



**AgEcon** SEARCH  
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

*The World's Largest Open Access Agricultural & Applied Economics Digital Library*

**This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.**

**Help ensure our sustainability.**

Give to AgEcon Search

AgEcon Search  
<http://ageconsearch.umn.edu>  
[aesearch@umn.edu](mailto:aesearch@umn.edu)

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

**SNAP Eligibility and Participation Dynamics:**

**The Roles of Policy and Economic Factors from 2004 to 2012<sup>1</sup>**

By Constance Newman, Mark Prell, and Erik Scherpf

Economic Research Service, USDA

To be presented at the AAEA 2015 Annual Conference

*Selected Paper prepared for presentation for the 2015 Agricultural & Applied  
Economics Association and Western Agricultural Economics Association Annual Meeting,  
San Francisco, CA, July 26-28.*

---

<sup>1</sup> The views expressed in this paper are those of the authors and are not necessarily those of USDA or the Economic Research Service of USDA.

**SNAP Eligibility and Participation Dynamics:  
The Roles of Policy and Economic Factors from 2004 to 2012<sup>2</sup>**

By Constance Newman, Mark Prell, and Erik Scherpf

Economic Research Service, USDA

To be presented at the AAEA 2015 Annual Conference

**I. Introduction**

The Supplemental Nutrition Assistance Program (SNAP) is the largest food assistance program in the United States and one of the most important programs in the U.S. safety net. SNAP is considered successful because benefits can be accessed quickly by needy families and because they are available to most means-tested individuals. Most other safety net programs are designed to serve specific types of individuals, such as those with disabilities or those who are working or elderly.

SNAP caseloads nearly doubled in the second half of the 2000s due to a mix of factors including the Great Recession (2007-2009), the slow recovery that followed, and changes in federal and state-level policies. As part of the American Recovery and Reinvestment Act of 2009, the Federal government increased SNAP benefits by an average of 15 percent (though the increase was phased out over subsequent years). And over the last decade, many states expanded the definition of SNAP eligibility by raising the gross income limit (for all individuals or just some groups), by removing or reducing the allowable amount of assets a household can own, and/or by

---

<sup>2</sup> The views expressed in this paper are those of the authors and are not necessarily those of USDA or the Economic Research Service of USDA.

waiving rules requiring job search for able-bodied adults without children, among other policy changes. To what extent did each of these various factors contribute to the increase in SNAP caseloads? Some analysts ascribe much of the rise in SNAP caseloads to the state eligibility policies (Mulligan, 2012), while others find that changes in unemployment explain most of the increase (Ganong and Liebman, 2013).

To examine this issue, analysts frequently turn to survey data such as the Current Population Survey or the American Community Survey. These data sources can only roughly measure SNAP participation and eligibility because they ask about annual income and participation in the past year. SNAP eligibility is officially determined on a monthly basis, using monthly income and expenditures. Moreover, many participants are on the program for only a few months at a time. Their annual incomes may recover within the year after having been low enough to be eligible to participate for some months. In that case, their annual income would not be representative of their monthly income at the time of participation (see Scherpf et al., 2015 and Prell et al., 2015 for more analysis of this issue).

The Survey of Income and Program Participation (SIPP) reports income and program participation by month, and is also a panel, allowing analysts to track changes in individuals' circumstances over time. We use SIPP to model SNAP eligibility by month, and thus shed light on the extent to which eligibility policy and short-term economic factors—separately and together—contributed to SNAP participation before, during, and after the Great Recession. SIPP has more complete and relevant variables for modeling SNAP eligibility than any other U.S. household survey. Using our model of SNAP eligibility, we are able to characterize SNAP eligibility more fully than studies that rely on annual data.

This paper examines the dynamic patterns of SNAP eligibility and participation from 2004 to 2012, focusing on how participation spells differ by household composition and likely sources of eligibility. We examine changes in rates of eligibility over time, changes in spells of eligibility, and the correspondence of eligibility spells with spells of participation. We describe the interactions of eligibility and participation spells in terms of what kinds of households participate, for how long, and by type of eligibility.

Households may become eligible because their monthly income drops below the program-defined income-to-poverty thresholds. Or, they may have slightly higher income but have members who become elderly, who are thus eligible under different income requirements. A large medical expenditure deduction of elderly members may bring net incomes below the poverty line, making them newly eligible. Households may gain dependents. Or, a household with slightly higher income may become eligible because its State adopts a broad-based categorical eligibility option that raises the gross income limit. The model of eligibility can identify which factors move an individual's estimated SNAP status from ineligibility to eligibility from one month to the next. This approach is similar to the studies that examine events that trigger SNAP participation, although here we consider eligibility.

This is the first of two papers that will examine the issue. This first one examines national-level data using SIPP reports of SNAP participation. The second, forthcoming analysis will use state-level participation data from SNAP administrative records linked to SIPP data. Both analyses look at who among the eligible, by eligibility type, participates and for how long. The second part will use SNAP administrative data from the states of New York and Colorado linked to SIPP data for those states. The advantage of linking to the administrative data is that the measure of

SNAP participation and spell length is considered more accurate (although SNAP administrative data is not perfect, either). The disadvantage is that the SIPP sample from the two states is relatively small. For this first analysis, we examine the effects of different types of eligibility policies on participation, since there is variation across states.

## II. Literature review

Blank and Ruggles (1996) used the 1986 and 1987 SIPP panel files to examine program dynamics for a sample of single mothers with children. They studied eligibility and participation dynamics in the Food Stamp Program (now called SNAP) and Aid to Family with Dependent Children (now changed to Temporary Assistance to Needy Families or TANF). They examined cohorts of new entrants into eligibility participation, that is individuals who entered SNAP eligibility or participation within the study period. They estimated competing risks models for factors that could influence that duration of eligibility and participation, and they presented many aspects of changes in eligibility among participants. They found that a large share of eligible single mothers did not participate in either program and that a large share left the programs while still eligible. They also found the eligible non-participants were more likely to have higher expected future earnings, which was consistent with expectations. Our study resembles the analysis by Blank and Ruggles in that we examine the interactions between eligibility and participation spells.

Similarly, SIPP-based studies of SNAP dynamics by Leftin et al. (2015), Mabli et al. (2011) and Cody et al. (2007) focus on SNAP participation dynamics for cohorts of new participants and for a cross-section of people who are participants in a given month. These studies provide life tables

of durations, by month, for cohorts and cross-sections. Leftin et al. (2015) also analyzed trigger events that preceded entry into SNAP and many other dynamic aspects of SNAP participation.

### III. Data and Methods

We use the Survey of Income and Program Participation (SIPP) to examine SNAP eligibility and participation dynamics by month. The SIPP is a Census survey that collects detailed information about individuals and households over time with a focus on income, labor force activity, and program participation data. It is structured in short panels with each covering two to six years, depending on the panel. This study uses the 2004 and the 2008 panels to roughly cover the period from 2004 to 2012. The 2004 panel covers November 2003 to December 2007, and the 2008 panel covers May 2008 to July 2013.

#### *SNAP Eligibility Model*

The model of SNAP eligibility tracks the Federal rules of eligibility using information from the SIPP about household relationships, incomes by source, other program participation, and many other types of data. We also estimate a “broad-based categorical eligibility” that captures the higher income limits and lowered asset barriers of those policies. SIPP does not contain all of the relevant variables needed for determining SNAP eligibility, but it has a substantial amount and more than any other household survey.

To be eligible for SNAP, an individual applies along with others with whom they cook and prepare meals. This is a slightly different household than the address-based one that is reported in the survey. The first step of the model rearranges individuals into “SNAP units” based on the

established rules that help define the “cook and prepare” rule. For example, if there is a subfamily in a household who would qualify as a separate SNAP unit, we assume that they would apply as such, and the household is divided into two SNAP units, or however many result from such determinations.

The model sums the income of the individuals who form each SNAP unit and calculates a new poverty line based on the size of the SNAP unit. Various deductions are subtracted from income to estimate net income, which is used for one of the two income eligibility criteria. These deductions include shelter expenses, medical expenses for elderly or disabled members, dependent care expenditures, and child support payments. The resulting “net income” must be lower than the poverty guideline that applies to the household unit for all households. Gross income, which is the unit’s total income, must be less than 130 percent of the applicable poverty line for traditional eligibility. The gross income test applies to all households except those that have an elderly or a disabled member.

The model identifies noncitizens as ineligible, but takes into account their income contributions on a pro-rated basis, as some household members may be eligible citizens. And the model identifies a small share of noncitizens who are eligible based on program rules for refugees and other special categories. The model also identifies college students who do not meet program exceptions as ineligible.

The model uses reported participation in Temporary Assistance for Needy Families (TANF) and Supplemental Security Income (SSI) for calculating special eligibility criteria for those households; they are eligible if all members participate in either program. Asset tests are imposed based on available data and the criteria that apply to different households. Assets in

2012 must have been less than \$2500 for most households and less than \$3000 for households with elderly members. We included savings accounts, other bank accounts and assets, vehicles, etc. in the calculation of assets. We assume that the special requirements for able-bodied adults with no dependents (often called ABAWDS) were not in place from 2008 to 2012.

To estimate broad-based categorical eligibility, we specify the gross income limit by state and date of implementation, and we include other specific rules that apply by state.

### *Spell Analysis*

The calculation of spell characteristics is done on subsets of the SIPP 2004 and 2008 panels, and it is done at the individual level. Households, or SNAP units, can and do change frequently in size and composition, and the SIPP was designed to follow individuals over time, rather than households. The subset we use is that of individuals who were in the panel for 36 months or more. This insures that we have long trajectories, but it also conserves observations relative to using the 60 months available in the 2008 panel.

Only 44 percent of the 2008 panel's person-month sample is in the panel for 60 months (or 29 percent of individuals in the sample). There are 81 percent of person-months in the sample for 36 months or more (or 60 percent of individuals in the sample) and there are 91 percent of person-months in the sample for 24 months or more (or 72 percent of individuals in the sample). The maximum number of months in the 2004 panel is 44 months. On the contrary, in the 2004 panel there is a much smaller share—37 percent—of the person-month sample with 36 months. In order to maximize possible spell length, we start with a 36 month sample from both panels, but we also test the sensitivity of the results to different sample length choices.

As is custom, we eliminate left-censored spells for the main analysis. Left-censored spells are ones that are in progress when the individual is first interviewed in the survey. Iceland (2000) found that there are consequences of doing this, and that the dropped spells are more likely to be from individuals who are on the program for longer than average. But since we are interested in entry into eligibility and differences in spells by eligibility type, we need to examine new entrants.

### *Eligibility Types*

For some of the analysis, individuals are grouped into eligibility types, depending on the way in which the individual is most likely to be eligible. Individuals may be eligible in multiple ways but we assign them to one main general type. Changes in their eligibility type over the course of the panel are also measured. Most individuals are eligible as a result of their unit's income being below both the net income and gross income limits. If an individual does not meet this income test but is eligible for other reasons, or if the individual's income would not meet the limit if certain exclusions did not apply, then we cite those as separate types, as described below.

An individual can be categorically eligible in what is referred to as narrow categorical eligibility, in which all unit members are on SSI (Federal or State provided) or all are on TANF. If an individual is not income eligible, but is eligible because all members on SSI or all members are on TANF, then that is their respective eligibility type: "all members are on SSI" or "all members are on TANF".

The next eligibility type takes into account the presence of elderly and disabled members. If a unit contains either or both elderly and disabled members, and they are not income eligible in the

strict test of meeting both net and gross income tests, then their primary eligibility type is “Elderly and/or disabled members”. This eligibility type contains no units in which all members are on TANF or on SSI, or they would be included in the first two eligibility types. Having some elderly or some disabled members allows SNAP units to qualify for benefits using only the net income test, not the gross income test.

The next eligibility type considers the special deductions that are allowed in the calculation of net income. We subtract the individual’s allowed deductions—four different ones—from net income to see whether each deduction alone brought the unit below the net income limit. In other words, the unit would not have been eligible by the net income test if they had not had enough of the special kind of deduction. The first is for dependent care expenses when needed for work, training, or education, which can be deducted from income in the calculation of net income. The other three deductions are, respectively, excess shelter expenses that are more than half of the unit’s income after other deductions, medical expenses for elderly or disabled members, and legally owed child support payments. If an individual is eligible by either having all unit members on SSI, all on TANF, or a mix of elderly and/or disabled members, those are their primary eligibility types. If none of those apply, then these deductions that had an impact on net income would define an individual’s eligibility type.

For individuals who do not fit into the above eligibility types but who live in units that have incomes that meet the traditional income eligibility criteria, their primary eligibility type is “Low income unit”. And the last type of eligibility is “Broad-based Categorical Eligibility” for individuals who do not fit in any of the above eligibility types, whose unit incomes are above the

net and gross income limits for traditional income eligibility, but whose unit incomes and assets meet their state's eligibility requirements for broad-based categorical eligibility.

### *Descriptive Analysis*

The analysis characterizes the spells of eligibility and participation of each eligibility type. We show eligibility patterns by type and then the share of each eligibility type among SNAP participants and their spell patterns. The first part of the analysis presents the characteristics of eligibility patterns by eligibility type. The second part presents the characteristics of participation by eligibility type. This part shows which individuals by eligibility type and eligibility duration are more likely to participate.

### *Multivariate Analysis*

This section estimates the determinants of eligibility and ineligibility among all individuals and among SNAP participants for the two panels.

We examine two types of ineligible participants. First, we examine the individuals who are ineligible according to our estimate in one or more months of their participation spell but who were eligible when they entered the program. We examine how their circumstances changed: did the composition of their unit change, or did the unit's earnings change, and if so, how and why it changed. We also examine the possible reasons for why someone would enter the program and be ineligible by our model. Were they eligible in the prior month or in a few months before or after the beginning of their participation spell?

### III. Results

**(To be completed – results not available at this time)**

DRAFT - DO NOT CITE, COPY, OR DISTRIBUTE

Table 1: Distribution of SNAP Entry by Duration of Eligibility Spell

<b>Duration of eligibility spell</b>	<b>Number of ongoing eligibility spells without previous SNAP receipt</b>	<b>Percentage beginning SNAP receipt in this month</b>	<b>Percentage right censored in this month</b>	<b>Percentage ending this month without SNAP receipt</b>
1 month				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24 - 36				
Among all spells				

Table 2: Eligibility Spell Characteristics by Eligibility Type -- 2004

Eligibility type upon SNAP entry	Number of Eligible Persons	Total Number of Eligible Spells in Sample	Total Number of Non-Left-Censored Eligible Spells in Sample	Mean Share of Eligible Spells	SNAP Participation Spell Length Characteristics			
					25 Percentile Eligible Spell Length (by spell)	Median Eligible Spell Length (by spell)	75 Percentile Eligible Spell Length (by spell)	Mean Eligible Spell Length (by spell)
<i>All Traditional Eligibility Types:</i> All SSI All TANF Some Elderly and/or Disabled Eligible by Excluded Expenses Low Income  <i>Broad-Based Categorically Eligible</i>								
<i>All Eligibility Types</i>								

Table 3: Eligibility Spell Characteristics by Eligibility Type -- 2008

Eligibility type upon SNAP entry	Number of Eligible Persons	Total Number of Eligible Spells in Sample	Total Number of Non-Left-Censored Eligible Spells in Sample	Mean Share of Eligible Spells	SNAP Participation Spell Length Characteristics			
					25 Percentile Eligible Spell Length (by spell)	Median Eligible Spell Length (by spell)	75 Percentile Eligible Spell Length (by spell)	Mean Eligible Spell Length (by spell)
<i>All Traditional Eligibility Types:</i> All SSI All TANF Some Elderly and/or Disabled Eligible by Excluded Expenses Low Income  <i>Broad-Based Categorically Eligible</i>								
<i>All Eligibility Types</i>								

Table 4: Determinants of Eligibility and Ineligibility, Among All and Among Participants – 2004 Panel

Determinants of Eligibility Changes: Trigger Events					
	Eligibility Among All Individual s	Ineligibilt y Among All Once Eligible	Eligibility Among Participant s	Ineligibility Among Participant s who were Eligible Upon Entry	Eligibility Among Participant s who were Ineligible Upon Entry
Unit Characteristics					
Increase/Drop in Number of Employed Unit Members					
Increase or Decrease in Unit Total Earnings					
Increase or Drop in Unit Income from Sources Other than Earnings					
Increase or Drop in Number of Adults					
Decrease or Increase in number of dependents					
Loss or Addition of elderly or disabled member					
Change in household -- move to another household					
Individual Characteristics					
Education change					
Change in Marital Status					
Change in Age					
State Characteristics					
Changes in Eligibility Policy					

Table 5: Determinants of Eligibility and Ineligibility, Among All and Among Participants – 2008 Panel

Determinants of Eligibility Changes: Trigger Events				
	Eligibility Among All Individuals	Ineligibility Among All Once Eligible	Eligibility Among Participants	Ineligibility Among Participants who were Eligible Upon Entry
Unit Characteristics				
Increase/Drop in Number of Employed Unit Members				
Increase or Decrease in Unit Total Earnings				
Increase or Drop in Unit Income from Sources Other than Earnings				
Increase or Drop in Number of Adults				
Decrease or Increase in number of dependents				
Loss or Addition of elderly or disabled member				
Change in household -- move to another household				
Individual Characteristics				
Education change				
Change in Marital Status				
Change in Age				
State Characteristics				
Changes in Eligibility Policy				

## References:

Blank, Rebecca and Patricia Ruggles (1997) “When Do Women Use Aid to Families with Dependent Children and Food Stamps? The Dynamics of Eligibility versus Participation” *The Journal of Human Resources* 31(1): 57-89.

Blundell, Richard and Luigi Pistaferri. 2003. “Income Volatility and Household Consumption: The Impact of Food Assistance Programs.” *Journal of Human Resources*, 38: 1032–1050.

Dahl, Molly, Thomas DeLeire, and Shannon Mok. 2012. “Food Insufficiency and Income Volatility in U.S. Households: The Effects of Imputed Earnings in the Survey of Income and Program Participation” March, CBO Working Paper 2012-07.

Ganong, Peter and Jeffrey B. Liebman (2013) “The Decline, Rebound, and Further Rise in SNAP Enrollment: Disentangling Business Cycle Fluctuations and Policy Changes” NBER Working Paper No. 19363, August.

Leete, Laura, and Neil Bania. 2010. “The Effect of Income Shocks on Food Insufficiency” *Review of Economics of the Household*, 8(4): 505-526.

Meyer, Bruce D., and Goerge, Robert. (2011). *Errors in Survey Reporting and Imputation and Their Effects on Estimates of Food Stamp Program Participation*. U.S. Census Bureau Center for

Economic Studies Paper No. CES-WP-11-14. Available at

SSRN: <http://ssrn.com/abstract=1824261> or <http://dx.doi.org/10.2139/ssrn.1824261>

Meyer, Bruce D., Wallace K.C. Mok, and James X. Sullivan (2009). "The Under-Reporting of Transfers in Household Surveys: Its Nature and Consequences." NBER Working Papers 15181. National Bureau of Economic Research.

Mulligan, Casey (2013) "[Behind the Big Increase in Food Stamps](#)" Economix Blog, New York Times, August 29.