



United States Department of Agriculture

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*Measuring the Effect of Supplemental  
Nutrition Assistance Program (SNAP)  
Participation on Food Security  
Executive Summary*

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*Measuring the Effect of Supplemental Nutrition Assistance Program (SNAP) Participation on Food Security*

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This study was conducted under Contract number GS-10F-0050L with the Food and Nutrition Service, United States Department of Agriculture.

This report is available on the Food and Nutrition website: <http://www.fns.usda.gov>

**Suggested Citation:**

Mabli, James, Jim Ohls, Lisa Dragoset, Laura Castner, and Betsy Santos. *Measuring the Effect of Supplemental Nutrition Assistance Program (SNAP) Participation on Food Security*. Prepared by Mathematica Policy Research for the U.S. Department of Agriculture, Food and Nutrition Service, August 2013.

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## EXECUTIVE SUMMARY

### A. What Are the Objectives?

The Supplemental Nutrition Assistance Program (SNAP) provides nutrition assistance benefits to low-income individuals and families in an effort to reduce hunger and improve the health and well-being of low-income people nationwide. Although SNAP has long been one of the largest and most important nutrition assistance programs for low-income households, its significance has grown even larger in recent years as it experienced record-high levels of participation. In Fiscal Year 2012, the program provided benefits to more than 46 million Americans on average per month.<sup>1</sup>

The Food and Nutrition Service (FNS) of the United States Department of Agriculture (USDA), which administers SNAP, targets benefits to the neediest households; poorer households receive greater SNAP benefits than households with more income. To counter rising food prices and provide SNAP participants with enough resources to purchase food, the American Recovery and Reinvestment Act (ARRA), enacted in February 2009, raised the maximum SNAP benefit by 13.6 percent, effective April 2009. Because the benefit amount for all households is determined by reducing the maximum benefit according to each household's income net of certain housing, medical, work, and child care expenses, the benefit allotment for households not receiving the maximum increased by the same dollar amount as that for households of the same size that received the maximum benefit. On average, household benefits increased by approximately \$41 under ARRA (Leftin et al. 2010). In fiscal year 2011, the average household benefit was \$281.

Policymakers, advocates, and those administering SNAP have long hypothesized that SNAP reduces food insecurity, which is a measure of whether a household experiences food access limitations due to lack of money or other resources. Estimating the effect of SNAP on food insecurity using household survey data has been challenging, however, because households that participate in SNAP can differ in systematic ways from households that do not (commonly referred to as selection bias). For example, households that are more food-needy and have lower levels of food security are more likely to participate in SNAP. Therefore, initial differences in food insecurity between participants and nonparticipants may be greater than the ameliorative effects of the program (Nord and Golla 2009). Most research studies, using a variety of data and empirical methods, have attempted to isolate SNAP's effect on food insecurity from the compositional differences between participants and nonparticipants, but the evidence supporting the hypothesis has been mixed.<sup>2</sup>

Mathematica Policy Research conducted the SNAP Food Security (SNAPFS) survey for FNS between October 2011 and September 2012, to assess the effect of SNAP participation on food security and food spending in the post-ARRA environment of higher SNAP allotments. SNAPFS was the largest survey of food security and food spending among SNAP participants to date, with 9,811 households interviewed in 30 States. This report presents the evaluation findings, which are based on a quasi-experimental design intended to minimize selection bias by comparing information

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<sup>1</sup> Data were obtained from <http://www.fns.usda.gov/pd/SNAPsummary.htm>.

<sup>2</sup> Recent reviews of the literature of the effects of SNAP on food security can be found in Nord and Golla (2009); Ratcliffe and McKernan (2011); Wilde (2007); and Fox et al. (2004).

collected from SNAP households within days of entering the program to information obtained after about six months of participation to control for factors unrelated to SNAP.

The main objectives of the study were to:

- Assess how household food security and food expenditures vary with SNAP participation
- Examine how the relationships between SNAP and food security and between SNAP and food expenditures vary by key household characteristics and circumstances
- Examine in more depth what factors may distinguish between food secure and food insecure SNAP households with children

This report contains the research findings for the first and second objectives. The third objective was based on a qualitative component of the study and was addressed in a separate report.<sup>3</sup>

## **B. How Was the Study Conducted?**

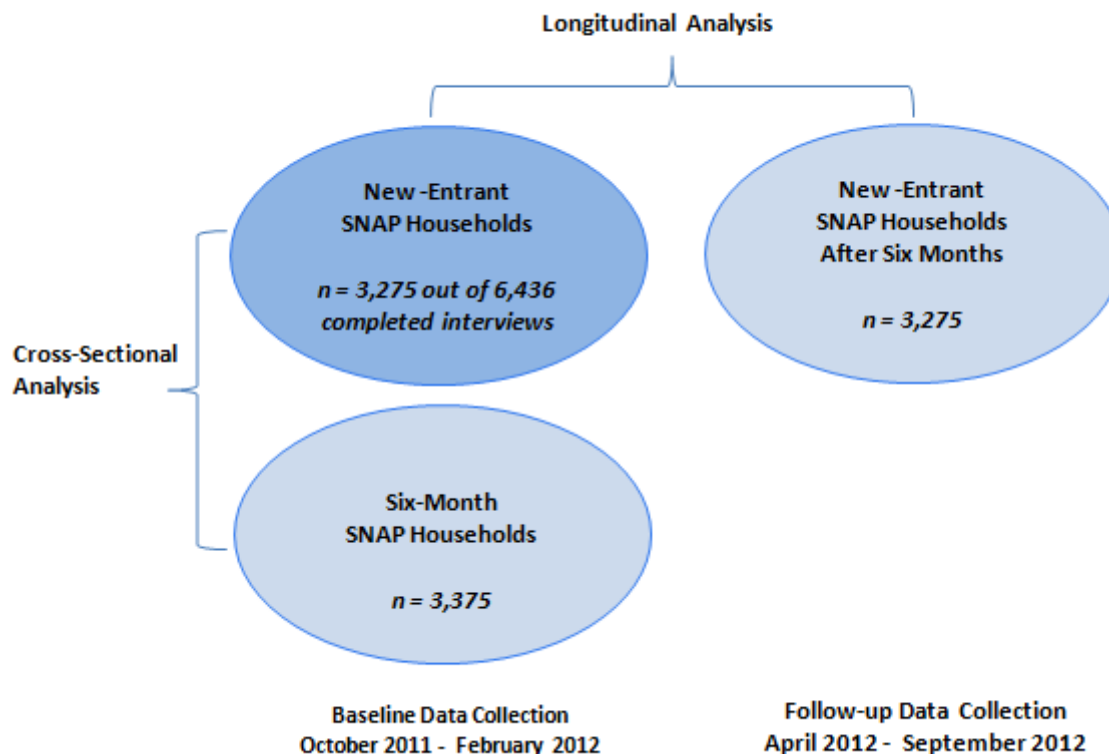
### **1. Study Design**

SNAPFS survey data were collected from October 2011 through September 2012 using computer-assisted telephone interviewing (CATI). As presented in Figure 1, data for the cross-sectional analysis come from 9,811 SNAP households interviewed in a nationally representative sample of 30 States from October 2011 through February 2012: 6,436 new-entrant households and 3,375 households that had participated for about six months (“six-month” households). Data for the longitudinal analysis come from the 3,275 households that were interviewed as new-entrant households from October 2011 through February 2012 that were still participating in the program about six months later. These households were interviewed between April and September 2012. The analysis samples differed from the initial survey samples. The findings presented in this report are based on analyses in which the sample of new-entrant households was restricted to those that continued to participate six months later, at the time of the follow-up interview. This restriction increased the comparability of new-entrant and six-month households and helped decrease bias in comparing the food security (or food expenditures) of six-month and new-entrant households.

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<sup>3</sup> Edin, Kathryn, Melody Boyd, James Mabli, Jim Ohls, Julie Worthington, Sara Greene, Nicholas Redel, and Swetha Sridharan. “SNAP Food Security: In-Depth Interview Study Final Report.” Washington DC: Mathematica Policy Research, March 2013.

Figure 1. Study Design



Source: SNAP Food Security Survey 2012.

Note: Sample sizes denote numbers of households that completed the survey. In the analysis, the sample of new-entrant households was restricted to those households that also completed a follow-up interview six months later in order to improve the comparability between the new-entrant and six-month households.

## 2. Analysis Methods

All analyses are based on two sets of comparisons. Using a cross-sectional sample, we compare information collected from SNAP households within days of entering the program to information collected from a contemporaneous sample of households that have participated for about six months. Next, using a longitudinal sample, we compare the baseline information collected from the new-entrant SNAP households to information from those same households six months later.

The SNAPFS survey included an 18-item food security module with a 30-day reference period. Household food security status was measured using the 10 adult-referenced items of the module. Children's food security status was measured using the 8-item child scale of the module. The survey also included a food expenditure module that requested information about expenditures on food in the week before the survey, as well as what households *usually* spend on food in a typical week. In much of the analysis, usual weekly food spending was normalized by the cost of the Thrifty Food Plan (TFP) to adjust for differences in household size and composition, as well as for inflation in food prices.

Descriptive tabulations of household food security and food expenditures are presented to characterize the groups of new-entrant and six-month SNAP households. The difference in

prevalence of food insecurity among new-entrant and six-month households can be attributable to differences in SNAP participation as well as differences in characteristics and circumstances of new-entrant and six-month households. For this reason, descriptively comparing the prevalence of food insecurity across the two groups does not measure the association between SNAP and food security. To estimate this association, multivariate regression analysis was used that accounted for observed differences in demographic and household characteristics and economic circumstances.<sup>4</sup> All analyses used weights to account for the survey's multistage sampling design and for nonresponse.

## C. What Did the Study Find?

### 1. Food Security

#### a. The Prevalence of Food Insecurity and Very Low Food Security in Households and in Households with Children

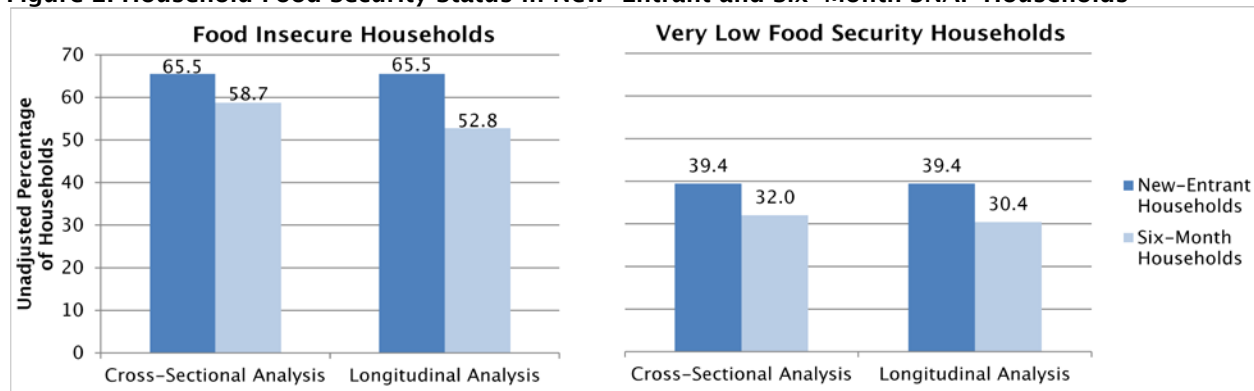
Simple, descriptive tabulations of the data on key outcome variables, with no adjustment for other household characteristics, show that six-month households were less likely than new-entrant households to be food insecure or experience very low food security. The percentages of new-entrant and six-month households that were food insecure in the cross-sectional sample were 65.5 and 58.7 percent, respectively—a -6.7 percentage point difference (Figure 2). Similarly, in the longitudinal sample, the percentages of new-entrant households and those same households six months later that were food insecure were 65.5 and 52.8 percent, respectively—a -12.7 percentage point difference.

The percentage of households with very low food security was also smaller for six-month households than for new-entrant households. The percentages of new-entrant and six-month households that had very low food security in the cross-sectional sample were 39.4 and 32.0 percent, respectively—a -7.4 percentage point difference. The analogous percentages in the longitudinal sample were 39.4 and 30.4 percent, respectively—a -9.0 percentage point difference.

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<sup>4</sup> Although this might help to identify the portion of the difference in the prevalence of food insecurity between new-entrant and six-month households attributable to SNAP, it does not eliminate the possibility of bias. Because unobservable differences between new-entrant and six-month households may remain, the regression analysis findings should not be considered indicative of the causal effects of SNAP.



**Figure 2. Household Food Security Status in New- Entrant and Six- Month SNAP Households<sup>a</sup>**

Source: SNAP Food Security Survey 2012.

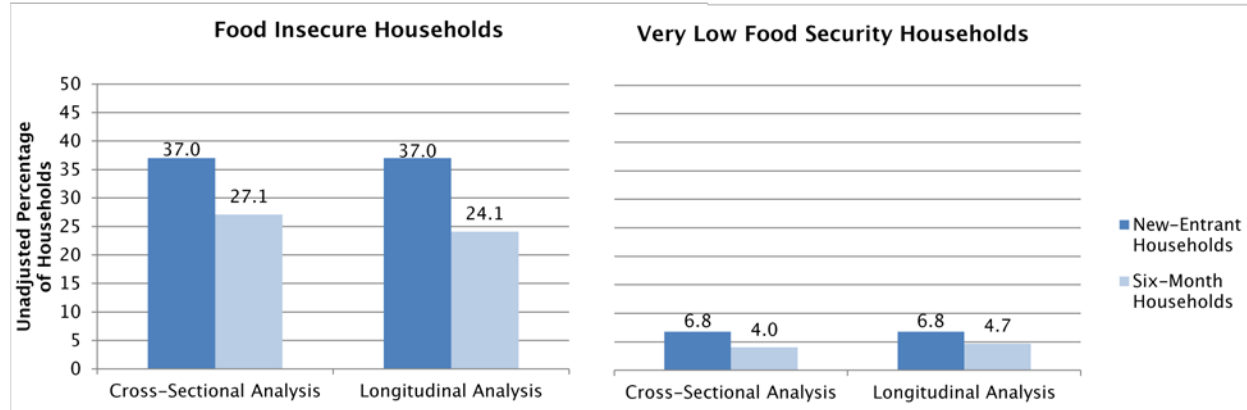
Note: The cross-sectional estimates compare new SNAP participants to a contemporaneous set of participants who have been receiving SNAP for about six months. The longitudinal estimates compare new SNAP participants to the same participants about six months later.

Cross-sectional estimates are based on a data set with 6,650 households (3,275 new-entrant households and 3,375 six-month households). Longitudinal estimates are based on a data set with 3,275 new-entrant households observed at baseline and again at follow-up six months later.

<sup>a</sup> Percentages of food insecurity and very low food security have not been adjusted for differences in characteristics across households.

When only households with children are considered, a smaller percentage of six-month households than new-entrant households were food insecure in both the cross-sectional and longitudinal samples. In the cross-sectional sample, the percentage of households with children in which children were food insecure was 37.0 percent for new-entrant households and 27.1 percent for six-month households—a difference of -9.9 percentage points (Figure III.3). Similarly, in the longitudinal sample, the percentages were 37.0 and 24.1 percent, respectively—a -12.9 percentage point difference.

In the cross-sectional sample, the percentage of households with children in which children had very low food security was 6.8 percent for new-entrant households and 4.0 percent for six-month households—a difference of -2.8 percentage points. In the longitudinal sample, the percentages were 6.8 and 4.7 percent, respectively—a -2.1 percentage-point difference.

**Figure 3. Children’s Food Security Status in New- Entrant and Six- Month SNAP Households with Children<sup>a</sup>**

Source: SNAP Food Security Survey 2012.

Note: The cross-sectional estimates compare new SNAP participants to a contemporaneous set of participants who have been receiving SNAP for about six months. The longitudinal estimates compare new SNAP participants to the same participants about six months later.

Cross-sectional estimates are based on a data set with 2,796 households with children (1,274 new-entrant households and 1,522 six-month households). Longitudinal estimates are based on a data set with 1,274 new-entrant households with children observed at baseline and 1,295 households with children observed at follow-up six months later.

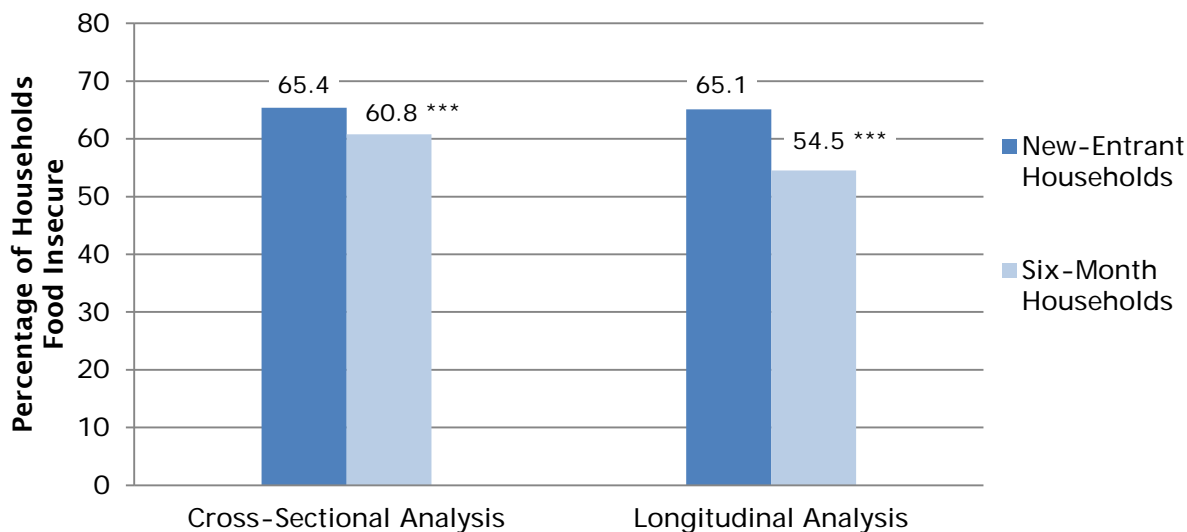
<sup>a</sup> Percentages of food insecurity and very low food security have not been adjusted for differences in characteristics across households.

## b. Associations Between SNAP and Household Food Security

While the descriptive tabulations of the prevalence of food insecurity in the previous section show the total change in food security status due to SNAP participation *as well as* non-SNAP changes in household characteristics and circumstances, regression analysis that accounts for observed differences between new-entrant and six-month households was used to estimate the change in food security status associated with SNAP participation only. We refer to these findings as “regression-adjusted” in the figures. Although the same set of new-entrant households are used in the cross-sectional and longitudinal analyses, the regression-adjusted percentages of food insecure new-entrant households differ across the two analyses because they are generated using model parameters specific to the samples being examined.

Participating in SNAP for about six months was associated with a decrease in the percentage of households that were food insecure by 4.6 percentage points in the cross-sectional sample. The reduction was from 65.4 percent of new-entrant households to 60.8 percent of six-month households (Figure 4). In the longitudinal sample, SNAP was associated with a decrease in the percentage of households that were food insecure by 10.6 percentage points, from 65.1 percent of new-entrant households to 54.5 percent of those same households six months later.

**Figure 4. Participating in SNAP for Six Months was Associated with a Decrease in the Percentage of Households That Were Food Insecure**



Source: SNAP Food Security Survey 2012.

Note: Percentages were regression-adjusted for differences between new-entrant and six-month households in demographic and economic characteristics, current and prior participation in Federal and State programs, and State economies and SNAP policies. Chapter II lists the full set of variables.

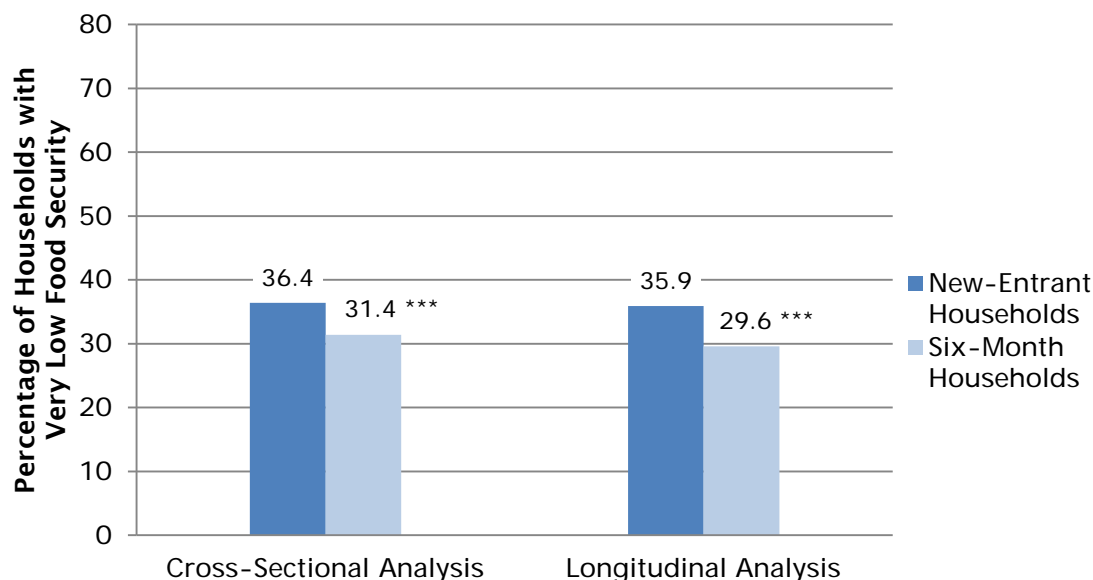
The cross-sectional estimates compare new SNAP participants to a contemporaneous set of participants who have been receiving SNAP for about six months. The longitudinal estimates compare new SNAP participants to the same participants about six months later.

Cross-sectional estimates are based on a data set with 6,650 households (3,275 new-entrant households and 3,375 six-month households). Longitudinal estimates are based on a data set with 3,275 new-entrant households observed at baseline and again at follow-up six months later.

\*, \*\*, \*\*\* Significantly different from zero at the 0.10, 0.05, and 0.01 level, respectively.

Participating in SNAP for about six months was also associated with a decrease in the percentage of households that experienced particularly severe levels of food insecurity—designated “very low food security.” Participating in SNAP was associated with a decrease in the percentage of households that experienced very low food security of 5.0 percentage points in the cross-sectional sample, from 36.4 percent of new-entrant households to 31.4 percent of six-month households, and of 6.3 percentage points in the longitudinal sample, from 35.9 to 29.6 percent (Figure 5).

**Figure 5. Participating in SNAP for Six Months was Associated with a Decrease in the Percentage of Households That had Very Low Food Security**



Source: SNAP Food Security Survey 2012.

Note: Percentages were regression-adjusted for differences between new-entrant and six-month households in demographic and economic characteristics, current and prior participation in Federal and State programs, and State economies and SNAP policies. Chapter II lists the full set of variables.

The cross-sectional estimates compare new SNAP participants to a contemporaneous set of participants who have been receiving SNAP for about six months. The longitudinal estimates compare new SNAP participants to the same participants about six months later.

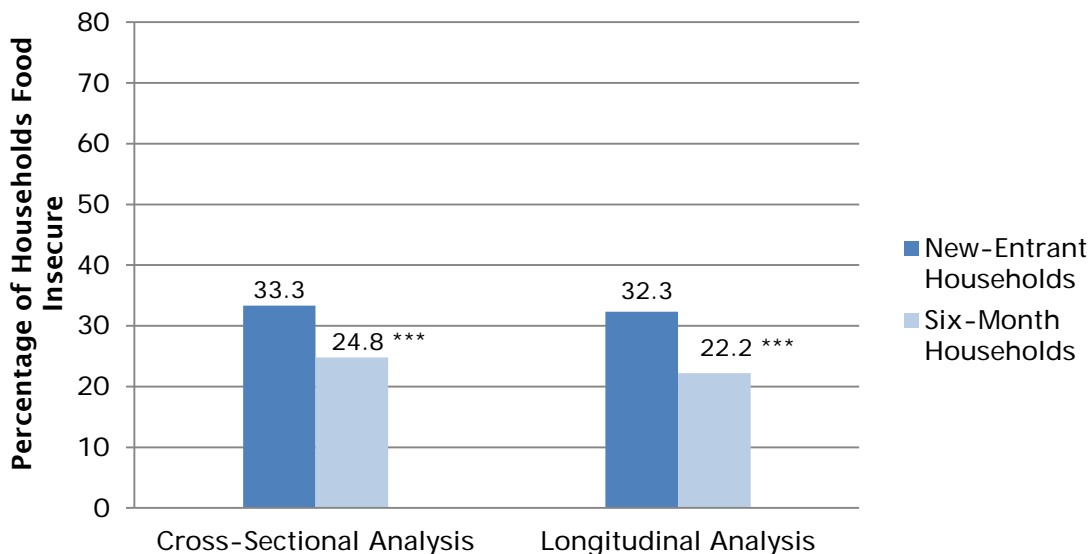
Cross-sectional estimates are based on a data set with 6,650 households (3,275 new-entrant households and 3,375 six-month households). Longitudinal estimates are based on a data set with 3,275 new-entrant households observed at baseline and again at follow-up six months later.

\*, \*\*, \*\*\* Significantly different from zero at the 0.10, 0.05, and 0.01 level, respectively.

### c. Associations Between SNAP and Children's Food Security

Participating in SNAP for about six months was associated with a decrease in the percentage of households with children in which children were food insecure by 8.6 percentage points in the cross-sectional sample, from 33.3 percent of new-entrant households to 24.8 percent of six-month households (Figure 6). In the longitudinal sample, SNAP was associated with a decrease in the percentage of households with children in which children were food insecure by 10.1 percentage points, from 32.3 percent of new-entrant households to 22.2 percent of those same households six months later.

**Figure 6. Participating in SNAP for Six Months was Associated with a Decrease in the Percentage of Households with Children with Food Insecurity Among Children**



Source: SNAP Food Security Survey 2012.

Note: Percentages were regression-adjusted for differences between new-entrant and six-month households in demographic and economic characteristics, current and prior participation in Federal and State programs, and State economies and SNAP policies. Chapter II lists the full set of variables.

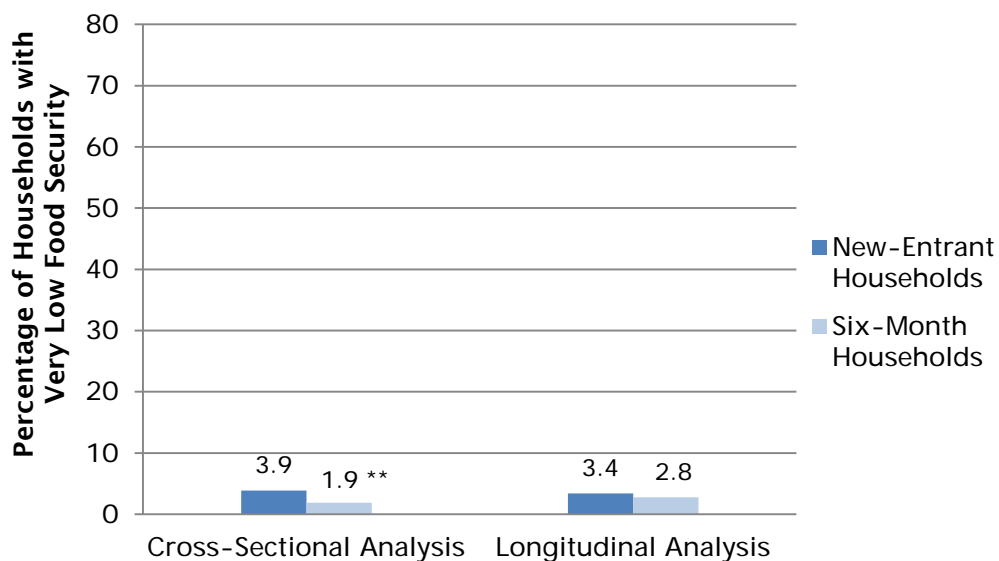
The cross-sectional estimates compare new SNAP participants to a contemporaneous set of participants who have been receiving SNAP for about six months. The longitudinal estimates compare new SNAP participants to the same participants about six months later.

Cross-sectional estimates are based on a data set with 2,796 households with children (1,274 new-entrant households and 1,522 six-month households). Longitudinal estimates are based on a data set with 1,274 new-entrant households with children observed at baseline and 1,295 households with children at follow-up six months later.

\*, \*\*, \*\*\* Significantly different from zero at the 0.10, 0.05, and 0.01 level, respectively.

Participating in SNAP was associated with a decrease in the percentage of households with children in which children experienced very low food security by 2.0 percentage points in the cross-sectional sample, from 3.9 percent of new-entrant households to 1.9 percent of six-month households (Figure 7). There was no statistically significant association in the longitudinal sample.

**Figure 7. The Evidence was Mixed as to Whether Participating in SNAP for Six Months was Associated with a Decrease in the Percentage of Households with Children with Very Low Food Security Among Children**



Source: SNAP Food Security Survey 2012.

Note: Percentages were regression-adjusted for differences between new-entrant and six-month households in demographic and economic characteristics, current and prior participation in Federal and State programs, and State economies and SNAP policies. Chapter II lists the full set of variables.

The cross-sectional estimates compare new SNAP participants to a contemporaneous set of participants who have been receiving SNAP for about six months. The longitudinal estimates compare new SNAP participants to the same participants about six months later.

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\*, \*\*, \*\*\* Significantly different from zero at the 0.10, 0.05, and 0.01 level, respectively.

#### **d. Associations Between SNAP and Household Food Security, by Subgroup**

Estimates of the association between SNAP and household food security for the full survey sample might conceal important differences in associations across subgroups. If an association exists overall, it might be heavily concentrated in, or much larger for, some subgroups. Conversely, if an association does not exist for the entire survey sample of households, it might still exist for some subgroups. Estimates of associations for subgroups can help policymakers identify the households for which the program might be most effective and better target the program or tailor its services. In this report, we focus on subgroups defined by household composition, household income, and SNAP benefit amount.<sup>5</sup>

<sup>5</sup> Due to statistical considerations the subgroup analyses should be regarded as exploratory, and the results should be interpreted as suggestive of potential associations between SNAP participation and food security.

We assessed whether SNAP was associated with improved food security for each subgroup. The following summarize these findings:

- **Household composition.** SNAP was associated with an improvement in food security for most household composition subgroups, including households with and without children, households without an elderly member, and households with and without a disabled member. There were generally no associations for households with an elderly member.
- **Household income.** SNAP was associated with an improvement in food security for most household income subgroups in the longitudinal sample, but only for some households with income below 100 percent of poverty in the cross-sectional sample.
- **SNAP benefit amount.** SNAP was associated with an improvement in food security for most subgroups defined by SNAP benefit amount (as a percentage of the maximum benefit). There were no associations for the lowest benefit amount subgroup in the cross-sectional sample.

The above discussion summarized which associations were statistically significant for each household subgroup. Next, we examine whether the differences across subgroups in the sizes of the estimated associations are statistically significant. We summarize these findings here:

- **Household composition.** Although the association between SNAP and food security were generally similar for households with and without children as well as for households with and without a disabled member, there were significant differences between households with and without an elderly member.
- **Household income.** The association between SNAP and food security was similar for households with different levels of income as a percentage of the Federal poverty line.
- **SNAP benefit amount.** The association between SNAP and food security differed in general according to the amount of SNAP benefits households received. In both the cross-sectional and longitudinal samples, SNAP was associated with a larger decrease in very low food security for households with large SNAP benefits (exceeding about 80 percent of the maximum benefit for household size). In the cross-sectional sample, SNAP was associated with a larger decrease in food insecurity for households with larger SNAP benefits.

#### e. Summary of the Analysis of Food Security

The study found that participating in SNAP for about six months was associated with an improvement in food security. SNAP was associated with a decrease in both the percentage of households that were food insecure and the percentage of households that experienced very low food security. This generally holds for child food security as well.

We also assessed whether SNAP was associated with improved food security for household demographic and economic subgroups. For the most part, the results are consistent with the findings for the full sample. SNAP was associated with an improvement in food security for most household composition subgroups, including households with and without children, households without an elderly member, and households with and without a disabled member. When subgroups defined by income relative to poverty are examined, the estimated associations between SNAP and

food security vary. Although most reflect improvements in food security, many of the estimated associations are not statistically significant. For SNAP benefit amount subgroups, the estimated associations show significant improvements in food security in the longitudinal sample, but few significant improvements in the cross-sectional sample.

## 2. Food Spending

The SNAPFS survey asked respondents what they spent on food in the prior week and then asked what they *usually* spent on food in a typical week. Past data on usual expenditures collected using this module have been shown to be consistent with estimates from the Consumer Expenditure Survey, the principal source of data on U.S. household expenditures for goods and services (Nord 2009). Therefore, we focused on usual weekly food expenditures, rather than expenditures the previous week, as our main outcome measure.

### a. Descriptive Tabulations of Household Food Spending

Simple, descriptive tabulations of the data on household spending variables, with no adjustment for other household characteristics, show that median usual food spending in a typical week was the same for new-entrant and six-month households and equal to \$75 in the cross-sectional and longitudinal samples (Table 1). Usual food expenditures were, on average, 1 percent smaller than the cost of the TFP for new-entrant households and were equal to the cost of the TFP for six-month households in both samples.

**Table 1. Median Household Food Spending in Six-Month and New-Entrant SNAP Households, in Absolute Terms and Relative to the Cost of the Thrifty Food Plan**

	Cross-Sectional Estimates			Longitudinal Estimates		
	New-Entrant Households (Baseline)	Six-Month Households	Difference	New-Entrant Households (Baseline)	New-Entrant Households (Six-Month Follow-Up)	Difference
Usual Weekly Food Expenditures (in dollars)	75	75	0	75	75	0
Usual Weekly Food Expenditures Relative to the Cost of the Thrifty Food Plan	0.99	1.00	0.01	0.99	1.00	0.01

Source: SNAP Food Security Survey 2012.

Note: The cross-sectional estimates compare new SNAP participants to a contemporaneous set of participants who have been receiving SNAP for about six months. The longitudinal estimates compare new SNAP participants to the same participants about six months later.

Cross-sectional estimates are based on a data set with 6,650 households (3,275 new-entrant households and 3,375 six-month households). Longitudinal estimates are based on a data set with 3,275 new-entrant households observed at baseline and again at follow-up six months later.

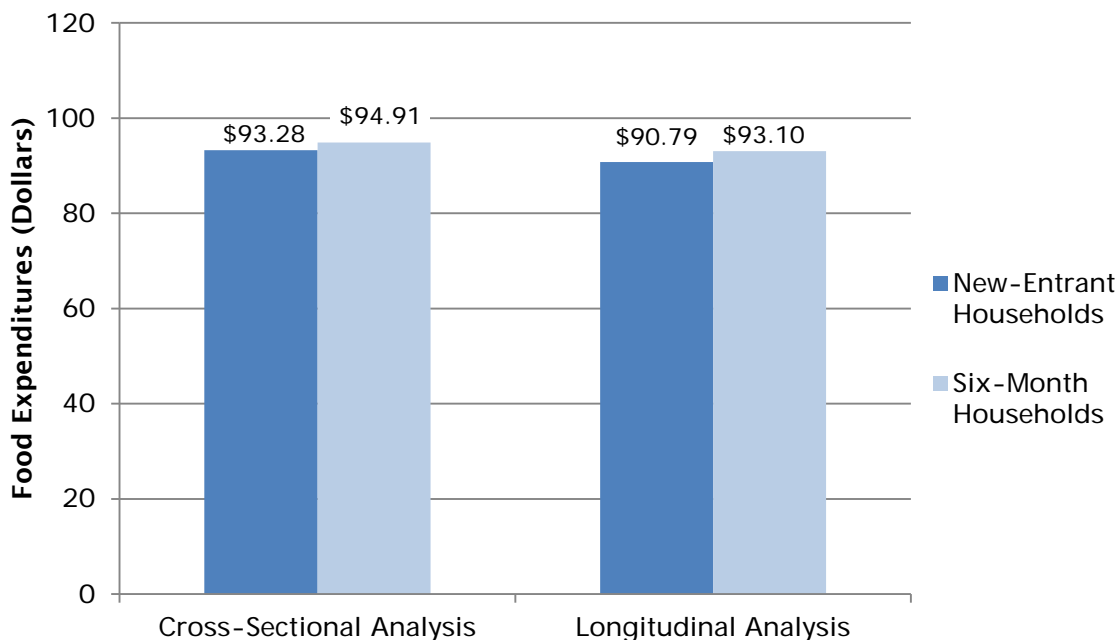
### b. Associations Between SNAP and Food Spending

Usual food spending was not statistically different for new-entrant and six-month households (Figure 8). Looking at the regression-adjusted spending, in the cross-sectional sample, new-entrant households usually spent \$93.28 per week, and six-month households spent \$94.91. In the



longitudinal sample, new-entrant households spent \$90.79 per week, and six-month households spent \$93.10.

**Figure 8. Participating in SNAP for Six Months was Not Associated with a Change in Mean Usual Weekly Household Food Spending**



Source: SNAP Food Security Survey 2012.

Note: Food expenditures were regression-adjusted for differences between new-entrant and six-month households in demographic and economic characteristics, current and prior participation in Federal and State programs, and State economies and SNAP policies. Chapter II lists the full set of variables.

The cross-sectional estimates compare new SNAP participants to a contemporaneous set of participants who have been receiving SNAP for about six months. The longitudinal estimates compare new SNAP participants to the same participants about six months later.

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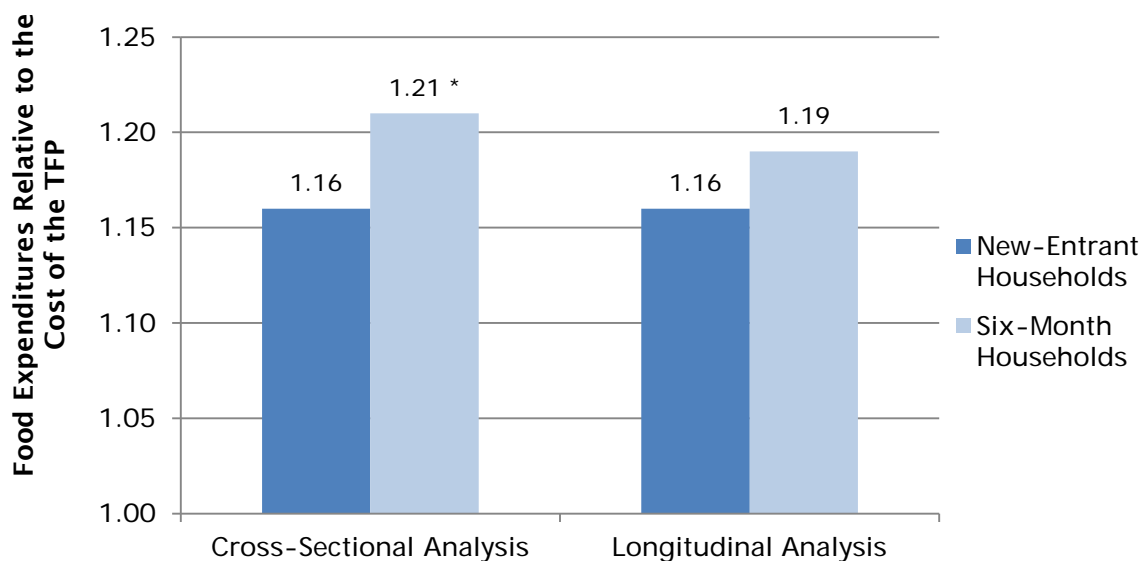
\*, \*\*, \*\*\* Significantly different from zero at the 0.10, 0.05, and 0.01 level, respectively.

Because household food expenditures are highly dependent on household size and composition, we also used an outcome measure that adjusted expenditures for household size and composition: usual weekly household food expenditures relative to the TFP spending amount.<sup>6</sup> SNAP participation was associated with a 5 percentage point increase in usual expenditures relative

<sup>6</sup> The TFP was developed by the USDA and serves as a national standard for a nutritious, minimal-cost diet. It represents a set of “market baskets” of food that people in specific age and gender categories could consume at home to maintain a healthful diet that meets current dietary standards, taking into account the food consumption patterns of U.S. households (U.S. Department of Agriculture, Center for Nutrition Policy and Promotion 2007). Thus, the cost of the TFP for a household takes into account the household’s size and composition.

to the cost of the TFP in the cross-sectional sample, an increase that was statistically significant at the 0.10 level (Figure 9). In the longitudinal sample, usual weekly spending relative to the TFP was not statistically different for new-entrant households and six-month households.

**Figure 9. The Evidence was Mixed as to Whether Participating in SNAP for Six Months was Associated with a Change in Usual Weekly Household Food Spending Relative to the Cost of the TFP**



Source: SNAP Food Security Survey 2012.

Note: Food expenditures relative to the cost of the TFP were regression-adjusted for differences between new-entrant and six-month households in demographic and economic characteristics, current and prior participation in Federal and State programs, and State economies and SNAP policies. Chapter II lists the full set of variables.

The cross-sectional estimates compare new SNAP participants to a contemporaneous set of participants who have been receiving SNAP for about six months. The longitudinal estimates compare new SNAP participants to the same participants about six months later.

Cross-sectional estimates are based on a data set with 6,650 households (3,275 new-entrant households and 3,375 six-month households). Longitudinal estimates are based on a data set with 3,275 new-entrant households observed at baseline and again at follow-up six months later.

\*, \*\*, \*\*\* Significantly different from zero at the 0.10, 0.05, and 0.01 level, respectively.

At the subgroup level, we found few significant associations between SNAP participation and food expenditures. One notable exception that was consistent across both samples and both outcome measures (usual food expenditures and usual food expenditures relative to the cost of the TFP) was that SNAP was associated with increased food spending and increased food spending relative to the cost of the TFP for households that received large SNAP benefits (exceeding about 85 percent of the maximum benefit for household size). Participating in SNAP was associated with an increase of 18 and 16 percentage points in food spending relative to the cost of the TFP in the cross-sectional and longitudinal samples, respectively, for households with large benefits.

### **c. Diagnostic Statistical Tests and Potential Limitations of the Baseline Expenditures Data**

The limited evidence of a statistically significant association between SNAP and food expenditures was surprising, as economic theory suggests that, if a household is provided a benefit to be spent on food, then total expenditures on food will increase. To assess the robustness of our findings to alternative estimation methods, we conducted several auxiliary analyses. The results from these analyses were generally consistent with those presented above, providing limited evidence of a significant association between SNAP participation and food expenditures (see Appendix G for details).

A potential explanation for the lack of a strong association between SNAP participation and food expenditures may be the timing of the data collection. For logistical reasons, the baseline interviews for most survey respondents (84 percent) were conducted several days after households received their initial SNAP benefits. While this does not appear to have had a substantial effect on the food security data, which were collected for the 30 days prior to the interview, the timing may have influenced reported expenditures for new-entrant households, which were to report expenditures from the seven days prior to the interview, as well as expenditures in a “typical” week. Because of the strong evidence in the literature that most recipients spend the bulk of their benefits shortly after receiving them, it seems likely that many new-entrant households included food bought with benefits when reporting their expenditures in the previous week. The implication is that food expenditures would not change substantially between the two reporting periods because both reports included food bought with benefits. It is important to note that even for households that spent a substantial fraction of the first month’s SNAP benefit, we do not have direct evidence that they have revised their notion of *usual* monthly food expenditures.

### **d. An Alternative Approach to Measuring Associations Between Benefits and Food Expenditures With the Survey Data**

Because of the concerns about the data for new-entrant households, we drew on a different approach to analyze food expenditures. Specifically, we used the six-month household survey data from both the cross-sectional and longitudinal samples to examine associations between the amount of SNAP benefits and reported usual expenditures. While this does not allow us to exploit the quasi-experimental design of the study, it does allow us to assess the association between SNAP benefit amounts and reported usual food expenditures for ongoing SNAP cases. This approach reveals whether higher SNAP benefits are associated with higher food expenditures.

Drawing on techniques used extensively in the literature (Fraker 1990; Fox et al. 2004; Boonsaeng et al. 2012), we found that a one-dollar increase in SNAP benefits was associated with a 34- to 48-cent increase in usual food expenditures among six-month households—estimates that are in or around the range in Fraker (1990) of 17 to 47 cents and the range in Fox et al. (2004) of 26 to 40 cents. The findings are statistically significant both in absolute dollars and after normalizing the outcome measure by household size and composition using the cost of the TFP.

### **e. Summary of the Analysis of Food Spending**

Under most statistical specifications in the original research design, there was no significant association between participating in SNAP and the amount of money spent on food in a typical week when examining the full sample of households. Although we obtained some statistically

significant findings (for example, in our main model specification in the cross-sectional sample), these findings were not robust to changes in model specification and sample definitions.

There were few significant associations between SNAP participation and food expenditures at the subgroup level. An exception was that participating in SNAP was associated with an increase in food spending and food spending relative to the cost of the TFP for households with large benefits (exceeding about 85 percent of the maximum benefit for household size) in both the cross-sectional and longitudinal samples.

Further analysis of the timing of the baseline data collection suggested that having an unavoidably high fraction of the interviews take place after new-entrant households had already been receiving benefits might have affected the main findings in the food expenditure analysis if households very quickly adjust their notion of “usual” spending after receiving their initial SNAP benefit. Excluding new-entrant households from the analysis in both the cross-sectional and longitudinal samples, we found a positive association between the SNAP benefit amount and food spending among households that had been on SNAP for six months.