verification, to name a few. These policies were also interacted with household characteristics—for instance, the child friendliness of an office was expected primarily to affect participation rates of households with children. Gundersen and Oliveira included measures of the State political environment in developing their imputed measure of perceived stigma.

The bulk of the factors included in the models are *household characteristics* that affect all three boxes in the middle column of Exhibit 2.2. Benefit amount is typically proxied by household income and size; expected benefit duration by such factors as employment history, employment status, income volatility, education, age, and disabilities; and perceived importance of benefits by food insecurity, assets, and household composition, in particular by the presence of children (raising the importance of food benefits) or elderly (lowering the importance of food benefits).

Some of the same household characteristics and others are frequently present as proxies for the time and trouble costs of participation, especially English-language ability, citizenship, age, health and disabilities, and employment status.

The dependency and stigma costs of participation are implicitly captured by many of these same factors and others, in particular, race and ethnicity, age, education, marital status, mobility, and prior or concurrent participation in means-tested programs. Prior participation in the FSP is interpreted not only as reducing uncertainty about costs and benefits, thus making application more attractive, but also as indicating that the household does not deem the stigma or inconvenience of participation to be an insuperable barrier. The common finding that the elderly are relatively less likely to participate is interpreted in part as a greater feeling of stigma and perhaps greater difficulty in complying with application requirements.

Advantages and Drawbacks of Alternative Approaches

Aside from the specific content of the models, discussed above, each of the 12 included studies has particular methodological strengths and weaknesses for understanding FSP participation decisions. We describe these here under the categories of type of data used, measures of participation, subpopulations studied, and quantitative methods.

Type of Data

The most obvious distinction among the included studies is whether they used large national extant data sets, administrative data, or specially collected data. ***Extant survey data*** (used in nine of the 12 studies) has the advantages of (a) low cost; (b) potential national representativeness (SIPP, CPS, and HRS, but not FF); and (c) synergy from many researchers using the same data. One disadvantage is that data are subject to error due to respondents' misreporting information and (for longitudinal data) sample attrition over time. Furthermore, the data collected may not be well tailored to the research task. In particular, eligibility for food stamps must be inferred based on households' reported circumstances rather than determined by a caseworker. The researcher must be content with the participation factors as measured by the pre-existing survey instrument.

Administrative data (Cancian et al. 2001) are excellent for studying program exits and re-entries, because they are essentially error-free with regard to participation and eligibility. Because they exclude nonparticipants, however, they can shed no light on program entry or overall participation. A second drawback is that they are not nationally representative.[4] In addition, they are even more limited than national surveys in the participation factors included.

Special surveys (Bartlett et al. 2004, Daponte 2000) have the potential to include all of the factors of interest to policymakers and researchers (subject to respondent burden and fatigue). With sufficient resources, they may also be nationally representative (Bartlett but not Daponte). They suffer however from several of the same drawbacks as extant surveys: potential respondent error, sample attrition, and lack of caseworker eligibility verification. Other drawbacks are the time required to develop and field a new survey, and the great expense relative to secondary data.

Measures of Participation

The studies examined also varied by whether they analyzed point-in-time participation in the Food Stamp Program (and related programs), or program entry and/or exit. The resulting models provide different types of information. Factors that affect participation might or might not affect program entry or exit. For example, a stable high unemployment rate might cause a lower exit rate from the FSP, because few opportunities are available. An *increase* in the unemployment rate, regardless of the level, might increase program entries as individuals are thrown out of work. As another example, elderly individuals tend to have low participation rates, but this is because as eligible nonparticipants they are unlikely to enter the program. They also have relatively low exit rates, once they do enter the food stamp rolls. Other groups may have low participation rates because they exit quickly.

For the purposes of FNS' research agenda, it is appropriate to model FSP participation. The ultimate research questions pertain to nutritional effects of FSP participation, based on comparisons of participants with "otherwise similar" nonparticipants. Nonetheless, the entry and exit models are important as reminders that the single best predictor of point-in-time participation is participation in the recent past.

Several of the studies jointly analyzed participation in related programs (Bhattarai et al. 2005, Daponte 2000, Hernandez and Ziol-Guest 2006). The information gained adds to our understanding of households' joint decision process, and suggests additional factors for inclusion in FSP participation models because they make complementary or substitute programs more or less attractive. For the current research goals, however, which are to understand FSP participation in order to measure FSP effects on dietary outcomes, joint participation modeling is superfluous.

Subpopulations Studied

The Food Stamp Program is unique among means-tested programs in covering all household types regardless of composition. While most of the studies examined covered all households, several focused on particular types (e.g. single mothers, working-age adults, older adults).

[4] The nationally representative Food Stamp Program Quality Control Database is cross-sectional and not well suited to analyzing even program exits.

Including the whole population in a study is an obvious strength; yet some participation factors may be relevant for only some subgroups, and their effects might not be seen if the population is studied en masse. Estimating separate models for subgroups allows for exploration of group-specific factors, but has the disadvantage of reduction in statistical power. In particular, smaller sample sizes might lead to some effects not being detected in any one population segment that could have been seen in the full sample.

Two approaches were taken to addressing subgroup effects. Gleason et al. estimated separate participation models for households depending on household composition (all members elderly and disabled, other childless households, female adults with children, married couples with children, and other households with children.) Bartlett et al. in contrast estimated pooled models with interaction terms. For example, rather than estimate a separate model of FSP application completion for families with small children, the authors estimated a single model for all households in which the presence of small children was interacted with several local office policy measures (provision of child care at the food stamp office, index of "child friendliness", indicator that clients were asked to leave children at home). Other participation factors were assumed to have the same effects for this household type as for all others. While distinct models for subgroups are instructive in exploratory work, considerations of statistical power suggest that pooling the data and including subgroup interactions is a preferable approach for a final model.

Quantitative Methods

The included studies analyzed dichotomous variables (program participation, entry, exit) using several functional forms, and variously addressed endogeneity of household income, and multiple observations on the same individuals. With regard to *functional form*, non-linear models (logistic and probit) are theoretically preferable to linear probability models (LPMs) because predicted probabilities from non-linear models lie between zero and one, and effects of covariates are realistically weaker at the extremes. The choice between logit and probit is purely one of convenience as there is no theoretical basis to prefer one to the other. The practical advantage of LPMs, which were used by Farrell et al. and Hernandez and Ziol-Guest, is their compatibility with statistical adjustments that adjust for complex sampling, endogeneity, and multiple observations per household. The field is constantly evolving with regard to ability of available modeling software to take account of all these considerations.

Farrell et al. (2003) have argued that households may *determine jointly* whether or how much to earn along with FSP participation. Hence including household income in an FSP participation model is potentially misleading. This argument is much more common in the welfare than FSP participation literature (Moffitt 1992), because the larger AFDC or TANF benefit is more likely to make working unnecessary.

Researchers have two options for treating potentially endogenous variables. The first is to assume that one direction of causality is essentially negligible—in this case, that income strongly affects the FSP participation decision through its effects on unmet food needs, program eligibility, and potential benefit amount, but that the converse effect of FSP participation on labor force participation is small enough to ignore. McKernan and Ratcliffe, noting the possibility of reverse causation, solved it in part by lagging the employment status indicator. The alternative, if bidirectional causation is thought to be substantial, is to exclude the endogenous factor from the model, replacing it by its determinants. Thus, instead of including earnings, one could include measures of earning potential and

opportunities (education, work experience, race/ethnicity, local unemployment rate, and so on). The advantage of using these variables as instruments is the reduction in the threat of simultaneity bias. The disadvantage is a potentially serious loss of precision. This explicit approach to addressing potential endogeneity was taken by Farrell et al., whose creative contribution was to use income measured subsequently as well as previously for the same households as a proxy for permanent income. Although this approach is not generally feasible, it suggests including concurrent measures of respondents' expectations as a participation factor.

A final methodological variation pertains to treatment of *multiple observations* on the same individuals or households. Nearly all of the researchers used the household as the unit of analysis. This is appropriate because food stamp benefits are granted to groups of individuals who reside, buy food, and prepare meals together. While a household can occasionally contain multiple food stamp assistance units, and some household members may be disqualified from participating, none of the data used by the various researchers collected the necessary detail for drawing these distinctions. A study that includes separate observations on multiple individuals in the same household (e.g., McKernan and Ratcliffe) would not seem to provide any more information than could be obtained by collapsing the data to the household level—and requires a statistical adjustment for the perfect correlation of participation by household members in a given month.

Even using the household as unit of analysis, researchers with longitudinal data such as the SIPP must take account of multiple observations per household. Both Hanratty and McKernan and Ratcliffe did so using fixed effect models. SIPP households comprise a probability sample and results are generalizable to the universe from which they were drawn—the non-institutionalized US population. Software permitting, a random effects model would therefore appear to be more appropriate.

Special Considerations in Using the SIPP

As noted above, six of the 12 studies used the SIPP, and the authors' remarks on the issues that arise are especially pertinent for this project. Several concerns with the SIPP have been highlighted in the research. The most serious of these is ***misreporting of FSP participation***. Research on the problem is well summarized by McKernan and Ratcliffe:

> Estimates suggest that the SIPP underreports food stamp receipt by seven percent to 19 percent (Cody and Tuttle 2002; Bitler, Currie and Scholz 2002) … One could consider adjusting the SIPP data to account for the underreporting, but this requires understanding the root cause(s) of the underreporting. Cody and Tuttle's analysis suggests that "it may not be possible to identify the root causes [of the underreporting]" and that "underreporting is most likely the result of multiple causes, making it [] difficult to identify the right adjustment" (p. 28). These authors also suggest that choosing the wrong adjustment strategy could lead to greater biases (Cody and Tuttle 2002, p. 25). Bitler et al. (2002) also examine underreporting of the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) in the SIPP and find that the SIPP underreports WIC participation to a greater extent than FSP participation—25 percent versus 10 percent, respectively (p. 13). Their analysis further suggests that the underreporting of WIC participation in the SIPP is randomly distributed across categorically eligible WIC groups (Bitler et al. 2002, p. 15), suggesting that any bias from the underreporting is likely to be small.

Farrell et al. suggest that underreporting of FSP participation could be more severe in persistently very poor households. None of the six studies have corrected for underreporting of FSP participation. In general, it is quite difficult to adjust for misreporting of FSP participation without first estimating FSP participation more accurately using administrative data.

A second, related concern is ***sample attrition*** and its interaction with underreporting (Farrell et al.). The concern is two-fold: that those who fail to report participation in earlier waves are more likely to attrit in later waves, and that participation relationships are biased toward zero as a result of this pattern:

> There is substantial evidence that under-reporting biases estimates of relationships between participation, household earnings potential, and assets. Bollinger and David (2001) examined the extent of underreporting, its relationship to attrition, and its effects on analyses of the determinants of participation using 1984 SIPP, matched with administrative program records in three states. They found that the number of respondents in the three states who participated in the program at the time of the first or second wave interview was about 13 percent higher than the number that reported participating. They also found that those who failed to report participation in these early waves were also less likely than others to participate in later waves.
>
> Bollinger and David modeled the relationship between participation rates and both earnings potential and assets using data from the fourth wave of the SIPP (the wave in which asset data was collected). They specified a probit model for actual participation and embedded it within a model for reporting error and biased attrition. They found that, in comparison to models that ignored this problem, their estimates showed higher participation rates among the households with the lowest earnings potential and assets, and lower participation rates among the households with higher earnings potential and assets. Thus, under-reporting and biased attrition make it appear that the relationship between the probability of participation and these two variables is not as strong as it really is.

A third concern is ***miscalculation of FSP eligibility***. A valid definition of FSP eligibility is essential for understanding the participation decision. Researchers using the SIPP base their estimates on reported household size, presence of elderly and disabled individuals, income, assets, and various deductions. No survey can include all the information (and verification) used by caseworkers to determine eligibility, however. *Overestimating eligibility* (due to ignoring information on household's assets) is the analytic counterpart to underreporting of participation. If the study sample includes many ineligible households, the predictors of participation will not be meaningful. Farrell et al. compared measures based on income-eligibility and full eligibility for food stamps. Other authors have focused on the danger of *underestimating eligibility*. Gleason et al. found that 20 to 25 percent of FSP participants in a given month were coded as ineligible for the program when they attempted to replicate the eligibility criteria in the 1991 SIPP. Hanratty likewise noted that some families with assets above the 2003 asset limit reported having received food stamps, and suggested that it was due to measurement error in the eligibility imputations.

Another issue in using the SIPP in modeling participation is treatment of ***reported participation changes within and across interview waves***. Longitudinal surveys often collect monthly data retrospectively (e.g. over a one- or two-year period for the Panel Study of Income Dynamics, and over a four-month period for the SIPP), and it is tempting for researchers to make use of this detailed

information. It remains an empirical question however whether reported changes in participation status over a reference period correspond predominantly to real phenomena and can provide useful information for modeling behavior.

Reported spells of participation tend to be coextensive with the interview reference period, with program entries and exits piling up disproportionately at the seams between the waves. This tendency has been greatly reduced in later panels of the SIPP relative to earlier panels through use of better interviewing techniques. A conservative solution to this issue of "seam bias" is to define participation based on the reference period rather than the individual months. This approach was taken by Hanratty, who restricted the sample to the most recent month in each wave of the survey. McKernan and Ratcliffe used monthly data and made two adjustments: including a dummy variable for the seam month, and filling in one-month gaps in spells on or off the program. It might be argued that not only should the seam month be distinguished from the others, but the remaining months in the reference period should be distinguished from each other. Some of underreporting of FSP participation in SIPP could be a result of recall error, i.e. higher omission of reporting participation the longer the interval between the reference month and the interview month.

A final issue is that the ***complex design*** of the SIPP requires careful attention to use of sample weights and intertemporal correlations between observations for the same families. Methods used are discussed by several of the authors.

A notable strength of the SIPP is the richness of the ***topical modules***, which were utilized by all of the authors. In particular, researchers took advantage of the recipiency history module, which documents previous receipt of food stamps, and the assets module, which is used to estimate eligibility. Other modules that were used to test specific hypotheses were those pertaining to work schedules, migration history, medical expenses, material hardship and food insecurity, and child care. One study (Gundersen and Oliveira) creatively addressed the absence of a measure of perceived stigma in the SIPP by relating a measure from another data source to both household and local political variables, and then imputing values to the SIPP respondents.

A challenge of the topical modules for users of the SIPP is deciding how to integrate data that are measured in every month or wave (such as FSP participation) with other data that are measured less frequently, including eligibility factors. Authors who have estimated monthly participation or participation in waves where assets or income deductions data are not collected have (a) used less stringent eligibility criteria (Gleason et al. and Hisnanick), (b) assumed that net income eligibility and/or asset eligibility do not change between the waves they were measured in and waves considered in the study (Gundersen and Oliveira), or (c) done both (McKernan and Ratcliffe and Hanratty).

Combining Survey and Administrative Data

A common theme in many of the studies was that information on the local economic and policy environment was needed to supplement survey data on household characteristics. Gleason et al. obtained information on unemployment rates and average wages in manufacturing at the State level from the BLS. McKernan and Ratcliffe included monthly State unemployment rates and quarterly GDP. Hernandez and Ziol-Guest, using the Fragile Families data, included local area unemployment rates.

State level policy measures were also obtained for several of these studies. Gleason used information the maximum AFDC benefit for a family of four, plus measures of the AFDC-UP and GA caseloads as a percent of the AFDC-R caseload. McKernan and Ratcliffe used information on EBT implementation and certification length. Bhattarai et al. had information on the number of pages in FSP applications by State. Hanratty's state policy measures were certification period length, use of simplified reporting, and automobile exemptions. Hernandez and Ziol-Guest used the State participation access rate.

Several cautions were raised regarding the policy measures. Hanratty was concerned that the certification periods were endogenous:

> For example, states may decide to relax their certification requirements when the social and political climate becomes more tolerant of welfare receipt. In this case, the measured impact of certification requirements may reflect changes in the social acceptability of using Food Stamps, rather than the impact of certification requirements per se.

Bartlett et al., who included a rich array of policy measures in over 100 local offices, were still dissatisfied that they had measured the important factors. For example, they included six measures of local office outreach, but felt that information on the content of the outreach communications and the intensity of the activities would have improved their models. Furthermore, this approach cannot address all effects of policies on participation:

> Even if a policy causes many households to drop out of the application process, the modeling approach will not find an effect if the policy does not vary enough across offices to cause real differences in the dropout rate. Documentation requirements, for example, are a virtually universal element of the food stamp application process, and it is quite possible that the local variations in requirements are not sufficient to make a clear difference in the number of people who find the requirement an insurmountable hurdle.

Additional Participation Factors

The studies considered here had a great deal in common in their included factors. Several of them had notable insights outside the basic framework. These are listed below in three categories: population subgroups, measures of employment and income, and other predictors.

- Participation models for population subgroups:
  - Gleason et al. estimated separate models of participation for five subgroups, and found that these models were substantively different. The groups were: households in which all members were elderly and disabled; other childless households; households comprising female adults and children; married couples with children; and other households with children.
  - Farrell et al. distinguished between the temporarily and persistently poor.
  - Haider explored the low take up of food stamps by the elderly (and concluded that it was primarily because they were less needy).

- Measures of employment and income:
  - Gleason et al. included a measure of FSP work registrant status.
  - McKernan and Ratcliffe included several interesting measures of work status: traditional daytime hours, multiple jobs, and job changes.
  - Farrell et al. used annual income as a measure of permanent income.
- Measures of assets:
  - Bartlett et al. and Haider et al. included measures of financial assets.
  - Daponte included an indicator of a bank account.
  - While vehicle ownership was included by several authors, Hernandez and Ziol-Guest focused on a "reliable" car and Bartlett et al. on the vehicle value relative to FSP eligibility regulations.
  - Hernandez and Ziol-Guest, Gundersen and Oliveira, McKernan and Ratcliffe, and Haider et al. included home ownership.
- Other predictors:
  - Using the SIPP, Farrell et al. included future income as a predictor of FSP participation.
  - Gundersen and Oliveria and Bhattarai et al. included food security measures, noting that several studies had shown that food insecurity seems to cause FSP participation.
  - Bartlett et al. included effects of a wide array of local office policies, including supervisor attitudes and office ambience.
  - Haider included personal barriers to participation related to health and functional disability.
  - Fernandez included "a rich set of demographic, health, and economic hardship correlates of program participation" available in FF, such as child health, maternal depression, and material hardship.
  - Gundersen and Oliveira used an imputed measure of stigma based on National Food Stamp Program Survey data.
  - Daponte explicitly studied the presence of alternatives; rather than modeling FSP participation in isolation, the author modeled the choice among (a) using Food Stamps (b) using a food pantry (c) using both, and (d) using neither.

The 12 studies described in this chapter are intended to be generally representative of studies testing econometric models of FSP participation. Although the models differ in the number of predictors included as well as the measures of FSP participation, they share a conceptual model that focuses on household demographics, household income, and the local economic and policy environment. Psychological and personal costs associated with applying for or using benefits appear only by proxy or imputation based on the demographic measures. Motivated by concerns that econometric models may have been limited by data constraints and/or by insufficient conceptual frameworks, we have expanded the literature review beyond these models to a search for factors that have not been evaluated in these studies.

Chapter Three: Lessons about FSP Participation from Other Research

This chapter addresses the question of whether Food Stamp Program participation may be influenced by factors beyond those included in the econometric models described in Chapter Two. As stated at the end of the discussion of those models, this part of the literature review is motivated by the assumption that past models may have been limited both by unavailability of data that measure some of the participation factors and by use of insufficiently broad or detailed conceptual frameworks.

The first step was to examine the literature for studies about food stamp participation that focused on a household's stated reasons for participation. In addition, we reviewed studies about alternative ways that families may meet their food needs, studies of the determinants of food insecurity, and studies of low-income households' subsistence strategies.

This review was not designed to determine what has been "proven," but to identify ideas that directly or indirectly suggest hypotheses about FSP participation. An idea reflected in a single household's story may be as useful for this purpose as a statistically significant relationship in a multivariate model. The important criterion for inclusion is that there is a plausible link between the factor and FSP participation, i.e., there is a conceptual basis for having studied the particular factor. We do not assess the strengths and weaknesses of the individual studies, nor list results for each study. Rather, this chapter presents the concepts that we identified, and Exhibit A.1 (in Appendix A) lists the studies that we reviewed and briefly describes the nature of the research they involved.[5]

Several broad themes emerged from this review. First, the FSP participation decision is just one in a set of choices households make in defining and meeting their food needs. Second, the FSP participation decision occurs in the context of a broader attempt by members of the household to match an array of household needs against an array of potential resources in a way that reflects personal values and responds to daily changes in both needs and resources. Additional contextual factors in the FSP participation decision for potential participants are their view of themselves as independent and their concern about how others view them. Representing these concepts in a model of FSP participation will pose very substantial challenges of measurement and model specification.

Stated Reasons for (Non)Participation

One way to learn why some eligible households fail to participate in the FSP is to ask them. A substantial number of studies over the past three decades have done exactly that.

The USDA has directly commissioned two comprehensive research projects examining reasons for eligible households' nonparticipation, including national sample surveys that asked apparently eligible respondents for their reasons. In addition, a number of researchers have approached the topic using either broad national surveys that asked a few questions about FSP participation or special-purpose surveys of selected populations or areas. Searching the database of journals and other published literature yielded an additional 17 studies that were not principally models of the types

[5] This exhibit is parallel to Exhibit 2.1 in the preceding chapter but is much lengthier.

described in Chapter Two.[6] Several of these studies asked former FSP participants why they had left the program or, if they had left and returned, why they had returned.

The most recent comprehensive research effort was the Food Stamp Program Access Study, which surveyed a national sample of eligible nonparticipants who had either (a) not applied for assistance, (b) had applied but not enrolled, or (c) had enrolled but dropped out without being found ineligible (Bartlett and Burstein, 2004; Bartlett, Burstein et al., 2004). That survey built on the results of prior research, and therefore offers a quite comprehensive list of stated reasons for nonparticipation. The list of reasons shown in Exhibit 3.1 derives from the structure in this work, but we have incorporated a few additional concepts that appeared only in other studies.

Bartlett and Burstein presented bivariate tabulations relating households' stated reasons to a limited set of household characteristics (whether or not the household included any elderly members, included any children, and had previously participated in the FSP). An earlier comprehensive study (Ponza, Ohls et al., 1999) also presented tabulations for selected subgroups: households with elderly members, with earnings, with assets, who were located in rural areas, and who had previously applied for participation. Two other studies presented selected relationships between reasons for nonparticipation and subgroup characteristics.[7] Between-group differences in reasons that were statistically significant, or that author interpreted as important, are shown in the second column of Exhibit 3.1.

More than one of these reasons may influence a household's participation decision. The survey for the FSP Access study presented a list of 17 possible reasons for nonparticipation to non-participating respondents who thought they were eligible for FSP benefits, and to those who said they would not participate even if they knew they were eligible. On average, respondents reported that 4.9 of the 17 possible reasons were factors in their own decision not to participate.

A number of the stated reasons do not readily fit into categories of the logic model presented in Chapter Two, indicating a need for the model to take on some additional complexity. Some of the reasons imply a potential misunderstanding of program rules, suggesting that perceptions of program rules and requirements (as distinct from the requirements themselves) should be incorporated. Other reasons reflect household values, particularly the importance that is placed on "getting by" without assistance.

Some of the reasons pertaining to the difficulty of meeting program requirements for application or participation suggest that a complete model should represent the household's abilities and resources relevant to meeting these requirements, as well as identifying the requirements themselves. Some of the limitations on abilities or resources may be reflected in characteristics such as poor health/ disabilities, limited English language proficiency, and low education, but other factors might difficulties with the transportation and child care available to the household and with juggling the schedule of adults' and children's school hours.

---

[6] We searched for "Food Stamp Program" and ("nonparticipation" or "nonparticipant") in a full text search.

[7] We omit here two other studies that included more systematic analysis of the relationship between household characteristics (Coe, 1983; Blaylock and Smallwood, 1984). Both used data from the 1970s in which only a single reason for nonparticipation was coded. Given the much greater public awareness of the FSP today, it seems likely that relationships observed in these earlier studies would have changed.

Exhibit 3.1

Stated Reasons for Nonparticipation in the Food Stamp Program

Reason for Nonparticipation	Particularly Relevant Population
Awareness of FSP	
Never heard of program	
Don't know where to apply	
Self-perceived ineligibility	
Earnings	Non-TANF recipients[d]
Told ineligible	Prior participants[a]
Previously denied	Prior participants[a]
Receiving benefits from other program	
Value of car	
Savings	Elderly, no prior participation[a]
Time limits	
Received lump sum payment	
Citizenship	
Would not apply if eligible, or dropped out for reasons other than ineligibility	
Independence and other personal values	
Can get by without	Elderly, single-person household, non-minority, at least high school[b]
Don't want to depend on government	
Others need it more	
Want to care for child, not work (reason for participation)	
Costs of application or participation	Prior participants[a], non-TANF recipients[d]
Do not want to go to welfare office	
Have to answer personal questions	
Too much paperwork to apply or recertify	
Would require too much time away from work	
Would require too much child care/elder care	
Too difficult to get to office	
Office is unpleasant or unsafe	
Work requirements too difficult	
FSP participation requirements too difficult	
Not treated well by workers	
Difficulty getting/using food stamps	
Stigma	
Do not want to be seen shopping with food stamps	
Do not want people to know need financial assistance	
Feel uncomfortable using food stamps	Elderly[c]
Low expected benefits	
FSP benefit too small	
Not eligible for cash, so not worth it	
Previous bad experiences	Prior participants, non-elderly[a]
With FSP	
With other government program	
Don't know how to apply	No prior participation[a]

[a] Based on Bartlett and Burstein, 2004
[b] Based on Ponza, Ohls et al., 1999
[c] Based on Martin, Cook et al., 2003
[d] Based on Zedlewski and Brauner, 1999

One study examined the reasons that people who had left the FSP gave for subsequently re-applying for benefits (Richardson, Schoenfeld et al., 2003a; Richardson, Schoenfeld et al., 2003b). Most respondents cited changes in the factors normally considered in the econometric models, such as a loss of earnings or an increase in family size. But a number of responses identified other kinds of events that would strain household financial resources or increase the difficulty of working, such as problems with housing, transportation, or child care; loss of support from relatives/friends; illness or disability of someone in the family; and beginning and education or training program. These factors also argue for a more inclusive concept of needs and resources than that applied in previous models.

Strategies for Meeting Food Needs

Many apparently eligible households say that they do not apply for FSP benefits because they do not need assistance, or can get by without it. We hypothesize that some of these households may, as an alternative to food stamps, employ some of the coping strategies that have been identified in the literature on food insecurity.

Our electronic literature search[8] identified 10 studies concerning coping strategies for dealing with food insecurity, most based on ethnographic or other qualitative research. Much of this research builds on research done in constructing an approach to measuring food insecurity (Radimer, Olson et al., 1992).

Particularly useful for the present purposes is a study that used 11 focus groups with low-income participants in New Jersey (Kempson, Keenan et al., 2003). The participants were asked to talk about "things that you or people you know have done to get through the month with enough food." The authors compared the results with a prior study of the same topic using nutrition educators as the source of information, finding a very high degree of overlap (Kempson, Keenan et al., 2002a; Kempson, Keenan et al., 2002b. Exhibit 3.2 shows the complete list of practices identified by these studies.

Other studies offered additional examples of specific coping strategies, or alternative categorizations of strategies. For example, one study summarized the strategies as, "(1) relying on others; (2) adjusting resources; (3) reducing food consumption; (4) making trade-offs; and (5) acquiring nutrition and shopping knowledge and skills" (Greder and Brotherson, 2002). Some strategies may have been overlooked, such as collecting recyclable cans and bottles. In general, however, the list in Exhibit 3.2 provides a fair representation of the coping strategies reported in the literature.

The literature on coping strategies suggests that a household chooses whether or not to participate in the FSP as one among many possible strategies for meeting its need for food. Some of these strategies actually help define the need for food (e.g., not inviting friends over for dinner). This suggests that households' relative needs for food should be described by considering the nutritional

[8] Our electronic literature search criteria required the terms "food insecure/insecurity" or "food secure/security" in conjunction with "low income" or "poor" or "poverty" to be in the abstract. This search covered the period from 2000 to the present. A complementary search looked for the term "food stamp" combined with "ethnography/ethnographic" or "in-depth interview" anywhere in the text, and did not limit the time period.

Exhibit 3.2

Food Acquisition and Management Practices Used by Low-Income People

Food Acquisition Practices	Food Management Practices
Rely on Resources Offered in the Community	***Manage Food Supply***
Participate in Federal Food Programs	Strategize food preparation
Food Stamps	Make low-cost dishes
Head Start	Remove slime from lunch meat
School lunch and/or breakfast program	Remove mold from cheese
Special Supplemental Food Program for Women, Infants and Children (WIC)	Remove mold from grains
	Remove insects from grains
Attend events primarily to obtain food	Remove spoiled parts of fruits/vegetables
Church fellowship	Dilute
Nutrition education class	Ration household food supply
Happy hour at bars	Allocate food
Stores offering samples	Avoid inviting guests when food would be expected
Participate in locally sponsored food programs	Label food with names
Church dinners	Lock up or hide food
Food pantries	Limit amount of food and/or second helpings
Local programs	Conserve food
Private businesses	Take leftovers home
Senior nutrition sites and soup kitchens	Preserve food
Shelters	Can or freeze
Private individuals	Store perishables inadequately
Interact with Informal Support Systems	***Regulate Eating Patterns***
Exchange resources	Restrict personal food intake
Sell surplus food	Deprive self for others
Trade forms of public assistance	Go completely without food
Sell Food Stamps for money	Limit number of eating occasions
Manage personal resources	Overeat when food is available
Budget	Eat as much as possible
Establish store credit	Eat when edible and safe food is not available
Systematize payment of bills	Eat expired food
Use support system members	Eat nonfood item
Ask for or borrow food or money	Obtain food opportunistically
Cook with other people	Consume free samples
Eat at others' homes	Eat other people's leftovers
Get food from workplace	Find road kill
Obtain general help from others	Cycle monthly eating pattern
Share information	Eat fresh food first, canned and packaged products later
Trust in God	Limit variety at the end of the month
Borrow food stamps	Eat out at the beginning, at home later
Identify someone to live with	Rely on emergency food supplies at the end of the month
Supplement Financial Resources	
Increase income through activities	Eat low-cost foods
Provide foster care	Eat low-cost foods at home
Pawn or sell items	Eat low-cost foods when eating outside the home
Begging, panhandling	
Earn unreported income	
Engage in illegal activities	
Gamble	
Participate recurrently in research	
Sell one's blood	

Exhibit 3.2

Food Acquisition and Management Practices Used by Low-Income People

Food Acquisition Practices	Food Management Practices
Decrease expenses through activities	
Garden	
Acquire discarded food	
Seek road kill	
Hunt and fish	
Access multiple pantries	
Commit crime to be sent to jail	
Relocate to increase income	
Be closer to public assistance programs	
Have better employment opportunities	
Relocate to decrease expenses	
Live in inexpensive housing	
Live in housing with shared or unsecured food storage facilities	
Live in an abandoned building'	
Use programs to increase income	
Obtain Temporary Assistance for Needy Families (TANF)Welfare	
Obtain General Assistance	
Obtain Supplemental Security Income (SSI)	
Use programs to decrease expenses	
Get subsidized housing	
Participate in the Self-Help and Resource Exchange Program (SHARE)	
Lower Food Costs by Using Shopping Strategies	
Purchase food from low-cost sources	
Discount stores	
Private individuals and vendors	
Shop for low-cost and value foods	
Bulk foods	
Inexpensive foods	
Items covered by coupons	
Nearly expired food	
Sale items	
Dented and damaged packages	
Expired food	
Engage in illegal shopping practices	
Shoplift food	
Switch price tags on food	

requirements of the household members, the location-specific "normal" cost of meeting those requirements by buying food at grocery stores, and the degree to which the household applies strategies to reduce the normal cost (i.e., most of the items listed under "Shopping Strategies" and "Food Management Practices"). The household meets the defined need by drawing from the available resources, which potentially include all of the items listed under "Resources Offered in the Community" and "Informal Support Systems." In addition to drawing on food-specific resources, the household may increase its cash available for food either by increasing its total financial resources or by reducing non-food expenditures, using strategies such as those listed under "Supplement Financial Resources."

Incorporating this list of concepts into a statistical model of FSP participation presents challenges. Many of these strategies have been identified only in qualitative research and may be difficult to capture in a survey, indicating a need for item development and validation. In addition, a household's mix of strategies may change frequently (Frongillo, Valois et al., 2003), which implies that it may be important to measure some combination of the current use of strategies and their potential future use. Future use would depend not only on the actual and perceived availability of strategies, but also on the household's willingness to use particular strategies. Alaimo (2005), reviewing literature on food insecurity, notes that "coping strategies or tactics used by families follow a priority system that is based on how acceptable and/or how invasive that tactic is for the family." If this priority system is reasonably consistent across communities and households, it might be possible to define a progression that would help indicate whether an eligible nonparticipating is close to or far from the point at which it would seek food stamp benefits.

Predictors and Correlates of Food Insecurity

Food insecurity has repeatedly been found to be closely associated with FSP participation. We therefore hypothesize that factors that increase a household's likelihood of being food insecure will increase its likelihood of participating in the FSP.

The literature search identified 19 studies that examined, in one way or another, factors associated with food insecurity. We use the term "food insecurity" broadly here, because the actual measures used in the research were quite varied. Most common were measures based on the 18-item food security battery or on selected items from that battery, and measures of food insufficiency. Most of the studies involved modeling food insecurity/insufficiency as a function of various predictors, but a few presented only bivariate analyses or treated food insecurity as a predictor of some other outcome (e.g., health status). All of the research is based on survey data. Large national surveys predominate, but eight of the studies used surveys with smaller geographic range, most with samples of 300-500. Exhibit 3.3 summarizes the predictors of food insecurity identified in this set of studies. We have omitted here the sociodemographic factors such as gender, age, race, education, income, and household composition, since these are already commonly included in models of FSP participation. The exhibit lists only those factors found to be statistically significant or presented by the authors as important, including factors found significant in some but not all studies in which they were tested. In the few cases when a study focused on a particular population and the findings might not be applicable to other populations, the special population is identified in parentheses.

Exhibit 3.3

Predictors and Correlates of Food Insecurity (Including Food Insufficiency and Hunger)

Predictor of Food Insecurity	Source(s)
Food expenses	
Spend $50 above food stamp amount (+)	Olson, Rauschenbach et al., 1996
Routine non-food expenses	
Smoking (+)	Armour, Pitts et al., 2007
Housing problems (+)	Wehler, Weinreb et al., 2004
Non-routine expenses	
Seasonal heating/cooling expense (+)	Nord and Kantor, 2006;Bhattacharya, DeLeire et al., 2003
Difficulty with medical expense (+)	Olson, Anderson et al., 2004
Unexpected expense (+)	Olson, Rauschenbach et al., 1996
Household financial cushions	
Savings (–)	Gundersen and Gruber, 2001; Olson, Rauschenbach et al., 1996
Asset income (–)	Ribar and Hamrick, 2003
Health insurance (–)	Gundersen and Gruber, 2001
Homeownership (–)	Gundersen and Gruber, 2001
Child support (–)	Wehler, Weinreb et al., 2004
Personal physical/psychological resources	
Depression (+)	Casey, Goolsby et al., 2004; Olson, Anderson et al., 2004
Perceived stress (pregnant women) (+)	Laraia, Siegaariz et al., 2006
Self-perceived poor health (+)	Gundersen, Weinreb et al., 2003; Stuff, Casey et al., 2004
Physical/mental impairment (esp. elderly) (+)	Lee and Frongillo, 2001; Stuff, Casey et al., 2004;Hall and Brown, 2005, Nord and Romig, 2006
Food/financial management skill (–)	Olson, Anderson et al., 2004
Childhood abuse of mother (+)	Gundersen, Weinreb et al., 2003
Parenting hassles (+)	Wehler, Weinreb et al., 2004
"Takes responsibility" coping strategy (–)	Gundersen, Weinreb et al., 2003; Wehler, Weinreb et al., 2004
Immigrant acculturation (Hispanic) (+)	Mazur, Marquis et al., 2003
Financial support network	
Borrowing from sibling (–)	Gundersen, Weinreb et al., 2003; Wehler, Weinreb et al., 2004
Community support resources	
Living alone (elderly) (+)	Hall and Brown, 2005
Social isolation (elderly) (+)	Lee and Frongillo, 2001
Neighborhood cohesion (–)	Martin, Rogers et al., 2004
Civic structure (rural) (–)	Morton, Bitto et al., 2005
Public assistance (–)	Borjas, 2004
Food assistance (–)	Nord and Romig, 2006

The exhibit identifies sixteen non-economic personal and community characteristics (e.g., depression, neighborhood cohesion) that are significantly associated with food insecurity in models that also include financial factors. Although the direction of the individual effects is not surprising,[9] their number and variety is striking. Most of these characteristics, although not permanent, might be relatively stable over a period of at least several months. If these characteristics help determine a household's ability to get by without food stamp benefits, they could be useful components of longitudinal models.

It is also worth noting that all of the concepts in the table were measured in surveys by means of individual items or, more commonly, batteries of items. Some constructs not currently available for modeling FSP participation (i.e., not included in the SIPP) may be captured in future studies by using measures that have already been validated.

Studies of Subsistence

Meeting food needs is just one dimension of the life of a low-income household. The larger framework of needs, resources, problems, and strategies make up the framework within which food insecurity and FSP participation occur.

We did not set out to conduct a comprehensive review of the extensive literature on subsistence strategies. But the electronic searches—particularly using the keywords "food stamp" and "ethnography/ethnographic"—turned up a substantial pool of works in this field simply because the FSP is frequently found in the array of programmatic supports used in subsistence strategies. From that pool, we retained the studies that seemed likely to be useful in defining the context of the FSP participation decision.

Most of the studies that we reviewed used principally qualitative research methods, although four presented quantitative analyses of survey data. The qualitative techniques included multi-year ethnography, participant observation, focus groups, and single-encounter in-depth interviews. Sample sizes for the qualitative studies ranged between 10 and 100 and generally focused on relatively narrowly defined groups, such as welfare-reliant mothers or homeless males, in a single location. Collectively, however, the studies cover a substantial range of both household types and geography.

The review suggested four overlapping themes that may be useful in framing the context of the FSP participation decision: packaging and interactions; networks; instability; and values. We describe each theme briefly below, noting studies that illustrate particular points but not attempting to link the themes to all of the studies in which they appear.

Packaging. Often building on the seminal work of Kathryn Edin and Laura Lein (Edin and Lein, 1997), nearly every study offered some description of income packaging, in which a household simultaneously draws on multiple sources of cash and in-kind income. The combined income often comes from both formal sources (e.g., jobs, cash assistance programs) and informal ones (e.g.,

[9] The one possibly surprising finding is the positive association between acculturation and food insufficiency (Mazur, Marquis, et al., 2003). The authors hypothesize that the Hispanic culture provides a buffer against dietary practices associated with poverty, and that the buffer diminishes with acculturation.

borrowing from family, odd jobs, exchange of services). It usually includes unreported income and sometimes income from illegal activity. Packaging is used not only for general income, but to meet specific needs for child care (Chaudry, 2004), transportation, and, as we have seen previously, food.

Networks. Networks of family, friendship, and community support pervade the stories of low-income subsistence. Even seemingly isolated homeless individuals may have a network of family or friends to whom they can turn for sporadic assistance under some circumstances (Marcus, 2005). Preferably, but only seldom, the household has a stable and flexible family network, with predictably available help when some component of the packaging strategy fails. This is sometimes seen as key to sustaining a job long enough to escape reliance on assistance programs (Lein, Benjamin et al., 2005).

Instability. Practically all of the components of the subsistence package are subject to rapid and unanticipated change. Many of the available jobs are explicitly temporary, and many low-income people work through temporary employment agencies, not knowing at the beginning of the day whether they will have work, let alone what the hours and location might be (van Arsdale, 2005). "Permanent" jobs, especially shift work, may have rigid schedules, and missing a few hours to deal with a sick child can lead to instant dismissal. Family and friends may become unable to provide support because of their own crises, or because their reserve of goodwill has been exhausted.

Values. Households have some ability to choose the sources of support they pursue, and their choices reflect values that are widely shared in their community. The values include a hierarchical ranking of preferred sources of income in which public assistance, including food stamps, ranks below formal jobs, self-reliance strategies (e.g., gardening, skimping), informal jobs (including exchange of services), and support from the personal network. Only income from illegal sources, such as drug-related work and selling sex, ranks lower than public assistance. Using preferred sources yields greater self-respect (Edin and Lein, 1997) as well as "moral capital" that have value in relationships and economic transactions in the community (Sherman, 2006). The ranking may not hold for all groups, however. A study of female drug users found that some preferred income from illegal activities to dependence on welfare (Dunlap, Golub et al., 2003).

These four themes pose substantial measurement challenges for modeling FSP participation. The types and sources of income and other support are so numerous that capturing them all would place an extraordinary burden on a large-sample survey. Additional problems are the difficulty of measuring income that is deliberately unreported and behaviors that are illegal or socially disdained, and the likelihood that an accurate picture of today's subsistence package will be obsolete next week. Finally, it may be necessary to measure the nature and strength of the household's value system as it applies to utilizing the available formal and informal resources.

Other Research

As we expected, most of the relevant literature identified in our searches fell into the four fields discussed above. A number of studies that fell outside these categories offered some insights, however, and are briefly described here. All of these studies were related to low-income people's views of or participation in cash assistance programs (AFDC/TANF/GA) or food assistance (food pantries, food banks). Two of the studies presented quantitative analysis of small-area surveys, but most used qualitative data collection and analysis approaches. The studies in this group did not

suggest any major predictors of FSP participation beyond those discussed previously, but added more detailed insights on a few points, as summarized below.

Alternative food assistance. Services such as food pantries and soup kitchens are likely to be less used than the FSP for both objective and subjective reasons. Generalization from local studies is risky because of the wide variation in service characteristics, but particular studies found issues of awareness, inconvenience (having to carry away commodities), bureaucratization, and location in "bad" areas (Curtis, 1997; Molnar, Duffy et al., 2001; Duffy, Hallmark et al., 2002; Kissane, 2003). In at least some areas, receiving such services is less socially acceptable than receiving FSP or other government assistance:

> The women often believed that use of NP (non-profit) services signified not only that one was in hardship, but also that one was actually worse off than those who just received welfare. In addition, it often meant that one had no family to which to turn. Finally, some of the women argued that welfare was less stigmatizing than NP aid because it was an "entitlement," while NP aid was "charity" (Kissane, 2003).

Motherhood. For low-income single mothers, personally held values regarding the responsibilities of motherhood provide important guidance in assembling the subsistence package, particularly in making the tradeoff between public assistance and work. Elements of this issue are the satisfaction felt in being with the child, the acceptability of leaving the child in the care of non-family members and, especially for older children, the importance of providing a work-based role model and the perceived need to offer consumer items (e.g., brand name shoes) that "compete" with those the child sees as resulting from drug dealing or other illegal activity (Henderson, Tickamyer et al., 2005).

Stigma. The stigma associated with the FSP and other assistance programs may exist as much in the low-income person's mind as in the behaviors of others. In one study, welfare-reliant mothers described welfare recipients in the common terms of negative stereotypes (lazy, don't want to work) while denying that those characteristics applied to themselves or anyone they knew personally (Seccombe, James et al., 1998).

Complex rules. Complexities in FSP and other programs' rules, together with processing time lags, create unpredictable outcomes for (potential) participants. Some people respond with proactive behaviors such as appeals and timing of reporting that (sometimes) result in expansion of the period during which benefits are received or even a bending of the rules in the household's favor (Romich, 2006).

These points reinforce earlier conclusions drawn about modeling FSP participation. First, a complete model will need to represent the household's value structure regarding the acceptability and desirability of FSP participation in the context of other possible sources of support. Second, the model should represent not only the household's understanding of program eligibility and benefit rules, but its ability to "work" the bureaucratic nature of the system.

Chapter Four: Conclusions

In this final chapter, we present a revised logic model for participation based on our literature survey, draw out the implications of the survey for the remaining project tasks, and relate this project to the full research agenda.

Expanded Logic Model

The research described in Chapter Three suggests that the simple logic model presented earlier (Exhibit 2.2) is inadequate to explain the participation decision process. We have expanded the logic model, based on our literature review. We suggest that the model include all household characteristics that are routinely included in standard econometric models, some or all of the more creative measures used in the various statistical models (subgroup definitions, FSP work registrant status, work schedules, persistent versus temporary poverty, expectations based on future values of income, permanent income, material hardship, and food security), and some of the non-standard factors identified as reasons for nonparticipation, strategies for coping with food insecurity, and predictors and correlates of food insecurity,

In general, we suggest that whether an eligible household participates in a given month is determined by:

1. The household's understanding of its eligibility
2. Expected or perceived food stamp benefit amount
3. Program requirements for that month (costs of participation)
4. Household needs, both for food and for other things
5. Household resources, both financial and in-kind
6. Personal preferences and traits of decision-maker(s)

Conceptually, the decision-maker first considers (1) whether the household is likely eligible for food stamps. The decision-maker then weighs (2) the anticipated FSP benefit amount against (3) the logistical and out-of-pocket costs of participating, in light of (4) household needs relative to (5) household resources. How the pros and cons balance out, given the data that go into the hopper, depends on (6) the decision-maker's preferences and traits. We expand on each of these domains below.

How much the household is actually eligible for is determined based on

- household size
- gross income
- deductions (earned income, dependent care if working or in school, child support. medical costs if elderly or disabled), excess shelter costs

Whether the household is eligible likewise depends primarily household size, gross income, and assets, with more generous rules for elderly and disabled. Some groups must meet additional conditions to be eligible, such as students, noncitizens, and able bodied adults without dependents. The participation decision is driven however not by the actual benefit amount, but by the household's

(possibly erroneous) understanding of its eligibility and expected benefit. **FSP program knowledge** is affected largely by past participation and **local program outreach**.

Program requirements for a month, which are the participation costs for a household to receive FSP benefits, may be grouped by

- application steps
- recertification steps
- interim requirements.

Program access can reduce or increase these participation costs.

Household needs are only roughly proxied by household size in the FSP benefit formula. Households of similar size may differ substantially with respect to

- need for goods **that can be purchased with food stamps**: dependent on
  - household composition (e.g. the "Adult Male Equivalent" count, based on food energy requirements by age and sex)
  - propensity to consume meals prepared at home in contrast with meals from fast food restaurants, school cafeterias, etc.
  - dietary preferences
  - local food prices
- routine competing needs, including cost of housing and child care/education
- unanticipated and sporadic needs, e.g. car repairs, Christmas or birthday gifts, church offerings, medical bills
- how long a household has been experiencing severe need, and how long it anticipates the situation will continue

Household resources include

- financial resources counted by FSP
- other financial resources: friends, relatives, flexible landlords and other creditors
- non-financial food sources: friends, relatives, community, food pantries, means-tested meals programs
- sources of other in-kind donations: friends, relatives, community
- the local environment: accessibility of grocery stores and farmers' markets, other urban/suburban/rural differences
- on the other side of the ledger, unstable housing and accumulated debts

Finally, **personal preferences and traits** of the decision maker will determine how the highly the FSP benefits are valued and how burdensome the program requirements are deemed relative to the available alternatives. These traits include, for example:

- attitudes towards dependency and stigma
- hopes/expectations for the future
- concern specifically about food

- mental and physical health or disability, coping mechanisms
- English language ability
- education.

Characteristics of potential participants that are likely to affect those traits include:

- age
- race/ethnicity
- immigrant status
- household structure/composition
- program experience: former FSP participation, friends' participation, current or past participation in other means-tested programs

This expanded logic model is depicted in Exhibit 4.1.

Hypotheses Related to Household Needs

A household's "demand" for food stamps will depend on how readily it can spend them. This will be influenced by (a) how much food the household needs (age and sex of members, their weight and exercise levels); (b) the proportion of food that is prepared at home (whether there is a nonworking adult in the household who can prepare meals, whether the children participate in SBP, NSLP, CACFP, or SFSP, how often household members eat in other people's homes); (c) dietary preferences for high-quality or expensive food; (d) local food prices.[10]

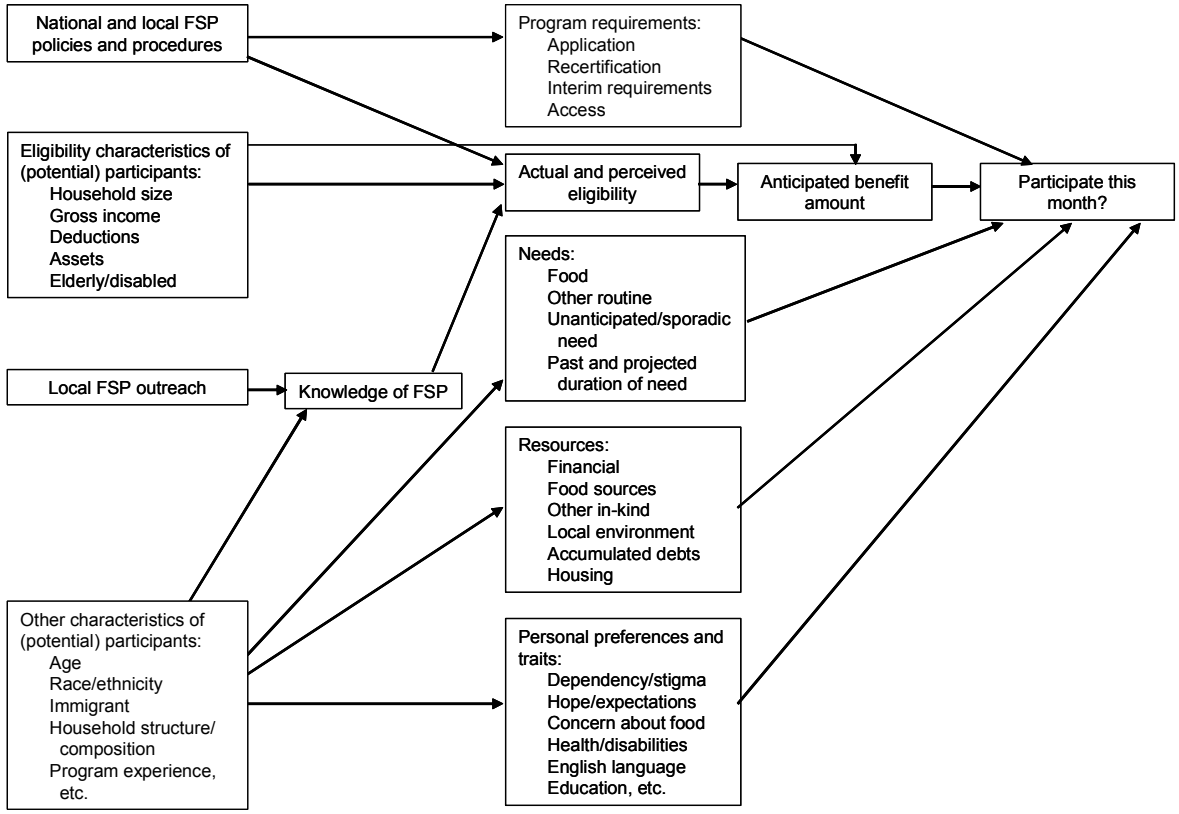
Because food purchasing power is fungible, households would also be more likely to participate in the FSP if they had greater non-food needs. Some major sources of variations in ***routine*** needs across households include housing (e.g. might live rent-free), heating bills, child care (if not provided gratis by a household member), transportation, and cigarettes. Sporadic or isolated ***unexpected*** financial demands might also affect participation: an injury or episode of illness, urgent home or car repairs, a death in the family, and so on.

The ***length of time*** a household has experienced severe need and is expecting the situation to continue before improving is also likely to affect participation. After becoming eligible, households may run through many alternatives before turning to food stamps. The better their networks and resources, the longer they can hold out. It is difficult to predict at what point during a spell of eligibility a household will make the decision to participate. Blank and Ruggles (1996) note that many spells of eligible non-participation for both food stamps and welfare are short and end with an increase in income. This would suggest that length of eligible non-participant spell to date would positively predict subsequent participation. On the other hand, those households with the longest such spells to data may be the most resistant to entering the Food Stamp program. The unmeasured resources and attitudes that have prevented a household from applying in the past may continue to do so in the future.

[10] Households can also use food stamps illegitimately. A recent GAO report found that $0.01 per dollar of food stamps was trafficked, primarily through small convenience and grocery stores.

Exhibit 4.1

Expanded Logic Model of FSP Participation



Hypotheses Related to Household Resources

In addition to the income sources counted by the FSP in determining eligibility, households may have other resources that could diminish the need for food stamps. These include sporadic earnings, monetary contributions by friends and relatives, and implicit loans from landlords, grocers, etc. who are willing to wait to get paid. Food resources include not only other federal programs (SBP, NLSP, SFSP, CACFP, WIC) and community programs (Meals on Wheels, soup kitchens, food pantries), but also meals served by friends and relatives. Similarly, other in-kind resources include federal subsidies of rent and energy costs, community toy and clothing drives, and friends' and relatives' contributions of household goods, child care, and living space. The connectedness of a household to the community might thus modify its perceived need for food stamps. Some of these resources might be limited in availability: needy households can draw on friends or get short-term credit extensions for a few months, after which some longer-term solution is required.

Hypotheses Related to Personal Preferences and Traits

Many personal traits might help explain why some households choose to participate and others in apparently identical circumstances do not. These are useful constructs if they can be measured reliably and (other than expectations) are stable over time. Examples are:

- desire for independence/feeling of stigma: measured by such items as "do not like to rely on government assistance," "do not like to be seen shopping with food stamps," "do not want people to know I need financial assistance," "do not want to go to the welfare office," as well as some that specifically refer to FSP experiences, such as "ever done anything to hide you got food stamps," "ever avoiding telling people you got food stamps," "ever go out of your way to shop at a store where no one knew you," "ever given your food stamps to someone else because you were embarrassed to use them"
- hopes/expectations: perceived likelihood that current need is short-term
- concern about food: anxiety about obtaining food more than meeting other needs, due e.g. to the presence of children
- poor health, mental or physical disabilities, non-English speaking, low educational attainment: may impede access to applying for food stamps

Hypotheses Related to Program Characteristics

Beyond the household characteristics already discussed, participation may vary because of variations in Food Stamp Program policies over time or between localities. At the *national* level, program participation surged dramatically after the Elimination of the Purchase Requirement (EPR) in 1977, and dropped dramatically after the implementation of the Personal Responsibility and Work Opportunities Reconciliation Act of 1996 (PRWORA). While the extent to which PRWORA caused the caseload decline is debatable, the legislation did limit or eliminate FSP eligibility for some groups, notably immigrants and able bodied adults without dependents. The EPR and PRWORA changes are now primarily of historical interest; but quite relevant for current research is the implementation of the National Evacuees Policies in the wake of Hurricane Katrina two years ago, These policies allowed States and counties that were not directly affected by the hurricane, as well as those that were, to offer Disaster Food Stamp Program benefits.

Local variations in FSP policies and procedures are also likely to affect program participation. Of particular relevance are those related to outreach, application requirements, and certification period lengths.

Characteristics of *other means-tested programs* may also affect FSP participation. Some households may enter the program without having decided to participate, because their State has a joint application form for food stamps and other benefits, or because their social worker enrolls them.

Implications of Literature Survey for Model Estimation

Both parts of the literature survey have important contributions to make to the model development and estimation process.

Implications of Quantitative Studies

The standard econometric models discussed in Chapter Two are full of contributions for our own modeling process. The most important consideration, we think, is the uncertainty of measurement of both participation status and eligibility status in the SIPP. A possible approach is to develop alternative measures of eligibility and participation, and check whether the models are robust to these

variations. For example, we might find that the models have substantially more predictive power among households that are reportedly under the federal poverty line, because even with measurement error these households are unlikely to be ineligible.

We will also want to consider carefully our treatment of reported changes in participation within waves. It may be that a "wavely" estimate of FSP participation is more robust than a monthly estimate.

The cited authors included valuable discussions of the appropriate statistical and econometric procedures for using these complex data, including handling weights, sample design, temporal correlation, and imputations.

Many of the authors included externally derived measures of the policy environment. We are unsure as to whether we should follow suit. This project is unusual in that it seeks to explain participation not for its own sake, but in order to "assess the extent and feasibility of controlling [selection] bias". Variations in FSP policies and procedures are valuable for understanding participation but do not help to control for selection bias. For face validity, samples of program participants and eligible nonparticipants in an impact study would undoubtedly be selected from the same locales, i.e. subject to the same program rules.[11] Thus, for purposes of developing a selection model, these features appear to be moot. A similar argument applies to measures of the economic environment. To avoid bias in the model estimates, it would be sufficient to include fixed effects for States or primary sampling units (PSUs) without attempting to understand these effects in terms of variations in the environment.

The model estimation process will naturally include all household characteristics that are routinely included in standard econometric models. In addition, we will give careful consideration to the more creative measures used in the various statistical models. These include subgroup definitions, FSP work registrant status, work schedules, persistent versus temporary poverty, expectations based on future values of income, permanent income, material hardship, and food security.

Implications of the Qualitative Studies

The key contribution that this project can make, we believe, is to attempt to quantify and include some of the non-standard factors described in Chapter Three. A central part of the task for refining the study plan is to map these factors into SIPP items. In particular, we will attempt to construct measures corresponding to the lists of reported reasons for nonparticipation, strategies for coping with food insecurity, and predictors and correlates of food insecurity.

We anticipate that while some of these factors will be reasonably well measured, others will be addressed in the SIPP only tangentially or not at all. We will attempt to determine if these concepts have appeared on other national or opportunistic surveys, such as some of the surveys used in modeling food security, and how they have been used. It may be possible to include imputed values of some unmeasured concepts, as Gundersen and Oliveira included an imputed measure of perceived stigma in their SIPP analyses.

[11] While there is variation within a locality in application of program rules, this is a function of household characteristics (e.g. presence of an elderly or disabled individual, presence of earnings, presence of children). These characteristics would also be held constant in measuring program impacts.

Relationship of this Project to the Research Agenda

As noted in the RFP:

> This present study could conceivably generate a sufficiently good model to address selection bias that no further research on participation determinants would be deemed necessary. A more likely outcome, however, is that the "best" model will still have a significant amount of unexplained variation. Assuming that this is the case, FNS would want to develop better models of participation. Knowing the limitations of FSP participation models based on extant data bases will provide guidance for further investigation of the identity of factors that affect participation decisions among eligible households. It would also be useful to learn if these factors vary by major demographic subgroups and/or geographic location of the household, as these are findings that could affect the design of further research on this subject.

A better understanding of why low-income households do or do not participate in the Food Stamp Program is valuable in itself to policymakers. This information could help guide outreach activities, predict fluctuations and trends in program benefit costs, or suggest modifications to the program that would make it better able to serve its intended beneficiaries. Because of the focus on selection issues, however, this project will probably not contribute to explicit considerations of policies.

Building on the literature survey, the potential contribution of this project to the research agenda is twofold. First, we will analyze the SIPP to determine if new factors can be included in participation models, and if they improve the models. Second, if the factors are not well measured in the SIPP, we will develop recommendations for capturing them in a special purpose survey.

While policymakers would perhaps like to understand the participation decision perfectly, this is neither necessary nor sufficient for being able to estimate program impacts nonexperimentally. It is not *sufficient* because if all the included factors in the explanation also affected the dietary outcomes of interest, then in comparing groups of participants and nonparticipants it would not be possible to distinguish between the effects of the factors and the effects of participation. Suppose, for example, that the participation decision could be completely explained based on household composition, income, and the food manager's nutritional knowledge and attitudes. These factors all clearly affect household food supplies as well. It would therefore still not be possible to determine the impact of the FSP on food supplies, because as soon as we had controlled for these factors, we would have completely distinguished participants from eligible non-participants. There would be no comparable participant and non-participant households with "similar" values of these factors, because for any set of values *all* households would make the same participation decision.

But conversely, a perfect understanding of the participation decision is not *necessary*. What is necessary is to be able to claim convincingly that once some key group of factors is taken into account, variation in FSP participation is caused by remaining factors that did not have (much of) an effect on the dietary outcomes.[12] Such a claim could be based on qualitative research that showed

[12] An example of such a factor might be a job loss in one's extended family which causes a previously available resource to dry up. The relevant question is: absent the FSP, would a brother-in-law's job loss cause a change in dietary outcomes? Presumably any such an effect would be second order, due to general belt-tightening.

that given "normal" circumstances, whether a household participated in the FSP in a given month depended on an array of small events which could be treated as random. In the absence of a randomized experiment the claim could not be conclusively proven, yet it might still have sufficient plausibility to be accepted as a guide to policy by the research community.

References

Alaimo, K. (2005). "Food Insecurity in the United States." Topics in Clinical Nutrition **20**(4): 281-298.

Almgren, G., G. Yamashiro, et al. (2002). "Beyond Welfare or Work: Teen Mothers, Household Subsistence Strategies, and Child Development Outcomes." Journal of Sociology & Social Welfare **29**(3): 125.

Anderson, S. G., A. P. Halter, et al. (2004). "Difficulties after Leaving TANF: Inner-City Women Talk about Reasons for Returning to Welfare." Social Work **49**(2): 185-194.

Armour, B. S., M. M. Pitts, et al. (2007). "Cigarette Smoking and Food Insecurity among Low-Income Families in the United States, 2001." Working Paper Series (Federal Reserve Bank of Atlanta) (19): 1-18.

Bartlett, S. and N. Burstein (2004). Food Stamp Program Access Study: Eligible Nonparticipants. Electronic Publications from the Food Assistance & Nutrition Research Program. E-FAN-03-013-2 Washington, DC, USDA Economic Research Service.

Bartlett, S., N. Burstein, et al. (2004). Food Stamp Program Access Study: Final Report. Electronic Publications from the Food Assistance & Nutrition Research Program. E-FAN-03-013-2 Washington, DC, USDA Economic Research Service.

Bhattacharya, J., T. DeLeire, et al. (2003). "Heat or Eat? Cold-Weather Shocks and Nutrition in Poor American Families." American Journal of Public Health **93**(7): 1149-1154.

Bhattarai, G, R., P.A. Duffy, et al. (2005). "Use of Food Pantries and Food Stamps in Low-Income Households in the United States." Journal of Consumer Affairs, **39**(2): 276-298.

Bitler, M., J. Currie et al. (2002). "WIC Eligibility and Participation," Presented at the May 2003 Institute for Research on Poverty/Economic Research Services conference on Income Volatility and Implications for Food Assistance Programs.

Blank, R. M. and P. Ruggles (1996). "When Do Women Use Aid to Families with Dependent Children and Food Stamps?" Journal of Human Resources **31**(1): 57-89.

Blaylock, J. R. and D. M. Smallwood (1984). "Reasons for Nonparticipation in the Food Stamp Program." Western Journal of Agricultural Economics **9**(1): 117-126.

Bollinger, C. R. and M. H. David (2001). "Estimation with Response Error and Nonresponse: Food-Stamp Participation in the SIPP" Journal of Business and Economic Statistics, **19** (2): 129-41.

Borjas, G. J. (2004). "Food Insecurity and Public Assistance." Journal of Public Economics **88**(7-8): 1421-1443.

Brown, K. and S. R. Nilsen (2004). Food Stamp Program: Steps Have Been Taken to Increase Participation of Working Families, but Better Tracking of Efforts Is Needed. GAO Reports. GAO-04-346., U.S. Government Accountability Office.

Burstein, N. R. and M. G. Visher (1989). The Dynamics of Food Stamp Program Participation. Cambridge, MA, Abt Associates, Inc.

Burstein N., W. Hamilton et al. (2005). Assessing the Food Security and Diet Quality Impacts of FNS Program Participation: Final Report. Report submitted to USDA Food and Nutrition Service Office of Analysis, Nutrition and Evaluation. Cambridge, MA, Abt Associates Inc.

Cancian, M., R. Haveman, et al. (2001). The take-up of Medicaid and food stamps by welfare leavers: The case of Wisconsin. Special Report no. 79. Madison, WI: Institute for Research on Poverty, University of Wisconsin.

Carr, T. J., P. Doyle and I. S. Lubitz (1984). Turnover in Food Stamp Participation: A Preliminary Analysis. Washington, DC, Mathematica Policy Research, Inc.

Casey, P., S. Goolsby, et al. (2004). "Maternal Depression, Changing Public Assistance, Food Security, and Child Health Status." Pediatrics **113**(2): 298-304.

Chaudry, A. (2004). Putting Children First: How Low-Wage Working Mothers Manage Child Care. New York, Russell Sage Foundation.

Cody, S. and J. Ohls (2005). Evaluation of the USDA Elderly Nutrition Demonstrations. Volume I, Evaluation Findings. Princeton, NJ, Mathematica Policy Research.

Cody, S. and C. Tuttle (2002). The Impact of Income Underreporting in CPS and SIPP on Microsimulation Models and Participating Rates. Washington, DC, Mathematica Policy Research, Inc.

Coe, R. P. (1983). "An Examination of the Dynamics of Food Stamp Use." In C.J. Duncan and J.N. Morgan (eds.) Five Thousand American Families—Patterns of Economic Progress. Vol. 7. Ann Arbor, University of Michigan, Institute for Social Research: 183-268.

Coe, R. P. (1983). "Nonparticipation In Welfare Programs By Eligible Households: The Case of the Food Stamp Program." Journal of Economic Issues **17**(4): 1035.

Connell, C. L., K. L. Lofton, et al. (2005). "Children's Experiences of Food Insecurity Can Assist in Understanding Its Effect on Their Well-Being." Journal of Nutrition **135**(7): 1683-1690.

Curtis, K. A. (1997). "Urban poverty and the social consequences of privatized food assistance." Journal of Urban Affairs **19**(2): 207.

Daponte, B. O., S. Sanders, et al. (1999). "Why Do Low-Income Households Not Use Food Stamps?" Journal of Human Resources **34**(3): 612-628.

Daponte, B. O. (2000). "Private versus Public Relief: Use of Food Pantries versus Food Stamps among Poor Households." Journal of Nutrition Education, **32**(2): 72-81.

Drumm, R. D. and D. C. McBride (2005). "I Don't Beg. I Don't Steal: Drug Users' Front-Stage Self-Perceptions." Conference Papers—American Sociological Association, American Sociological Association.

Duffy, P. A., G. G. Hallmark, et al. (2002). "Food Security of Low-Income Single Parents in East Alabama: Use of Private and Public Programs in the Age of Welfare Reform." Southern Rural Sociology **18**(1): 48-81.

Dunlap, E., A. Golub, et al. (2003). "The Lived Experience of Welfare Reform in Drug-Using Welfare-Needy Households in Inner-City New York." Journal of Sociology & Social Welfare **30**(3): 39-58.

Edin, K. and L. Lein (1997). Making ends meet: How single mothers survive welfare and low-wage work. New York: Russell Sage Foundation.

Ejimakor, G. and O. Acharaeke (2006). "Objective and Subjective Impediments to the Use of Food Stamps by Food-Insecure Households." Journal of Food Distribution Research **37**(1): 63-67.

Farrell, M., M. Fishman, et al. (2003). The Relationship of Earnings and Income to Food Stamp Participation. Electronic Publications from the Food Assistance & Nutrition Research Program. E-FAN-03-011. Washington, DC, USDA Economic Research Service.

Fey-Yensan, N. L., C. English, et al. (2003). "Food Stamp Program Participation and Perceived Food Insecurity in Older Adults." Topics in Clinical Nutrition **18**(4): 262-267.

Frongillo, E. A., P. Valois, et al. (2003). "Using a Concurrent Events Approach to Understand Social Support and Food Insecurity Among Elders." Family Economics & Nutrition Review **15**(1): 25-32.

Gemelli, M. (2006). "Definitions of Motherhood: A Study of Low-Income Single Mothers." Conference Papers—American Sociological Association American Sociological Association.

Gleason, P., P. Schochet, et al. (1998). The Dynamics of Food Stamp Program participation in the early 1990s. Report submitted to USDA Food and Nutrition Service. Washington, DC: Mathematica Policy Research, Inc.

Greder, K. and M. J. Brotherson (2002). Food Security and Low-income Families: Research to Inform Policy and Programs. Journal of Family and Consumer Sciences **94**(2): 40-47.

Gundersen, C. and J. Gruber (2001). The Dynamic Determinants of Food Insufficiency. Second Food Security Measurement and Research Conference, Washington, DC., USDA Economic Research Service.

Gundersen, C. and V. Oliveira (2001). "The Food Stamp Program and Food Insufficiency." American Journal of Agricultural Economics **83**(4): 875-887.

Gundersen, C., L. Weinreb, et al. (2003). "Homelessness and food insecurity." Journal of Housing Economics **12**(3): 250.

Haider, S. J., A. Jacknowitz et al. (2003). "Food Stamps and the Elderly." Journal of Human Resources **38**(Supplement): 1080-1111.

Hall, B. and J. L. Brown (2005). "Food Security Among Older Adults in the United States." Topics in Clinical Nutrition **20**(4): 329-338.

Hanratty, M. J. (2006). "Has the Food Stamp Program Become More Accessible? Impacts of Recent Changes in Reporting Requirements and Asset Eligibility Limits" Journal of Policy Analysis and Management, **25** (3): 603-621.

Henderson, D. A., A. R. Tickamyer, et al. (2005). "The impact of welfare reform on the parenting role of women in rural communities." Journal of Children & Poverty **11**(2): 131-147.

Henly, J. R. and S. K. Danziger (1996). "Confronting welfare stereotypes: Characteristics of general assistance recipients and postassistance employment." Social Work Research **20**(4): 217-227.

Hernandez, D. S., and Ziol-Guest, K. M. (2006). Food Assistance Program Participation among Fragile Families. National Poverty Center working paper. Gerald R. Ford School of Public Policy, University of Michigan.

Hill, R. P. and J. Gaines (2007). "The Consumer Culture of Poverty: Behavioral Research Findings and Their Implications in an Ethnographic Context." The Journal of American Culture **30**(1).

Hisnanick, J.J., and K.G. Walker. (2000). Food stamp receipt: Those who left versus those who stayed in a time of welfare reform. Working Paper 236. U.S. Department of Commerce, Census Bureau.

Jarrett, R. L. (1996). "Welfare Stigma Among Low-Income, African-American Single Mothers." Family Relations **45**(4): 368-374.

Jensen, H. H., S. Garasky, et al. (2002). Iowa Food Stamp Leavers Survey: Final Report. Electronic Publications from the Food Assistance & Nutrition Research Program. E-FAN-02-014-1. Washington, DC, USDA Economic Research Service.

Katras, M. J., V. S. Zuiker, et al. (2004). "Private Safety Net: Childcare Resources from the Perspective of Rural Low-Income Families." Family Relations **53**(2): 201-209.

Kempson, K., D. P. Keenan, et al. (2003). "Maintaining Food Sufficiency: Coping Strategies Identified by Limited-Resource Individuals versus Nutrition Educators." Journal of Nutrition Education & Behavior **35**(4): 179.

Kempson, K. M., D. P. Keenan, et al. (2002). "Educators; Reports of Food Acquisition Practices Used by Limited-Resource Individuals to Maintain Food Sufficiency." Family Economics & Nutrition Review **14**(2): 44.

Kempson, K. M., D. P. Keenan, et al. (2002). "Food Management Practices Used by People with Limited Resources to Maintain Food Sufficiency as Reported by Nutrition Educators." Journal of the American Dietetic Association **102**(12): 1795-1799.

Kirlin, J. A. and S. R. Merrill (1985). A Longitudinal Study of Participation in the Food Stamp Program. Draft Report submitted the USDA. Cambridge, MA, Abt Associates, Inc.

Kissane, R. J. (2003). "What's Need Got to Do with It? Barriers to Use of Nonprofit Social Services." Journal of Sociology & Social Welfare **30**(2): 127-148.

Kretsedemas, P. (2003). "Immigrant households and hardships after welfare reform: a case study of the Miami-Dade Haitian community." International Journal of Social Welfare **12**(4): 314.

Laraia, B. A., A. M. Siegaariz, et al. (2006). "Psychosocial Factors and Socioeconomic Indicators Are Associated with Household Food Insecurity among Pregnant Women." Journal of Nutrition **136**(1): 177-182.

Lee, J. S. and E. A. Frongillo (2001). "Factors Associated With Food Insecurity Among U.S. Elderly Persons: Importance of Functional." Journals of Gerontology Series B: Psychological Sciences & Social Sciences **56**B(2): S94.

Lein, L., A. F. Benjamin, et al. (2005). "Economic Roulette." Community, Work & Family **8**(4): 359-378.

London, A. S., E. K. Scott, et al. (2004). "Welfare Reform, Work-Family Tradeoffs, and Child Well-Being." Family Relations **53**(2): 148-158.

Lubitz, I. S. and T. J. Carr (1985). Turnover in the Food Stamp Program in 1979: The Role of Trigger Events. Report submitted to the USDA Food and Nutrition Service. Washington, DC, Mathematica Policy Research, Inc.

Luck, P. A., K. W. Elifson, et al. (2004). "Female drug users and the welfare system: a qualitative exploration." Drugs: Education, Prevention & Policy **11**(2): 113-128.

Marcus, A. (2005). "Whose Tangle is it Anyway? The African-American Family, Poverty and United States Kinship." Australian Journal of Anthropology **16**(1): 47-61.

Martin, K. S., J. T. Cook, et al. (2003). "Public versus Private Food Assistance: Barriers to Participation Differ by Age and Ethnicity." Journal of Nutrition Education & Behavior **35**(5): 249-254.

Martin, K. S., B. L. Rogers, et al. (2004). "Social capital is associated with decreased risk of hunger." Social Science & Medicine **58**(12): 2645.

Mazur, R. E., G. S. Marquis, et al. (2003). Diet and Food Insufficiency Among Hispanic Youth: Acculturation and Socioeconomic Determinants in NHANES III, Iowa State University, Department of Economics, Staff General Research Papers.

McConnell, S. and M. Ponza (1999). The Reaching the Working Poor and Poor Elderly Study: What We Learned and Recommendations for Future Research. Princeton, NJ, Mathematica Policy Research.

McKernan, S-M., and C. Ratcliffe. (2003). Employment factors influencing Food Stamp Program participation: Final report. Electronic Publications from the Food Assistance & Nutrition Research Program. E-FAN-03-012. Washington, DC, USDA Economic Research Service.

Molnar, J. J., P. A. Duffy, et al. (2001). "Private Food Assistance in a Small Metropolitan Area: Urban Resources and Rural Needs." Journal of Sociology & Social Welfare **28**(3): 187-209.

Morton, L. W., E. A. Bitto, et al. (2005). "Solving the Problems of Iowa Food Deserts: Food Insecurity and Civic Structure." Rural Sociology **70**(1): 94-112.

Morton, L. W., M. J. Oakland, et al. (2002). Iowa Community Food Assessment Project Report 2001-02. Ames, Iowa, Iowa State University Family Nutrition Program.

Nord, M. and K. Romig (2006). Hunger in the Summer. Journal of Children & Poverty **12**(2): 141-158.

Nord, M. and L. S. Kantor (2006). "Seasonal Variation in Food Insecurity Is Associated with Heating and Cooling Costs among Low-Income Elderly Americans." Journal of Nutrition **136**(11): 2939-2944.

Olson, C. M., K. Anderson, et al. (2004). "Factors Protecting Against and Contributing to Food Insecurity Among Rural Families." Family Economics & Nutrition Review **16**(1): 12-20.

Olson, C. M., B. S. Rauschenbach, et al. (1996). Factors Contributing to Household Food Insecurity in a Rural Upstate New York County. Discussion Paper no 1107-96. Madison, WI, Institute for Research on Poverty.

Polit, D. F., A. S. London, et al. (2000). Food Security and Hunger in Poor, Mother-Headed Families in Four U.S. Cities. The Project on Devolution and Urban Change. New York, NY, Manpower Demonstration Research Corporation.

Ponza, M., J. C. Ohls, et al. (1999). Customer Service in the Food Stamp Program. Princeton, NJ, Mathematica Policy Research: 80.

Quandt, S. A. and P. Rao (1999). "Hunger and food security among older adults in a rural community." Human Organization **58**(1): 28-35.

Rangarajan, A. and G. P. M (2001). Food Stamp Leavers in Illinois - How Are they Doing Two Years Later? Electronic Publications from the Food Assistance & Nutrition Research Program. E-FAN-01-002. Washington, DC, USDA Economic Research Service.

Reed, J. (2004). “Poor Women's Work: A Look at the Employment Opportunities and Experiences of Low-Income, Inner-City Women.” Conference Papers—American Sociological Association, American Sociological Association.

Ribar, D. C. and K. S. Hamrick (2003). Dynamics of Poverty and Food Sufficiency. USDA Economic Research Service.

Richardson, P., G. Schoenfeld, et al. (2003a). Food Stamp Leavers Research Study-Study of Nonwelfare Families Leaving the Food Stamp Program in South Carolina: Final Report. Electronic Publications from the Food Assistance & Nutrition Research Program. E-FAN-03-003. Washington, DC, USDA Economic Research Service.

Richardson, P., G. Schoenfeld, et al. (2003b). Food Stamp Leavers Research Study - Study of ABAWDs Leaving the Food Stamp Program in South Carolina. Electronic Publications from the Food Assistance & Nutrition Research Program. E-FAN-03-002. Washington, DC, USDA Economic Research Service.

Robles, A. (2006). "One Size Does Not Fit All: Low-Income Women Choreographing Work and Family." Conference Papers—American Sociological Association, American Sociological Association.

Rogers-Dillon, R. (1995). "The Dynamics of Welfare Stigma." Qualitative Sociology **18**(4): 439.

Romich, J. L. (2006). "Difficult Calculations: Low-Income Workers and Marginal Tax Rates." Social Service Review **80**(1): 27-66.

Scott, E. and A. London (2006). "Consequences of the Triumph of Individualism: Insights from the Lives of Women Who Hit Time Limits." Conference Papers—American Sociological Association, American Sociological Association.

Scott, E. K., A. S. London, et al. (2005). "Instability in patchworks of child care when moving from welfare to work." Journal of Marriage & Family **67**(2): 370-386.

Seccombe, K., D. James, et al. (1998). "`They Think You Ain't Much of Nothing': The Social Construction of the Welfare Mother." Journal of Marriage & Family **60**(4): 849-865.

Seccombe, K., K. B. Walters, et al. (1999). ""Welfare Mothers" Welcome Reform, Urge Compassion." Family Relations **48**(2): 197-207.

Sherman, J. (2006). "Coping with Rural Poverty: Economic Survival and Moral Capital in Rural America." Social Forces **85**(2): 891-913.

Smith, J. R. (2002). "Commitment to mothering and preference for employment: The voices of women on public assistance with young children." Journal of Children & Poverty **8**(1): 51-66.

Stuff, J. E., P. H. Casey, et al. (2004). "Household Food Insecurity Is Associated with Adult Health Status." Journal of Nutrition **134**(9): 2330-2335.

Teitler, J. O., N. E. Reichman, et al. (2004). "Sources of Support, Child Care, and Hardship among Unwed Mothers, 1999--2001." Social Service Review **78**(1): 125-148.

US GAO (1988). Food stamps: reasons for nonparticipation Report to the Ranking Minority Member, Subcommittee on Domestic Marketing, Consumer Relations, and Nutrition, Committee on Agriculture, House of Representatives Corp. Washington, DC, U.S. Government Accountability Office.

van Arsdale, D. G. (2005). “Waiting for Work: An Ethnography of Temporary Help Workers from a Deindustrialized City”. Conference Papers—American Sociological Association, American Sociological Association.

Wehler, C., L. F. Weinreb, et al. (2004). "Risk and Protective Factors for Adult and Child Hunger Among Low-Income Housed and Homeless Female-Headed Families." American Journal of Public Health **94**(1): 109-115.

Wolfe, W. S., E. A. Frongillo, et al. (2003). "Understanding the Experience of Food Insecurity by Elders Suggests Ways to Improve Its Measurement." Journal of Nutrition **133**(9): 2762-2769.

Zedlewski, S. R. and S. Brauner (1999). Declines in Food Stamp and Welfare Participation: Is There a Connection? Assessing the New Federalism. Washington, DC, Urban Institute.

Zippay, A. (2002). "Dynamics of Income Packaging: A 10-Year Longitudinal Study." Social Work **47**(3): 291-3

Appendix A

Studies Reviewed for Chapter Three

Exhibit A.1: Studies Reviewed for Chapter Three

Study	Title	Type of Data	Nature of Information
Studies of Reasons for Food Stamp Program Nonparticipation			
Bartlett and Burstein, 2004	Food Stamp Program Access Study: Eligible Nonparticipants	National survey of FSP-eligible households, 2000-01	Tabulations of reasons for nonparticipation
Bartlett, Burstein et al., 2004	Food Stamp Program Access Study: Final Report	National survey of FSP-eligible households, 2000-01	Tabulations of reasons for nonparticipation; models of elements of participation
Blank and Ruggles, 1996	When Do Women Use Aid to Families with Dependent Children and Food Stamps?	National survey (SIPP) 1986-89	Models of eligibility and participation spells
Blaylock and Smallwood, 1984	Reasons for Nonparticipation in the Food Stamp Program	National survey (LINFCS) 1979-80	Logit relating stated reasons to characteristics
Brown and Nilsen, 2004	Food Stamp Program: Steps Have Been Taken to Increase Participation of Working Families, but Better Tracking of Efforts Is Needed: GAO-04-346	Synthesis of past research, administrator interviews, some CPS analysis	Interpretation of prior research
Cody and Ohls, 2005	Evaluation of the USDA Elderly Nutrition Demonstrations. Volume I, Evaluation Findings	Comparison design using surveys, admin data, focus groups in 6 states, 2002-2004	Regression-adjusted impact estimates Tabulations of eligible nonparticipants' statements about reasons
Coe, 1983	Nonparticipation In Welfare Programs By Eligible Households: The Case of the Food Stamp Program	National survey (PSID) 1979	Stated reasons of apparently eligible nonparticipants
Daponte, Sanders et al., 1999	Why Do Low-Income Households Not Use Food Stamps?	Experimental design, survey of 405 low-income households, PA, 1993	Impact estimate of giving treatment group eligibility information

Exhibit A.1: Studies Reviewed for Chapter Three

Study	Title	Type of Data	Nature of Information
Ejimakor and Acharaeke, 2006	Objective and Subjective Impediments to the Use of Food Stamps by Food-Insecure Households	Survey of 171 Salvation Army food users, NC, 2004	Statements of FSP nonparticipants
Fey-Yensan, English et al., 2003	Food Stamp Program Participation and Perceived Food Insecurity in Older Adults	2 structured interviews, 100 elderly FSP eligibles, CT	Statements of FSP nonparticipants Bivariate comparison of participants vs nonparticipants
Jensen, Garasky et al., 2002	Iowa Food Stamp Leavers Survey: Final Report	1999 survey of 735 FSP case heads who left or stayed in 1997	Tabulation of reasons for leaving FSP
Martin, Cook et al., 2003	Public versus Private Food Assistance: Barriers to Participation Differ by Age and Ethnicity	Survey of 330 low income households in Hartford, 1999	Tabulations of reasons for nonparticipation
McConnell and Ponza, 1999	The Reaching the Working Poor and Poor Elderly Study: What We Learned and Recommendations for Future Research	12 focus groups with elderly and working poor FSP participants and non-participants, six locations around US, 1994	Low-income households statement s about reasons for non-participation
Ponza, Ohls et al., 1999	Customer Service in the Food Stamp Program	National sample of FSP nonparticipants (NFSPS) 1996	Tabulations of reasons for nonparticipation
Rangarajan and M, 2001	Food Stamp Leavers in Illinois - How Are they Doing Two Years Later?	Survey of 497 IL respondents in 1999 who left FSP in 1997	Tabulation of reasons for leaving FSP
Richardson, Schoenfeld et al., 2003a	Food Stamp Leavers Research Study-Study of Nonwelfare Families Leaving the Food Stamp Program in South Carolina: Final Report	Survey of 899 families leaving FSP in SC, 1998-2000	Tabulations of reasons for returning to FSP

Exhibit A.1: Studies Reviewed for Chapter Three

Study	Title	Type of Data	Nature of Information
Richardson, Schoenfeld et al., 2003b	Food Stamp Leaveers Research Study - Study of ABAWDs Leaving the Food Stamp Program in South Carolina	Survey of 572 ABAWDs leaving FSP in SC, 1998-2000	Tabulations of reasons for returning to FSP
Teitler, Reichman et al., 2004	Sources of Support, Child Care, and Hardship among Unwed Mothers, 1999—2001	National survey (Fragile Families), 1998-2000	Bivariate association of characteristics with participation
US GAO, 1988	Food stamps : reasons for nonparticipation : report to the Ranking Minority Member, Subcommittee on Domestic Marketing, Consumer Relations, and Nutrition, Committee on Agriculture, House of Representatives	National survey (PSID) 1986	Tabulations of reasons for nonparticipation
Zedlewski and Brauner, 1999	Declines in Food Stamp and Welfare Participation: Is There a Connection?	National sample of FSP leavers 1995-1997	Tabulations of reasons for leaving FSP
Studies of Food Coping Strategies			
Alaimo, 2005	Food Insecurity in the United States	Literature synthesis	Summary and interpretation of prior research
Connell, Lofton et al., 2005	Children's Experiences of Food Insecurity Can Assist in Understanding Its Effect on Their Well-Being	Qualitative, 32 kids age 11-16 in Mississippi	Kid-reported feelings and behaviors connected with food insecurity
Frongillo, Valois et al., 2003	Using a Concurrent Events Approach to Understand Social Support and Food Insecurity Among Elders	Weekly interviews for 4 months with 9 food insecure or marginally secure elderly persons in upstate NY	Concurrent accounts of food sources

Exhibit A.1: Studies Reviewed for Chapter Three

Study	Title	Type of Data	Nature of Information
Greder and Brotherson, 2002	Food Security and Low-income Families: Research to Inform Policy and Programs	Focus groups, in-depth interviews, case studies with 49 low-income mothers in Iowa, 1999	Categorization and examples of food coping strategies
Kempson, Keenan et al., 2003	Maintaining Food Sufficiency: Coping Strategies Identified by Limited-Resource Individuals versus Nutrition Educators	11 focus groups with low-income persons	People's statements about what "they or others" did to cope – also nutrition educators' views
Kempson, Keenan et al., 2002a	Educators; Reports of Food Acquisition Practices Used by Limited-Resource Individuals to Maintain Food Sufficiency	Semi-structured interviews, 51 nutrition educators in NJ, 1999-2000	Educators' perceptions of strategies used by low-income people
Kempson, Keenan et al., 2002b	Food Management Practices Used by People with Limited Resources to Maintain Food Sufficiency as Reported by Nutrition Educators	Semi-structured interviews, 51 nutrition educators in NJ, 1999-2000	Educators' perceptions of strategies used by low-income people
Morton, Oakland et al., 2002	Iowa Community Food Assessment Project Report 2001=02	8 focus groups, low-income residents in Iowa rural and urban neighborhoods, 2002	Low-income people's statements about food coping
Polit, London et al., 2000	Food Security and Hunger in Poor, Mother-Headed Families in Four U.S. Cities	Longitudinal ethnographic study, 125 families, 1998-2001	Low-income mothers' statements about food coping
Wolfe, Frongillo et al., 2003	Understanding the Experience of Food Insecurity by Elders Suggests Ways to Improve Its Measurement	2 qualitative interviews, 53 low-income urban elders	Elderly persons' statements about their food situation
Studies of Predictors of Food Insecurity			
Armour, Pitts et al., 2007	Cigarette Smoking and Food Insecurity among Low-Income Families in the United States, 2001	National survey (PSID) 2001	Model of food security

Exhibit A.1: Studies Reviewed for Chapter Three

Study	Title	Type of Data	Nature of Information
Bhattacharya, DeLeire et al., 2003	Heat or Eat? Cold-Weather Shocks and Nutrition in Poor American Families	National surveys (CEX) 1980-1998	Model of food expenditures
Borjas, 2004	Food Insecurity and Public Assistance	National survey (CPS) 1995-99	Models of FSP participation, food insecurity
Casey, Goolsby et al., 2004	Maternal Depression, Changing Public Assistance, Food Security, and Child Health Status	In-hospital survey, 5306 mothers of kids <3, 2000-2001, 6 states	Model of food insecurity
Gundersen and Gruber, 2001	The Dynamic Determinants of Food Insufficiency	National survey (SIPP) 1992	Bivariate analyses of food insufficiency
Gundersen and Oliveira, 2001	The Food Stamp Program and Food Insufficiency	National survey (SIPP) 1991-92	Simultaneous model of food insufficiency and FSP participation
Gundersen, Weinreb et al., 2003	Homelessness and food insecurity	436 homeless and housed female-headed families, Worcester MA, 1992-95	Models of food security
Hall and Brown, 2005	Food Security Among Older Adults in the United States	Literature synthesis	Factors associated with food insecurity in other research
Laraia, Siegaariz et al., 2006	Psychosocial Factors and Socioeconomic Indicators Are Associated with Household Food Insecurity among Pregnant Women	Survey of 606 pregnant women in UNC hospitals, 2000-04	Models of food insecurity
Lee and Frongillo, 2001	Factors Associated With Food Insecurity Among U.S. Elderly Persons: Importance of Functional	National and NY surveys (NHANES III, NSENY) 1988-94, 1994	Model of food insecurity
Martin, Rogers et al., 2004	Social capital is associated with decreased risk of hunger	Survey of 330 low income households in Hartford, 1999	Model of food insecurity with hunger

Exhibit A.1: Studies Reviewed for Chapter Three

Study	Title	Type of Data	Nature of Information
Mazur, Marquis et al., 2003	Diet and Food Insufficiency Among Hispanic Youth: Acculturation and Socioeconomic Determinants in NHANES III	National survey (NHANES III), 1988-94	Models of 3 food insufficiency measures
Morton, Bitto et al., 2005	Solving the Problems of Iowa Food Deserts: Food Insecurity and Civic Structure	Survey of 720 in 2 Iowa "food desert" counties, 2003	Model of food security
Nord and Kantor, 2006	Seasonal Variation in Food Insecurity Is Associated with Heating and Cooling Costs among Low-Income Elderly Americans	National sample of households in poverty with no school-age kids(CPS) 1995-2001	Model of food security
Nord and Romig, 2006	Hunger in the Summer	National survey (CPSS), 1995-2001	Model of food security
Olson, Anderson et al., 2004	Factors Protecting Against and Contributing to Food Insecurity Among Rural Families	Survey 316 rural low-income families, 16 states, 2000	Model of food security
Olson, Rauschenbach et al., 1996	Factors Contributing to Household Food Insecurity in a Rural Upstate New York County	Survey + HH food inventory, 200 women, rural NY	Model of food insecurity
Quandt and Rao, 1999	Hunger and food security among older adults in a rural community	Survey 192 elderly in rural KY	Model of food insecurity
Ribar and Hamrick, 2003	Dynamics of Poverty and Food Sufficiency	National survey (SIPP) 1993-1997	Models of entry/exit to/from food insecurity
Stuff, Casey et al., 2004	Household Food Insecurity Is Associated with Adult Health Status	Survey of 1488 households in lower Mississippi delta, 2000	Regression/logit of health status measures on food security & demographics

Exhibit A.1: Studies Reviewed for Chapter Three

Study	Title	Type of Data	Nature of Information
Wehler, Weinreb et al., 2004	Risk and Protective Factors for Adult and Child Hunger Among Low-Income Housed and Homeless Female-Headed Families	Survey of 354 homeless or welfare-reliant women in Worcester, 1992-95	Model of hunger
Studies of Low-Income Subsistence			
Almgren, Yamashiro et al., 2002	Beyond Welfare or Work: Teen Mothers, Household Subsistence Strategies, and Child Development Outcomes	173 teen mothers and first-borns, Seattle, 6-yr longitudinal, 1987-94	Exploratory factor analysis of relationships among income sources
Chaudry, 2004	Putting Children First: How Low-Wage Working Mothers Manage Child Care	Longitudinal ethnography, 42 low-income mothers of young children in NY, 1998-2001	Stories of mothers coping with work and child care
Drumm and McBride, 2005	I Don't Beg. I Don't Steal: Drug Users' Front-Stage Self-Perceptions	In-depth interviews with 28 drug users, Miami	Drug users' statements about factors that help them get along
Dunlap, Golub et al., 2003	The Lived Experience of Welfare Reform in Drug-Using Welfare-Needy Households in Inner-City New York	72 households in NYC, 3-5 year ethnography, ending 2001	Drug user statements, observed behavior in coping with/without welfare
Edin and Lein, 1997	Making ends meet: How single mothers survive welfare and low-wage work	Ethnographies of 379 low-income women in 4 cities, 1989-92	Patterns of income sources, expenditures, and coping
Gemelli, 2006	Definitions of Motherhood: A Study of Low-Income Single Mothers	12 semi-structured interviews, women in Portland OR, 2003	Mothers' statements about motherhood
Hill and Gaines, 2007	The Consumer Culture of Poverty: Behavioral Research Findings and Their Implications in an Ethnographic Context	Interpretation of five previous ethnographies of homeless persons	Stories about how homeless persons get along

Exhibit A.1: Studies Reviewed for Chapter Three

Study	Title	Type of Data	Nature of Information
Jarrett, 1996	Welfare Stigma Among Low-Income, African American Single Mothers	10 focus groups of low-income African-American mothers in Chicago, 1988	Welfare recipients' statements about work
Katras, Zuiker et al., 2004	Private Safety Net: Childcare Resources from the Perspective of Rural Low-Income Families	52 rural low-income families in 13 states, qualitative interviews, 1999-2000	Mothers' statements about how they piece together child care
Lein, Benjamin et al., 2005	Economic Roulette	99 low-income families in 3 cities interviewed monthly for 12-18 months, 2002-03	Mothers' histories of work and work-related functioning
London, Scott et al., 2004	Welfare Reform, Work-Family Tradeoffs, and Child Well-Being	46 women initially on welfare in 2 cities, 2 open-end interviews one year apart, 1997-98	Mothers' statements about work and work problems
Luck, Elifson et al., 2004	Female drug users and the welfare system: a qualitative exploration	61 female drug users on welfare in Atlanta, one in-depth interview, 1998-99	Drug users' statements about assistance programs and coping strategies
Marcus, 2005	Whose Tangle is it Anyway? The African-American Family, Poverty and United States Kinship	Participant observation and ethnography of homeless men in NY, 1989-91	Long- or short-term homeless men's statements about family
Reed, 2004	Poor Women's Work: A Look at the Employment Opportunities and Experiences of Low-Income, Inner-City Women	in-depth interviews, 90 families, Chicago public housing, 2003	Low-income women's statements about work
Robles, 2006	One Size Does Not Fit All: Low-Income Women Choreographing Work and Family	Ethnographic study, 44 families, Milwaukee, 1998-2001	Stories of low-income women's work arrangements
Scott and London, 2006	Consequences of the Triumph of Individualism: Insights from the Lives of Women Who Hit Time Limits	15 women who hit time limit, Cleveland, annual qualitative interviews 1997-2001	Women's histories of welfare, work, coping

Exhibit A.1: Studies Reviewed for Chapter Three

Study	Title	Type of Data	Nature of Information
Scott, London et al., 2005	Instability in patchworks of child care when moving from welfare to work	38 women, initially welfare-reliant, Cleveland, annual qualitative interviews 1997-2001	Women's histories of child care usage
Sherman, 2006	Coping with Rural Poverty: Economic Survival and Moral Capital in Rural America	55 in-depth interviews, mainly low-income, poor rural CA – also participant observation, 2003-2004	Stories about subsistence strategies
Smith, 2002	Commitment to mothering and preference for employment: The voices of women on public assistance with young children	Weekly open-ended group discussions, 14 welfare-reliant women, NY state, 1999-2000	Mothers' statements about reasons for/against work vs. stay-at-home
van Arsdale, 2005	Waiting for Work: An Ethnography of Temporary Help Workers from a Deindustrialized City	Participant observation, ethnography in northeastern city, 2000-2003	Workers's stories about structure and issues in temporary work
Zippay, 2002	Dynamics of Income Packaging: A 10-Year Longitudinal Study	87 displaced steelworkers, PA, qualitative and quantitative interviews in 1987 & 1997	Stories of "income packaging" by mostly low-income workers
Other research			
Anderson, Halter et al., 2004	Difficulties after Leaving TANF: Inner-City Women Talk about Reasons for Returning to Welfare	5 focus groups of TANF leaver-returners in Chicago, 1999-2000	Statements of reasons for returning to TANF
Curtis, 1997	Urban poverty and the social consequences of privatized food assistance	Participant observation and interviews with food assistance organizations and staff, Delaware, 1993	Qualitative data on operations of voluntary organizations
Duffy, Hallmark et al., 2002	Food Security of Low-Income Single Parents in East Alabama: Use of Private and Public Programs in the Age of Welfare Reform	Survey of 216, food pantry users and comparison group, Alabama	Tabulations of reasons for non-use of pantries; model of pantry use

Exhibit A.1: Studies Reviewed for Chapter Three

Study	Title	Type of Data	Nature of Information
Henderson, Tickamyer et al., 2005	The impact of welfare reform on the parenting role of women in rural communities	48 assistance recipients in Appalachian Ohio, in-depth interviews	Mothers' statements about motherhood and welfare rules
Henly and Danziger, 1996	Confronting welfare stereotypes: Characteristics of general assistance recipients and postassistance employment	46 in-depth interviews with GA recipients, plus survey & admin data, in 3 Michigan counties, 1993	GA (former) recipients statements about their situation
Kissane, 2003	What's Need Got to Do with It? Barriers to Use of Nonprofit Social Services	In-depth interviews, 20 poor women, Philadelphia, 1998-99	Low-income women perceptions of services available in non-profit sector
Kretsedemas, 2003	Immigrant households and hardships after welfare reform: a case study of the Miami-Dade Haitian community	Survey of 380 Haitian immigrants in Miami, 2001	Bivariate descriptive analysis of use of public services
Molnar, Duffy et al., 2001	Private Food Assistance in a Small Metropolitan Area: Urban Resources and Rural Needs	Qualitative interviews with staff & clients, 12 food pantries in Alabama, 1999	Observed characteristics of food pantries
Rogers-Dillon, 1995	The Dynamics of Welfare Stigma	10 divorced or separated on welfare, Philadelphia, one in-depth interview,	Recipients' statements about experiences with welfare, using food stamps
Romich, 2006	Difficult Calculations: Low-Income Workers and Marginal Tax Rates	40 low-income women with young children in Milwaukee, 18 ethnographic interviews, 1997-2000	Recipient histories of welfare interactions
Seccombe, James et al., 1998	`They Think You Ain't Much of Nothing': The Social Construction of the Welfare Mother	In-depth interviews, 47 women on AFDC, Florida, 1995	Welfare mothers' statements about selves, others
Seccombe, Walters et al., 1999	Welfare Mothers Welcome Reform, Urge Compassion	In-depth interviews, 47 women on AFDC, Florida, 1995	Welfare mothers' statements about welfare reform